SOUTHERN MAINE TOLL PLAZA

Maine Turnpike Authority

York Toll Plaza Replacement Project
Maine Department of Environmental Protection
Application for Natural Resources Protection Act Permit

Prepared For:

Maine Turnpike Authority
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CDM Smith listen. think. deliver.

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October 17, 2016

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APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

➔PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

1. Name of Applicant:	Maine Turnpike Authority. Attn: Sara Zografos	**5.Name of Agent:**	Owens McCullough, PE Sebago Technics, Inc.
2. Applicant's Mailing Address:	2360 Congress Street Portland, ME 04102	**6. Agent's Mailing Address:**	75 John Roberts Road, Suite 1A South Portland, ME 04106
3. Applicant's Daytime Phone #:	(207) 871-7771 x 111	**7. Agent's Daytime Phone #:**	(207) 200-2100 x 2073
4. Applicant's Email Address: Required from *either* applicant or agent:	szografos@maineturnpike.com	**8.Agent's E-mail Address:**	omccullough@sebagotechnics.com

9. Location of Activity: (Nearest Road, Street, Rt.#)	Turnpike mile 8.8	**10. Town:**	York	**11. County:**	York County

12. Type of Resource: (Check all that apply)	☒ River, stream or brook ☐ Great Pond ☐ Coastal Wetland ☒ Freshwater Wetland ☒ Wetland Special Significance ☐ Significant Wildlife Habitat ☐ Fragile Mountain	**13. Name of Resource:**	Not Named
		14. Amount of Impact: (Sq.Ft.)	48,313 sq. ft. PF1OE 15,439 sq. ft. WOSS 24 L ft. Stream

15. Type of Wetland: (Check all that apply)	☒ Forested ☒ Scrub Shrub ☐ Emergent ☐ Wet Meadow ☐ Peatland ☐ Open Water ☐ Other_____	**FOR FRESHWATER WETLANDS**		
		Tier 1	*Tier 2*	*Tier 3*
		☐ 0 - 4,999 sq ft. ☐ 5,000-9,999 sq ft. ☐ 10,000-14,999 sq ft.	☐ 15,000 – 43,560 sq. ft.	☒> 43,560 sq. ft. or ☐ smaller than 43,560 sq. ft., not eligible for Tier 1

16. Brief Activity Description	**Construction of New York Toll Plaza in vicinity of mile 8.8 of U.S. I-95 Turnpike.**

17. Size of Lot or Parcel & UTM Locations:	☐ ____square feet, or ☐ 68.87 acres	UTM Northing: 4782245mN	UTM Easting: 633966mE

18. Title, Right or Interest:	☒ own ☐ lease ☐ purchase option ☐ written agreement

19. Deed Reference Numbers:	Book#: MTA Turnpike Page:	**20. Map and Lot Numbers:**	Map #:127/128 221/222	Lot #: N/A	
21. DEP Staff Previously Contacted:	**Robert Green**	**22. Part of a larger project:**	☐ Yes ☒ No	**After-the-Fact:**	☐ Yes ☒ No
23. Resubmission of Application?	☐ Yes➔ ☒ No	**If yes, previous application #**	Permit # N/A	**Previous project manager:**	N/A
24. Written Notice of Violation?	☐ Yes ➔ ☒ No	**If yes, name of DEP enforcement staff involved:**	N/A	**25. Previous Wetland Alteration:**	☒ Yes ☐ No

26. Detailed Directions to the Project Site:	U.S. I-95 Maine Turnpike at mile 8.8

27. TIER 1	**TIER 2/3 AND INDIVIDUAL PERMITS**	
☐ Title, right or interest documentation ☐ Topographic Map ☐ Narrative Project Description ☐ Plan or Drawing (8 1/2" x 11") ☐ Photos of Area ☐ Statement of Avoidance & Minimization ☐ Statement/Copy of cover letter to MHPC	☒ Title, right or interest documentation ☒ Topographic Map ☒ Copy of Public Notice/Public Information Meeting Documentation ☒ Wetlands Delineation Report (Attachment 1) that contains the Information listed under Site Conditions ☒ Alternatives Analysis (Attachment 2) including description of how wetland impacts were Avoided/Minimized	☒ Erosion Control/Construction Plan ☒ Functional Assessment (Attachment 3), if required ☒ Compensation Plan (Attachment 4), if required ☒ Appendix A and others, if required ☒ Statement/Copy of cover letter to MHPC ☐ Description of Previously Mined Peatland, if required

28. FEES Amount Enclosed:	**Application Fee $3,616.10 (TH/VP)**

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

03/07

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following:

DEP SIGNATORY REQUIREMENT

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor a permit be issued.

CORPS SIGNATORY REQUIREMENT

USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry shall be fines not more than $10,000 or imprisoned not more than five years or both. I authorize the Corps to enter the property that is subject to this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

DEP SIGNATORY REQUIREMENT

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the address located on the front page of this application (see #4 for the applicant and #8 for the agent)."

_____ Date: 10.17.16
SIGNATURE OF AGENT/APPLICANT

Signature of Agent: _____ Date: _____

NOTE: Any changes in activity plans must be submitted to the DEP and the Corps in writing and must be approved by both agencies prior to implementation. Failure to do so may result in enforcement action and/or the removal of the unapproved changes to the activity.

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ATTACHMENT 1. PROJECT DESCRIPTION

1.1 Introduction and Overview

The Maine Turnpike Authority (MTA) is in the midst of a multi-year initiative to modernize and improve its toll collection system throughout the entire Turnpike. This work includes replacing old barrier toll plazas that collect cash and that have been previously altered to allow low-speed electronic toll collection with modern, highway-speed Open Road Tolling (ORT)[1] facilities. ORT plazas have highway speed (65-70 mph) E-ZPass center lanes and separated cash lanes to the right with staffed toll booths. Nearby ORT facilities have been completed and operating successfully for years on I-95 in Hampton, New Hampshire and on the Maine Turnpike on I-95 in New Gloucester. Two other Maine Turnpike ORT plazas are under construction on I-95 in West Gardiner and on the Falmouth Spur, and another is in design in Scarborough off Exit 44 on the southerly end of I-295.

While York will be the fifth ORT plaza on the Maine Turnpike, it is clearly the most important. Located at the gateway to Maine, the York plaza handles about 30 million travelers and collects over $50 million per year, which represents about 40% of all MTA revenue.



The existing York barrier plaza at Mile 7.3 has serious safety, operational and condition deficiencies.[2] It originally was designed in the 1960's as a temporary barrier plaza for all vehicles to stop to take paper tickets and pay tolls with cash, has approaches sinking into clay soils, has a leaking personnel tunnel full of electrical components, uses outdated software, and has outdated toll equipment held together with used parts. Further, it is located on a curve at the bottom of a hill near an interchange and overpass, which causes sight distance restrictions, weaving, and other safety concerns. The York toll plaza currently processes several times more traffic it did initially, and it does not provide the modern, open, highway speed electronic tolling that travelers now expect and deserve.

For over a decade, the MTA has been working to address these deficiencies and deliver a safe, efficient, and modern replacement toll plaza to the travelers of Maine. After years of extensive study of several alternatives in accordance with US Army Corps of Engineers ("USACE") and Maine Department of Environmental Protection ("DEP") requirements[3], in November 2015 the MTA

[1] ORT was sometimes previously referred to as "highway speed tolling".
[2] See subsection 2.1.2 below.
[3] The alternatives analysis has been performed in accordance with USACE Section 404(b)(1) Guidelines, 40 CFR 230, the USACE New England District Highway Methodology, and state law and rules.

Board of Directors unanimously selected its preferred alternative: a new ORT plaza at Mile 8.8 in York and demolition of the existing barrier plaza at Mile 7.3. As set forth in detail elsewhere, the preferred alternative has superior safety and engineering attributes, minimal environmental impacts, low traveler and abutter impacts, and is cost effective.



Open Road Tolling Plaza at Mile 8.8 Rendering

Although the preferred alternative is a substantial piece of construction ($40 million estimated construction cost), careful design and siting in close collaboration with environmental agencies has resulted in **minimal environmental impacts** including:

- 1.46 acres of total wetland impact, consisting primarily of isolated forested wetlands along the fringe of the existing turnpike.
- No direct impacts to significant vernal pools. 1.41 acres of impact to buffers of significant vernal pools.
- 24 linear feet of perennial stream impacts.
- No impacts to any federally listed Threatened and Endangered species.
- Minor impacts (0.13 acres) to the habitat of two state Threatened and Endangered animal species: spotted turtle (*Clemmys guttata*) and eastern ribbon snake (*Thamnophis sauritus*).

Based upon these impacts, the USACE has determined that the project qualifies for a Category 2 General Permit, which by definition means the project has "no more than minimal . . . adverse effects on the aquatic environment." Further, all impacts are being mitigated in cooperation with federal and state agencies at an estimated cost of over $450,000.

Before selecting the preferred alternative, alternatives at the current plaza site at Mile 7.3 were extensively analyzed by multiple engineering experts, first as a starting point for the alternatives analysis and again later due to sentiment in York against relocation of the plaza. However, as is detailed

elsewhere, the Mile 7.3 alternatives are clearly inferior to the preferred alternative from engineering, environmental, operational and cost perspectives.[4]

The general scope of the project includes the following components:

- 15 lanes total (down from 17 lanes)
- 6 open, high-speed (70 mph) E-ZPass center lanes (3 in each direction) with overhead open frame gantries with electronic toll collection equipment
- Construction of 9 cash lanes with toll booths (4 northbound and 5 southbound)
- Service tunnel for toll equipment, utilities, and safe passage of staff
- Highway reconstruction of mainline to accommodate approach and departure lanes
- Driveway for MTA employees and service vehicles and utilities from Chases Pond Road
- Administration building and parking lot near the Turnpike
- Construction of stormwater management measures within the Turnpike right of way
- Demolition of the existing 17-lane barrier plaza, administration building and driveway at Mile 7.3.

Details regarding the specific improvements related to the various project components are provided in the following subsections.

[4] See sections 2.1.5 – No Build and Rehabilitation and 2.2 – ORT Plaza Alternatives.

1.2 York Toll Plaza History

The York Toll Plaza was built in 1969 as a temporary 11 lane barrier plaza. Its construction was part of the Interstate 95 realignment and construction of the high-level, I-95 Piscataqua River Bridge that connects Maine to New Hampshire. It was "temporary" because at that time it was anticipated that tolling on the Maine Turnpike would be phased out in about a decade. In the early 1980s, in order to avoid a gas tax increase and to continue to fairly allocate the cost of the Turnpike to visitors that create much of the Turnpike's capacity needs[5], the State of Maine decided that the MTA should to continue manage the Turnpike with toll revenue. The Turnpike is still completely financed by Turnpike users; the MTA receives no state or federal funding. This decision allowed for the widening and modernization of the Turnpike and for the construction of additional interchanges along the Turnpike. The old "temporary" plaza has been kept in service with numerous maintenance, rehabilitation, and capacity projects. For example, to address approaches sinking into poor soils, periodic paving has resulted in pavement depths near the toll booths of several feet. With the introduction of highway-speed electronic tolling – now a basic expectation of toll highway travelers – safety and operational concerns are even more acute.

In sum, the current barrier plaza was built where it is as a temporary measure using 1960s toll collection technology, design and environmental standards. Everyone agrees that it is old and obsolete, has a high rate of vehicular crashes, and desperately needs replacing with a modern, open plaza and toll system that allows for safe and efficient highway-speed tolling.

1.3 Project Purpose

As noted above and detailed in section 2.1.2 below, the current barrier toll plaza at Mile 7.3 in York suffers from numerous and serious safety, operational, condition, and technological deficiencies. The existing barrier toll plaza is too close to an interchange, has poor sight distance, and poor alignment. Although it was an acceptable temporary solution for the 1970s, it simply does not work for modern high-speed electronic tolling.

More specifically, the plaza is located 500'-700' from the Exit 7 interchange which leads to unsafe merging and weaving efforts by motorists in the plaza vicinity causing inefficient use of toll lanes. The horizontal curve containing the plaza causes southbound traffic to over-utilize the left side lanes and blocks the view of all southbound booths until the motorists are approximately 1,500' away. The plaza is currently located at the low point of a hill which creates a safety concern specifically for heavier vehicles approaching the plaza, if these vehicles were to lose their brakes the slope would not allow them to slow down before colliding with the plaza or vehicles in queue. The hill also leads to increased noise because of the excessive braking on entering the toll booth and heavy acceleration upon leaving as vehicles are trying to get back up to speed while traveling up gradient. The plaza is located approximately 2,200' from the Chases Pond Road bridge which limits the northbound traffic sight distance to the merging on-ramp traffic as well as any traffic in que at the toll plaza. All of this

[5] Today about two thirds of Maine Turnpike revenue is derived from out-of-state Turnpike customers. Maine's 30 cent gas tax would need to be raised an estimated 15 cents or more to replace this toll revenue. Gas taxes are paid by all Mainers statewide; only Turnpike travelers pay tolls, and only when they use the Turnpike.

contributed to the existing site having the 11th highest crash rate in the State of Maine out of over 900 locations in 2005 and 17th highest in 2006.

The infrastructure itself, booths, canopy, and access tunnel, are in poor physical condition due to the limitations of space for the existing plaza, the lack of protection for toll staff, and poor soil conditions. The operational needs of a toll plaza are clearly not met at the existing toll plaza when the design guidelines outlined in section 2.1.3 are considered.

The toll plaza structure is outdated and insufficient by modern standards. There is not enough space for collector activities or tolling equipment and the lanes are very narrow. The current standards for toll booths require a double concrete bumper to provide safety for the toll collector and the motorists, redirecting any off course vehicles by guiding them back into a toll booth lane. The current plaza incorporates a single bumper design which does not effectively protect staff or motorists. These single bumpers have been sinking into the soil to the extent they are barely visible. The tunnel for toll staff access is in need of rehabilitation for a variety of reasons. The tunnel experiences significant water infiltration due to age and the tunnel has become too narrow due to the installation of electronic tolling equipment and other modern utilities. The existing canopy is unable to accommodate modern signage as it is already at capacity with the existing older signs. Modern signs are significantly heavier than what the canopy capacity is able to handle. The soil that the plaza was built on mostly consists of compressible clay, which has been the cause of many structural issues over the years. The plaza tunnel, booths, and canopy were all built on H-piles in order to avoid settlement of the entire structure, but roadways approaching the plaza were not pile-supported resulting in the settlement of roadways and bumpers. Due to these circumstances, refurbishing the existing toll plaza or rebuilding on the same site is not practicable, as is more fully set forth in section 2.1.5 below. The capacity of the toll plaza is not meeting peak demand as it is now receiving over three times the amount of traffic in peak times as it was when it was first established.

These deficiencies are not disputed, and are further documented in the Phase 1 Report submitted to the USACE in March of 2010, copy available on the MTA project website. http://www.maineturnpike.com/project-and-planning/Planning-Projects/York-Toll-Plaza-Replacement.

The enabling act that established the MTA, 23 M.R.S.A. §1961, provides that *"[t]he economic and social well-being of the citizens of the State . . . . depends upon the safety, efficiency and modern functional state of the turnpike."* The current plaza simply does not meet this standard, and does not meet modern engineering design standards.

USACE Approved Project Purpose

In 2007, the USACE determined that the basic purpose of the project was "*to replace/rehabilitate the existing barrier plaza on the Maine Turnpike at York, Maine, incorporating High Speed Tolling (HST) and addressing settling/subsidence and facility deficiencies, safety deficiencies, and existing and projected traffic volumes*."[6]

As described in detail in sections 1.4 and 2.1.1. below, the MTA took a completely fresh look at critical project issues like tolling methodology (ORT vs. AET), plaza location, and plaza sizing with new expert

[6] See letter from the USACE to Joseph G. Grilli, PE of HNTB Corporation dated April 9, 2007 and attached as Appendix B to the HNTB Phase 1 Report.

consultants. After three years of analysis, this fresh look led to the 2014 determination that AET is not feasible. This determination was consistent with votes by previous MTA Boards in 2006 and 2010. Based upon continued coordination with the MTA and interested parties, the USACE "determined that a revision to the project purpose was appropriate." By letter dated July 24, 2015[7], the USACE determined that the basic project purpose is as follows:

> To replace the existing barrier toll plaza on the Maine Turnpike at York, Maine with highway speed electronic tolling lanes and cash (non-EZ pass) lanes to address safety deficiencies, settling/subsidence, facility deficiencies including substandard tolling equipment, existing and projected traffic volumes, and traveler impacts and expectations.

This revised project purpose statement was based upon reliable updated information and in accordance with all applicable laws. As set forth in the USACE letter, this statement is to be used in the alternatives analyses so as to avoid and minimize adverse impacts to waters and wetlands in accordance with the Section 404(b)(1) Guidelines.[8]

1.4 Public Process

1.4.1 Local Input

Although the engineering, environmental, and toll analyses needed for this project are substantial and require extensive expertise and experience, they are essentially straightforward. What makes this project extraordinary is the nature and extent of public process over the years to gather, evaluate, and respond to concerns from York, which includes the Town of York and a local group known as Think Again. As will be seen below, the public has had dozens of opportunities to provide comments and concerns, review and critique documents, and provide design input, and York officials and residents have fully utilized those opportunities. In response to York concerns, the MTA undertook multiple expert analyses of critical project issues like ORT vs. AET, plaza sizing, and siting. This helps explain why this project has taken over 10 years and about $8 million to get to this permit application stage. These extraordinary efforts likely exceed the requirements of applicable environmental laws and rules[9], and provide a useful context for anticipated additional requests from York for more process and study.

Overall, there have been over 40 meetings or other opportunities for local input over the last decade, and these do not count numerous direct email, phone calls, or other more informal communications. Although the passage of time makes a comprehensive list impractical, a list of easily identifiable meetings (see Appendix 1I) demonstrates the broad scope of the opportunities for York review and

[7] See copy attached as Appendix 1A.

[8] This project purpose statement calls for cash lanes, which means an ORT plaza. In light of new objections from York, the MTA has provided further documentation for regulators regarding the ORT vs. AET question, all of which further demonstrates that AET is not a practicable alternative. See section 2.1.1 below.

[9] The USACE's 404(b)(1) Guidelines envision a correlation between the scope of the evaluation and the potential extent of adverse impacts on the aquatic environment. See "*Memorandum: Appropriate Level of Analysis Required for Evaluating Compliance with the Section 404(b)(1) Guidelines Alternatives Requirements*", by USEPA and USACE, last updated 10/17/15. "[C]*ompliance evaluation procedures will vary to reflect the seriousness of the potential for adverse impacts on the aquatic ecosystems".* Introduction to 40 CFR 230.10(a). Again, the impacts involved with the preferred alternative in this case are "minimal" by definition.

input. Further, a detailed project website with project reports, maps, and analyses provided extraordinary access to project information. See http://www.maineturnpike.com/project-and-planning/Planning-Projects/York-Toll-Plaza-Replacement.

More specifically, these public input efforts can be segmented into two phases.

Early Analysis and Communication (Pre-2011)

After engineering analysis of the deteriorating condition of the existing barrier plaza, in 2006 MTA staff began a wide-ranging study and communications process with municipal staff and elected officials from York, Ogunquit, and Wells to discuss the need for a new toll plaza, the required alternatives analysis, and public involvement. Although initial reactions from municipal officials appeared positive or neutral, opinions from certain York residents regarding toll collection methodology and plaza location created growing concerns with the project. In 2007, York area legislators initiated and passed a Legislative Resolve that required that the MTA report back certain information to the Legislature's Transportation Committee before building a new plaza.[10] As required, the MTA did so in April of 2008.

Also in April 2008, the MTA held public meetings in York laying out it preliminary analysis of numerous alternatives and sites in accordance with required federal and state permitting laws. Some of the preliminary alternatives considered were adjacent to neighborhoods, some included the potential taking of homes, and some had many acres of environmental impact. Due in part to the number of locations analyzed and opinions on how to collect tolls, concern from York residents became passionate. Over 800 people attended the public meeting in York on April 3, 2008. This reaction from York caused the MTA to slow down, further document alternatives, and engage the public even more.

By 2010, this process had included four general public meetings in the Town of York, one public meeting for potential abutters in York, multiple hearings and work sessions with the Legislature's Joint Standing Committee on Transportation, three public meetings of the MTA Board with the York Board of Selectmen, a number of meetings and facility tours in the Town of York with legislators, local officials, interest groups and individuals, and considerable written correspondence in response to questions posed by local officials and individuals. An example of the level of detail of local input and the MTA engagement in this early phase is represented by the 19-page MTA responses to questions from York from the April 3, 2008 meeting attached as Appendix 1B.

A Fresh Look (2011-Date)

In 2011, the MTA had a new Executive Director with an open and public policy-minded approach, and a new Board Chair, the former Chief Justice of the Maine Supreme Court, with a well-earned reputation for being straightforward and fair. The MTA Board of Directors also had many new Board members. Because of the desire to have good information and on-going concerns in York, the MTA took a completely fresh look at critical project issues like tolling methodology (ORT vs. AET), plaza location, and plaza sizing with new expert consultants. This fresh look analysis forms the core of this and related permit applications.

[10] See LD 534, 123th Maine Legislature, and Resolves 2007, chapter 45.

ORT vs. AET. The MTA spent almost three years on a completely fresh, unbiased look at whether All Electronic Tolling (AET)[11] could be feasible and practicable. Among other things, the MTA commissioned a report from a new tolling expert (CDM Smith), initiated legislative and marketing efforts to allow increased the use of E-ZPass (a necessary predicate to AET), and improved toll collection across state lines with the nation's first multistate (ME, NH, and MA) reciprocity agreement. Obviously, if feasible and practicable, AET would reduce the project scope and impacts through the elimination of cash lanes.

After extensive analysis, on April 30, 2014, the MTA Executive Director authored an 8-page "*Staff Report on the Present Status of Tolling on the Maine Turnpike*"[12], which concluded: "After careful study of the relative costs, financial risks, toll equities, and traffic impacts, Turnpike staff do not regard it as presently feasible to abandon cash collection for AET ...".

The Town of York then agreed with the MTA. By letter dated May 20, 2014, copy attached as Appendix 1C, the Town of York "recognize[d] that certain technical and political impediments make adoption of this AET system unfeasible at present."

After another opportunity for public input in June, the MTA Board of Directors determined on July 24, 2014 that AET is not feasible on the Maine Turnpike or in the best interest of the Maine Turnpike or Turnpike users for the foreseeable future. The reasons supporting this decision – which are detailed in section 2.1.1 below - included the numerous and well documented negative financial and operational impacts of AET: the need to raise tolls, traffic diversion, substantial uncollectable transactions, unfairness caused by free riders, resulting loss of confidence in the toll system, privacy concerns, and other policy and operational impacts.[13] This decision was consistent with previous expert analyses and two previous decisions by different MTA Boards in 2006 and 2010.

Other Critical Project Issues: Plaza Sizing and Siting. The reasoned business and policy decision to use ORT cleared the way for a fresh look at other critical project issues such as plaza sizing, the viability of the existing plaza site at Mile 7.3 (the only site supported by the Town), and the analysis of other site alternatives as required by environmental laws.

To perform this work, in August 2014 the MTA retained another experienced engineering consultant, Jacobs Engineering Group ("Jacobs"). During this work, the MTA kept York informed and involved in a manner that is likely unprecedented. Since Jacobs was retained, MTA staff has met with York officials and residents at least 14 times. York Town officials and residents had extraordinary access to project information, sometimes receiving it at the same time as MTA Board members. Special workshops with MTA staff, Jacobs, and a 3-person team designated by the Town were held to review environmental, plaza sizing, design, and other technical information.

[11] "All Electronic Tolling" (AET) eliminates roadside cash collection, and replaces it with a back office, "pay by mail" system that includes taking license plate images, finding addresses through data bases (if available), preparing and mailing invoices, and tracking payments and penalties.

[12] See copy attached as Appendix 1D.

[13] For more information on the ORT vs. AET issue, see subsection 2.1.1

In June 2015, after looking at the existing plaza site and other sites as required by law, Jacobs recommended the Mile 8.8 ORT site. Jacobs stated:

> Clearly, the alternative that locates the new plaza at approximately mile 8.8 has superior Engineering and Safety benefits while minimizing environmental and abutter impacts compared to reconstruction of the toll plaza in the vicinity of mile 7.3. . . . Additional benefits of the recommended alternative consist of less disruption to the traveling public, reduced construction time, and significant cost savings in the range of $20 million.[14]

The MTA provided another forum to express concerns at its September 3, 2015 Board meeting. Twenty-one people from York spoke. The MTA listened and respectfully responded to all their questions, including those that have been answered before. See the 23-page MTA response to York questions attached as Appendix 1E. No new issues were raised that significantly affected the Jacobs alternative analysis. On November 19, 2015, the MTA Board of Directors accepted the recommendation of MTA top management and project staff[15] and selected its preferred alternative: a new ORT plaza at Mile 8.8 site.

Since that time, additional design and analyses were conducted, providing significant additional support for the Mile 8.8 site. The MTA is confident that the preferred alternative is the least environmentally damaging practicable alternative (LEDPA).

Most recently, the MTA held a public informational meeting in York on October 5, 2016. In accordance with Chapter 2 of the Maine Department of Environmental Protection rules, at this meeting the MTA described the project and its impacts and responded to questions. About 52 York citizens attended. Detailed minutes of this meeting are available on the MTA website. Although there were some comments on environmental impacts, the majority of comments remained on the MTA's business and policy decision to use ORT to collect tolls. Given almost ten years of communication on this project, it is not surprising that no significant new issues were raised at this meeting. It is also not surprising that some in York continue to believe that their opinion on how to collect tolls should govern this project.

As outlined above, the MTA has listened and responded to York concerns for about ten years, and the MTA acknowledges that these local views have been worthy of engaged, detailed consideration. However, the MTA has an obligation to all 1.3 million Mainers, to the 30 million travelers who use the York toll plaza every year, and to MTA investors to make a prudent business and policy decision, comply with environmental laws, and select an alternative that is safer, financially viable, and the least damaging to the environment, travelers, and abutters. A modern ORT plaza at Mile 8.8 is that alternative.

[14] See memo from Rodney Emery, PE, PTOE, FITE of Jacobs to the MTA regarding "York Toll Plaza Replacement Project Recommended Alternative" dated June 22, 2015, copy attached as Appendix 1F.

[15] See the 6-page recommendation memo to the MTA Board of Directors from MTA top management and project staff dated November 16, 2015 attached as Appendix 1G.

1.4.2 Public Interest Outside of York

The input from businesses, towns, and people outside of York is almost universal and can be summarized as follows: "Why do I have to stop to pay tolls in York? What is taking so long? Hurry up and build it!"

A Portland Press Herald editorial entitled "*The Time to Move the York Toll Plaza is Here*" dated July 21, 2015, copy attached as Appendix 1H, captures this sentiment well. It reads, in part, as follows.

> "It's time to build an open-road tolling facility at a new location in York. This is the inescapable conclusion of studies that stretch back almost a decade, including exhaustive attempts to work with neighbors who want to keep the tollbooth where it is. . . . The current toll plaza, at the bottom of a hill in the center of a curve and sinking into a wetland is the wrong place for the facility. . . . The Maine Turnpike Authority is right to consider the neighbor's concerns, but ultimately this is an issue of statewide importance."

Although local project opponents often dominate public comment processes, this editorial shows that the "public interest" for this project is broader than input from York, and that input from those outside of York is supportive of the project.

ATTACHMENT 2. ALTERNATIVES ANALYSIS

This section summarizes the alternatives analysis required by the federal Section 404(b)(1) Guidelines and the Maine Natural Resources Protection Act, 38 M.R.S.A. §480-A, et. seq. and its implementing rules.

To do so in a logical sequence for this project, Section 2.1 first provides important background and context to be considered before siting the project. Section 2.1 consists of five (5) subsections. First, the fact that Open Road Tolling (ORT) is the only practicable highway speed tolling alternative for this project is further documented. As will be seen, multiple analyses have demonstrated that the MTA's business and policy decision to use ORT is prudent, consistent with good tolling practice nationally, and was made by the entity with the experience, obligation and authority to make it. Second, deficiencies of the current barrier plaza are further highlighted. Third, national interstate highway and toll plaza design standards and guidelines for modern toll facilities are outlined, which is necessary to evaluate the safety and engineering attributes of various alternatives. Fourth, the proper sizing of the ORT plaza is set forth, which is necessary to create a standard plaza template to properly assess impacts of various site alternatives. Lastly, alternatives that generally must be considered for most projects (No Build, Rehabilitation) are shown to be not practicable.

With this background analysis complete, Section 2.2 then sets forth the technical evaluation of five ORT plaza sites using criteria governed by environmental laws and the project purpose including safety and engineering, environmental, abutter, logistics during construction, and cost/financial factors. Because of local interest, a Mile 7.3 alternative (400 feet northerly of the existing plaza) was extensively analyzed, as well as four other sites that met engineering standards.

Section 2.3 and 2.4 then sets forth the results and conclusions of this site alternatives analysis. As will be seen below, the MTA's preferred alternative at Mile 8.8 is clearly superior to the Mile 7.3 alternative, best meets all evaluation criteria, and is the least environmentally damaging practicable alternative based upon this analysis.

2.1 Background and Context

2.1.1 Toll Collection Methodology: ORT vs. AET

This section will demonstrate that the MTA's business and policy decision to select ORT[16] as its highway-speed toll collection methodology was prudent and in accordance with all environmental permitting standards. It will show that the MTA thoroughly considered AET[17] and properly determined that it is not a practicable alternative for this project because it is not capable of being done after taking into consideration cost, technology, and logistics, as well as operational, legal, policy and traveler expectation factors.

To do so, this six-part subsection will: (A) show that AET does not meet the project purpose, (B) summarize the MTA's thorough study of AET that took place over years, (C) clearly reiterate the reasons why AET is not practicable for this project, (D) set forth how this decision was made at the highest MTA levels and is consistent with good tolling practice nationally, (E) rebut the latest opinions from the Town of York and demonstrate that there is no credible conflicting technical information, and (F) set forth the latest USACE position on this issue.

A. AET Does Not Meet the Project Purpose

USACE Guidelines provide that "practicable" means "capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."

As noted in section 1.3 above, the approved basic project purpose is:

> To replace the existing barrier toll plaza on the Maine Turnpike at York, Maine with highway speed electronic tolling lanes and cash (non-EZ pass) lanes to address safety deficiencies, settling/subsidence, facility deficiencies including substandard tolling equipment, existing and projected traffic volumes, and traveler impacts and expectations.[18]

This purpose statement is to be used for the alternatives analyses in accordance with the Section 404(b)(1) Guidelines[19], and applies in the state permitting process as well.

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[16] Again, ORT plazas have highway speed (65-70 mph) E-ZPass center lanes and separated cash lanes to the right with staffed toll booths.

[17] AET eliminates cash collection at the point of service and replaces it with a "pay by mail" system that moves the collection of cash to a back office where clerks must confirm plate numbers, find addresses, prepare invoices, and track payments and penalties. As will be detailed below, AET has inherent challenges that make it impracticable for this project.

[18] See Appendix 1C.

[19] Ibid.

The USACE unquestionably has the power to approve a revised project purpose in conjunction with the applicant and other regulatory agencies. It validly did so in this case.[20]

Obviously, ORT toll facilities have cash lanes and AET facilities do not. Therefore, the approved purpose of the project calls for building an ORT plaza. Analytically, therefore, in a typical permitting process, the MTA would only need to show that AET does not meet the approved project purpose to dismiss it as not practicable.

The MTA understands, however, that the Town of York has indicated that it intends to press this point - and only this point - as part of the permitting process. Therefore, this subsection will document how the MTA thoroughly considered AET and properly determined that it is not a practicable alternative for this project. That is, regulators will see that even if AET met the project purpose, it is not practicable because it is not capable of being done after taking into consideration cost, technology, and logistics, as well as operational, legal, policy and traveler expectation factors.

B. Thorough Review Over Years

The MTA has thoroughly analyzed how to implement highway-speed electronic tolling on the Maine Turnpike, including the York toll plaza.

The analysis of the practicability of ORT vs. AET for this project dates back many years. In 2009, HNTB prepared a 25-page "Initial All Electronic Tolling Feasibility Review", which was included in the Phase I Report filed with the USACE in 2010.[21] This feasibility review found, among other things, that "revenue leakage . . . is significant and poses a grave threat to the Maine Turnpike," and concluded that "that AET would not be prudent . . ."[22] This report was consistent with previous analyses on this issue.

[20] The assertions by a lawyer hired by the Town that the approval of the revised project purpose statement is somehow improper is not supported by the facts or law. (See letter from Scott Anderson, Esq. to the USACE dated June 16, 2016 attached as Appendix 2A). In fact, as set forth in the letter from MTA Executive Director Peter Mills to the USACE dated September 29, 2016 and attached as Appendix 2B, the *Sylvester* case cited by the Town's lawyer supports the proposition that the USACE cannot reject the genuine and legitimate economic concerns of the applicant. Documented AET impacts such as huge numbers of uncollectable transactions, forced toll increases, traffic diversion, and a policy backlash are certainly "genuine and legitimate" concerns of the MTA in this matter.

[21] See "Initial AET Feasibility Review" dated February 20, 2009 submitted as to the HNTB Phase I report (starting on electronic page 170 of 396), and attached hereto as Appendix 2C.

[22] Ibid at 22.

Further, as noted above, an MTA with a new Executive Director, Chair, and Board members took a completely fresh look at AET from 2011-2014. As part of this fresh look, the following measures were taken.

- The MTA issued an RFP to hire the best consultant we could find to conduct a thorough and independent review of the ORT vs. AET question.
- The MTA retained CDM Smith, a firm that has worked on toll issues with most of the agencies in North America and has helped many of them to implement AET at appropriate sites.
- The CDM Smith work was unbiased. The MTA did not ask CDM Smith to tell the MTA what it should or should not do. Instead, the MTA asked CDM Smith to explain thoroughly how AET might be implemented and what the consequences would be.
- The MTA commissioned a survey to better understand where cash payers come from at different locations and at different times of year. These findings were integrated into the CDM Smith's work.
- To increase the E-ZPass penetration rate, a precondition to successful AET implementation, the MTA:
  - eliminated from Maine law a toll protocol that had prevented the Turnpike from selling transponders on line;
  - dropped the price of transponders from $25 to $10;
  - implemented a new toll structure that favored E-ZPass;
  - created a volume discount for Maine E-ZPass customers; and
  - conducted sales campaigns to promote electronic tolling.

The USACE has acknowledged that the MTA's analysis of AET has been thorough. By letter dated November 15, 2015, copy attached as Appendix 2D, the USACE, after reviewing the MTA's 300-page submittal dated September 1, 2015, stated:

> "We compliment you on the thoroughness of your response, particularly concerning the subject of All Electronic Tolling ("AET"). Combined with your previous submittal, the document constitutes one of the more detailed Phase I submittals we have received in many years."[23]

As noted above, this exhaustive level of analysis likely exceeded what is required by environmental permitting rules. The Section 404(b)(1) Guidelines envision a correlation between the scope of the

[23] The fact that the USACE describes the MTA's work as notable for its "thoroughness" demonstrates the weakness of the assertion by the Town's lawyer in his June 16, 2016 letter that the MTA has avoided consideration of the AET option.

evaluation and the potential extent of adverse impacts on the aquatic environment.[24] "[C]ompliance evaluation procedures will vary to reflect the seriousness of the potential for adverse impacts on the aquatic ecosystems".[25] Again, this project qualifies for an USACE Category 2 General Permit, which by definition means the project has "no more than minimal . . . adverse effects on the aquatic environment". Thus the MTA's detailed AET analysis was extraordinary in light of these "minimal" impacts. However, MTA willingly undertook this exhaustive effort to assure it had good information to make good decisions and to clearly demonstrate compliance with all environmental permitting rules.

In sum, it is doubtful that any toll agency in the United States has spent more time and effort on the study of AET than the MTA has.

C. Why AET is Not Practicable for This Project

Although AET is appropriate in other applications, it simply is not practicable for this project for numerous reasons. At a high, summary level, these reasons include:

- the need to increase tolls at York including an initial DOUBLING of tolls – from $3 to $6 - on former cash customers in cars,
- huge uncollectable transaction rates relating to non-electronic customers (42% overall) due to the high percentage out-of-state, Canadian, and occasional users at the York toll plaza,
- significant traffic impacts on key roads and intersections in multiple municipalities that would be caused by the higher tolls required by AET,
- a loss of confidence in the Turnpike's tolling structure, resulting in lower bond ratings, higher future borrowing costs, a potential reduction in capital budgets, and toll increases throughout the Turnpike,
- customer dissatisfaction with AET from those who prefer to pay cash at the point of service rather than get bills later, those who do not have a banking relationship, and those with privacy concerns,
- the negative reaction from other toll agencies, bond rating firms, and bond investors nationally to the fundamental new risk that would result from the imposition of AET in this case: namely the precedent that environmental permitting agencies can require toll agencies to adopt toll

[24] See "*Memorandum: Appropriate Level of Analysis Required for Evaluating Compliance with the Section 404(b)(1) Guidelines Alternatives Requirements*", by USEPA and USACE, last updated 10/17/15.
[25] Introduction to 40 CFR 230.10(a).

collection methodologies advocated by project opponents, and thus essentially dictate how toll agencies collect tolls and at what rates,

- the lack of justification from a business or customer service perspective to raise tolls again at York, given that in 2012 the York cash toll on cars was raised 50% from $2 to $3 – the highest percentage increase on the Turnpike – as part of a comprehensive, long-planned Turnpike-wide toll increase, and
- a potential policy backlash from toll increases, increased congestion, unfairness from more free riders, and impacts to efforts to brand Maine as welcoming to businesses and visitors that would result from a permitting decision to impose AET.

More detail for the reasons supporting the MTA's business and policy decision to collect tolls using ORT can be found in three subsections below: (1) Financial Impacts of AET, (2) Traffic Impacts from AET Diversion, and (3) Legal, Fiduciary and Policy Implications.

1. Financial Impacts of AET

This subsection summarizes why AET is not practicable from a cost / financial perspective. The financial impacts of AET are summarized in an 8-page white paper by Douglas D. Davidson, Chief Financial Officer of the MTA, attached as Appendix 2E.

As part of the MTA's fresh look at AET from 2011-14 described above, CDM Smith issued its 50-page report entitled "Maine Turnpike ORT / AET Impact Analysis" (the "CDM Smith Report"), copy attached as Appendix 2F in the spring of 2014.[26] The CDM Smith report identified the relatively low collection risk of conversion to ORT, noting successful operations for several years at dozens of mainline plazas throughout the U.S., including nearby New Hampshire.[27] As requested by the MTA, it also identified the benefits of AET including the "greatly reduced" initial capital cost of plaza reconstruction[28], the lack of additional right-of-way required, and the virtual eliminations of toll plaza related accidents.[29]

Against these potential benefits, the MTA had to weigh the numerous negative and disruptive financial impacts of AET including (a) financial risks inherent with AET, both general risks and those specific to this project, (b) resulting immediate financial impacts including huge numbers of uncollectable transactions,

[26] The CDM Smith Report was released March 18, 2014 and FINAL on April 14, 2014.
[27] Ibid at 2.
[28] Although the initial capital cost of an AET plaza is unquestionably lower than an ORT plaza, any such comparison must consider other costs of AET including the demolition of the existing plaza, and the need to acquire or expand office space for back office operations, and the operational cost of such back office operations.
[29] Ibid at 3.

lost revenues, and toll increases needed to offset them, and (c) broader financial implications including a potential downgrade of Turnpike's bond rating, higher future borrowing cost, higher tolls across the entire Turnpike, and a potential a scaling back of capital projects in the MTA's 30-year plan.

a. AET Financial Risks

The CDM Smith Analysis extensively analyzed "the biggest challenge" inherent to all AET applications, which is how to handle customers who now pay cash (i.e. those without E-ZPass)[30]. These general risks included the following.

- License plates may not be properly read.
- Vehicle owner address information with DMV records is incomplete.
- Limitations on the ability to obtain vehicle owner information from some states and Canada.
- Motorists who simply don't "pay the bill".
- The complexity of the collection process including multiple statements and fees for non-payment.
- As a result of the above risks, raw uncollectable tolls are in the range of 10-20 percent, and more depending upon other factors.
- To compensate, agencies converting to AET establish a new "surcharge" for cash customers to encourage E-ZPass enrollment, cover the additional operating costs of AET (image recognition, mailing and follow-ups), and cover revenue loss from the inherent "leakage" from uncollected tolls and from diversion caused by the surcharge.

The CDM Smith Analysis then quantified these risks for the York Toll Plaza specifically. As one can see, the risks at York are higher than typical and include:

- The high percentage of all MTA revenue that is collected at York, being about 38%.[31] Simply put, York is a primary revenue generator, which magnifies risk.
- The relatively low E-ZPass penetration rate at York: being 64%,[32] and the leveling off of cash transactions at about 23 million transactions annually.

[30] Ibid at 3.
[31] Ibid at 4.
[32] Ibid at 4

- The high percentage of cash customers that are from away (i.e. not Maine registered vehicles), being 63%.[33]
- The policy of Canadian provinces to not share vehicle registration data.

b. Immediate Financial Impacts: Huge Uncollectables and Necessary Toll Increases

The CDM Smith Report then translated these AET risk factors into quantifiable financial impacts. As noted above, most of these risks arise from the most obvious issue with AET: the percentage of formerly cash transactions that will become uncollectable.

- Overall, 42% of all non E-ZPass transactions will be uncollectable.
- The uncollectable rate for Maine vehicles is lowest at 29%.
- The uncollectable rate for NH and MA vehicles is 39%, due to reciprocity agreements.
- The uncollectable rates for all other states / countries is 64%.[34]
- Even when one considers E-ZPass customers too, the percentage of uncollectable transactions is very substantial: being almost 10%.[35] That is, 1 in 10 of all transactions in York will be uncollectable.

As the CDM Smith Report outlines, AET without a surcharge would cost the MTA an estimated $6.5 million in Year 1 and $43 million over 10 years if no surcharge was levied.[36] The $6.5 million loss in Year 1 would represent about 17% of revenue at York and 4% of all Turnpike revenue.

By comparison, ORT would produce a net revenue gain of almost $ 1 million in Year 1.[37] Thus the net impact between AET and ORT would be $7.5 million in Year 1.

As the CDM Smith report sets forth, to avoid such losses the MTA would need to raise tolls including a surcharge on non E-ZPass customers at York. To mitigate most of the financial hit from AET, the MTA would initially need to DOUBLE the non E-ZPass rate for cars at York from $3 to $6. Even with this increase, the revenue is estimated to decrease about $1.0 million in Year 1.[38]

[33] Ibid at 4, and Table 1 at 14.
[34] Ibid, Table 1 at 14.
[35] Ibid.
[36] Ibid, Table 4 at 17.
[37] Ibid, Table 6 at 23.
[38] Ibid, Table 5 at 21.

c. Broader Financial Consequences

As set forth in the Davidson white paper attached as Appendix 2E, the MTA cannot simply accept annual losses. Turnpike revenue is pledged, and potential AET losses would trigger an obligation to disclose, the need to redesign the toll system, traffic and revenue analysis, a downgrade of Turnpike bond rating, higher future borrowing cost, higher tolls, and depending upon the result of the new toll structure, a scaling back of capital projects in the MTA's 30-year plan.

More specifically, these broader financial consequences include the following.

- AET would require an extensive and expensive traffic and revenue analysis. All investment grade analyses cost over $100,000 even when there is no change in the toll rates or structure. Analyses that include changes to toll rates often cost in the $250,000 range. An analysis of AET is a huge change to the toll structure and would need to be Turnpike-wide because using both AET and ORT on the same highway would establish two conflicting business protocols for non-electronic tolling, making it possible for a traveler to be both a customer and a violator in the same trip. Because of the scope of this analysis and the inherently higher risk of AET, its cost would likely be in the $500,000 range.
- AET carries inherently higher risk which would likely trigger a downgrade of the ratings on MTA bonds. A downgrade of two levels could be reasonably expected.
- This downgrade would increase borrowing costs. An increase in 125 basis points, or 1.25%, could be reasonably expected.
- The MTA's 30-year plan currently calls for $ 410 million in proposed borrowing. The increase in interest rates estimated above could cost the MTA an estimated $ 85 to 125 million in additional costs over the life of those proposed bonds.
- These potential additional finance costs would need to be covered. Under the Bond Resolution, the MTA cannot simply stop maintaining its facilities as doing so impacts revenue. Therefore, AET would drive future toll increases on all MTA customers, not just those in York. The MTA 30-year financial plan does not currently call for any toll increases until 2031. This would likely move that timetable up by several years, perhaps as early as 2022.

2. Traffic Impacts from AET Diversion

AET impacts are not just financial. AET is also not practicable from the perspective of the logistics and operations of the regional highway system, and the travelers that use it.

Based upon its national experience, the CDM Smith Report estimated that if the York Toll Plaza were converted to AET, travelers looking to avoid the higher tolls would translate into 3,400 to 5,500 vehicles per day being diverted away from the Turnpike onto various state roads in York County. York County travelers intuitively know that state roads in this area are already heavily traveled and have congestion, poor levels of service, and gridlock in some places, especially during the peak tourism months of July and August. Simply put, more vehicles on state roads obviously would make bad traffic even worse.

To quantify the traffic impacts that AET would cause, the MTA commissioned a traffic engineering study. The result is a 20-page memo regarding "*Analysis of Traffic Impacts from AET in York*" by Elizabeth Roberts, P.E. of HNTB dated September 14, 2016, copy attached as Appendix 2G. As one can see, the impacts from AET would be regional.

Noteworthy conclusions from this traffic engineering analysis include the following.

a. The following ten municipalities would experience significant impacts to key roadways and intersections: Ogunquit, York, Kittery, Eliot, Wells, South Berwick, Berwick, North Berwick, Sanford, and Kennebunk.

b. Daily traffic volumes on some state highways in York County could increase by between 5% to 50%. In contrast, the Maine Turnpike would see only a proportionately small decrease in traffic volume.

c. On the average weekday during the peak tourism months of July and August:

   - Some increase in traffic volume is expected on Route 1, but much higher increases are expected on other inland highways in York County including Route 236, Route 109/9, and Route 4. Several roadways would see increases of daily summer traffic volumes of between 5% to 50%.

   - Travelers on these inland corridors will experience more delays at intersections already identified by MaineDOT as having a relatively poor level of service. Such intersections include the Rt. 236 / Depot Road intersection in Eliot and intersections in downtown South Berwick where Routes 4 and 236 overlap.

d. In non-peak months:

   - More travelers would divert to Route 1, causing more congestion and stop-and-go conditions.

   - Two intersections that already operate at LOS F would see expected delays double or triple. In York, delays at the intersection of the Turnpike Connector and the southbound Turnpike off ramp would increase from 2 minutes to 4.2 - 6.3 minutes. In Ogunquit, delays at the intersection of Route 1 and Shore Road and Beach Street would increase from 1.2 minutes to 3.4 - 5.4 minutes.

- Summer traffic conditions on Route 1 that are currently experienced in July and August would occur in the shoulder seasons. Significant traffic volume growth will occur in the months of May, June, September, and October. Stated more simply, summer-like traffic will expand into the spring and fall.

e. The need for signals and intersection improvements at several unsignalized intersections would be accelerated.

f. Corresponding emissions would increase from the increased traffic volumes and congestion on these state highways.

3. Legal, Fiduciary and Policy Implications

Numbers alone – whether quantifying dollars or traffic impacts – cannot alone capture the impracticable nature of AET for this project.

As outlined below, the MTA Board of Directors also had to consider a myriad of legal, fiduciary, and policy implications as well. These implications demonstrate that AET is not practicable from financial, operational, logistic, policy, and traveler expectation perspectives.

In 2014, after reviewing the CDM Smith Report, MTA staff documented such factors. MTA Executive Director Peter Mills prepared an 8-page "*Staff Report on the Present Status of Tolling on the Maine Turnpike*", dated April 30, 2014, copy attached as Appendix 1D. After summarizing the MTA's tolling history, the poor conditions at York, and the procedural history of the project, this report identified several legal, fiduciary and policy implications.

a. Fairness and Equity. Under AET, substantial leakage is inevitable. At hearings prior to the MTA's 2012 toll increase, many members of the public, including the Legislature's Transportation Committee, insisted that equity in tolling be a primary policy goal. Equity is not achieved when many ride free at the expense of those who dutifully pay.

   The high level of uncollectable transactions from AET would have potentially huge policy implications including the eventual erosion of public trust in the MTA's toll system. Mainers will simply consider it unfair to require Mainers to subsidize free riders – especially those from out-of-state. This could create a disincentive to use E-ZPass, and jeopardize its associated safety, efficiency, and environmental benefits. High uncollectable rates are inherent in the "pay by mail" collection challenges with AET, and are especially challenging at York given its high percentage of out-of-state and occasional users. Recall that the CDM Smith Report estimated the uncollectable rate for NH and MA vehicles without E-ZPass is 39%, and that rate for all other states / countries is 64%.

b. Traveler Expectations / Customer Service / Privacy. Toll highway customers have come to expect high speed electronic tolling. While this convenience is available to E-ZPass customers under either ORT or AET, there is a difference in other aspects of service. Many customers want or need the flexibility to pay at the point of service. Many do not want to receive bills in the mail later. Addressing traveler expectations are part of the project purpose.

   Further, as noted above, if York were converted to AET, that system would conflict with the remaining ORT plazas on the Turnpike that would retain their capacity to collect cash. This would set up two conflicting business protocols for non-E-ZPass tolls, making it possible for a traveler to be both a customer and a violator in the same trip. These conflicting protocols would create traveler confusion and frustration.

   A significant number of motorists refuse to set up an E-ZPass account because of privacy concerns or because they have no relationship to a banking institution and do not want to deposit cash in an E-ZPass account. ORT retains cash lanes and deals with the issue without the privacy concerns of AET.

c. Safety. While acknowledging that AET would be the safest solution if practicable, the safety benefits of ORT over barrier toll plazas are huge. The old New Gloucester, Maine mainline barrier plaza had been a high crash location, and after ORT was installed there, the number of toll plaza related crashes dropped from 6 in 2011 to 1 in 2014. Further, New Hampshire has reported an 85% drop in crashes after the ORT plaza was constructed at Hampton, N.H. So the safety benefits of ORT over barrier plazas are huge.

d. Staffing and Employment. Adoption of AET at York would permit the Turnpike to reduce fare collection staff by about 23 full time equivalent employees (FTEs) but would require about 32 new employees with slightly higher salaries to support back office operations.

e. Bond Requirements. As outlined in the Davidson white paper attached as Appendix 2E, under the contractual terms contained in all Turnpike bonds, a change to the toll structure requires an investment grade study by an independent consultant to certify that a new schedule will produce the revenue needed to keep promises to bond holders. The bond resolutions also require that "no free vehicular passage will be permitted over the turnpike, or any portion thereof, . . ." with narrow exceptions.

   A proposal to convert to AET would not be approved by the bond trustee without certification that tolls are sufficient to overcome leakage losses, pay for added collection costs, and compensate for the uncertainties of an AET toll environment. A conversion to ORT, on the other hand, introduces few changes or uncertainties except for the capital cost of construction that can be amortized over the facility's service life.

f. Future Flexibility. The high speed center lanes of an ORT plaza are the functional equivalent of AET. This means that if advances in technology, changes in MTA customer mix, or other factors

make AET practicable in the future, then an ORT plaza can be easily converted to AET. The same cannot be said of an AET plaza.

In addition to the considerations noted above, there are additional policy implications relevant to the MTA's business and policy decision to collect tolls using ORT, implications that could trigger policymaker interest.

g. The cash toll for cars at York was raised 50% – from $2 to $3 - in 2012 as part of a long-planned, comprehensive Turnpike-wide toll increase. This was the highest percentage increase on the Turnpike. Another 100% increase of that rate is cannot be justified from a business or customer service perspective.

h. Obviously, toll increases would increase transportation costs for Maine businesses, citizens, and visitors, which would have a negative impact on Maine's overall economy. Toll increases at the York plaza could generate heightened policy interest given that the York is located at the gateway to Maine. State branding themes are often shown on nearby signs: "Open for Business" or "The Way Life Should Be". Reports of the doubling of tolls, erecting a nearby sign "Pay-by-mail Toll: $6", and following up new visitors' vacations with a Maine toll bill would be contrary to any branding concept aimed at promoting Maine as welcoming.

i. The precedent that environmental permitting agencies could require toll agencies to adopt toll collection methodologies advocated by project opponents as part of a project permitting process, and thus essentially dictate how toll agencies collect tolls and at what rates, would be fundamental new risk and send a shock wave to toll agencies, bond rating firms, and bond investors nationally.

j. Toll increases and traffic congestion are inherently unpopular. Toll increases, traffic congestion, and unfairness from more free riders resulting from an environmental permit condition would be especially unpopular.

D. A Prudent Business and Policy Decision Made at the Highest MTA Levels

In the 2014 "*Staff Report on the Present Status of Tolling on the Maine Turnpike*", by Peter Mills attached as Appendix 1D, the MTA staff concluded: "After careful study of the relative costs, financial risks, toll equities, and traffic impacts, Turnpike staff do not regard it as presently feasible to abandon cash collection for AET." This recommendation was the culmination of a three-year, open-minded fresh look at AET by MTA staff.

On July 24, 2014, after considering all the factors noted above, the MTA Board of Directors determined that AET is not feasible on the Maine Turnpike or in the best interest of the Maine Turnpike or Turnpike users for the foreseeable future.

This decision to pursue ORT over AET was taken very seriously. It was made at the highest MTA levels after consideration of detailed, project-specific expert analyses of all relevant factors, and with extensive input from York residents and officials[39]. The decision was unanimous.

This decision was consistent with the decisions of prior MTA Boards. Overall, the MTA Board of Directors considered and formally voted on this issue on three separate occasions over the course of eight years: in 2006, 2010, and 2014. These votes were by three different 7-member MTA Boards with two different Chairs and a total of 15 different Directors appointed by different Governors of different political parties.[40] Every vote was unanimous.

This decision is also consistent with the recent decision by the New Hampshire Division of Turnpikes to adopt ORT over AET. As documented below, it was also consistent good tolling practice nationally.

Decisions regarding toll collection methodology are complex and project-specific, should be made by those with the authority, responsibility, and expertise to make them[41], and should be respected.

E. York's Latest AET Opinion Is Easily Rebuttable and Contains No Credible Conflicting Technical Information

Despite the uniformity of analyses and decisions set forth above, the Town is now arguing that AET is a practicable alternative. Again, the Town thought otherwise in 2014.

By letter of May 20, 2014, copy attached as Appendix 1C, the York Board of Selectman (York BOS) found that while they felt that AET "should be the ultimate policy goal for an integrated interstate toll collection system", they "recognize[d] that certain technical and political impediments make adoption of this AET system unfeasible at present." The letter continued: "The York BOS encourages the MTA Board of Directors to pursue the engineering studies necessary to prove the viability of an ORT plaza at the current location of the York Toll Plaza," warning that "[a]ll other options will be strenuously opposed by the Town of York."

[39] See section 1.4.1 regarding the public process that provided York with dozens of opportunities for input over years.

[40] The 2006 and 2014 Boards had only one common member.

[41] The MTA is statutorily empowered to make such decisions. The MTA has the power to "charge and collect fees, fares and tolls for the use of the turnpike and other services made available in connection with the turnpike … subject to and in accordance with such agreement with bondholders" and to "issue … bonds and other evidences of indebtedness or obligations of the authority … and secure the payment … by pledge of … operating revenues of the turnpike." 23 MRSA §1965(1)(H) and (M).

Setting aside the issue of whether the Town should be setting policy on the proper way to collect tolls on the Maine Turnpike, this letter makes clear that the Town recently recognized that AET was not feasible, and that their overriding goal was to prevent relocation of the plaza.

The Town changed its position on AET only after it became obvious during the required site alternatives analysis that the Mile 8.8 site was superior due to its safety, engineering, environmental, abutter, logistical, and cost attributes. The Town then asked a consultant, the eTrans Group, to complete a report that makes pro-AET observations[42], accepted privately-raised funds from York residents opposed to plaza relocation to be used for legal fees, formally agreed to speak for both the Town and Think Again, and retained a lawyer to review the draft eTrans report and argue that AET is a practicable alternative, despite the Town's 2014 express recognition that it is not.

The Town's report and legal arguments add nothing new to discussion. As will be seen below, the eTrans report is essentially a pro-AET opinion piece that makes apples to oranges comparisons. And while it acknowledges that free riders, higher tolls, and diversion would occur with AET, it essentially argues that those and other AET impacts are not that bad, or that the MTA, its customers, and its investors should simply accept them. Each tolling methodology decision is heavily fact dependent, yet the Town submittals contain no project-specific technical analysis and no credible conflicting technical information.

To help evaluate the eTrans report, the MTA asked CDM Smith to review it. The result of this review is an 11-page letter from CDM Smith regarding "*Comments on Final eTrans Report*" dated July 22, 2016, ("CDM Smith 2016 Letter"), copy attached as Appendix 2H. In this letter, CDM Smith notes that the Town's eTrans report seems to be "focused on promoting AET at all costs"[43], and notes that various eTrans assertions "do not make any sense"[44], or are "odd"[45], "almost comical"[46] and "irrelevant and misleading".[47]

The CDM Smith Letter also explains that variables that govern the ORT vs. AET decision are unique for each and every toll facility, and are all project specific. They include the mix of in-state versus out-of-

[42] See "*Shortfalls in MTA's Response to the Army Corps of Engineers*" prepared by eTrans Group, Inc. (Daryl S. Fleming) for the Town of York dated March 30, 2016, copy attached as Appendix 2I.
[43] CDM Smith Letter attached as Appendix 2H, page 7.
[44] Ibid, page 4, regarding the eTrans report comparisons to the Tobin Bridge to support lower diversion rates, and its failure to note the high violation rates and public backlash at the Tobin Bridge resulting in political intervention and an amnesty program.
[45] Ibid, page 2, regarding the failure to include "toll costs to the customer" in the table on the eTrans cover page that ostensibly lists key elements of the ORT vs. AET analysis. AET requires higher toll rates.
[46] Ibid, page 6, regarding the failure to use a nearby New Hampshire example, which has adopted ORT.
[47] Ibid, page 8, regarding eTrans citation of experience in Pennsylvania.

state cash customers, overall cash market share, license plate successful read rate, valid department of motor vehicle address records, toll diversion, and more.

Based upon their extensive national experience (including first-hand experience as the traffic engineering consultant to a number of the agencies mentioned in the eTrans report) and their extensive analysis review of project-specific facts of this project, CDM Smith concluded that "it is our professional opinion that the MTA decision to pursue ORT over AET was prudent and consistent with good tolling practice nationally."

In sum, the Town submittals do not raise any significant new substantive concerns or contain any credible conflicting technical information. The MTA has thoroughly considered AET, and legitimately and prudently determined that is not a practicable alternative in accordance with all permitting standards. Accordingly, there is no valid reason to alter the MTA's business and policy decision to collect tolls using ORT.

F. The Army Corps on AET

To date, the USACE has concurred that AET is not a practicable alternative.

First, as noted in section 1.3 above, the USACE appropriately approved a revised project purpose statement that essentially calls for an ORT plaza. This was done after the MTA's "fresh look" at AET from 2011-14.

Second, as noted in section 2.1.1(B) above, the USACE complimented the MTA on the thoroughness of its consideration of AET in its November 15, 2015 letter attached as Appendix 2D.

Finally, without pre-judging the outcome on the determination of the Least Environmentally Damaging Practicable Alternative (LEDPA), the USACE addressed the AET issue in its November 15, 2015 letter in two ways. First, the USACE determined that only ORT plaza sites (along with the standard No Build option) need be carried forward for further alternatives analysis. By making this determination on alternatives, the USACE determined that AET is not practicable. Second, the USACE explicitly stated: "AET does not presently appear to be economically practicable based upon the additional information you've provided." As this application shows, the MTA has provided even more documentation of the impracticable nature of AET since that time.

Thus to date the USACE has concurred with the MTA that AET is not a practicable alternative for this project. As set forth above, there is no legitimate reason to alter that conclusion.

The thoroughly reviewed and vetted conclusion on AET is this: Although AET can and does work elsewhere, every situation is different and fact-dependent, and it simply does not work for this project. AET is not practicable because it is not capable of being done after taking into consideration cost, technology, and logistics, as well as operational, legal, policy and traveler expectation factors. Further, this unanimous MTA Board business and policy decision was prudent and made after years of extensive study, public process, and careful consideration. This decision is consistent with good tolling practice nationally. Moreover, the Maine Turnpike Authority has the authority, obligation, and expertise to decide how to collect tolls on the Maine Turnpike.

In light of the Town's continued focus on this topic, the MTA respectfully requests that permitting agencies provide a written finding as part of the permits or otherwise that the MTA has thoroughly and fairly considered AET and that AET is not a practicable alternative under the Section 404(b)(1) Guidelines, the Maine Natural Resources Protection Act, and any other applicable environmental standards.

2.1.2 Deficiencies of the Current Barrier Plaza

The deficiencies of the current plaza have been outlined in sections 1.1 and 1.3 above. This subsection provides more detail. These deficiencies are central to any alternatives analysis.

The York Toll Plaza was originally built with the expected life span of 10-12 years and is now more than 30 years beyond that intended life. The plaza faces major safety and efficiency issues and does not meet modern toll plaza design criteria. This section exemplifies how the current conditions impact the overall plaza efficiency and operation.

Safety

MaineDOT has a system of classifying whether or not a particular roadway location is considered a high crash location (HCL). MaineDOT's Crash Records Section identifies all reported crashes that have property damage in excess of $1,000, or where there has been personal injury. To retain and categorize this information, MaineDOT has established a "Node and Element System." This system assigns a four or five digit node number to each intersection, major bridge, railroad crossing, and crossing of town, county, or urban compact lines as a node. The segments of road that connect the nodes are referred to as elements or links. As crashes are received by MaineDOT, the information is assigned to the corresponding element or node corresponding to the geographic location.

A designation of HCL warrants an analysis for patterns of crashes associated with possible geometric issues. If crash history of a particular element or link or node meets two criteria, then MaineDOT would classify it as a HCL. The two (2) criteria that must be met are:

- The element/link or node must have eight (8) or more reported crashes over the past 3 years
- The element/link must have a "critical rate factor" (CRF) greater than 1.00. (The critical rate factor relates the crash rate at a particular element/link or node to the statewide crash rate average for a similar type of facility).

It should be noted that the critical rate factors are calculated differently between nodes and links, since nodes are essentially intersections (i.e. spot locations) and links have length of roadway.

In early and mid-2015, Jacobs coordinated with the Safety office of MaineDOT to obtain crash data for the Maine Turnpike in the study area. The study area consists of the existing York Toll Plaza (mile 7.3), mile 8.1, mile 8.8, mile 10.0, and mile 13.2. The Safety Office provided crash information relating to the study area for the last three years of available data, which were 2012 to 2014. As of early 2015, the State of Maine contains 382 high crash locations (HCL) nodes (i.e. intersections, bridges, etc.) and 483 HCL links (i.e. roadway segments).

The toll plaza at mile 7.3 is listed as a high-crash location (HCL), and the other four sites are not considered a HCL. However, to provide a more in-depth view for comparison purposes with the other sites, individual crashes identified by mile post location were reviewed and summarized. Any crashes within 0.5 miles of the subject site were deemed to be affiliated with the site. For example, any crashes between 8.3 and 9.3 were attributed to the 8.8 site (i.e., plus/minus 0.5 miles). Due to the crash area of influence for each site, some crashes were attributed to two sites.

It should be noted that this methodology was developed in lieu of using MaineDOT's node and link system, since some links would represent more than one site and have ambiguous value. Links in the MaineDOT system are directional and have irregular lengths and node placements, relative to the reverse direction.

For this evaluation, low-range impacts to high-range impacts were identified for each of the considered sites. Any sites containing 30 or more crashes were classified as a high-range impact location. Any sites containing between 20 and 30 crashes were classified as a mid-range impact location. Sites containing less than 20 crashes were designated as low-range impact. Table 1 shows a summary of the crash impacts for the 5 locations under this evaluation.

MaineDOT Crash History (2012-2014)	NB	SB	Total
Maine Turnpike, Mile 7.3	18	25	43
Maine Turnpike, Mile 8.1	8	15	23
Maine Turnpike, Mile 8.8	3	10	13
Maine Turnpike, Mile 10.0	7	14	21
Maine Turnpike, Mile 13.2	10	8	18

As shown in Table 1, mile 7.3 is classified as a high-range impact location since it has over 30 crashes over the course of three years. This high-range impact classification can be primarily attributed to the proximity of the York interchange and the ramp merging, diverging, and weaving movements. It is also designated as a high crash location (HCL) by MaineDOT. Mile 8.8 and mile 13.2 are classified as low-range impacts since they have less than 20 crashes over the course of three years. Mile 8.8 has the lowest crashes over the course of three years.

While individual crash records were examined as part of the crash analysis, there is no definitive means of determining the number of crashes that would have occurred if there were no toll plaza or no interchange in close proximity. Assuming (conservatively) that 50% of the crashes at the toll plaza are

due to other reasons besides the toll plaza or interchange, the crash rates within the plaza limits would still be higher than the statewide average.

The weaving issue at the existing Toll Plaza is a multi-faceted problem. It is a function of four characteristics that contribute to increased crashes and decreased operational efficiency:

1) Close proximity of an interchange
2) Horizontal curve
3) Elevation of the plaza site (bottom of a hill)
4) Proximity of a bridge.

The existing Toll Plaza is located within 700 feet of the Exit 7 interchange.

•This causes merging and weaving complications within the Plaza limits due to some vehicles navigating to the interchange and the majority vehicles continuing along I-95.
•Also, the close proximity of the existing Toll Plaza causes inefficient usage of toll lanes, where vehicle queues begin to compile before overall toll capacity is reached.

The existing Toll Plaza is situated on a horizontal curve.

•The southbound traffic tends to drift to the outside of the curve which reduces utilization of all tollbooths (i.e., the left side booths become over-utilized and the right side booths become under- utilized).
•The curve hinders the sight of the toll booths for the southbound vehicles until approximately 1,500 feet before reaching the existing toll plaza. This doesn't allow for adequate time to make appropriate and necessary lane changes which compromises safety.

The existing Toll Plaza is located at the base of a hill.

•A heavy vehicle having a brake malfunction poses as a safety concern for the Toll Plaza, where a heavy vehicle may strike the plaza in such an event.
•There are drainage issues, pavement "shoving", leading to excess rutting and the potential for hydroplaning.
•The excess noise affiliated with trucks decelerating before the toll plaza and accelerating after the toll plaza.

The existing Toll Plaza is less than ½ mile from the Chases Pond Road Bridge over I-95.

- The bridge hinders the sight of the merging on-ramp traffic at Exit 7 from northbound vehicles
- Reduces the visibility of queuing traffic at the toll booths in the northbound direction
- Information overload with signage due to the proximity of the interchange and the Toll Plaza is another issue.

Capacity

An HNTB evaluation report submitted to the MTA on the York Toll Plaza in 2009 analyzed the capacity of the toll plaza to accommodate projected traffic volumes through 2030 in an effort to understand the limitations, if any, of the toll plaza in its current condition. The report suggested that significant queuing begins when the plaza exceeds 90% of the capacity. The study found that the northbound plaza would likely not exceed 90% capacity during peak hour traffic volumes for the projected time frame. The southbound plaza was found to begin exceeding 90% capacity in 2013 and all of the following projected years. This suggests excess queuing on the southbound approach which may lead to safety issues due to the limited sight distance around the curve for motorists. The queuing is likely to prevent access to the right most lanes decreasing the operational capacity during the highest peak hours. It is also projected that the amount of EZ-Pass users will increase by more than double between 2009 and 2030 requiring that cash lanes be converted to EZ-Pass lanes to accommodate the traffic.

Condition

The poor condition of the existing barrier plaza has been noted above and is clear. These conditions are further documented with photos in the HNTB Phase 1 report, Part 1, Section 3 – Existing Conditions, pages 4-14 attached as Appendix 2J.

2.1.3 Toll Plaza Design Guidelines

The current barrier plaza was designed in the late 1960s. Modern design standards must be outlined to evaluate various alternatives.

In 2006 the Federal Highway Administration issued a report that documented the most current best practices and established new guidelines for the design and construction of mainline toll plazas due to the widespread need of tolling operations across the country. These design guidelines have been assembled to provide planners and engineers with a set of best practices to ensure safe and efficient facilities for motorists and employees. These guidelines are developed nationally from experience in a wide variety of specific discipline areas and conditions. The following is a list of the national design guideline publications that have been used for the evaluation of the York Toll Plaza.

1. A Policy on Geometric Design of Highways and Streets, AASHTO
2. Manual on Uniform Traffic Control Devices (MUTCD), FHWA
3. Roadside Design Guide, AASHTO

4. State of the Practice and Recommendations on Traffic Control Strategies at Toll Plazas, FHWA
5. International Building Code, ICC
6. National Fire Protection Association – Life Safety Code, NFPA

The common theme in these guidelines, as it relates to their purpose, is that uniformity of design practices and procedures is a key factor in the safety of travelers on our Nation's highways. The operational efficiency of our roadway network as well as our use of resources and environmental impacts can be improved through the use of these national guidelines and best practices. The development of a toll plaza that ignores industry standards, acceptable design practice, and nationally published design guidelines increases the safety risks to drivers and toll staff alike is not supported by the MTA.

The following guidelines are for the basic design criteria for toll plazas as determined by the Federal Highway Administration State of the Practice and have been used for the evaluation, design, and location for the toll plaza replacement in York.

- ***Provide one mile (5,280 ft.) minimum separation between toll plaza and interchanges***. A one mile separation affords drivers with adequate time to interpret signs, maneuver accordingly and minimizes other decisions and distractions. A toll plaza placed near an interchange increases traffic weaving issues, signing difficulty, a wide range of vehicle speeds and general driver confusion.

- ***Provide adequate decision sight distance (DSD) in advance of the toll plaza*.** DSD, as defined by AASHTO, is the distance needed for a driver 1) to detect an unexpected or otherwise difficult to perceive information source or condition in the roadway environment that may be visually cluttered, 2) recognize the condition or its potential threat, 3) select an appropriate speed and path, and 4) initiate and complete the maneuver safely and efficiently. For open road (highway speed) tolling, the DSD requirement is composed of two sight distances: 1) 1,500 ft. before the split point and the plaza. At a point 3,300 ft. prior to the plaza (total of these two values), the driver shall be able to see the split point as well as the plaza so that the driver can maneuver as necessary. This 1,500 ft. DSD assumes vehicles are traveling at 70 mph and advance signing is provided in accordance with FHWA Guidelines. The second distance is 1,800 ft. between the split and the plaza is based on the geometrics of the plaza. At the split point 1,800 ft. prior to the plaza, the driver should also be able to clearly see the toll plaza.

- ***Resulting from the above DSD recommendation*** - *Provide 3,300 ft. separation between toll plaza and overhead structures*. This distance is based on previously described DSD criteria. The driver should have unobstructed views of the split point and the plaza, thereby improving facility safety. This requirement will also reduce or eliminate potential impacts to existing

overhead structures. Overhead structures and bridges have two components that can restrict sight, one being the bridge itself and the other being the abutments and piers. These components can block view of signs, impact depth perception and in some cases require guardrail further blocking views of conditions existing on the far side of the bridge.

- ***Locate toll plaza on a horizontal tangent (straight section) with no curves.*** Locating a toll plaza on a tangent (straight section of roadway) Improves sight distance, driver awareness, and facility safety when compared to a location on a horizontal curve. Placing a toll plaza on a curve: reduces driver sight distance, causes additional distractions to drivers thereby increasing potential for crashes, reduces plaza operational efficiency as some booth lanes will be over utilized and some underutilized, and may create engineering challenges relating to roadway cross slopes and super elevation needs.

Locate the toll plaza on a roadway high point. Placing a toll plaza at the crest of a hill will provide sight distance advantages for all traffic and plaza operational benefits to cash patrons as the approach upgrade will aide in slowing vehicles down while the departure downgrade will aide in accelerating vehicles. This reduces the amount of engine braking and heavy acceleration noises often associated with the plaza. FHWA Studies have been done to determine acceptable levels of grade approaching and departing a toll plaza. Grades 3.0% and steeper have an adverse effect on the performance of commercial vehicles and grades less than 0.5% create drainage problems and possible icy conditions in the winter. Therefore, grades approaching and departing the toll plaza should be within the range of 0.5% to 2.0%.

2.1.4 Toll Plaza Sizing

Toll plaza sizing must be determined to allow an "apples-to-apples" comparison of impacts various alternatives.
The size and number of lanes for the York Toll Plaza was based on an analysis of traffic volume completed by Jacobs and based on data provided by the Maine Turnpike Authority between September 1, 2014 and August 31, 2015. The parameters of concern for the toll plaza sizing were the annual traffic growth rates, E-ZPass use, and the lane needs during the construction phase of the project. The analysis identified the 15th highest day for total traffic and cash paying traffic as the threshold for toll plaza lane requirements. This means that in the design year there should be no significant queues for the 15th highest traffic volume day and all subsequent days for the year. This traffic volume was selected for the sizing in an effort to provide an adequate amount of lanes to accommodate typical daily traffic with capacity for busier days, without over sizing the plaza based on major holiday weekend traffic.

The results of this analysis demonstrated the need for three Open Road Tolling Lanes (ORT) in each direction and four northbound and five southbound cash lanes. This conclusion was reached based on

the model developed by Jacobs to analyze the traffic volumes and traffic growth rates to determine the design year of 2043. This final design year was selected so the plaza would not need to be reconstructed as the use of the E-ZPass system grows, giving the plaza a longer functional lifespan than that of the current plaza.

A detailed report explaining the findings of the Toll Plaza Lane Analysis completed by Jacobs Engineering Group can be found in Appendix 2K.

2.1.5 No Build and Rehabilitation: Not Practicable

As required by the USACE and other regulators, alternative analysis generally need to consider a "No Build" alternative before construction of a new plaza can be considered. The identified deficiencies and project purpose set forth above demonstrate that the "no build" alternative does not meet the project purpose.

To reiterate, the current York barrier plaza suffers from deficiencies in the infrastructure, toll collection equipment, and alignment. As it is today the toll plaza is unequipped with modern toll collection technology, preventing the highest yielding plaza in Maine from providing the most efficient services for the public. The current structure does not meet any of the toll plaza design guidelines that have been released in the past decade by the Federal Highway Administration (FHWA), or the American Association of State Highway and Transportation Officials (AASHTO). Under the plaza in the access tunnel the conditions have become increasingly unsafe over time with the installation of electronic tolling equipment reducing the space in which employees are able to pass through, in addition the leaking infrastructure has caused damage to the tunnel and increased safety risk.

The plaza is located approximately 700 feet from the mile 7 interchange, which is far less than the FHWA requirement of one-mile separation between interchanges and toll plazas for urban areas. This proximity often leads to queueing prior to reaching the full capacity of the plaza because of inefficient use of the toll booth lanes as well as unsafe weaving between lanes. In addition to the adjacent interchange, the plaza is located on a horizontal curve that limits the sight distance of southbound vehicles as they approach the plaza which adds to the limited use of all the toll lanes. The toll plaza is located at the bottom of a vertical curve when the guidelines set forth specify that a toll plaza should be at the crest of a curve as to aid vehicles in slowing down upon approach and accelerating upon departure. Instead, the vertical alignment leads to increased noise from heavy breaking and accelerating, especially from trucks, and an increased chance of crashes into the plaza. The southbound approach is on a downgrade of 4.72% which is a dangerous combination with the horizontal curve that impedes the sight distance on this side. The Chases Pond Road Bridge that crosses the mainline at the mile 7 interchange is approximately 2200' away from the current toll plaza which is in conflict with the

current guidelines that there should be at least 3500' separation from overhead structures in order to provide vehicles with the recommended sight distance for the toll plaza.

The subsurface conditions at the existing site are of major concern and have been the cause for many of the structural deficiencies that lead the Maine Turnpike Authority to initiate the study of the toll plaza. There is a deposit of soft marine clay that has been settling for the past 69 years which ultimately was what caused the inadequacy of the safety infrastructure at each of the booths. The cement safety bumpers that were installed for each of the booths has been sinking below the pavement as a consequence of the compacting clay soils under the plaza. The clay soils in combination with a high water table have attributed to leaking in the tunnel which has been a major concern for the electrical equipment and rusting metals in the tunnel. In order to maintain the plaza and mitigate the increasing slope due to the sinking of the plaza as the clay soil has settled over the last half century pavement overlays and shim courses have been routinely added to the toll plaza approach. Despite these efforts the plaza still maintains a noticeable slope.

The no build option would ignore the physical and safety deficiencies that currently plague the plaza, effectively failing to meet the project purpose and the standards set forth in the MTA's Enabling Act.[48]

[48] See section 1.3 above.

2.2 ORT Plaza Site Alternatives

As noted above, HNTB completed a Phase 1 analysis in accordance with the USACE Highway Methodology of a study corridor spanning from Mile 2.2 in Kittery to Mile 19.3 in Wells. The full HNTB Phase 1 Report was submitted to the USACE and is available on the MTA's project website. http://www.maineturnpike.com/project-and-planning/Planning-Projects/York-Toll-Plaza-Replacement.

This HNTB Phase 1 Report analyzed 16 alternate locations, and two alternatives at the existing location. This analysis resulted in a reduced study corridor between the existing toll plaza at Mile 7.3 and Mile 13.2 with 5 alternate locations. This stretch of the corridor had several locations that had low impacts to natural resources and abutters in comparison with the potential locations to the south of Mile 7 where impacts to tidal wetlands and high density of commercial and residential buildings were of concern, or beyond Mile 13.2 where impacts to class A and B rivers/streams would be inevitable as well as the presence of hydric soils and NWI wetlands.

The USACE posed questions regarding this Phase 1 Report, many of them on AET. After the MTA's "fresh look" at AET and other critical project issues described in section 1.1 and 2.1.4 above was complete, the MTA responded to these questions with a 300-page submittal dated September 1, 2015 based upon the prior HNTB analysis. By letter dated November 15, 2015, copy attached as Appendix 2D, the USACE approved a narrowing of the alternatives analysis to an ORT plaza at two sites in the vicinity of Mile 8.7 to Mile 9.1 based upon the HNTB Phase 1 Report and the September 1, 2015 submittal.

During the MTA's fresh look process described in section 1.4 above, Jacobs provided the MTA with a more refined and smaller ORT plaza design template and better, field-located environmental data than what was contained in the prior HNTB work. Given this new data and the continued local interest in the plaza location, the MTA wanted to take advantage of this new data and get a second "fresh" opinion on plaza siting as well. Accordingly, the MTA retained Jacobs to take another look at the Mile 7.3 site, and to choose up to 4 ORT plaza sites between Mile 7.3 to Mile 13.2 based upon the more refined information. Jacobs had access to the prior HNTB information, but was not constrained by it.

The result of this Jacobs alternatives analysis is set forth below, and is contained in a Jacobs "Technical Memorandum on Alternative Analysis" dated October 13, 2015, attached as Appendix 2L.

The Jacobs Alternatives Analysis included several evaluation categories consisting of:

1. Engineering and Safety
    a. Horizontal Alignment
    b. Vertical Alignment
    c. Sight Distance
    d. Separation from Interchange
    e. Geotechnical

2. Abutter Impacts
    a. Potential Right-of-way impacts
    b. House Displacement within 75 feet of direct impact line
    c. Houses within 1000 feet of direct impact line
3. Environmental
    a. Wetland Impacts
    b. Wetlands of Special Significance
    c. Wetlands Relative Function and Value
    d. Vernal Pool Impact
    e. Significant Vernal Pool Impacts
    f. FEMA Floodplain
    g. Threatened/Endangered Species
4. Cultural/ Historical Resources Costs/Financial
    a. Initial Capital Loss
    b. Revenue Loss During Construction
    c. Life-cycle/Operations Costs
5. Logistics During Construction
    a. Constructability
    b. Safety of Toll Collectors
    c. Traveler Impacts

2.2.1 Alternative at mile 7.3

The analysis of the alternative at mile 7.3 (existing site) has few differences with the no build option since the location is 400 feet north of the existing plaza. In order to address the safety issues and engineering deficiencies at this location, the work would be more extensive which subsequently would require more environmental damage to the extent of nearly five times more wetland impacts than the other alternatives that were identified as part of the alternatives analysis. The interchanges at mile 7 for the Chases Pond Road will continue to be a safety hazard at this location due to the potential for weaving and merging traffic before, at, and after the toll plaza. Potentially directing all interchange ramp traffic to use the cash lanes would mitigate this safety issue, but would create another. The signs used to direct interchange traffic may result in information overload causing confusion and distractions for drivers. The vertical and horizontal alignments of this area do not meet the criteria set forth by the Federal Highway Administration for safety and attributes to the inadequate sight distance vehicles would have on the approach to the toll plaza. The physical conditions of this sight may potentially cause the same issue of underutilization of the toll lanes, due to lack of sight distance and queueing, that the current plaza experiences. The existing site at mile 7.3 has been examined several times and the results have yielded the following ratings for potential impacts.

1. Engineering Feasibility and Safety

In reference to the design guidelines for toll plaza this site was evaluated for each criteria as either high-range impact, mid-range impact, or low-range impact. The following information is documented in detail in the Jacobs *Technical Memorandum* in Appendix 2L. The horizontal alignment as designed for the construction of the Toll plaza at mile 7.3 was given a rate of high impact based on the FWHA definition. The same methods determined a mid-range impact for the vertical alignment and sight distance. The sight distance and alignment are complimentary standards as the horizontal and vertical alignments both affect the sight distance to the toll plaza. The existing site is located on a horizontal curve that limits the sight distance for southbound vehicles and a vertical alignment at the low point of a hill that negatively impacts vehicles from both directions as they approach the location. The separation from interchange was rated as high impact because the toll plaza would be located within one mile of the mile 7 interchange. This proximity to the interchange in combination with the alignment and sight distance disadvantages has led to this site being a high crash location according to Maine Department of Transportation (MDOT) data. The safety of toll collectors for this site has been rated a mid-range impact due to the proximity to the existing toll plaza.

The subsurface conditions of concern mainly consist of a thick deposit of soft marine clay which has been settling since the roadway construction in 1947, high groundwater elevations, and possible unstable soils adjacent to low-lying wetland areas. The soil conditions in this area have caused many of the issues facing the current structure today and resulted in the decade of study surrounding the replacement of the plaza. These soil conditions would require more extensive work than the other alternative sites to stabilize the soils to the extent necessary and practical to ensure safe conditions for both the toll collectors and vehicles in the years to come. These subsurface conditions have been the cause behind many of the safety issues including the sinking of the safety bumpers, the settling of the pavement around the plaza itself, and the high groundwater level that has led to the leaking in the tunnel. Many of the issues that have been identified with the current toll plaza are a result of the current location. The assigned impact ranking for this alternative is high.

2. Abutter Impacts

The potential right of way impact for this site was rated as low-range impact because there was only 0.1 acres of anticipated right of way impact. There were no anticipated house displacements for this location, but 47 houses were identified as within 1000 ft. of the impact line which constituted a rating of high-range impact. This site has anticipated high-range impacts to revenue loss due to the proximity to the existing toll plaza and the complications for toll collection during construction.

3. Environmental

The Maine Natural Areas Program database information suggests no rare and exemplary botanical features are mapped in the project area. Spicebush and Sweet Pepper-bush were mapped northerly of the project area (three locations) but are not within the project area.

The project area is mapped as a Zone "A" 100-year flood hazard area. No specific elevation information is available from FEMA suggesting a flood elevation study has not been completed. Approximately 1.0 acre of floodplain would be impacted.

The study area identified a large wetland complex located on the west and east sides of the turnpike. Wetlands in this area were identified as forested wetland. The wetland complex is identified on the York Shoreland Zoning Map as a Shoreland Zone including Resource Protection. The wetland alteration at this location would be 5.5 acres and 360 linear feet of stream alteration. There were wetlands in this area identified as wetlands of special significance (WOSS). The WOSS are associated with the Little River and a 100-year floodplain. These wetlands are within an area of Resource Protection on the York Shoreland Zoning Map. Approximately 1.9 acres of WOSS would be altered.

This alternative includes wetlands identified in the field study as 3, 4, 24, and 25. The wetlands adjacent to the existing toll plaza are classified as seasonally saturated, broad-leaved deciduous forested wetlands (PFO1E). These areas are considered red maple (*Acer rubrum*) swamps. The dominant vegetative species are red maple, white pine (*Pinus strobus*), highbush blueberry (*Vaccinum corymbosum*), speckled alder (*Alnus incana*), cinnamon fern (*Osmundastrum cinnamomeum*), sensitive fern (*Onclea sensibilis*), and royal fern (*Osmunda regalis*). These wetlands are large forested wetlands that encompass the Little River with associated floodplain wetlands. A portion of these floodplain wetlands are shown on the FEMA flood map as being located within the 100-year floodplain. According to the county soil survey, the soils within the 100-year floodplain are very poorly drained Chocorua peat which generally includes several feet of organic soil. The remaining wetlands are classified as poorly drained Scantic silt loam.

The primary functions and values of these wetlands as determined by site investigation using the Army Corps Descriptive Approach, include groundwater discharge, floodflow alteration, sediment/toxicant retention, and nutrient removal. These areas are very low in the watershed and the flow through these wetlands is very slow. The fine-textured and organic soils promote groundwater discharge in these wetlands due to slow vertical flow. The Little River becomes more defined east of the turnpike showing that water from this wetland channelizes as it travels east. The floodflow alteration function is high due to the vast size of the wetland and the amount of water that it can retain. Sediment/toxicant retention and nutrient removal is high near the turnpike due to the added stormwater runoff and contaminants from the pavement. Due to the extent of wetland impacts (over five acres) and their relative functions/values, these wetlands were assessed a high value as compared to resources corridor-wide.

Vernal pools were identified both in the STI evaluation work and prior HNTB studies. One vernal pool with a total of 1,750 square feet of resource would be impacted.

4. Cost/Financial

The life cycle costs were rated as mid-range impact because of the increased maintenance costs associated with the conditions of the site. The initial capital costs for mile 7.3 is approximately $60.4 million.

5. Logistics during Construction

Mile 7.3 involves complicated construction phasing due to the close proximity of the new plaza, 400 feet away, while maintaining operations at the existing plaza. This alternative may require temporary booths of E-Z Pass lanes to maintain tolling lanes in each direction during construction. This alternative has poor soil conditions and will require the removal of material up to five feet in depth and replaced with a lightweight aggregate fill to bottom of proposed roadway subbase. Wick drains would be installed in the new roadway areas and spaced four to five feet on center in a triangular grid. Where wick drains are installed, the area would be surcharged for four to seven months. The wick drains would help speed up the consolidation of the clay.

2.2.2 Alternative Mile 8.1

1. Engineering and Safety

In reference to the design guidelines for toll plaza this site was evaluated for each criteria as either high-range impact, mid-range impact, or low-range impact. The following information is documented in detail in the Jacobs *Technical Memorandum* in Appendix 2L. The horizontal alignment as designed for the construction of the Toll plaza at mile 8.1 was given a rate of high impact based on the FWHA definition. The same methods determined a mid-range impact for the vertical alignment and sight distance, and traveler impacts. The separation from interchange was rated as mid-range impact due to the toll plaza being located within one mile of the mile 7 interchange.

The subsurface conditions of concern include shallow bedrock and rock outcrops (observed on the west side of roadway), possible clay material (based on the Maine GIS information) above bedrock, and possible unstable soils at adjacent wetland areas. The assigned impact ranking for this alternative is Medium.

2. Abutter Impacts

The potential right of way impact for this site was rated as mid-range impact with 2.0 acres of anticipated right of way impact. There were no anticipated house displacements for this location, and only six houses were identified as within 1000 ft. of the impact line which constituted a rating of low-range impact.

The revenue loss, and life cycle costs are both low-range impact ratings for this alternative location. There are no safety constraints for toll collectors or constructability constraints associated with this alternative site. This site is not considered a high crash location.

3. Environmental

The Maine Natural Areas Program database information from the Maine Natural Areas Program suggests rare and exemplary botanical features are mapped in the project area. Spicebush and Sweet Pepper-bush were mapped easterly of the project area. These areas do not appear to be directly within the project area.

Inland Fisheries and Wildlife (IF&W) database information indicates that there are three habitat areas (Ribbon Snake (*Thamnophis sauritus)*, Spotted Turtle (*Clemmys guttata)* and Inland Bird Wading Habitat) within the general project area. In addition, a stream protection area was identified at this location.

The study area identified a small forested wetland area located on the west and east sides of the MTA. Wetlands in this area were identified as forested wetlands. These wetlands are shown as Resource Protection on the York Shoreland Zoning Map. In addition, there is Stream Protection identified on the Shoreland Zoning Map on both sides of the turnpike. The expected wetland alteration at this location would be 1.0 acre along with 50 linear feet of stream impact, there would be no impact to vernal pools at this location. Wetlands in this area were identified as forested wetland and WOSS (Significant Vernal Pool). These wetlands are both shown as Resource Protection on the York Shoreland Zoning Map. There is also Stream Protection identified on the Shoreland Zoning Map on both sides of the turnpike. Approximately 0.1 acres of WOSS would be altered and approximately 0.5 acres of floodplain would be impacted.

This alternative includes field identified wetlands 8, 21, and 22. These wetlands are classified as seasonally saturated, broad-leaved deciduous forested wetlands (PFO1E). The dominant vegetative species are red maple, gray birch *(Betula populifolia*), highbush blueberry, speckled alder, cinnamon fern and sensitive fern. There is a stream that enters wetland 21 via a 48-inch concrete culvert under the turnpike. The Town of York has a Stream Protection District around this stream on both sides of the turnpike. There is an undefined floodplain shown on the FEMA flood map in the area east of the turnpike in wetlands 21 and 22, which is identified as having a 500-year flood zone. According to the county soil survey, the soils within the wetlands are very poorly drained Chocorua mucky peat and poorly drained Brayton fine sandy loam.

The primary functions and values of these wetlands include groundwater discharge, sediment/toxicant retention, and nutrient removal. These wetlands serve as groundwater discharge areas as they contain organic soils and are surrounded by soils with shallow ledge depths. Sediment/toxicant retention and nutrient removal is high near the turnpike due to the added stormwater runoff and contaminants from the pavement. They are flat and contain ponded conditions during much of the year which allows for sediment/toxicant retention as well as nutrient removal from the turnpike runoff. The expected wetland impacts would be approximately 1 acre in this area and collectively with the relative functional assessment was assigned an average value.

4. Cost/Financial

The initial capital costs for mile 8.1 is approximately $39.7 million.

2.2.3 Alternative Mile 8.8

1. Engineering and Safety

In reference to the design guidelines for toll plaza this site was evaluated for each criteria as either high-range impact, mid-range impact, or low-range impact. The following information is documented in detail in the Jacobs *Technical Memorandum* in Appendix 2L. The horizontal alignment as designed for the construction of the Toll plaza at mile 8.8 was given a rate of low-range impact based on the FWHA definition. The same methods determined a low-range impact for the vertical alignment and sight distance. The separation from interchange was rated as low-range impact due to the toll plaza being located over the minimum one mile away from an interchange.

The subsurface conditions of concern include shallow bedrock and rock outcrops (observed on the west side of the roadway), possible unstable soils at adjacent wetland areas. The assigned impact ranking is Medium.

2. Abutter Impacts

The potential right of way impact for this site was rated as low-range impact because there was only 0.3 acres of anticipated right of way impact. There were no anticipated house displacements for this location, and only four houses were identified as within 1000 ft. of the impact line which constituted a rating of low-range impact. There are minimal traffic management efforts anticipated for construction at this site which resulted in this site being considered low-range impact.

There are no safety constraints, construction constraints, revenue losses or impacts to life cycle costs associated with this project location. This site is not considered a high crash location.

3. Environmental

The Maine Natural Areas Program database information suggests rare and exemplary botanical features are mapped in the project area. Sweet pepper-bush (four locations) and smooth winterberry holly (one location) were mapped in the project area. Stream protection was identified together with Inland Waterfowl and Wading Bird habitat. Database information indicates that three habitat areas (ribbon snake, spotted turtle and Inland Waterfowl and Wading Bird Habitat) with potential threatened or endangered species are located within the identified project area. This alternatives analysis indicated approximately 80 linear feet of stream impacts.

The study area identified several small forested wetland areas located on the west and east sides of the Turnpike. Wetlands in this area were generally identified as forested wetland. There is an emergent wetland (wetland 11) at mile 9.0 which will not be impacted by the project. Wetland alterations at this

location would include a total of 1.00 acre of wetland alteration. The emergent wetland and the significant vernal pools are considered Wetlands of Special Significance (WOSS). The WOSS are associated with significant vernal pools located on the "Morrison" parcel would involve no disturbance from proposed plaza development activities. The wetlands 13 and 30 are considered WOSS due to their proximity to a stream. There are approximately 0.2 acres of wetland within the project impact area identified on a FEMA mapped flood plain as "Zone A" that are considered WOSS. A Stream Protection zone on the west side and a Resource Protection zone on the east side shown on the York Shoreland Zoning Map will not be impacted by the project. Approximately 0.8 acres of WOSS would be altered within the FEMA mapped flood zone. The impacts were refined as part of the formal design process from the original planning study.

This alternative includes a wetland assessment of wetlands 9-18 and wetland 30 and 42. Wetland 11 is classified as a seasonally flooded, persistent emergent wetland (PEM1C) dominated by broad-leaved cattail (*Typha latifolia*). The remaining wetlands are seasonally saturated, broad-leaved deciduous forested wetlands (PFO1E). The dominant vegetative species are red maple, white pine (*Pinus strobus*), highbush blueberry, speckled alder, cinnamon fern and sensitive fern. According to the county soil survey, the soils in wetland 11 are mapped as very poorly drained Chocorua mucky peat and the remaining forested wetlands contained other soil types.

The primary functions and values of the emergent wetland include groundwater discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat. This marsh is located in the bottom of the watershed with many wetlands above it and shallow to bedrock soils in the adjacent upland. The wetlands in this area serve as wildlife habitat since portions of it may contain ribbon snake and spotted turtle habitat. Vernal pools were identified both in the STI evaluation work and prior HNTB studies. There are several non-significant vernal pools and one DEP regulated vernal pool in the project area.

4. Cost/Financial
The initial capital costs for mile 8.8 is $40.8 million

2.2.4 Alternative Mile 10.0

1. Engineering and Safety
In reference to the design guidelines for toll plaza this site was evaluated for each criteria as either high-range impact, mid-range impact, or low-range impact. The following information is documented in detail in the Jacobs *Technical Memorandum* in Appendix 2L. The horizontal alignment as designed for the construction of the Toll plaza at mile 10.0 was given a rate of mid-range impact based on the FWHA definition. The same methods determined a mid-range impact for the vertical alignment and sight

distance. The separation from interchange was rated as low-range impact due to the toll plaza being located beyond the minimum one mile from an interchange.
The subsurface conditions of concern include shallow bedrock and rock outcrops (observed on the west side of the roadway), possible unstable soils at adjacent wetland areas, and possible need of retaining wall to limit impacts on the adjacent wetland soils along the northeast side of the proposed roadway alignment where the road is to be widened and filled in. The assigned impact ranking for this alternative is Medium.

2. Abutter Impacts
The potential right of way impact for this site was rated as high-range impact because there would be at least 3.5 acres of anticipated right of way impact. There were no anticipated house displacements for this location, but 46 houses were identified as within 1000 ft. of the impact line which constituted a rating of high-range impact.
There were no safety constraints or constructability constraints at this site. The impacts to travelers would be low-range, and there would be little to no revenue impact or life cycle cost impact.

3. Environmental
The Maine Natural Areas Program database information suggests rare and exemplary botanical features are mapped in the project area. Sweet pepper-bush was mapped on the west side of the turnpike but are depicted outside of the project area. Field verification would be warranted to confirm that both of the species are or are not within the project area. Stream protection was identified along together with Inland Waterfowl and Wading Bird habitat and a potential redfin pickerel (*Esox americanus americanus*)/swamp darter (*Etheosttoma fusiforme*) habitat. A total of 160 linear feet of stream impacts would be anticipated. IF&W database information indicates that two habitat areas with potential threatened or endangered species are located within the identified project area. No flood hazard mapping was identified in the project area. A zone "A" 100-year flood hazard area is mapped easterly of the project area but does not appear to be within the limits of direct impact as referenced from FEMA flood hazard mapping.

The study area identified forested wetlands with several significant vernal pools. The wetlands containing significant vernal pools are considered WOSS. The wetland impacts at this location would be 1.0 acre, all of which would be impacts to WOSS. This alternative includes wetlands 35, 43, and 44. These wetlands are classified as seasonally saturated broad-leaved deciduous forested wetlands (PFO1E). The dominant vegetative species are red maple, yellow birch (*Betula alleghaneinsis*), highbush blueberry, speckled alder, cinnamon fern and sensitive fern. Wetland 43 on the east side of the turnpike is shown as Resource Protection on the Town of York shoreland zoning map. According to the county soil survey, the soils in the Resource Protection zone are poorly drained Raynham silt loam and the remaining wetland soils are poorly drained Brayton fine sandy loam.

The primary functions and values of the wetlands include sediment/toxicant retention, nutrient removal, and wildlife habitat. There is a jurisdictional stream which travels under Chases Pond Road into wetland

35 and then under the turnpike where it enters wetland 43 via an 18-inch culvert. Sediment/toxicant retention and nutrient removal is high near the turnpike due to added stormwater runoff and contaminants from the pavement. All of these wetlands contain vernal pools as well as possible ribbon snake and spotted turtle habitat. The expected wetland impacts would be approximately 1 acre and include over 30,000 square feet of vernal pool impacts. Due to these critical habitat impacts, the relative functional assessment was assigned average value.

Vernal pools were identified both in the STI evaluation work and prior HNTB studies. Four vernal pools with a total of 32,480 square feet of resource would be impacted.

4. Cost/Financial
The initial capital costs for mile 10.0 is approximately $42.6 million.

2.2.5 Alternative Mile 13.2

1. Engineering and Safety

In reference to the design guidelines for toll plaza this site was evaluated for each criteria as either high-range impact, mid-range impact, or low-range impact. The following information is documented in detail in the Jacobs *Technical Memorandum* in Appendix 2L. The horizontal alignment as designed for the construction of the Toll plaza at mile 13.2 was given a rate of low-range impact based on the FWHA definition. The same methods determined a low-range impact for the vertical alignment and sight distance. The separation from interchange was rated as low-range impact due to the toll plaza being located beyond the minimum one mile away from an interchange.

The subsurface conditions of concern include shallow bedrock and rock outcrops (observed on west side of the roadway), and possible unstable soils at adjacent wetlands areas. The assigned impact ranking for this alternative is Medium.

2. Abutter Impacts
The potential right of way impact for this site was rated as mid-range impact because there was 2.5 acres of anticipated right of way impact. This site location would require one house displacement based on the criteria that any house that falls within 75 feet of the direct impact line is considered displaced. This site is also considered high-range impact because there are 41 houses identified as within 1000 ft. of the impact line.

There are no safety constraints, construction constraints, revenue losses or impacts to life cycle costs associated with this project location. This site is not considered a high crash location.

3. Environmental

The Maine Natural Areas Program database information suggests no rare and exemplary botanical features are mapped in the project area. Stream protection was identified on the resource mapping. A total of 140 linear feet of stream impacts was anticipated at this location. IF&W database information indicates that spotted turtle habitat is located easterly of the project area but does not appear to be directly within the limits of direct impacts. The project areas adjacent the MTA is mapped as a Zone "A" 100-year flood hazard area. No specific elevation information is available from FEMA suggesting a flood elevation study has not been completed.

The study area identified small wetlands on the west side of the turnpike and no wetlands on the east side at mile 13.2. At mile 13.4 there is a stream on the east side of the turnpike. There is Stream Protection on the west side of the turnpike as shown on the York Shoreland Zoning Map near mile 13.0. The expected wetland alterations at this location would be 0.7 acres. At mile 13.4, there is a stream on the east side of the turnpike. There is a second steam on the west side of the turnpike as shown on the York Shoreland Zoning Map around mile 12.9. The expected WOSS impacts would be approximately 0.2 acres.

This alternative includes wetlands 38, 39, 47 and 48. These wetlands are classified as a seasonally saturated broad-leaved deciduous forested wetland (PFO1E). The dominant vegetative species are red maple, white pine, highbush blueberry, speckled alder, cinnamon fern and sensitive fern. There is Stream Protection District along Clay Hill Brook which runs through wetland 48 on the west side of the turnpike and wetland 38 on the right side of the turnpike at MM 13.0. According to the county soil survey, the soils in the wetland are classified as very poorly drained Biddeford mucky peat and poorly drained Scantic silt loam.

The primary functions and values of the wetland include floodflow alteration, groundwater discharge, sediment/ toxicant retention, nutrient removal and wildlife habitat. Clay Hill Brook contains a 100-year floodplain on the west side of the turnpike according to the FEMA flood map. The fine-textured soils and shallow ledge allow for groundwater discharge to occur. There are two vernal pools near MM 13.4 which serve as amphibian breeding habitat. There is also a stream on the east side of the turnpike running westerly. The expected wetland impacts would be approximately 0.7 acres. Comparatively, this study area represented the lowest overall impacts and was assessed a low value as compared to other wetlands.

Vernal pools were identified both in the STI evaluation work and prior HNTB studies. Two vernal pools with a total of 7,430 square feet of resource would be impacted.

4. Cost/Financial

The initial costs for mile 13.2 is approximately $46.6 million.

2.3 Results and Conclusions

The MTA has undertaken a multi-year corridor study to replace the antiquated and deficient York Toll Plaza located at Mile 7.3. Numerous investigations and studies have been undertaken by MTA and its consultant team to investigate and identify a suitable alternative location for the South Maine Toll Plaza.

For the reasons set forth below, this extensive study process supports the conclusion that Mile 8.8 is the Least Environmentally Damaging Practical Alternative (LEDPA) and best suited to meet the "Purpose and Need" statement for the project. Again. the project purpose and need statement is as follows:

> *"The purpose of the project is to replace the existing barrier toll plaza on the Maine Turnpike at York, Maine with highway speed electronic tolling lanes and cash (non-EZ pass) lanes to address safety deficiencies, settling/subsidence, facility deficiencies including substandard tolling equipment, existing and projected traffic volumes, and traveler impacts and expectations*." USACE (See Appendix 1A)

The investigations and findings evaluated several critical project factors each of which are individually important but collectively form the basis of project and site selection. Key considerations are discussed in detail within Appendix 2L including: Engineering, Tolling Strategies, Feasibility, Safety, Environmental Impacts, Abutter Impacts, Logistics During Construction, and Project Costs. These factors were analyzed individually for each site and then compared on a matrix that allowed one site to be identified as the optimal location for the plaza. In order to meet the purpose agreed upon by the USACE the location chosen would need to address the issues that had been identified at the existing plaza such as the subsurface conditions, safety factors, and the inadequate tolling technologies and capability. To meet the project purpose the "no build" option was eliminated as a potential option because it would not meet the purpose based on the failing infrastructure, the clay soils settling, and the alignment on a horizontal curve in addition to the location in the low point of a hill. This option would not facilitate open road tolling and would require an infeasible amount of remedial projects in order to compensate for the structural deficiencies and continue the regular tolling operations.

The second option was to rebuild the toll plaza at the existing site. This option was ultimately determined to be impracticably expensive and unnecessarily difficult based on the project purpose and need and the remaining alternatives that were analyzed. Rebuilding the toll plaza at mile 7.3 would not remediate the alignment issues or the subsurface conditions that are critical factors in the purpose of this project. The impact to natural resources that would take place, if this alternative were selected, would have been nearly five times that of the impacts anticipated for the alternative at mile 8.8.

The alternative site at mile 8.1 was not selected based on the ratings determined in the Jacobs Technical Memorandum, which rated this site a high range impact for horizontal alignment and mid-range for the vertical alignment. In addition, this alternative site would have required 2 acres of right of way impact, 1 acre of wetland impact, and 50 linear feet of stream impact in the little river watershed. The alternative

site at mile 10.0 was not selected based on the ratings determined in the Jacobs Engineering Technical Memorandum. The engineering and safety impacts were rated as medium to low impacts, but the potential right of way impacts were at least 3.5 acres and would have been within 1,000 feet of 46 houses which was determined to be a high range impact to abutters. This location would have required the installation of a retaining wall in order to minimize the wetland impacts associated with the location, which would have been 1 acre of Wetlands of Special Significance (WOSS).

The alternative site at mile 13.2 was not selected based on the ratings determined in the Jacobs technical Memorandum. This site would have had one house considered displaced as it was within 75 feet of the direct impact line, because of this and the 41 houses within 1,000 feet of the direct impact line this site retained a rating of high range impact on abutters. The wetland impacts would have been 0.7 acres and there would have been 140 linear feet of stream impact.

The comparison between the potential alternative sites considered all the criteria and used the intended project purpose to determine what the Least Environmentally Damaging Practicable Alternative (LEDPA) was in addition to which site meet safety and engineering criteria to the best extent. This location was determined to be at mile 8.8 for reasons discussed herein, and was also indicated by HNTB as the LEDPA. The vigorous analysis of the study corridor by both HNTB and Jacobs produced the best site to meet the project purpose of the York Toll Plaza Replacement Project while minimizing adverse impacts.

2.4 Preferred Alternative – New ORT Toll Plaza at mile 8.8

Including Demolition of the Current toll plaza with lane improvements at 7.3

2.4.1 Engineering and Safety

Upon selection of the preferred alternative at mile 8.8, a 60% design effort was undertaken to develop and refine a project design consistent with FHWA design guidelines and the outcome of the MTA tolling study. The result is a project that will involve 7,200 linear feet of MTA highway for construction of the toll plaza and transition lanes as well as the construction of a driveway and utilities from Chases Pond Road to a new administration building and staff parking lot.

The linear portion of the project follows the existing MTA Turnpike corridor and involves widening of the existing turnpike to accommodate the new toll plaza, approach and departure lanes compliant with FHWA highway design guidelines. This includes geometric and dimensional improvements along with tolling lanes to accommodate the design volume and "thru-put" of traffic in both the North and South directions to meet highway design safety requirements.

The Jacobs Engineering assessment determined the necessary length of the toll plaza approach transitions, number of toll plaza lanes and limits of grading activities to meet safe highway design practices and FHWA design guidelines. The result is a project design that avoids and minimizes resource impacts to the maximum extent practicable while meeting highway design standards and tolling requirements for this project.

The design and engineering of the improvements needed to incorporate the toll plaza sizing requirements (Attachment 2 (2.1.4)) together with toll plaza design guidelines (Attachment 2 (2.1.3)) and FHWA highway design requirements. A significant consideration in the design was the lane tapers for the tolling plaza approaches and departures. At highway speeds, approaches must provide for car queueing at the collection booths, safe deceleration and acceleration, merging traffic and through traffic at the high speed portions of the plaza. The preferred Alternative considered and evaluated included the following:

1. Highway Approach and Departure Tapers at the Toll Plaza. Alternatives for the highway approach and departure tapers for the toll plaza were studied. Alternatives included:

    - 14:1 approach and departure tapers (Added wetland impacts with 14:1 tapers = 0.18 Ac.)
    - 14:1 approach and 22:1 departure tapers (Added wetland impacts with 14:1/22:1 tapers = 0.39 Ac.).
    - 10:1 approach and departure tapers (As proposed)

    Larger tapers are often preferred to promote better vehicle driver response time and for more effective transition of traffic approaching and departing the tolling plaza. The larger taper

transitions result in extending the project limits, extension of culverts to accommodate the extended fill and cut limits and a lengthened box culvert at Sta. 381+35 resulting in more stream impacts. The 10:1 approach and departure tapers meet the FHWA minimum design standard rather than the preferred standard. The selection of the 10:1 tapers was determined to be an acceptable approach in this section of the highway due to the geometry (horizontal and vertical alignment) to meet the both the toll plaza performance requirements and avoid/minimize natural resource alterations.

2. The project has a design waiver for superelevation. A request for design exception was submitted for this project to allow the proposed improvements on I-95 northbound and southbound to retain the existing normal crown cross section (no superelevation) along the horizontal curvature at mile 7.3, rather than provide a superelevation per Maine DOT and AASHTO design standards. The raise in highway elevation due to superelevation would increase the wetland impacts at mile 7.3. As a result of the waiver, the normal crown would be applied at mile 7.3 to minimize wetland impacts to the project.

3. Highway signage to provide information to vehicular traffic along the corridor. The signage must meet specific guidelines determined by the FHWA for signing highways including locations. The project approach incorporates sign locations to avoid impacts to wetlands.

4. The extension of culverts in some locations or installation of new culverts will be needed to match the sideslope extensions. The impacts from these extensions are limited to amount needed to extend the culverts to the sideslope and install riprap scour protection for energy dissipation of exiting drainage from the culverts.

5. In addition, the MTA has acquired a 32.8 acre parcel of land (Morrison parcel) adjacent to the project area. This parcel provides the land area for the construction of a service access road from Chases Pond Road to the Administration Support Building and tunnel system accessing the tolling plaza. The driveway alignment and design was selected to avoid all direct wetland impacts and minimize infringement of the buffer for nearby vernal pools.

As shown on the design plans, no wetland impacts will be required for the driveway and the administration building and parking area will be located outside of the 250' significant vernal pool terrestrial habitat identified in the MDEP legislation except for a small amount of upland impact within the terrestrial habitat of wetlands 54 and 56. This vernal pool is significant because of a population of fairy shrimp that was present several years ago and no other species have been found in significant quantities since monitoring began. Fairy shrimp never exit the pools in their life cycle like other vernal pool dependent species (wood frogs and spotted salamanders) the impacts to the terrestrial habitat

surrounding this vernal pool will have minimal, if any, impacts on the viability of this pool in the future. This approach allows for avoidance and minimization of resource impacts to the maximum extent practicable. During the design and preliminary planning process an initial alignment of the driveway resulted in a higher level of impacts to the significant vernal pool terrestrial habitat (VP 54-2, VP 54-3 and VP 56-1). The habitat impacts would be over 100,000 square feet. This was a result of the cuts/fill and stormwater management planning to meet the MaineDEP general standards for stormwater treatment. During the July 14, 2016 agency coordination meeting, the USACE requested that MTA look at practicable alternatives to minimize these impacts. Subsequent to the meeting, the design team determined the terrestrial habitat impacts could be reduced through a re-alignment of the access road. The result was a reduction of habitat impacts from over 100,000 square to 50,646 square feet. While this alternative reduces the habitat impacts, the amount of ledge cut/fill would increase requiring a re-evaluation of the stormwater management approach. The resulting design is a solution that provides a practical alternative that minimizes the habitat impacts with some additional earthwork and stormwater management requirements.

2.4.2 Abutter and Right of Way Impacts

The York Toll Plaza Replacement project is intended to have the least amount of impact to private property of abutters as practicable. The analysis of the alternatives took into consideration the abutters proximity to the potential project locations and what the impact would be for each area. The only potential "displacement" that was identified is not located within the selected project area. There are four houses within 1,000 ft. of the direct impact line at this location and this is comparatively rated as a low impact. The amount of potential additional right of way from abutting properties expected at mile 8.8 is 0.3 acres, which was also determined to be comparatively rated as a low impact. Additionally, MTA already owns the property that will be utilized for the driveway to the toll plaza and administration building. As a result, the mile 8.8 project location results in low abutter impacts.

2.4.3 Construction Logistics and Costs

The initial cost of locating this project at the selected alternative site is estimated to be approximately 40.8 million. This is only slightly higher than one other alternative site by approximately $1 million, but this estimate is approximately $20 million less than the option to re-build at the existing site (mile7.3). There are no constructability or safety constraints or issues anticipated for locating the project at the mile 8.8 site. The traveler impacts are anticipated to be low-impact based on the minimal efforts expected for traffic management. Revenue losses during construction are rated as low for the selected alternative due to the minimal traffic management and continued operation of the existing toll plaza during construction. The life cycle costs are also rated as low impact because of a multitude of maintenance cost savings related to a new ORT modern plaza including the paving schedule is projected

to be every 10-12 years as opposed to every 6 years at the existing toll plaza location due to settlement caused by poor soils.

2.4.4 Environmental

The preferred alternative at Mile 8.8 is the Least Environmentally Damaging Practical Alternative (LEDPA) that meets the project safety and design requirements as identified in this report. The following provides a summary of the environmental considerations for the Mile 8.8 Alternative.

Wetland impacts will total 1.46 acres (Wetlands 4, 9, 10, 12, 13, 15, 16, 17, 18, 25, 30 and 42) and consist primarily of isolated forested wetlands along the fringe of the existing turnpike. Wetland 18 is a wetland of special significance because it is within a 100 year flood zone. Wetlands 12, 13 and 15 have been identified as Spotted Turtle (*Clemmys guttata*) habitat meaning these are also wetlands of special significance. The "Morrison" parcel where the access drive and administration building will be constructed will not involve any wetland alteration with the exception of an isolated wetland (Wetland 10) that straddles the MTA Right-of-Way and "Morrison" parcel. The Wetland Report (Appendix 9A) identified one emergent wetland (Wetland No. 11) at the mile 8.8 location which will not be impacted by the development. The functions and values of the impacted forested wetlands are sediment/toxicant retention, and nutrient removal with a few having the function of wildlife habitat. Through the stormwater management plan and treatment systems, the functions and values will be maintained.

Cut and Fill Impacts for the York Toll Plaza Relocation Project at Mile 8.8

Wetland ID	Wetland Alteration Area (S.F)	Buffer Impacts	Stream Impacts	WOSS
Wetland 4	93	0	0	
Wetland 9	11839	0	0	
Wetland 10	8497	0	0	
Wetland 12	1296	20,287	0	Spotted Turtle Habitat
Wetland 13	3490	0	20	Spotted Turtle Habitat
Wetland 15	880	0	0	Spotted Turtle Habitat
Wetland 16	5592	0	0	
Wetland 17	19287	0	0	
Wetland 18	9773	0	0	100 Year Flood Plain
Wetland 25	1218	0	0	
Wetland 30	1504	0	0	
Wetland 42	213	0	4	
Wetland 54	0	53,729	0	N/A
Wetland 56	0	8,466	0	N/A
Total	**63,682**	**82,482**	**24**	

There are documented vernal pools in the project area. The vernal pools are regulated by the USACE and Maine DEP. Maine DEP only regulates vernal pools that meet the significant vernal pool criteria, they are otherwise regulated as a wetland. Vernal pool mapping identified several significant vernal pools within the project area, but design plans indicate no direct impacts to these vernal pools. The USACE requires compensation for upland impacts to vernal pool habitat if the impacts are to more than 25 percent of the habitat within a 750 foot habitat area of the pool, or if the construction impacts a vernal pool within the 100' envelope. Minimal impacts (cut and fill) to the upland and wetland within the 250 vernal pool habitat zone as defined by MDEP have been identified in the wetland alteration and compensation plan and the fees associated have been calculated as part of the mitigation plan.

Wetland 17 and wetland 18, located along the easterly fringe of the road widening associated with the project, were mapped with four vernal pools regulated by the USACE. Spotted Salamander and Wood Frog egg masses were found in low numbers, not reaching the threshold of "significant" and therefore will be regulated as wetlands by the Maine DEP. Vernal Pool 17-1 is an isolated pool while vernal pools 18-1 and 18-2 are part of a larger wetland complex, including vernal pool 18-3 which will not be impacted as a result of this project.

As a result of this project there will be approximately 0.2 acres of FEMA mapped floodplain impact. The floodplain mapping is a Zone A with no defined 100 year flood elevation. The impacts are located at the fringe of the floodplain limit. The FEMA mapping appears to be inaccurate as evidenced by the discontinuity of the mapping compared to the topography the area. As an example, the mapping includes an elevated hill and a portion of the MTA highway embankment. The FEMA floodway is also bisected by an offsite trail with no apparent hydraulic connection. Therefore, it is probable that this mapped floodplain is not within the project impact footprint. There will be 24 linear feet of perennial stream impact associated with the project location at mile 8.8.

A threatened and endangered species analysis identified that potential habitats for ribbon snakes, spotted turtles, Inland Waterfowl and Wading bird Habitat (IWWH), as well as habitat for significant botanical features like sweet pepper bush (*Clethra alnifolia*) and smooth winterberry holly (*Ilex laevigata*) could be located within the general project area. It has been determined that no impacts on sweet pepper bush, smooth winterberry holly, or Inland Waterfowl and Wading bird Habitat will result from this project. Maine Department of Inland Fisheries & Wildlife and Maine Natural Areas Program have been consulted and a MOA has been generated for the project.

The Maine Historic Preservation Commission (MHPC) was notified, and provided with the possible locations and indicated that there were no archaeological sites within the selected project area, the Public Archaeological Laboratory conducted the cultural resources study for the corridor and suggested there would be no effect on historic architectural resources and recommended that no further work would be necessary. Correspondence between MTA and MHPC regarding this project is included in

Attachment 11. In 2010 a Historical Architectural Reconnaissance Survey (Appendix 11) was conducted for the York Toll Plaza project by Public Archaeology Laboratory (PAL) and supported the responses from MHPC.

ATTACHMENT 3. PROJECT LOCATION MAP

The proposed York Toll Plaza Replacement Project would be located at mile 8.8 of the existing U.S. I-95 Turnpike right of way as shown on the following U.S.G.S topographic map of York, Maine. This project includes demolition of the existing toll facility and roadway improvements at Mile 7.3, however there are no wetland impacts associated with this work.

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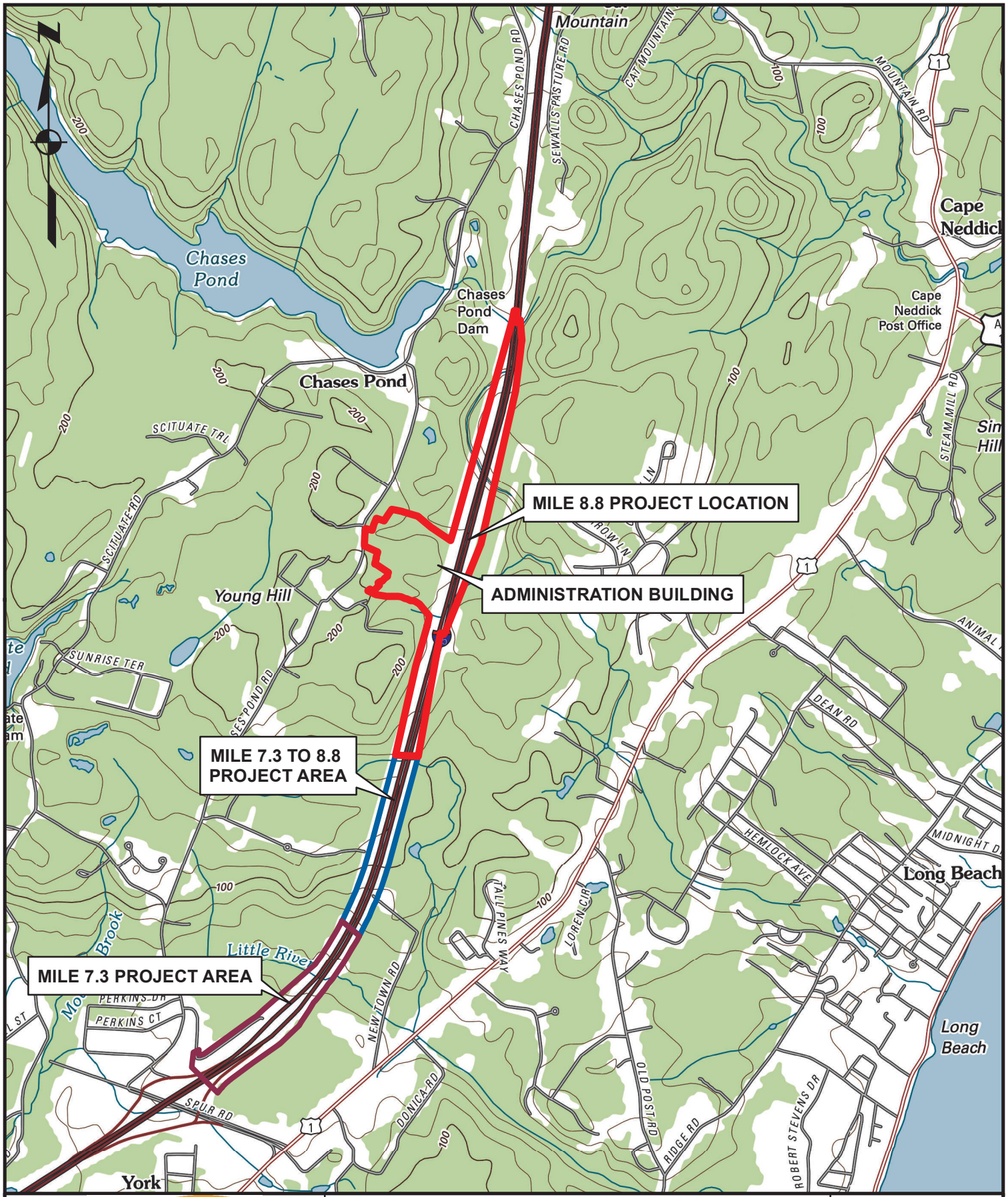

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PROJECT LOCATION MAP
OF SOUTHERN MAINE TOLL PLAZA

MAINE TURNPIKE

SCALE: 1 " = 2,000 '

DATE: 3/18/2016

LOCATION:
MILE MARKER 8.8
YORK, MAINE

INFORMATION:
2011 USGS QUADRANGLE
(YORK HARBOR, MAINE)

14181-Location Map.mxd

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ATTACHMENT 4. PROJECT LOCATION PHOTOS

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Photo 1: Southbound lane facing South from mile 9.0 perspective



Photo 2: Southbound Lane facing South from mile 8.8 perspective



Photo 3: Southbound Lane facing North from mile 8.8 perspective



Photo 4: Southbound lane facing North from mile 8.8 perspective



Photo 5: Northbound Lane Facing North from mile 9.0 perspective



Photo 6: Northbound Lane Facing North from mile 9.0 perspective



Photo 7: Northbound Lane Facing South from mile 8.8 perspective



Photo 8: Northbound Lane Facing South from mile 9.0 perspective



Photo 9: Access Road entrance from Chases Pond Road



Photo 10: Access Road Entrance from Chases Pond Road


Access Road From Chases Pond Rd
P9/P10
P2
P3/P4
P1
MILE 8.8
P7
MILE 9.0
P8
P5/P6
Google earth
1998
Imagery Date: 4/27/2016 43°10'50.02" N 70°39'03.78" W elev 182 ft eye alt 2257 ft

ATTACHMENT 5. DESIGN AND WETLAND IMPACT PLANS

An overview of the work to be conducted for the York Toll Plaza Replacement Project is detailed on the attached plans together with wetland alteration areas.

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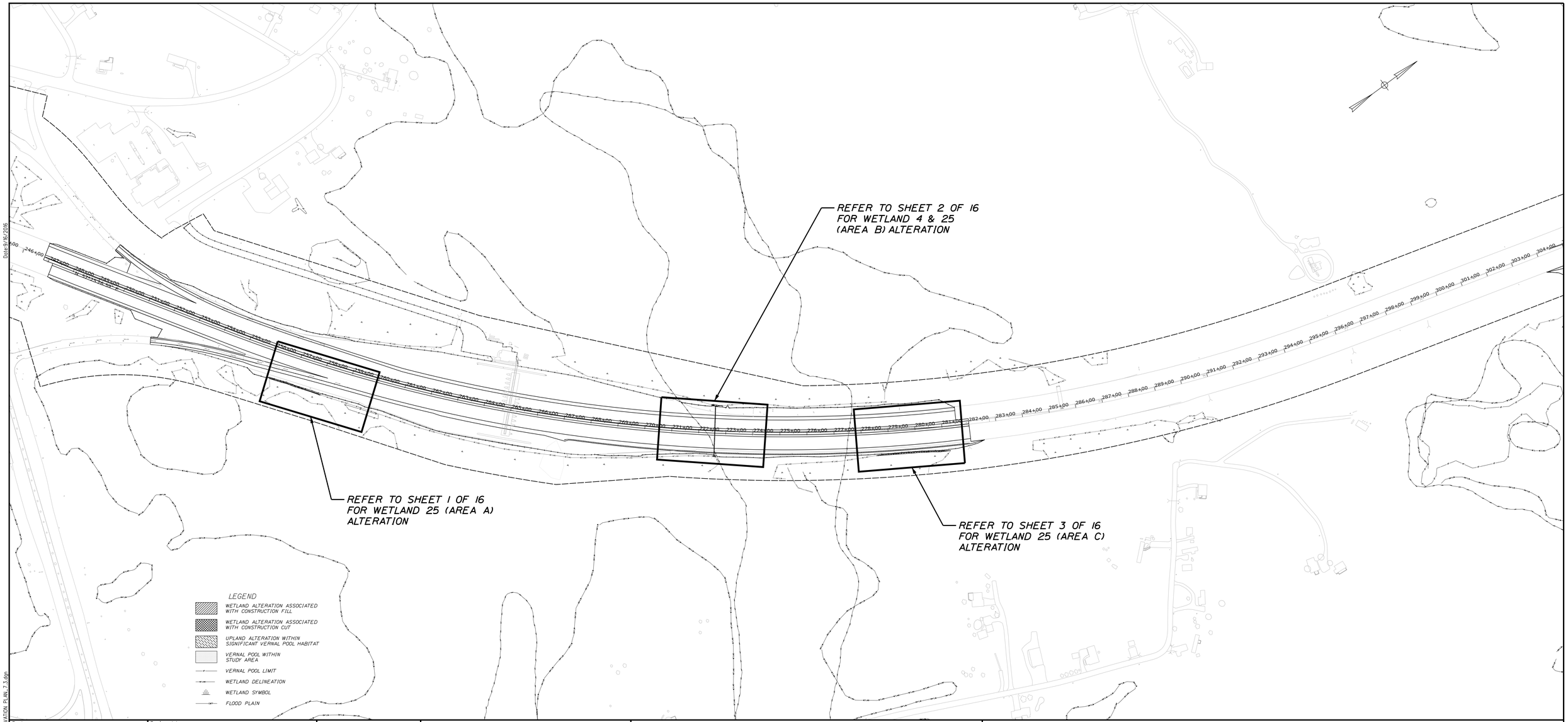

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

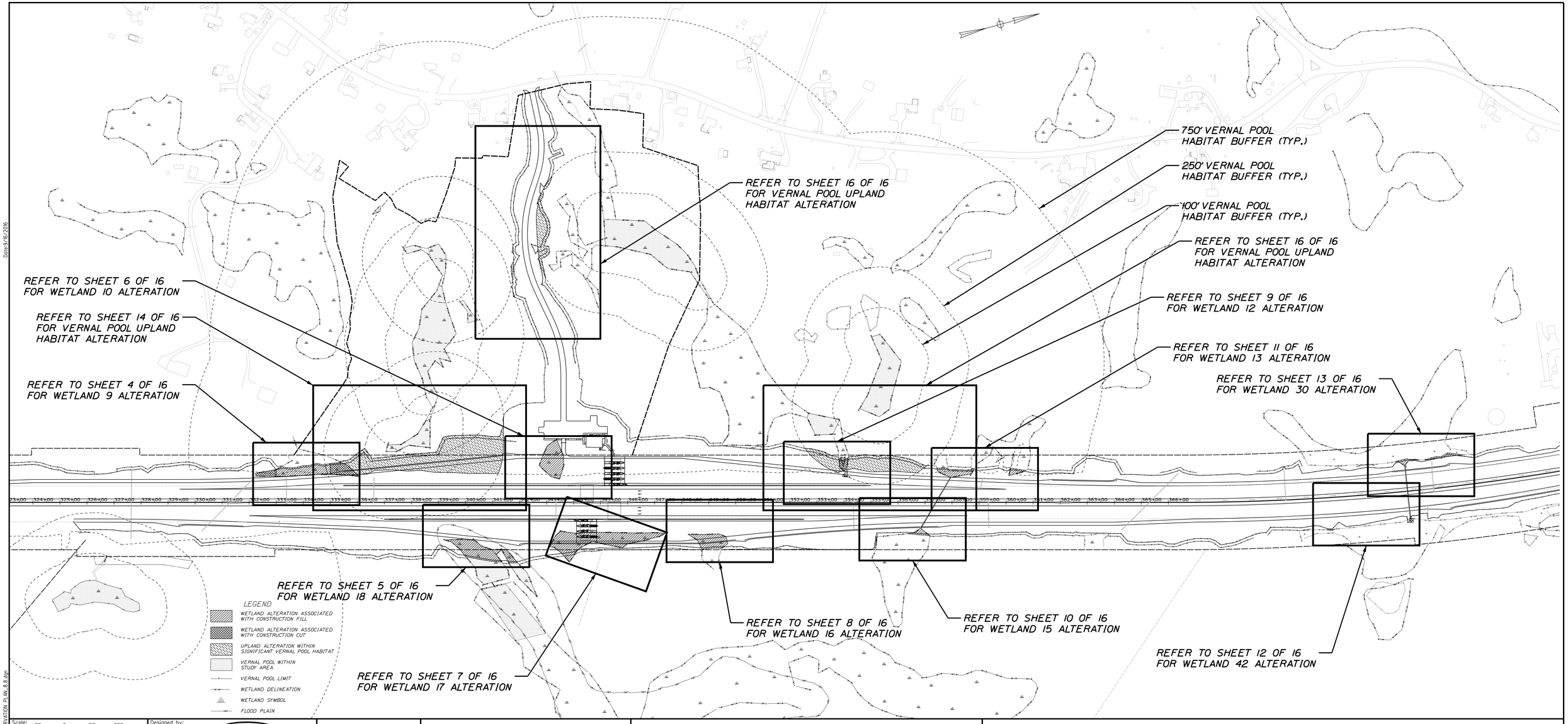
YORK TOLL PLAZA

WETLAND ALTERATION/COMPENSATION PLAN

SHEET NUMBER: C-1

CONTRACT: 2017.09

1 OF 1



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MTA PROJECT MANAGER: R. NORWOOD

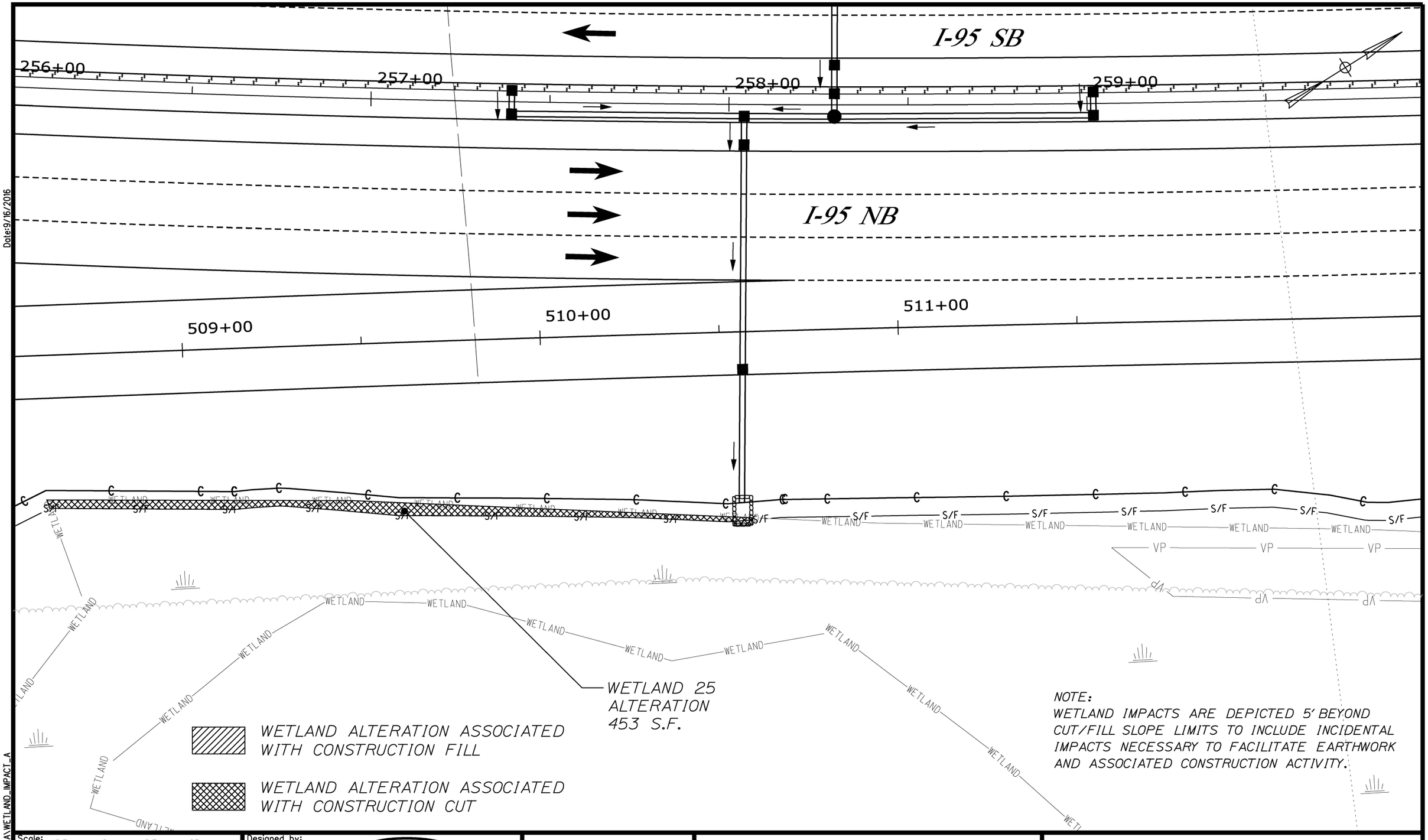
YORK TOLL PLAZA

WETLAND ALTERATION/COMPENSATION PLAN

SHEET NUMBER: C-1

CONTRACT: 2017.09

1 OF 1



NOTE:
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2	MISCELLANEOUS REVISIONS	OAM	09/01/16
3	UPDATED MAPS	OAM	09/16/16

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THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

WETLAND 25 ALTERATION

SHEET NUMBER: WA-A

CONTRACT: 2017.09

1 OF 16

Date:9/16/2016

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION FILL

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION CUT

WETLAND 4 ALTERATION 93 S.F.

I-95 SB

I-95 NB

271+00

272+00

273+00

274+00

WETLAND 25 ALTERATION 21 S.F.

NOTE:
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No.	Revision	By	Date
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THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

WETLAND 4 & 25 ALTERATION

SHEET NUMBER: WA-B

CONTRACT: 2017.09

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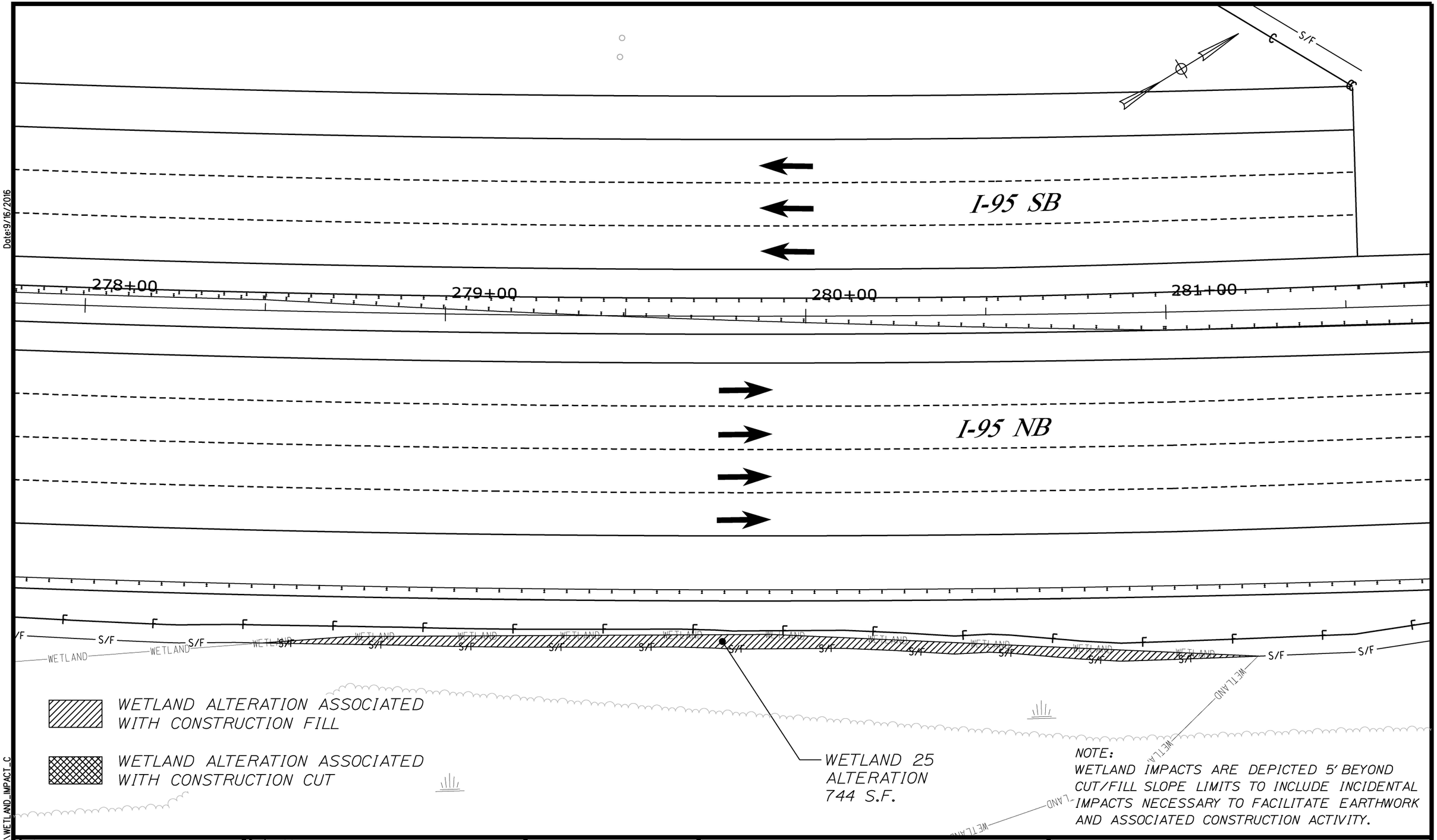
Date:9/16/2016



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3	UPDATED MAPS	OAM	09/16/16

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YORK TOLL PLAZA

WETLAND 25 ALTERATION

SHEET NUMBER: WA-C

CONTRACT: 2017.09

3 OF 16

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WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION CUT

NOTE:
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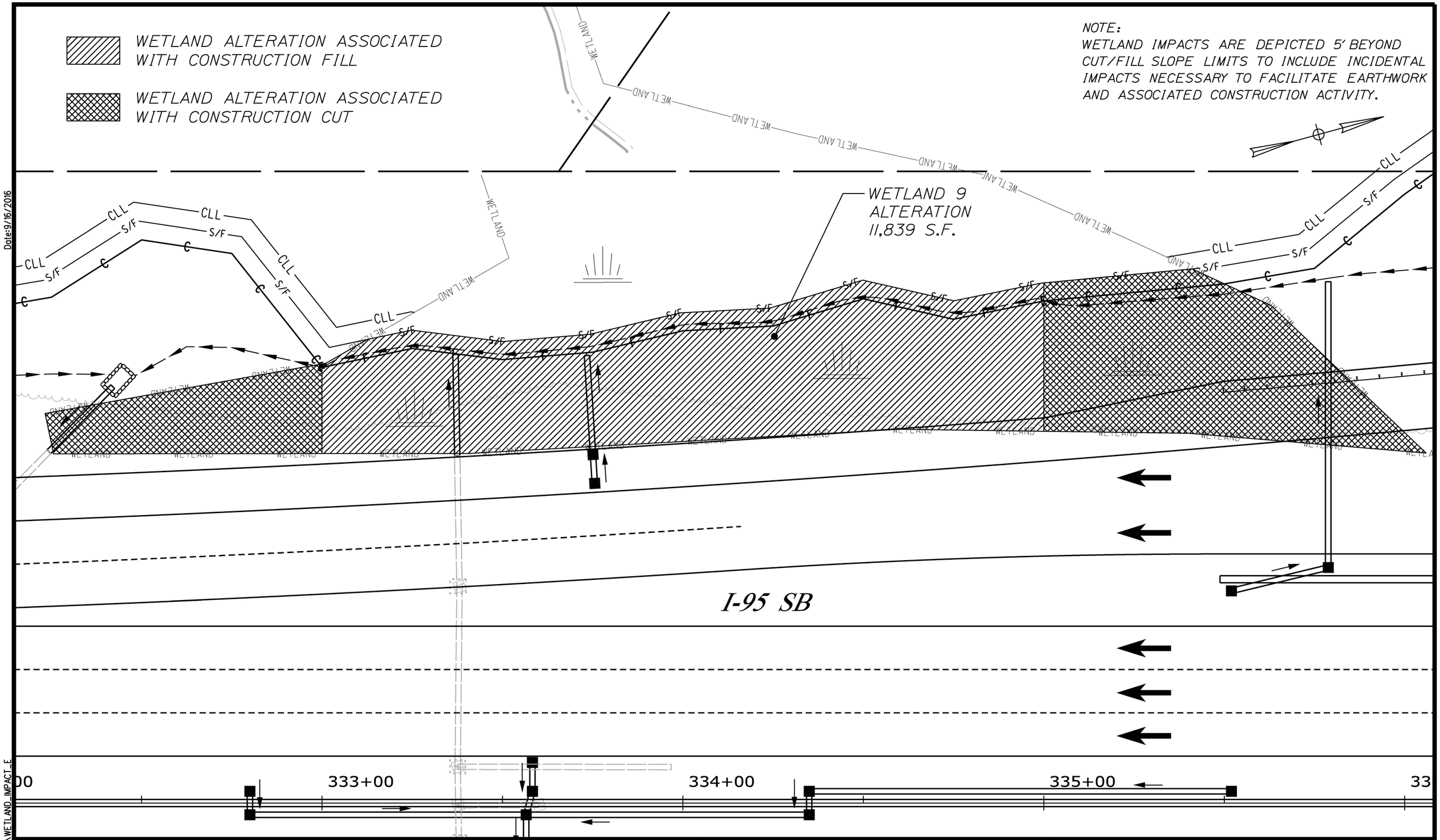

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SHEET NUMBER: WA-E
4 OF 16

1339+00 1340+00 1341+00 1342+00

I-95 NB

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WETLAND 18
ALTERATION
9,773 S.F.

EMFP

WETLAND

S/F

CLL

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION FILL

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION CUT

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THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

WETLAND 18 ALTERATION

SHEET NUMBER: WA-F

CONTRACT: 2017.09

Date:9/16/2016

WETLAND 10
ALTERATION
8,497 S.F.

4342+00

4343+00

4344+00

4345+00

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION FILL

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION CUT

I-95 SB

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MTA PROJECT MANAGER: R. NORWOOD

THE GOLD STAR MEMORIAL HIGHWAY

YORK TOLL PLAZA

WETLAND 10 ALTERATION

SHEET NUMBER: WA-G

CONTRACT: 2017.09

Date:9/16/2016

I-95 NB

3344+00

3344+00 N 15°18'56.74" E

3345+00

3346+00

WETLAND 17
ALTERATION
19,287 S.F.

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION FILL

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION CUT

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3	UPDATED MAPS	OAM	09/16/16

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

WETLAND 17 ALTERATION

SHEET NUMBER: WA-H

CONTRACT: 2017.09

7 OF 16

Filename: ...\ENVIRONMSTA\WETLAND_IMPACT_H

348+00

349+00

350+00

351+00

Date:9/16/2016

I-95 NB

WETLAND

WETLAND

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WETLAND

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WETLAND

WETLAND

WETLAND

S/F

S/F

S/F

Date:9/16/2016

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION FILL

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION CUT

WETLAND 12 ALTERATION 1,296 S.F.

CLL

S/F

WETLAND

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I-95 SB

352+00

353+00

354+00

355+00

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

WETLAND 12 ALTERATION

SHEET NUMBER: WA-J

CONTRACT: 2017.09

9 OF 16

Filename: ...\ENVIRON\MSTA\WETLAND_IMPACT_J

355+00

356+00

357+00

358+00

I-95 NB

S/F

WETLAND

CLL

WETLAND 15
ALTERATION
47 S.F.

WETLAND 15
ALTERATION
833 S.F.

NOTE:
WETLAND IMPACTS ARE DEPICTED 5' BEYOND CUT/FILL SLOPE LIMITS TO INCLUDE INCIDENTAL IMPACTS NECESSARY TO FACILITATE EARTHWORK AND ASSOCIATED CONSTRUCTION ACTIVITY.

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION FILL

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION CUT

Date:9/16/2016

Filename: ...\ENVIRON\MSTA\WETLAND_IMPACT_K

Scale: 12.5 0 12.5 25
Scale of Feet

No.	Revision	By	Date
1	PROGRESS SUBMITTAL	OAM	06/20/16
2	MISCELLANEOUS REVISIONS	OAM	09/01/16
3	UPDATED MAPS	OAM	09/16/16

Designed by:

SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM

CONSULTANT PROJECT MANAGER: S. SAWYER, P.E.

	By	Date		By	Date
Designed	OAM	06/20/16	Checked	OAM	06/20/16
Drawn	RLM	06/20/16	In Charge of	---	--/--

SEBAGO TECHNICS
75 JOHN ROBERTS ROAD,
SUITE 1A
SOUTH PORTLAND, ME 04106
TEL (207) 200-2100

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

WETLAND 15 ALTERATION

CONTRACT: 2017.09

SHEET NUMBER: WA-K
10 OF 16

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION FILL

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION CUT

WETLAND 13 ALTERATION 2,607 S.F.

STREAM ALTERATION 20 L.F.

WETLAND 13 ALTERATION 883 S.F.

WETLAND

CLL

S/F

I-95 SB

358+00

359+00

360+00

361+0

NOTE:
WETLAND IMPACTS ARE DEPICTED 5' BEYOND CUT/FILL SLOPE LIMITS TO INCLUDE INCIDENTAL IMPACTS NECESSARY TO FACILITATE EARTHWORK AND ASSOCIATED CONSTRUCTION ACTIVITY.

Date:9/16/2016

Filename: ...\ENVIRON\MSTA\WETLAND_IMPACT_L

Scale: 12.5 0 12.5 25
Scale of Feet

No.	Revision	By	Date
1	PROGRESS SUBMITTAL	OAM	06/20/16
2	MISCELLANEOUS REVISIONS	OAM	09/01/16
3	UPDATED MAPS	OAM	09/16/16

Designed by:

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CONSULTANT PROJECT MANAGER: S. SAWYER, P.E.

	By	Date		By	Date
Designed	OAM	06/20/16	Checked	OAM	06/20/16
Drawn	RLM	06/20/16	In Charge of	---	--/--

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75 JOHN ROBERTS ROAD,
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TEL (207) 200-2100

MAINE TURNPIKE

MTA PROJECT MANAGER: R. NORWOOD

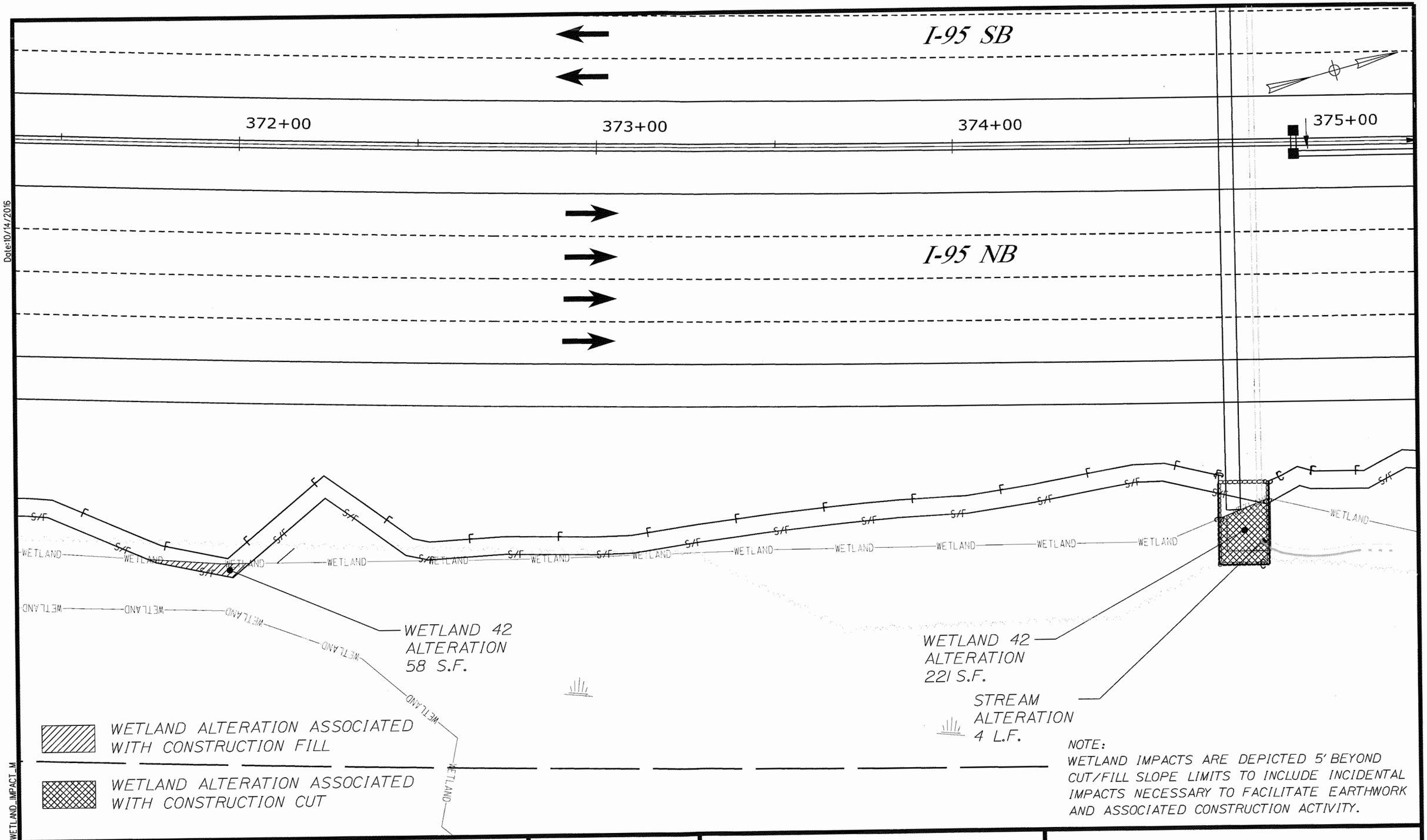
THE GOLD STAR MEMORIAL HIGHWAY

YORK TOLL PLAZA

WETLAND 13 ALTERATION

CONTRACT: 2017.09

SHEET NUMBER: WA-L



NOTE:
WETLAND IMPACTS ARE DEPICTED 5' BEYOND CUT/FILL SLOPE LIMITS TO INCLUDE INCIDENTAL IMPACTS NECESSARY TO FACILITATE EARTHWORK AND ASSOCIATED CONSTRUCTION ACTIVITY.

Date:10/14/2016

Filename: ...\ENVIRON\MSTA\WETLAND_IMPACT_M

Scale: 12.5 0 12.5 25
Scale of Feet

No.	Revision	By	Date
1	PROGRESS SUBMITTAL	OAM	06/20/16
2	MISCELLANEOUS REVISIONS	OAM	09/01/16
3	UPDATED MAPS	OAM	09/16/16

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CONSULTANT PROJECT MANAGER: S. SAWYER, P.E.

	By	Date		By	Date
Designed	DLR	4/1/16	Checked	---	--/--
Drawn	DB	4/1/16	In Charge of	---	--/--

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75 JOHN ROBERTS ROAD,
SUITE 1A
SOUTH PORTLAND, ME 04106
TEL (207) 200-2100

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

WETLAND 42 ALTERATION

CONTRACT: 2017.09

SHEET NUMBER: WA-M
12 OF 16

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION FILL

WETLAND ALTERATION ASSOCIATED WITH CONSTRUCTION CUT

NOTE:
WETLAND IMPACTS ARE DEPICTED 5' BEYOND CUT/FILL SLOPE LIMITS TO INCLUDE INCIDENTAL IMPACTS NECESSARY TO FACILITATE EARTHWORK AND ASSOCIATED CONSTRUCTION ACTIVITY.

WETLAND 30 ALTERATION 645 S.F.

WETLAND 30 ALTERATION 859 S.F.

WETLAND

S/F

CL

I-95 SB

I-95 NB

374+00

375+00

376+00

377+00

Date:9/16/2016

Filename: ...\ENVIRON\MSTA\WETLAND_IMPACT_N

Scale: 12.5 0 12.5 25
Scale of Feet

No.	Revision	By	Date
1	PROGRESS SUBMITTAL	OAM	06/20/16
2	MISCELLANEOUS REVISIONS	OAM	09/01/16
3	UPDATED MAPS	OAM	09/16/16

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	By	Date		By	Date
Designed	OAM	06/20/16	Checked	OAM	06/20/16
Drawn	RLM	06/20/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

WETLAND 30 ALTERATION

CONTRACT: 2017.09

SHEET NUMBER: WA-N
13 OF 16

Date:9/16/2016

UPLAND ALTERATION WITHIN SIGNIFICANT VERNAL POOL HABITAT

UPLAND ALTERATION WITHIN SIGNIFICANT VERNAL POOL HABITAT 52,268 S.F.

I-95 SB

335+00 336+00 337+00 338+00 339+00 340+00 341+00 342+00

Scale: 25 0 25 50
Scale of Feet

No.	Revision	By	Date
1	PROGRESS SUBMITTAL	OAM	06/20/16
2	MISCELLANEOUS REVISIONS	OAM	09/01/16
3	UPDATED MAPS	OAM	09/16/16

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	By	Date		By	Date
Designed	OAM	06/20/16	Checked	OAM	06/20/16
Drawn	RLM	06/20/16	In Charge of	---	--/--

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75 JOHN ROBERTS ROAD,
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TEL (207) 200-2100

MAINE TURNPIKE

MTA PROJECT MANAGER: R. NORWOOD

THE GOLD STAR MEMORIAL HIGHWAY

YORK TOLL PLAZA

VERNAL POOL - 54 UPLAND HABITAT ALTERATION

SHEET NUMBER: WA-0

CONTRACT: 2017.09

14 OF 16

Filename: ...\WSTA\WETLAND_IMPACT_0.dgn

UPLAND ALTERATION WITHIN SIGNIFICANT VERNAL POOL HABITAT

UPLAND ALTERATION WITHIN SIGNIFICANT VERNAL POOL HABITAT 8,466 S.F.

UPLAND ALTERATION WITHIN SIGNIFICANT VERNAL POOL HABITAT 461 S.F.

Date:9/16/2016

Filename: ...\MSTA\WETLAND_IMPACT_P.dgn

Scale: 25 0 25 50
Scale of Feet

No.	Revision	By	Date
1	PROGRESS SUBMITTAL	OAM	06/20/16
2	MISCELLANEOUS REVISIONS	OAM	09/01/16
3	UPDATED MAPS	OAM	09/16/16

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CONSULTANT PROJECT MANAGER: S. SAWYER, P.E.

	By	Date		By	Date
Designed	OAM	06/20/16	Checked	OAM	06/20/16
Drawn	RLM	06/20/16	In Charge of	---	--/--

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SUITE 1A
SOUTH PORTLAND, ME 04106
TEL (207) 200-2100

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

VERNAL POOL - 54 AND 56
UPLAND HABITAT ALTERATION

SHEET NUMBER: WA-P

CONTRACT: 2017.09

UPLAND ALTERATION WITHIN SIGNIFICANT VERNAL POOL HABITAT

UPLAND ALTERATION WITHIN SIGNIFICANT VERNAL POOL HABITAT 20,287 S.F.

I-95 SB

352+00 353+00 354+00 355+00 356+00 357+00 358+00 35

Date:9/16/2016

Filename: ...\WSTA\WETLAND_IMPACT_Q.dgn

Scale: 25 0 25 50
Scale of Feet

No.	Revision	By	Date
1	PROGRESS SUBMITTAL	OAM	06/20/16
2	MISCELLANEOUS REVISIONS	OAM	09/01/16
3	UPDATED MAPS	OAM	09/16/16

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CONSULTANT PROJECT MANAGER: S. SAWYER, P.E.

	By	Date		By	Date
Designed	OAM	06/20/16	Checked	OAM	06/20/16
Drawn	RLM	06/20/16	In Charge of	---	--/--

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75 JOHN ROBERTS ROAD,
SUITE 1A
SOUTH PORTLAND, ME 04106
TEL (207) 200-2100

MAINE TURNPIKE

MTA PROJECT MANAGER: R. NORWOOD

THE GOLD STAR MEMORIAL HIGHWAY

YORK TOLL PLAZA

VERNAL POOL - 13 UPLAND HABITAT ALTERATION

SHEET NUMBER: WA-Q

CONTRACT: 2017.09

16 OF 16

ATTACHMENT 6. CROSS SECTION OF WETLAND IMPACT

The following attachment is of the cross-sections of highway and toll plaza wetland impact areas for the new toll plaza at mile 8.8 as well as improvements made after the demolition of the existing toll plaza at mile 7.3.

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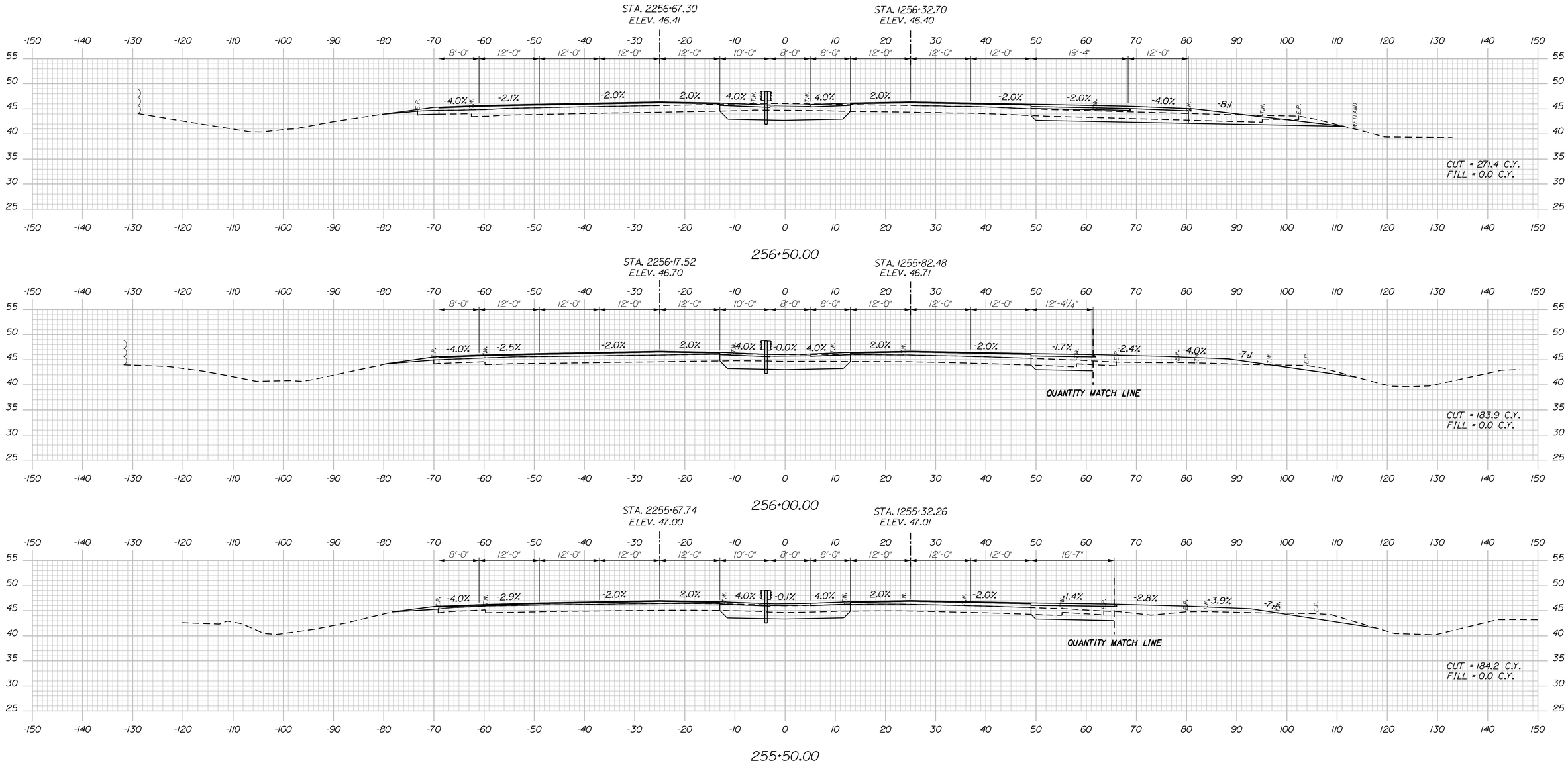
Date:9/16/2016



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Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

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Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

JACOBS ENGINEERING GROUP
343 CONGRESS STREET
BOSTON, MA 02210
TEL (617) 242-9222
FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

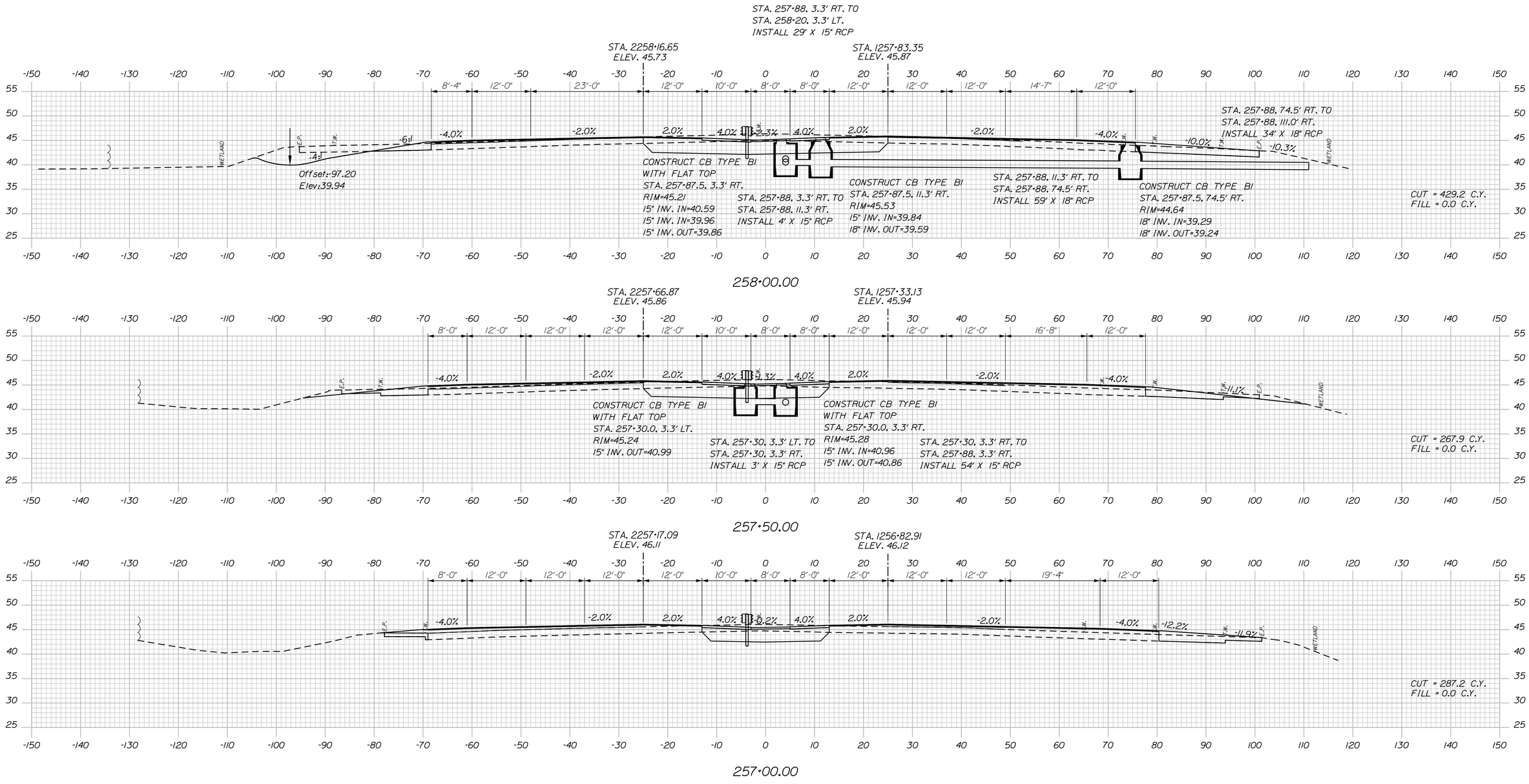
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 255+50 TO STA. 256+50

SHEET NUMBER: XS-06

CONTRACT:2017.XX



Date:9/16/2016

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Scale:

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Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

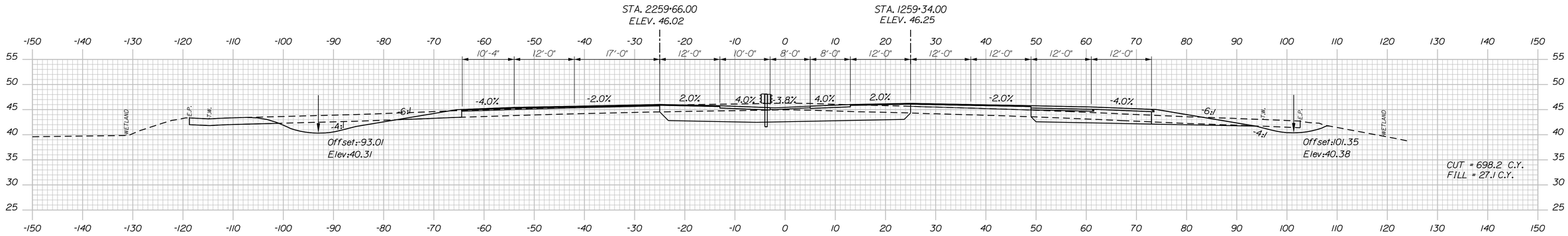
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 257+00 TO STA. 258+00

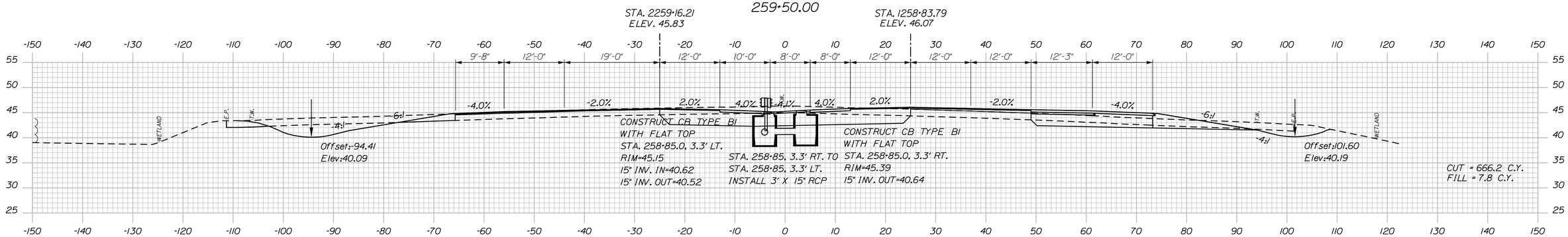
SHEET NUMBER: XS-07

CONTRACT:2017.XX

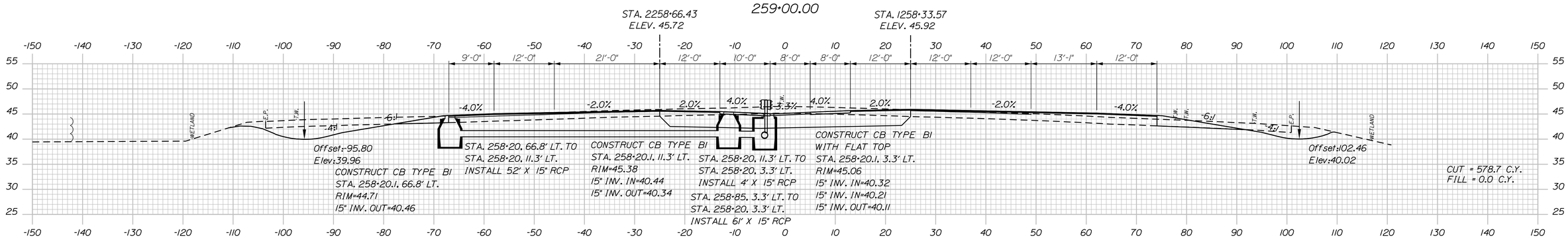
Date:9/16/2016



259+50.00



259+00.00



258+50.00

Filename: ...\d0259637\Xsect1_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

JACOBS ENGINEERING GROUP
343 CONGRESS STREET
BOSTON, MA 02210
TEL (617) 242-9222
FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

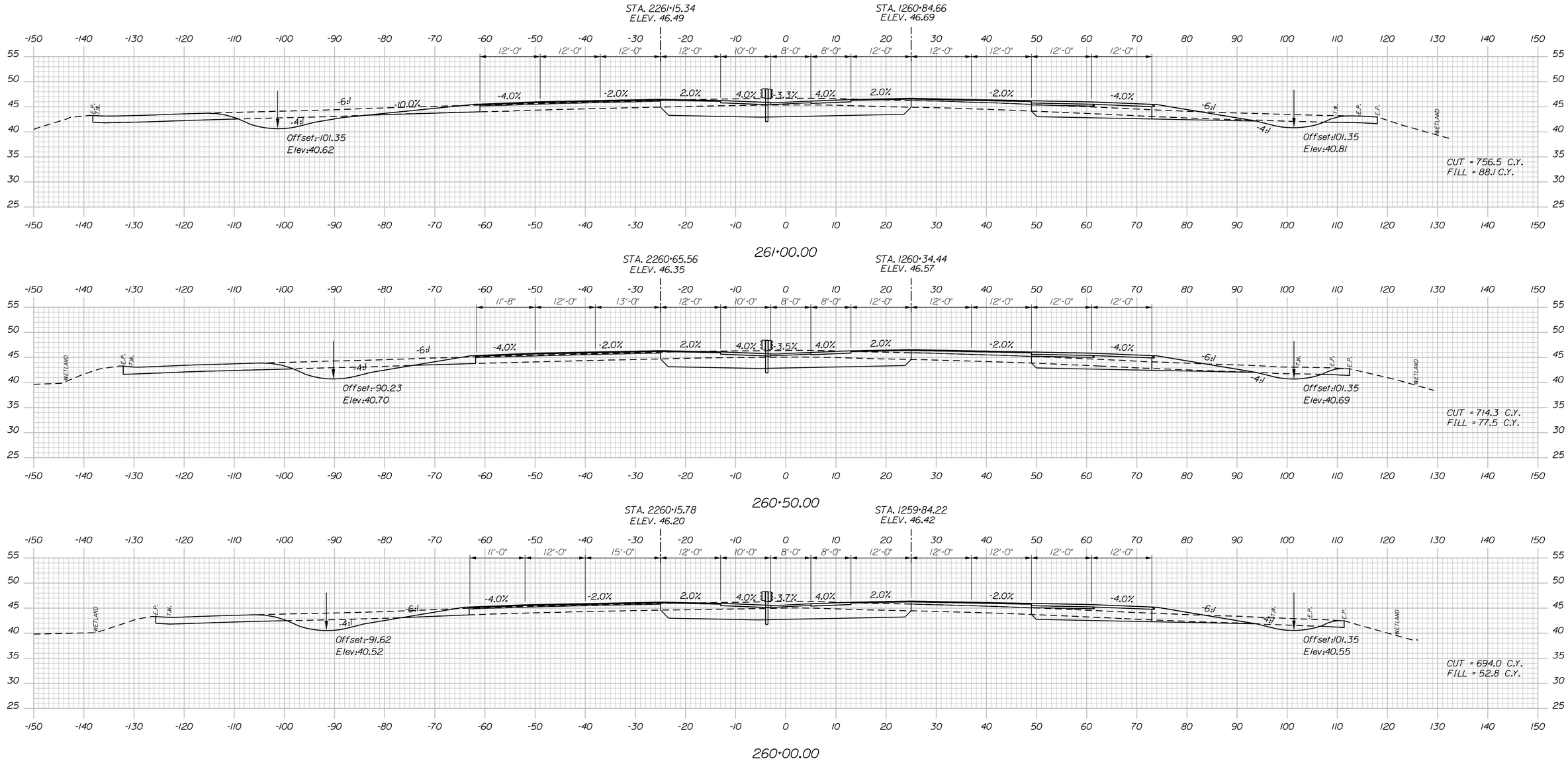
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 258+50 TO STA. 259+50

SHEET NUMBER: XS-08

CONTRACT:2017.XX

Date:9/16/2016



Filename: ...\a0259637\Xsect1_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

JACOBS ENGINEERING GROUP
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FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

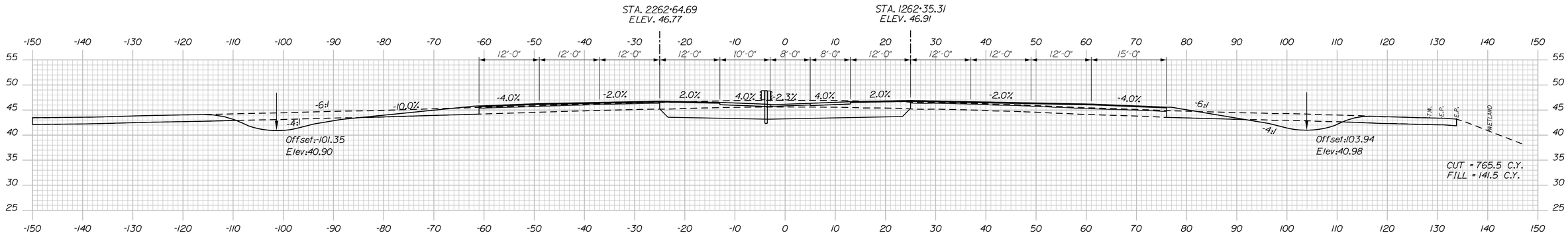
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 260+00 TO STA. 261+00

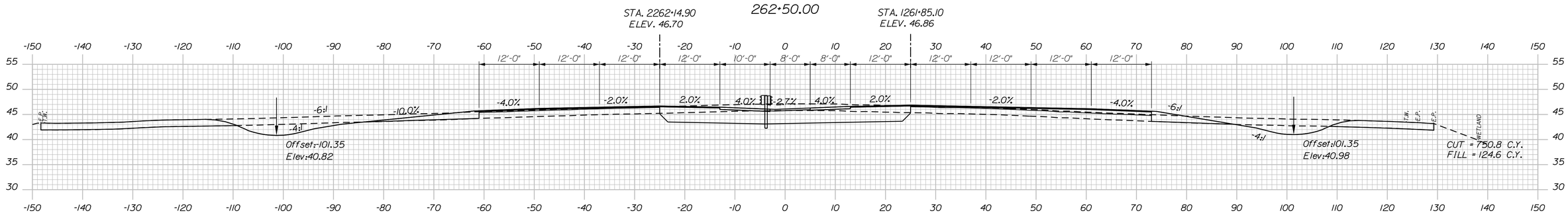
SHEET NUMBER: XS-09

CONTRACT:2017.XX

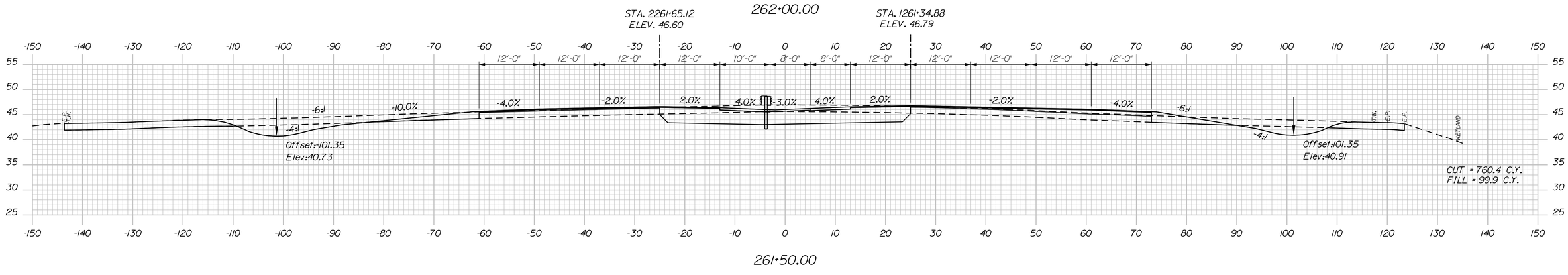
Date:9/16/2016



262+50.00



262+00.00



261+50.00

Filename: ...\d0259637\Xsect1_I95.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

Designed by:

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	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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343 CONGRESS STREET
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TEL (617) 242-9222
FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

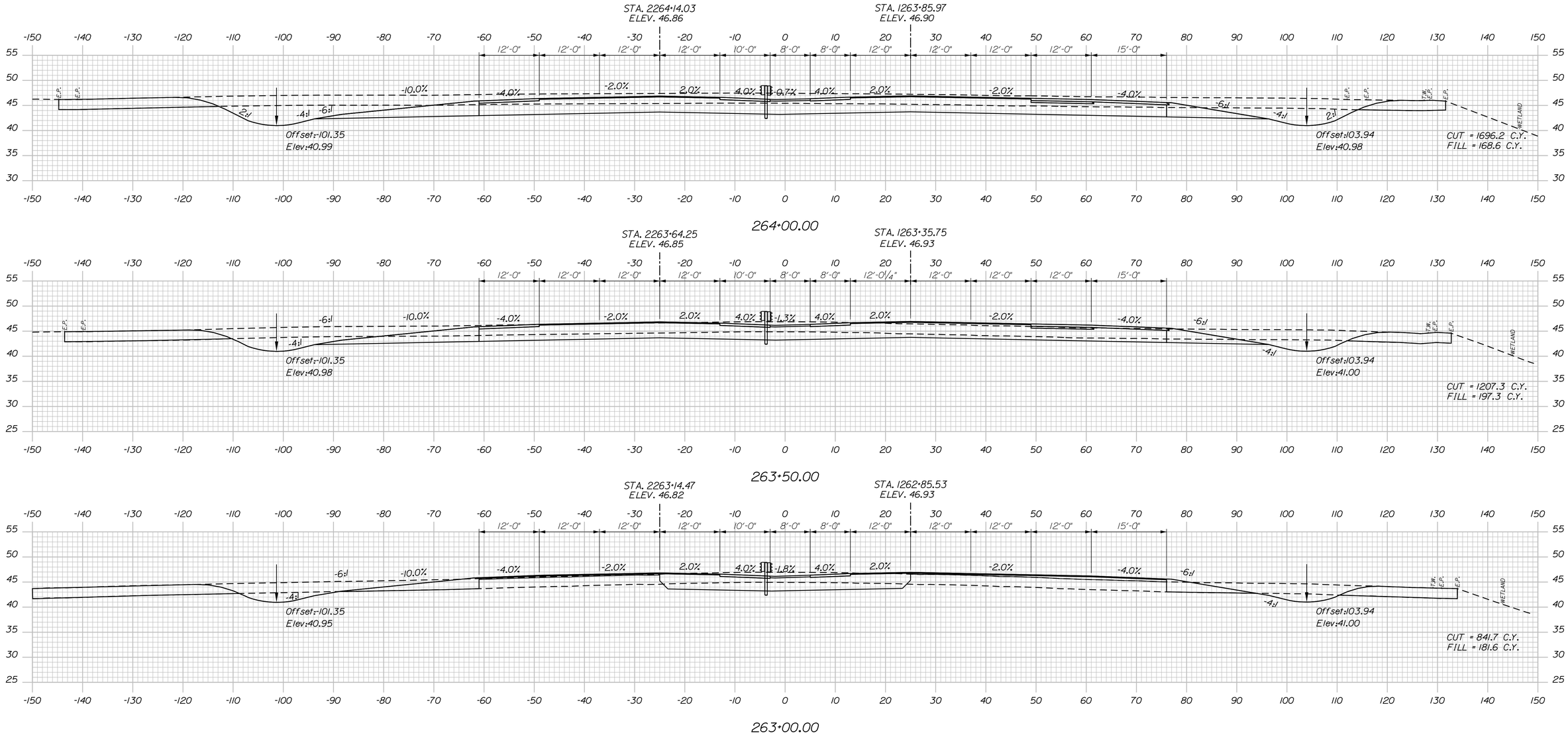
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 261+50 TO STA. 262+50

SHEET NUMBER: XS-10

CONTRACT:2017.XX

Date:9/16/2016



264+00.00

263+50.00

263+00.00

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Scale:

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Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

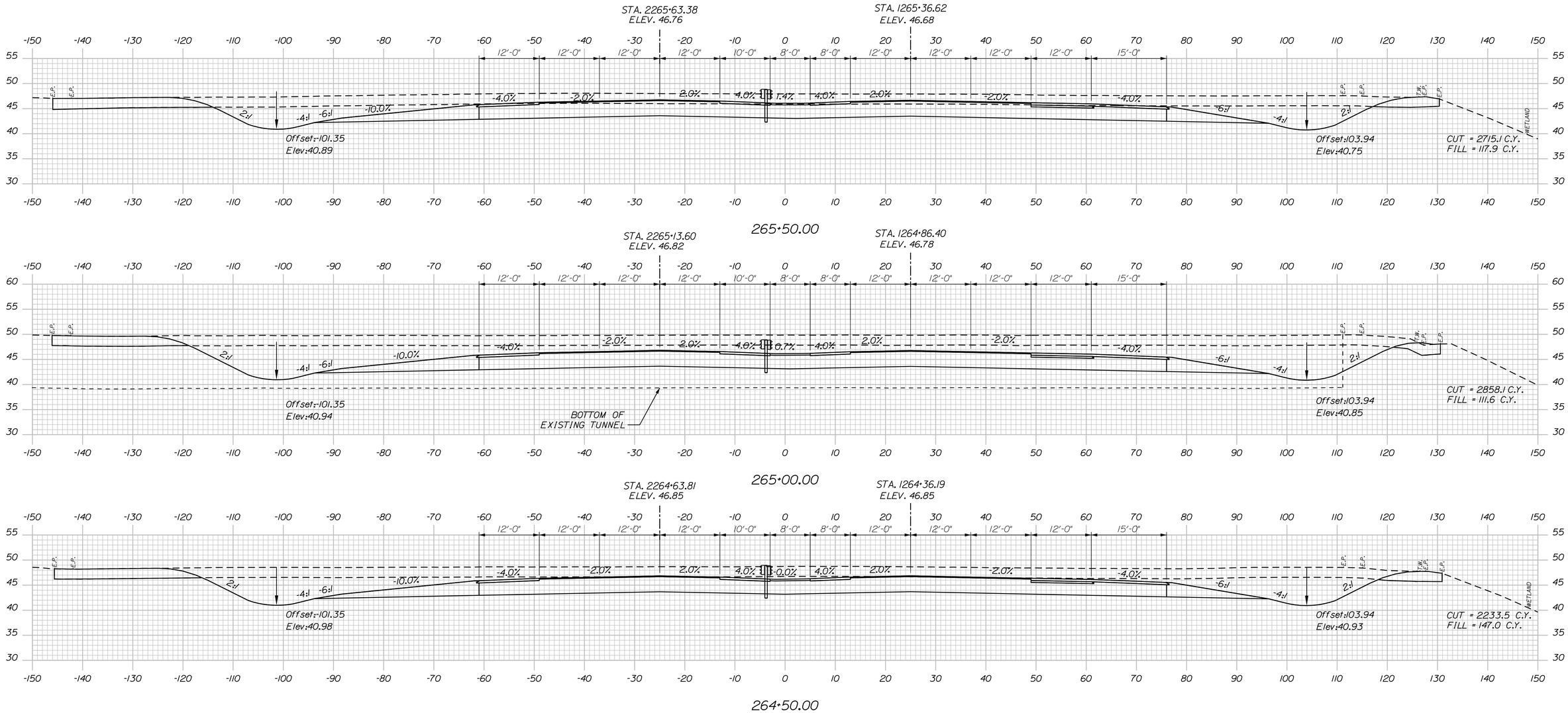
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 263+00 TO STA. 264+00

SHEET NUMBER: XS-11

CONTRACT:2017.XX

Date:9/16/2016



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Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

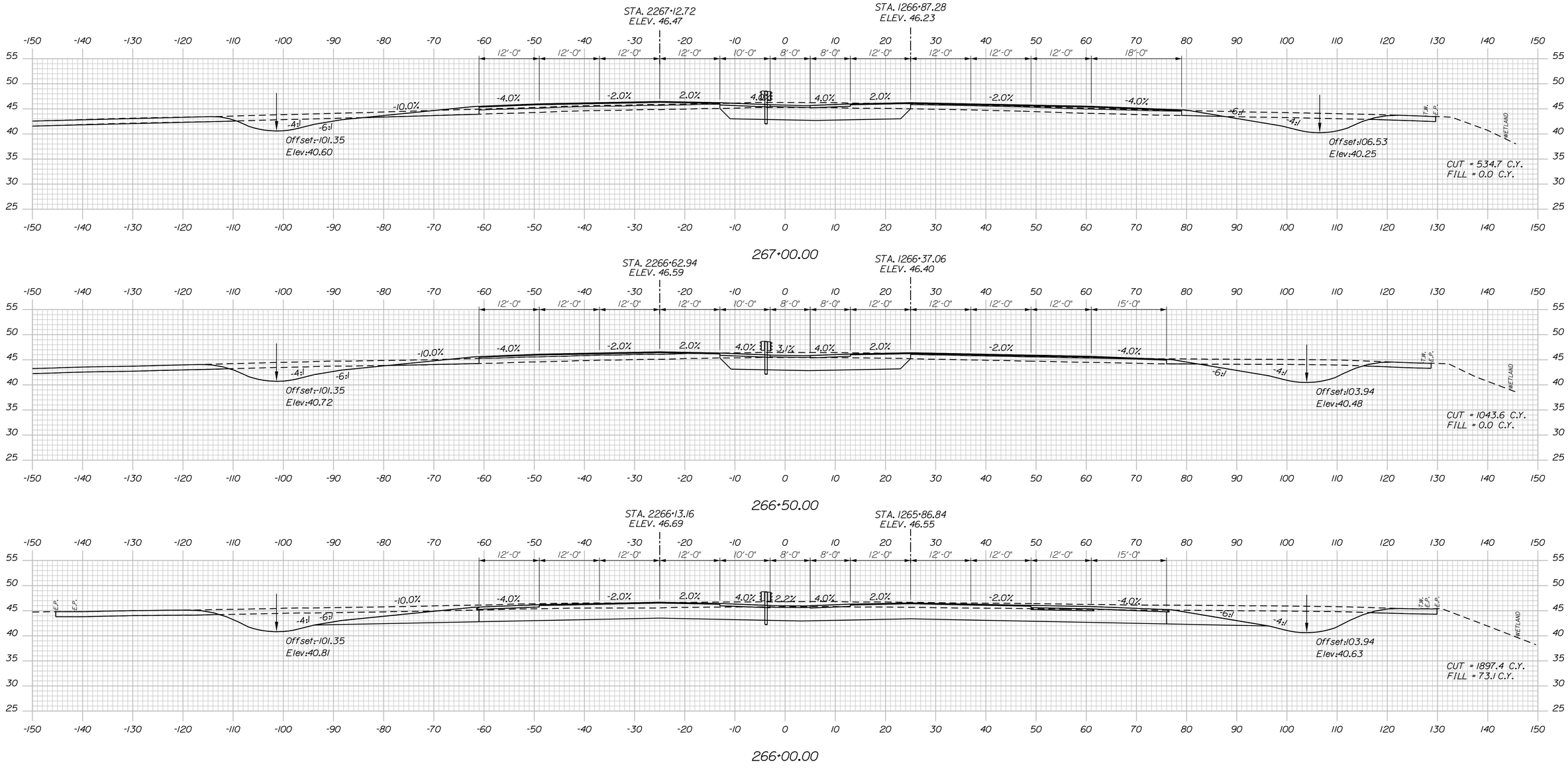
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 264+50 TO STA. 265+50

SHEET NUMBER: XS-12

CONTRACT:2017.XX



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No.	Revision	By	Date

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

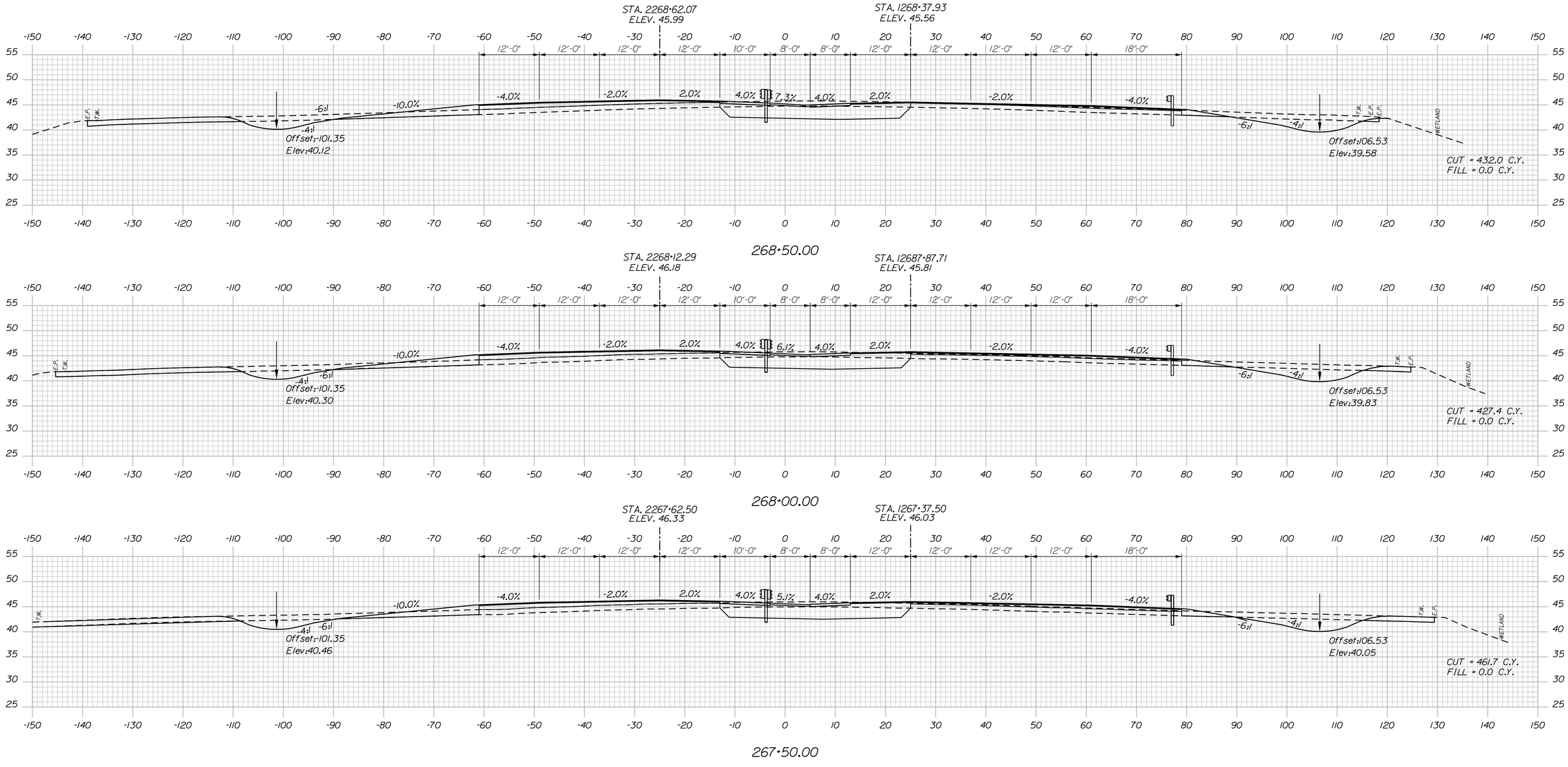
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 266+00 TO STA. 267+00

SHEET NUMBER: XS-13

CONTRACT:2017.XX

Date:9/16/2016



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Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

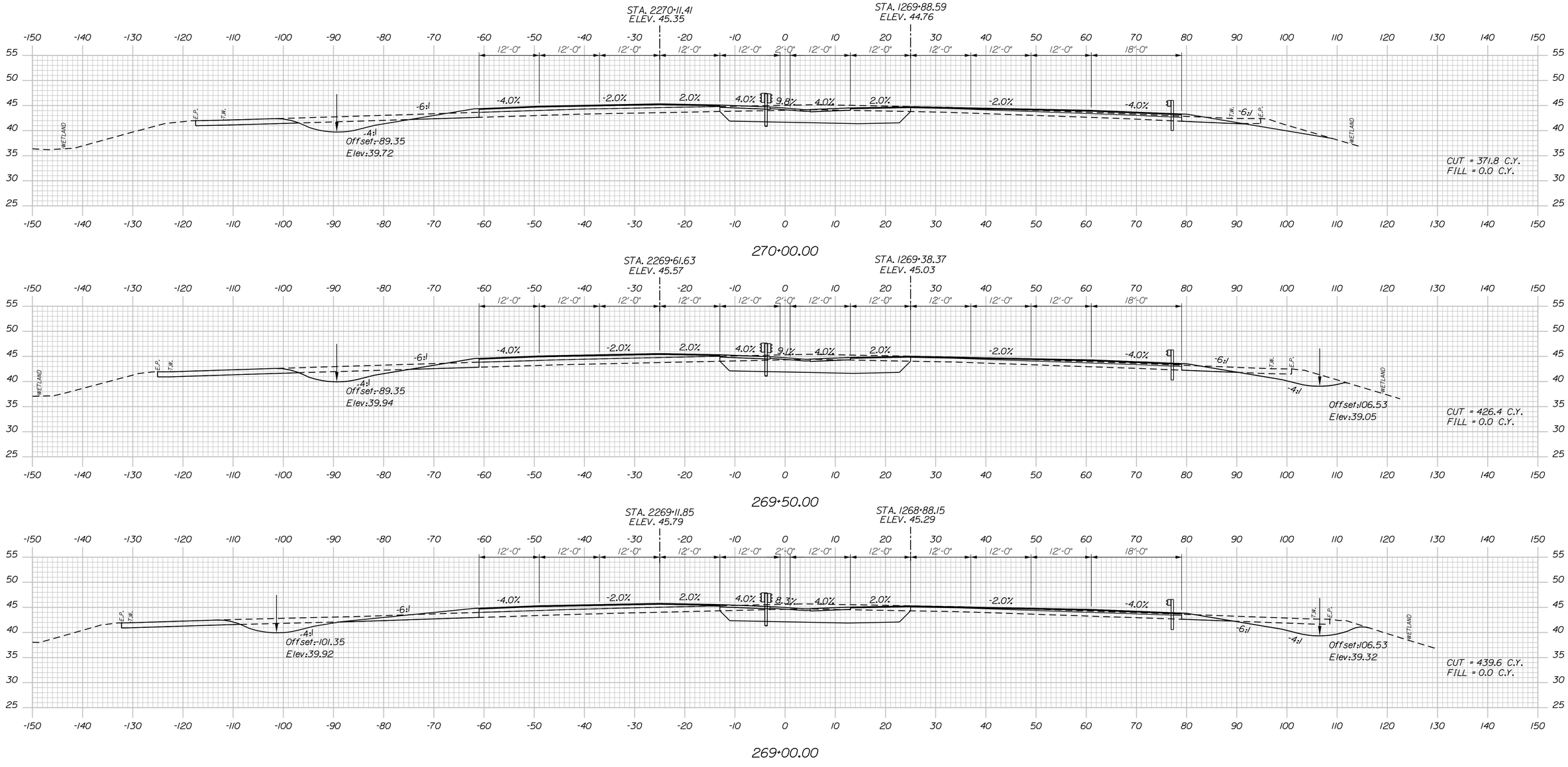
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 267+50 TO STA. 268+50

SHEET NUMBER: XS-14

CONTRACT:2017.XX

Date:9/16/2016



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Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

JACOBS ENGINEERING GROUP
343 CONGRESS STREET
BOSTON, MA 02210
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FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

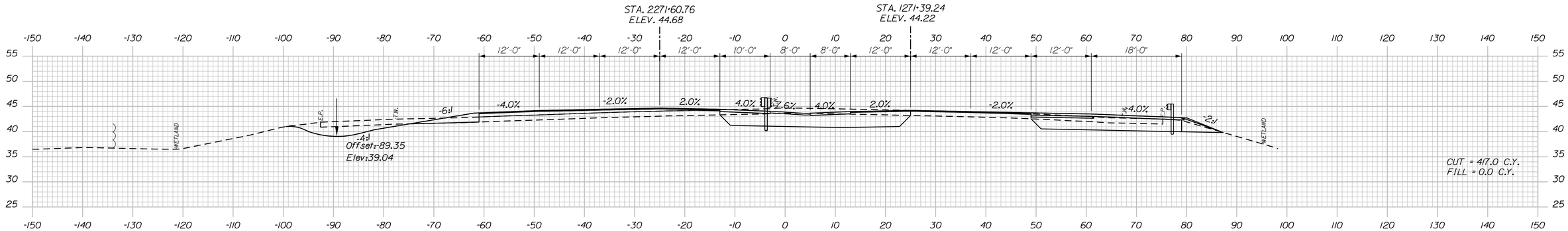
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 269+00 TO STA. 270+00

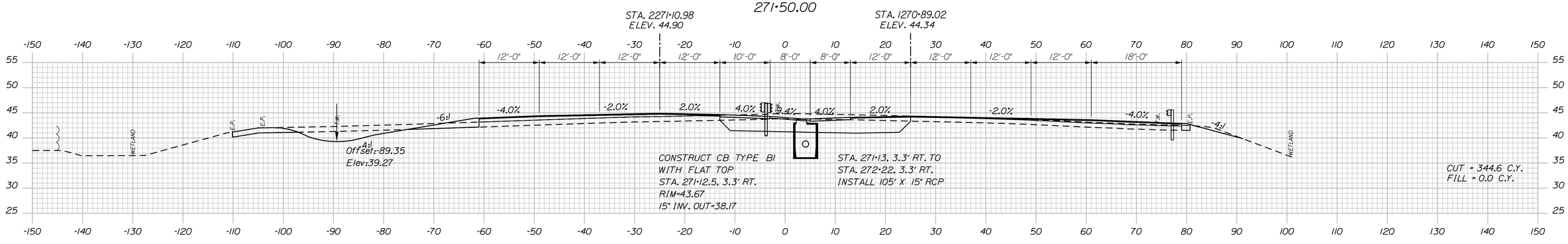
SHEET NUMBER: XS-15

CONTRACT:2017.XX

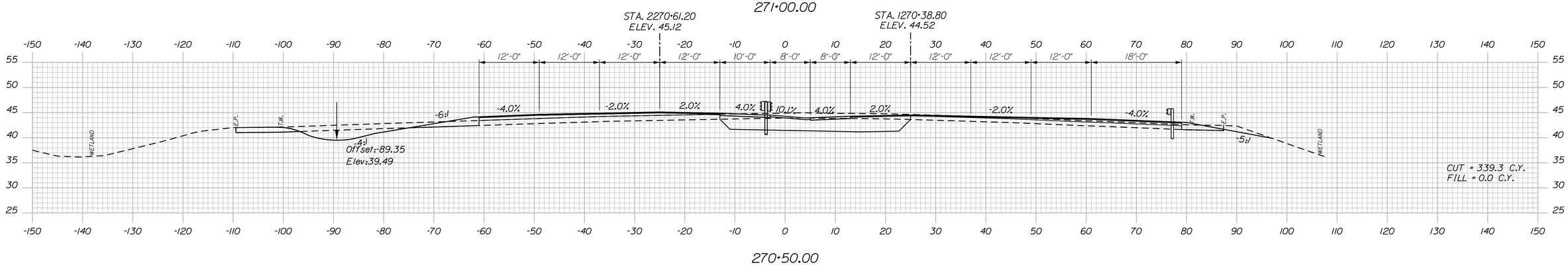
Date:9/16/2016



271+50.00



271+00.00



270+50.00

Filename: ...\d0259637\Sect1_I95.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

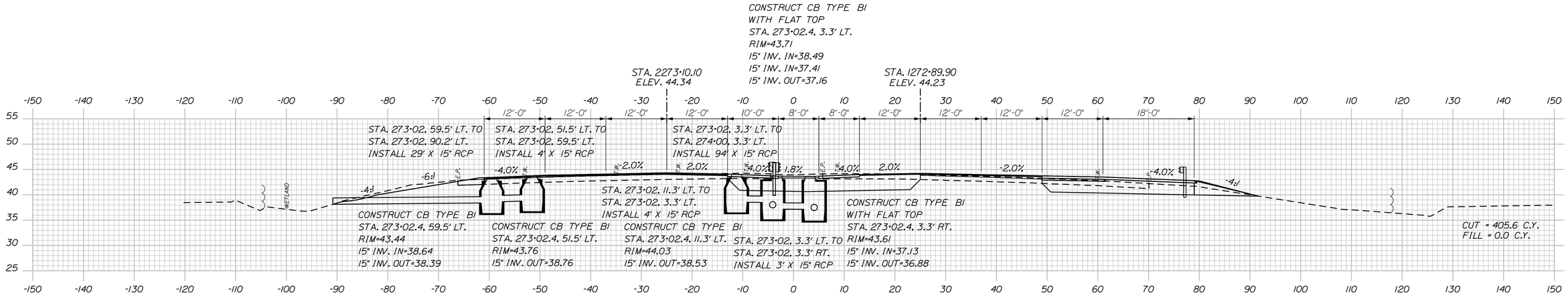
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

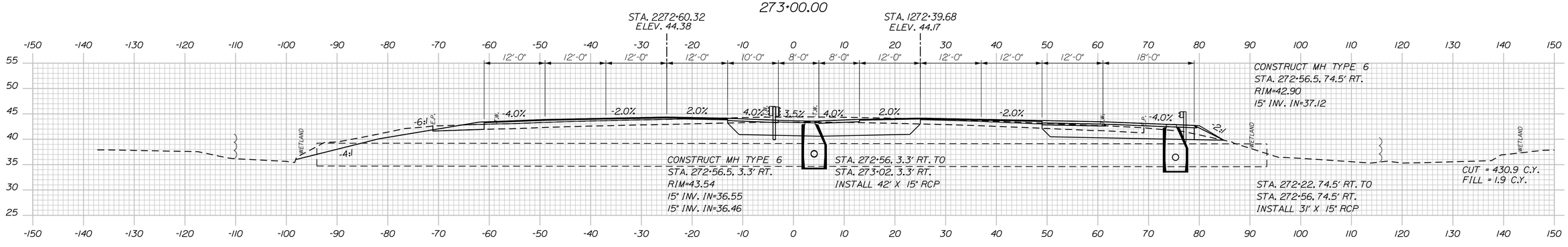
I-95 CROSS SECTIONS
STA. 270+50 TO STA. 271+50

SHEET NUMBER: XS-16

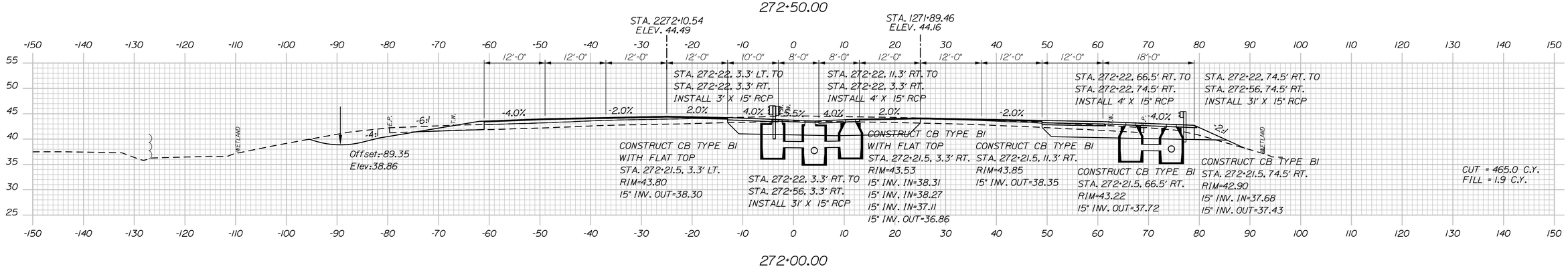
CONTRACT:2017.XX



273+00.00



272+50.00



272+00.00

Date:9/16/2016

Filename: ...\d0259637\Xsect1_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

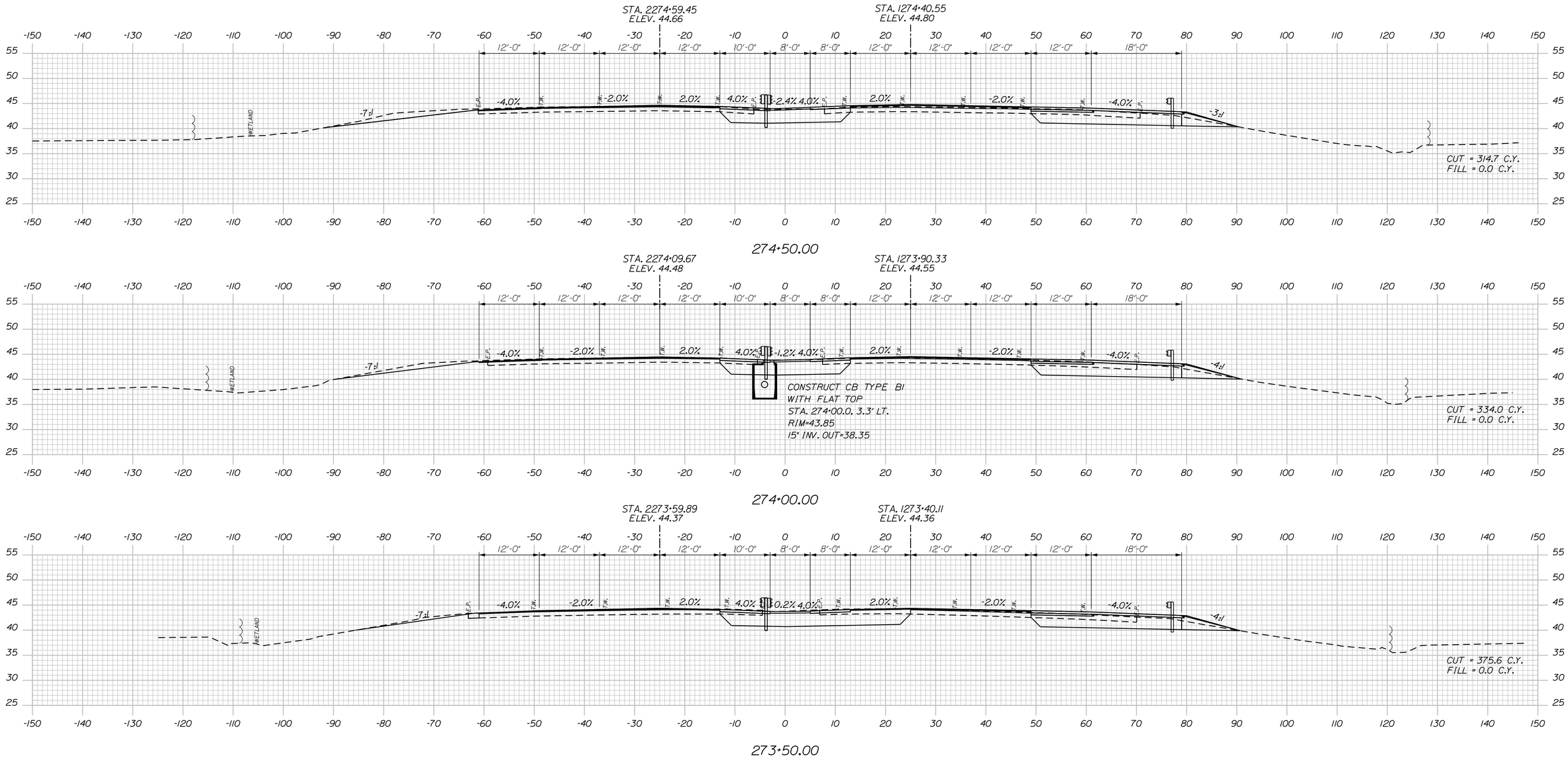
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 272+00 TO STA. 273+00

SHEET NUMBER: XS-17

CONTRACT:2017.XX

Date:9/16/2016



Filename: ...\d0259637\Xsect1_I95.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
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Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 273+50 TO STA. 274+50

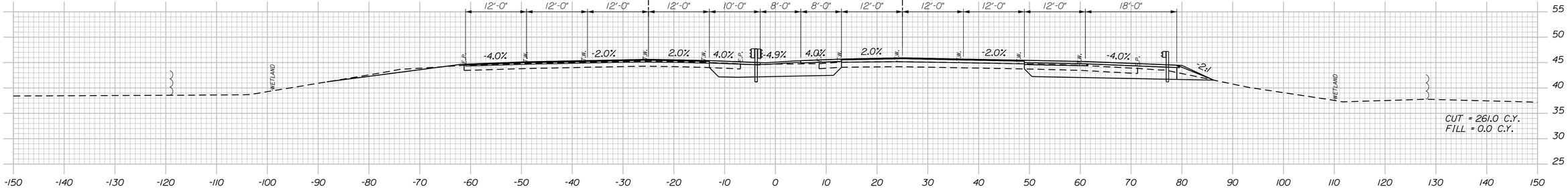
SHEET NUMBER: XS-18

CONTRACT:2017.XX

Date:9/16/2016

STA. 2276+08.80
ELEV. 45.63

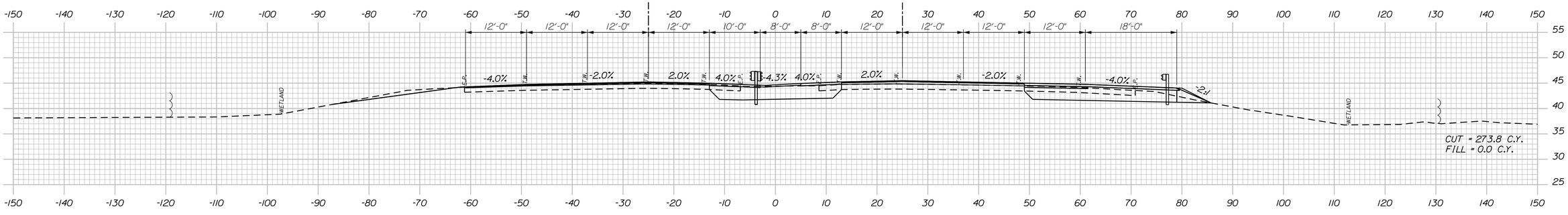
STA. 1275+91.20
ELEV. 45.93



276+00.00

STA. 2275+59.01
ELEV. 45.23

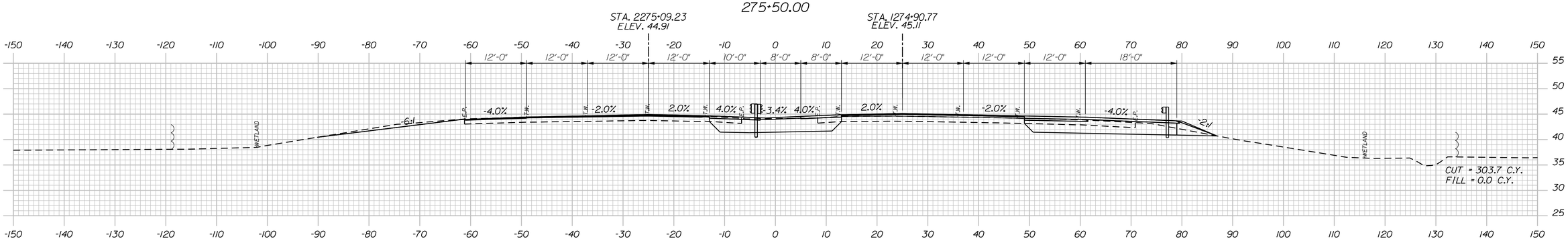
STA. 1275+40.99
ELEV. 45.49



275+50.00

STA. 2275+09.23
ELEV. 44.91

STA. 1274+90.77
ELEV. 45.11



275+00.00

Filename: ...\d0259637\Xsect1_I95.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

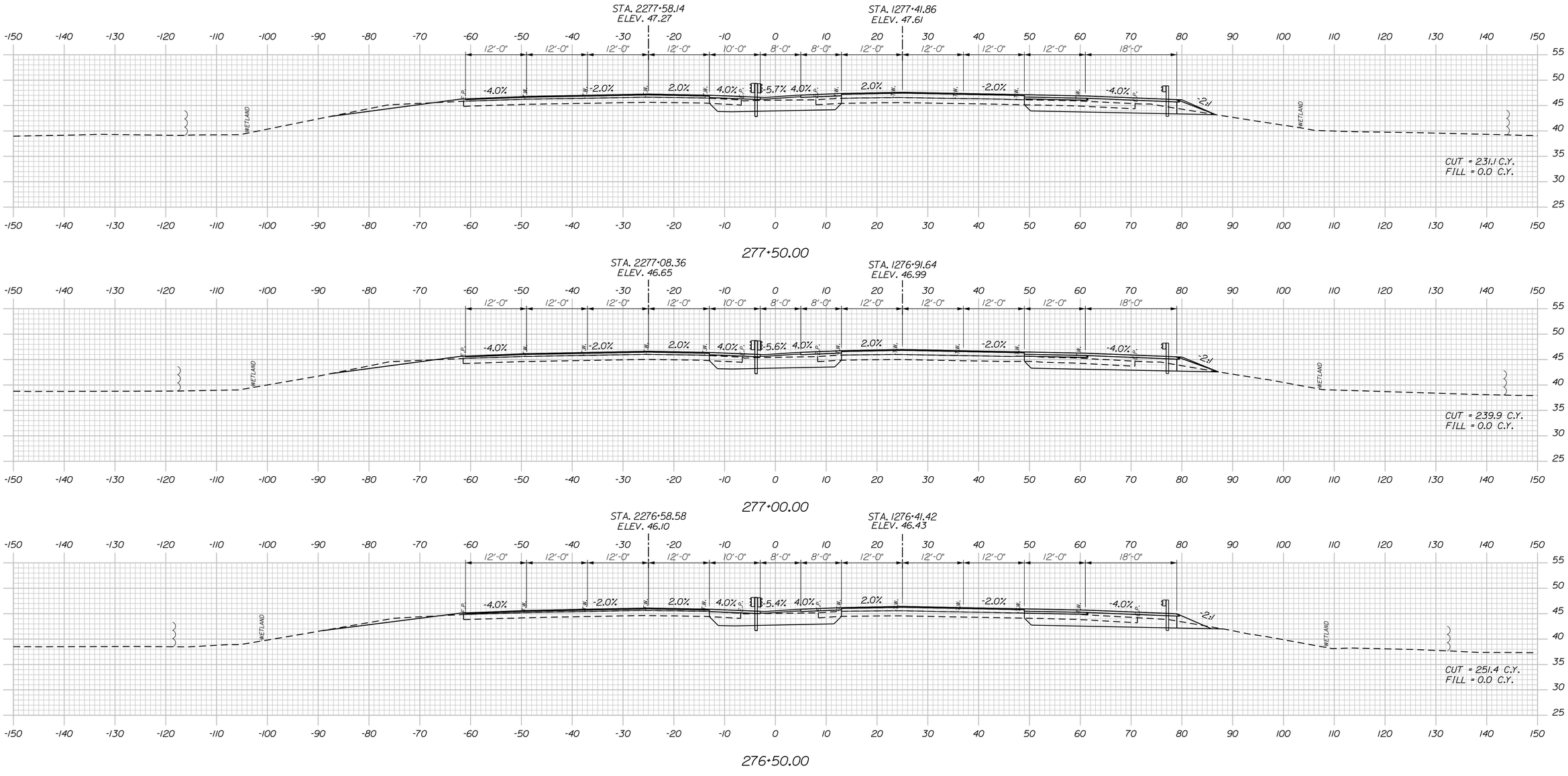
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 275+00 TO STA. 276+00

SHEET NUMBER: XS-19

CONTRACT:2017.XX

Date:9/16/2016



Filename: ...\d0259637\Xsect1_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

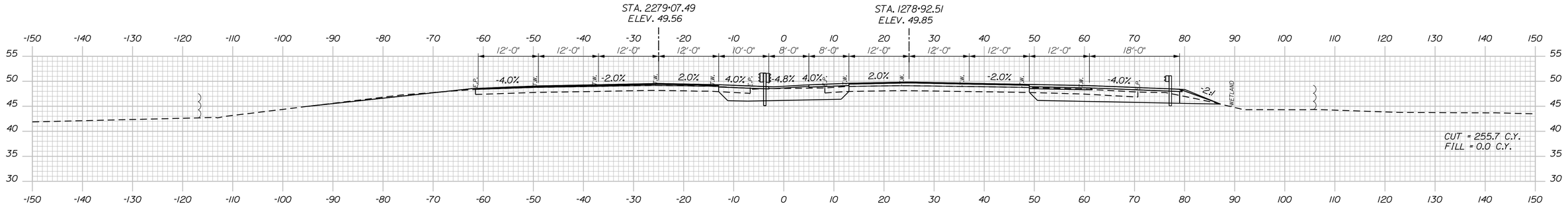
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 276+50 TO STA. 277+50

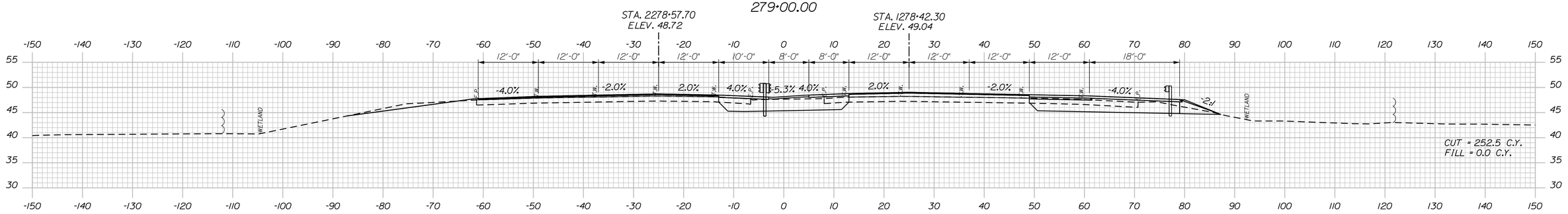
SHEET NUMBER: XS-20

CONTRACT:2017.XX

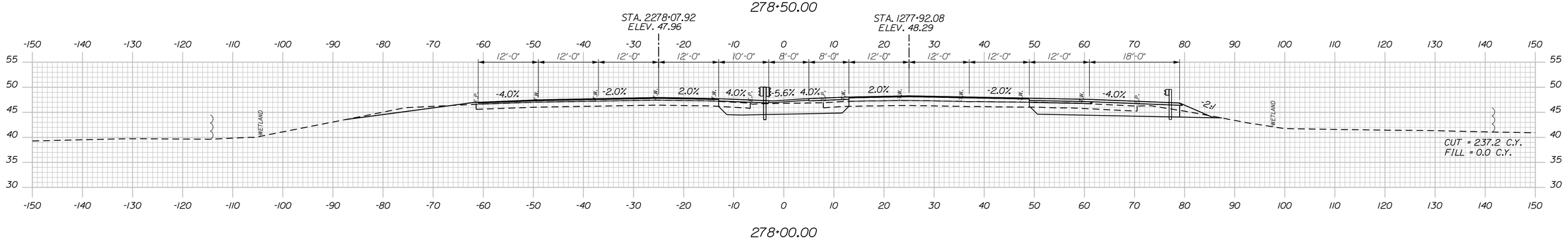
Date:9/16/2016



279+00.00



278+50.00



278+00.00

Filename: ...\d0259637\Xsect1_195.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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Designed	AMS	08/16	Checked	CSM	08/16
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

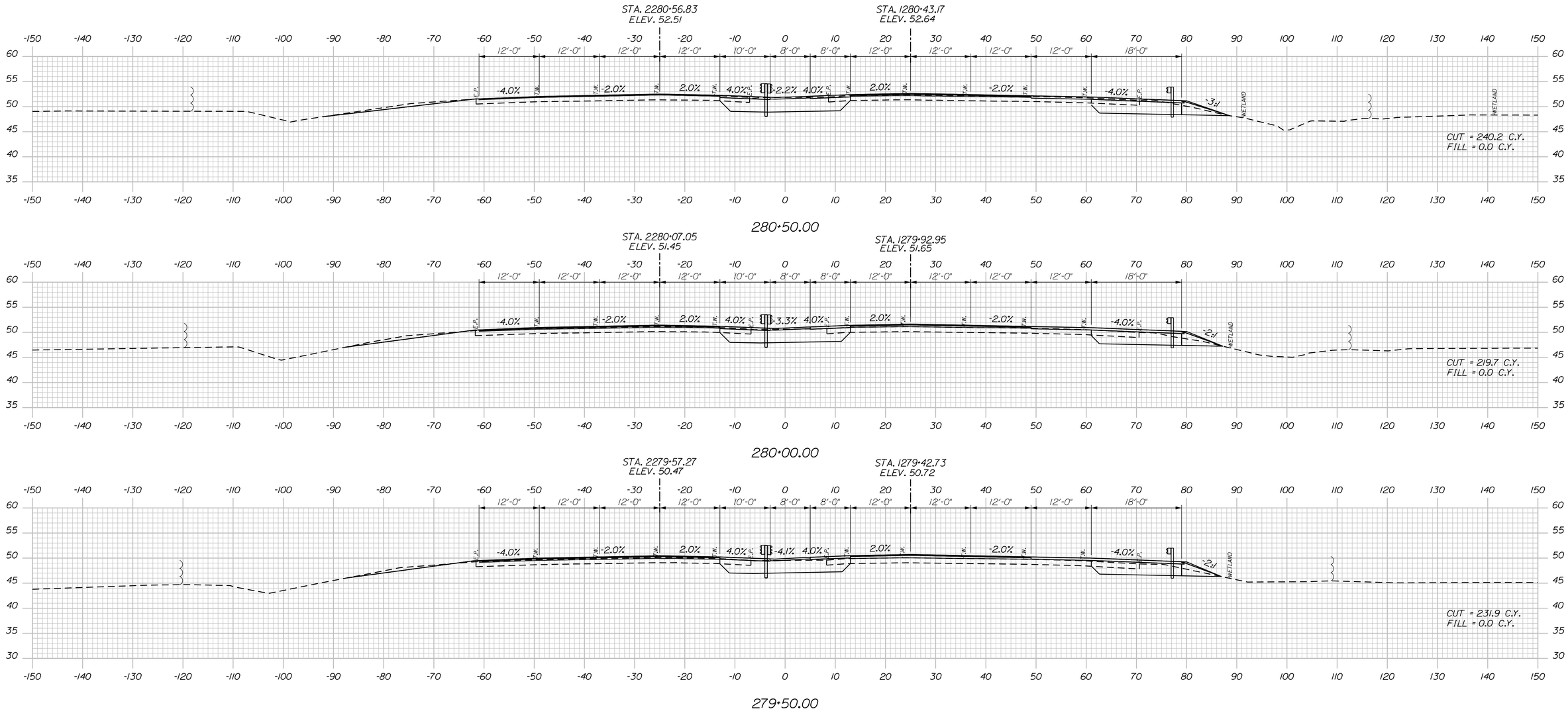
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 278+00 TO STA. 279+00

SHEET NUMBER: XS-21

CONTRACT:2017.XX

Date:9/16/2016



Filename: ...\d0259637\Xsect1_I95.dgn

Scale: 10 0 10 20 Scale of Feet

No.	Revision	By	Date

Designed by: JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

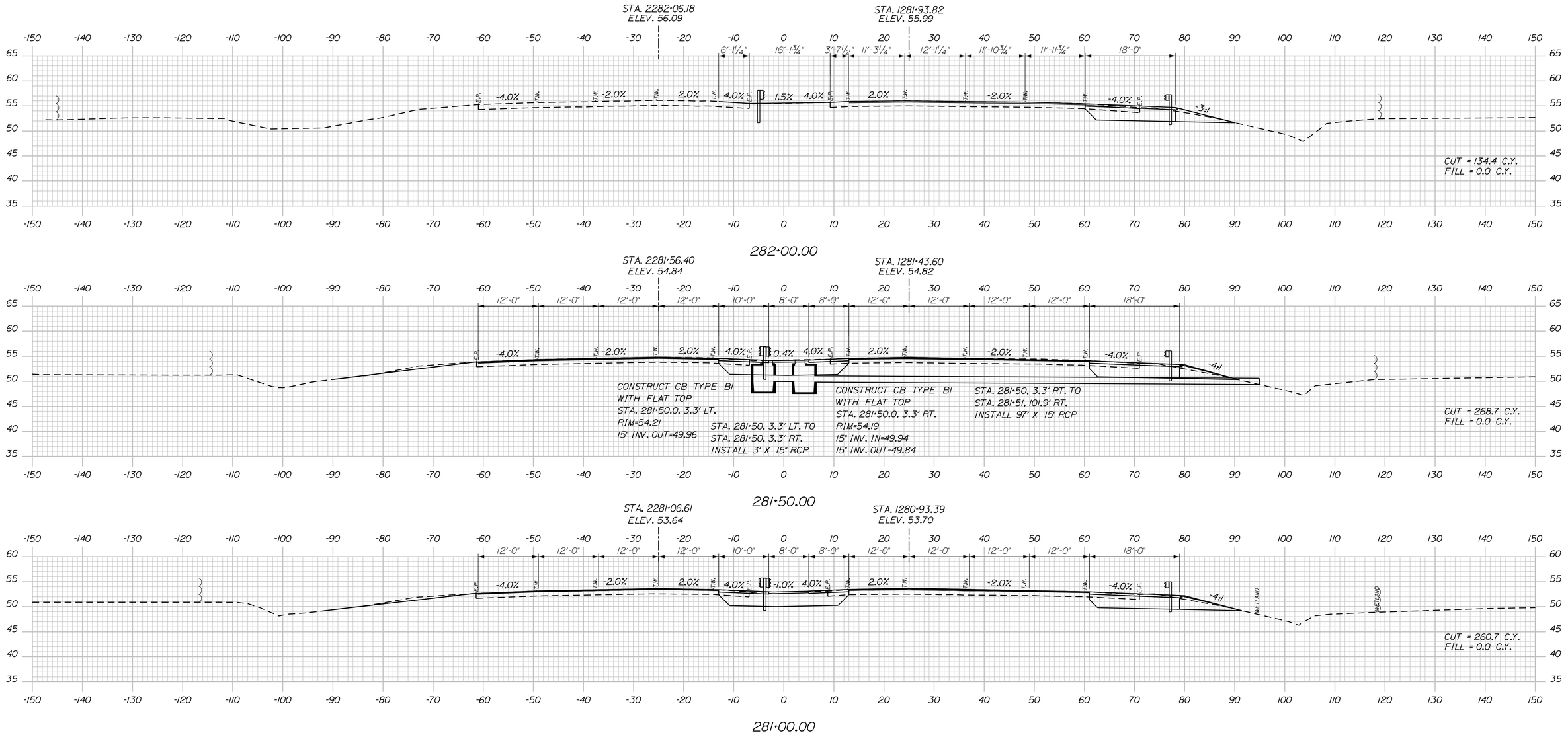
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 279+50 TO STA. 280+50

SHEET NUMBER: XS-22

CONTRACT:2017.XX

Date:9/16/2016



Filename: ...\d0259637\Xsect1_I95.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

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Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

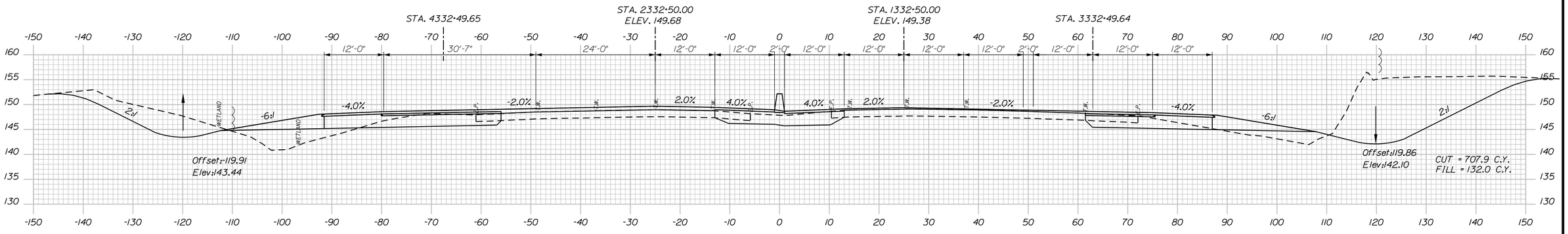
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 281+00 TO STA. 282+00

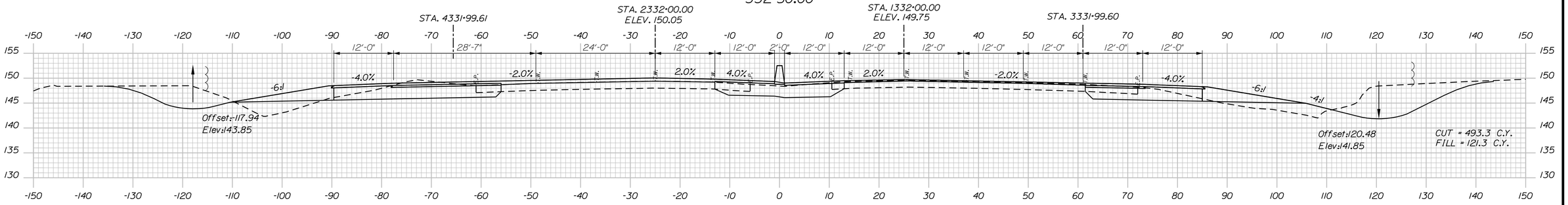
SHEET NUMBER: XS-23

CONTRACT:2017.XX

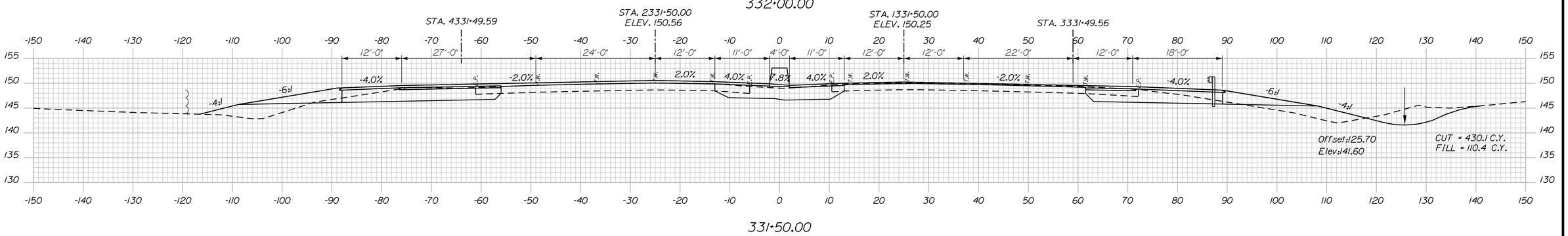
Date:9/16/2016



332+50.00



332+00.00



331+50.00

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Scale:

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Scale of Feet

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Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

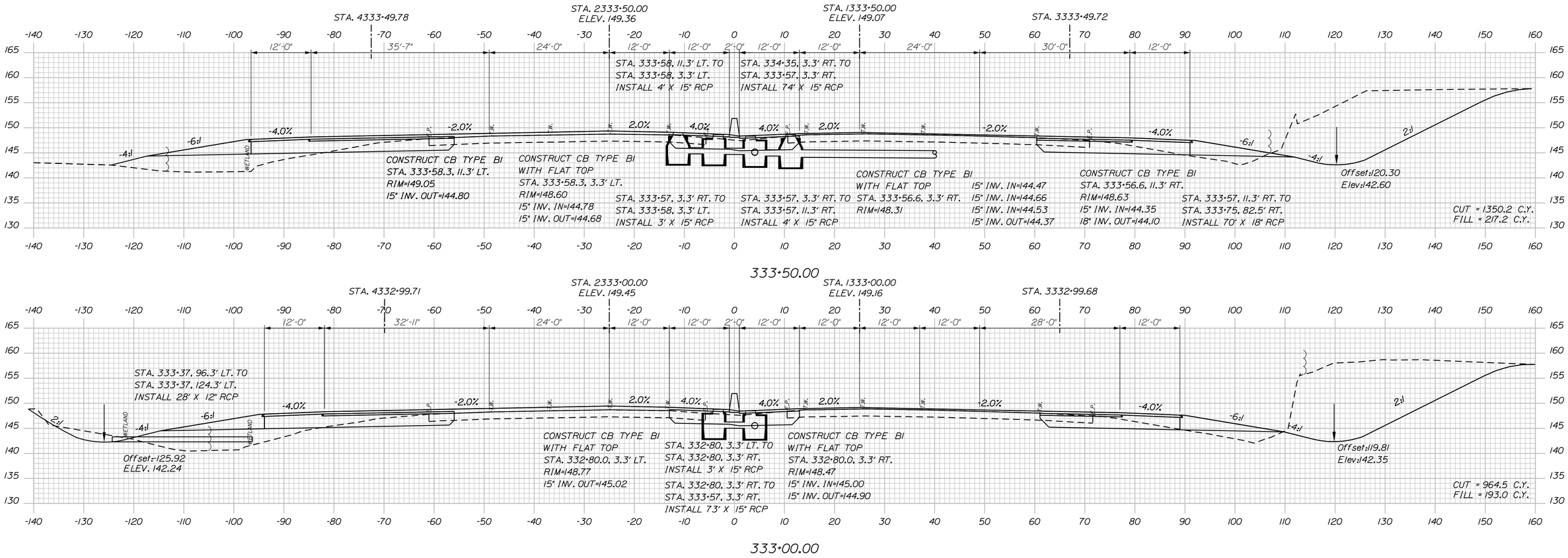
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 331+50 TO STA. 332+50

SHEET NUMBER: XS-44

CONTRACT:2017.XX

Date:9/16/2016



333+50.00

333+00.00

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	06/16	Checked	CSM	06/16
Drawn	SMG	06/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

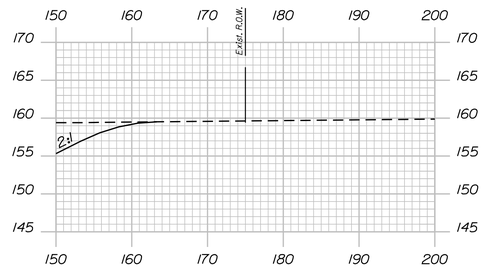
I-95 CROSS SECTIONS
STA. 333+00 TO STA. 333+50

SHEET NUMBER: XS-45

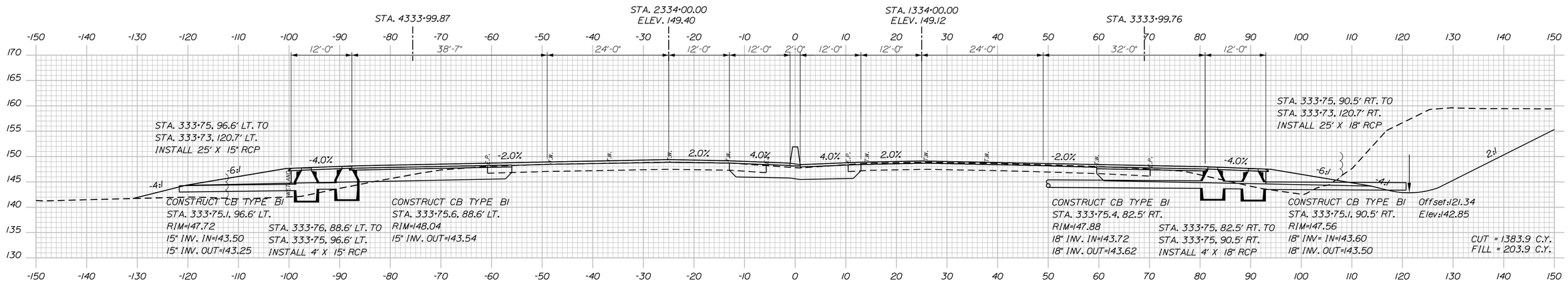
CONTRACT:2017.XX

Filename: ...\d0259637\Xsect2a_I95.dgn

Date:9/16/2016



334+00.00



334+00.00

Filename: ...\d0259637\Xsect2a_I95.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	06/16	Checked	CSM	06/16
Drawn	SMG	06/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

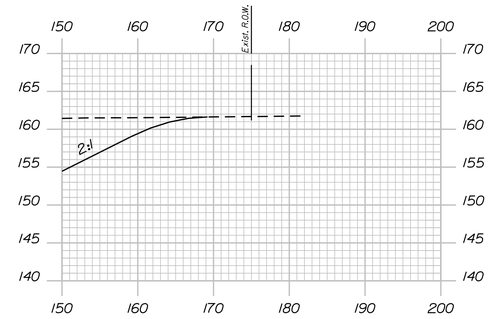
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 334+00

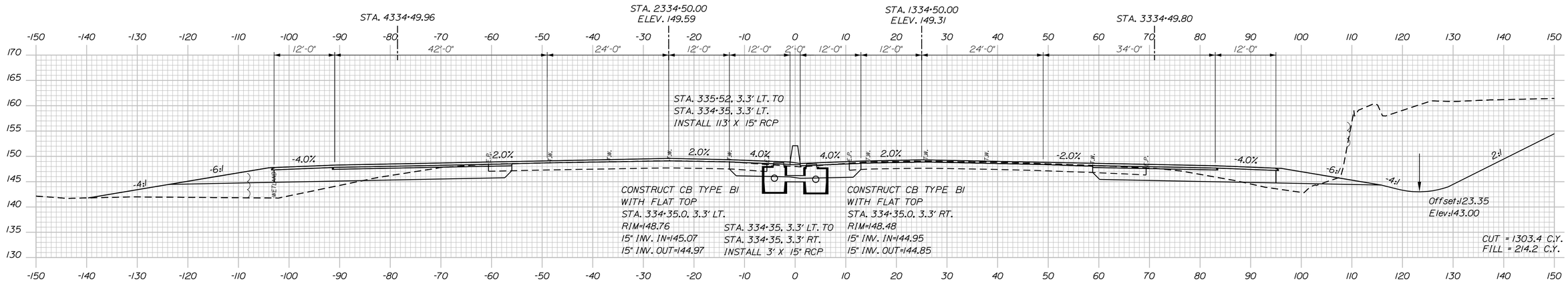
SHEET NUMBER: XS-46

CONTRACT:2017.XX

Date:9/16/2016



334+50.00



334+50.00

Filename: ...\d0259637\Xsect2a_I95.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

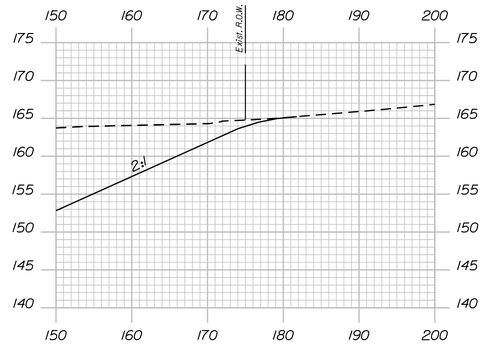
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 334+50

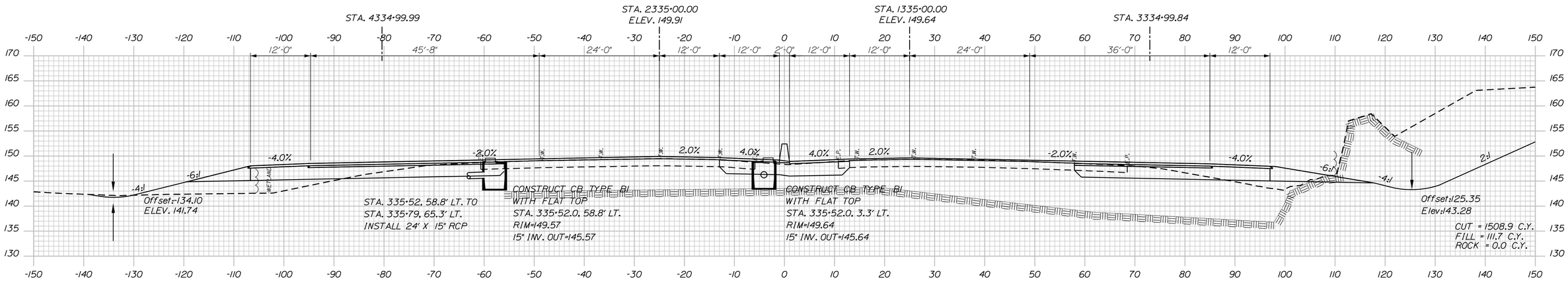
SHEET NUMBER: XS-47

CONTRACT:2017.XX

Date:9/16/2016



335+00.00



335+00.00

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	06/16	Checked	CSM	06/16
Drawn	SMG	06/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

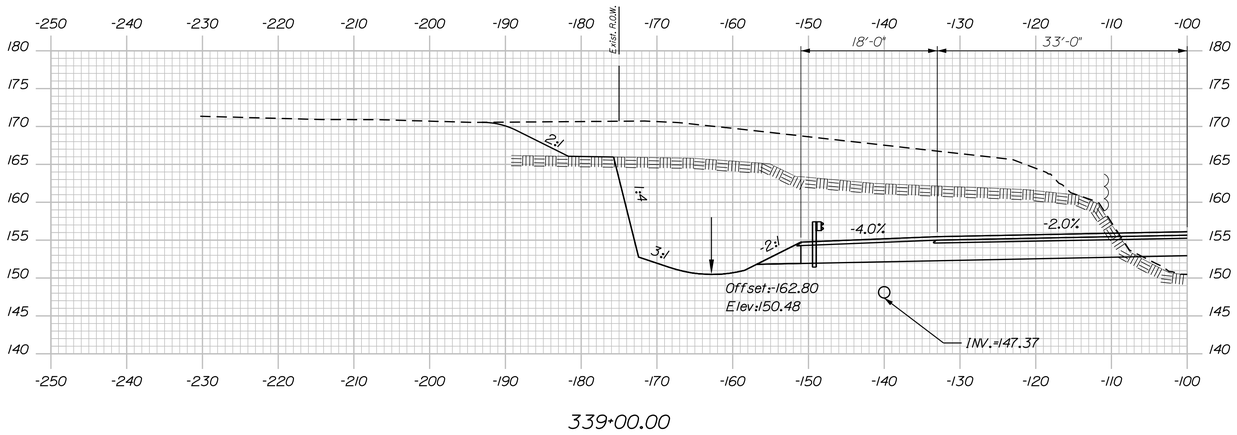
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 335+00

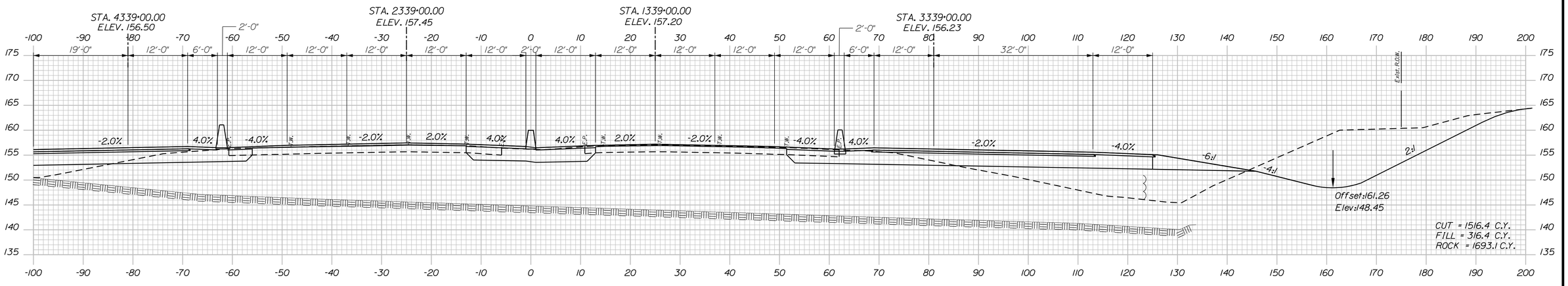
SHEET NUMBER: XS-48

CONTRACT:2017.XX

Filename: ...\d0259637\Xsect2a_I95.dgn



339+00.00



339+00.00

Date:9/16/2016

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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Designed	AMS	08/16	Checked	CSM	08/16
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

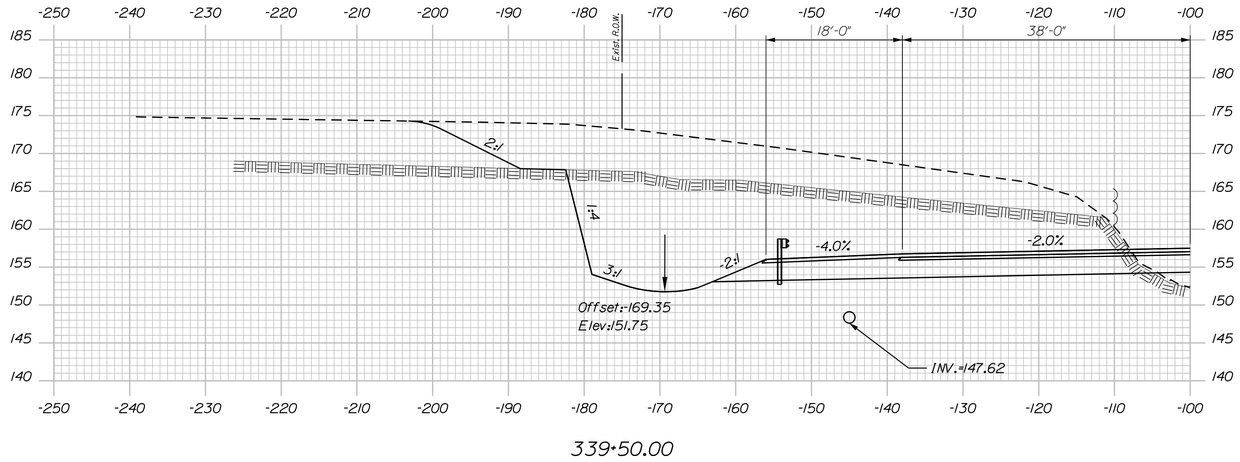
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 339+00

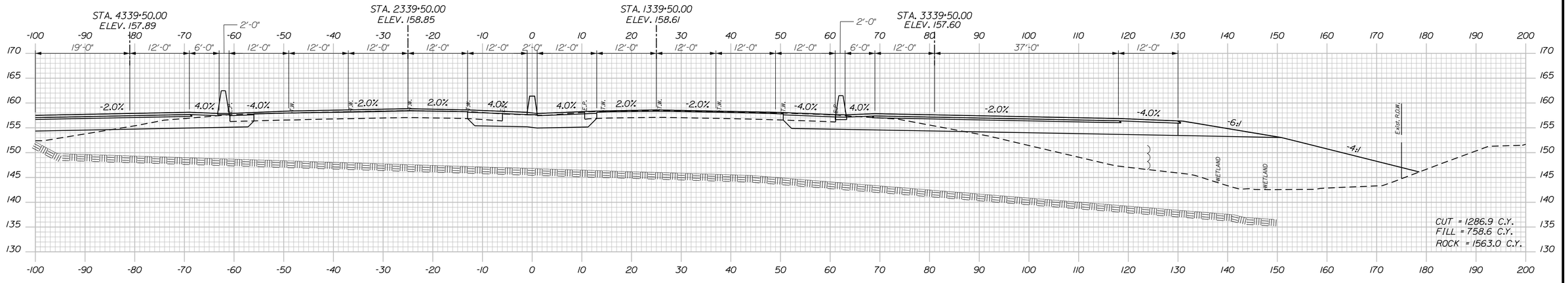
SHEET NUMBER: XS-53

CONTRACT:2017.XX

Date:9/16/2016



339+50.00



339+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

JACOBS ENGINEERING GROUP
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

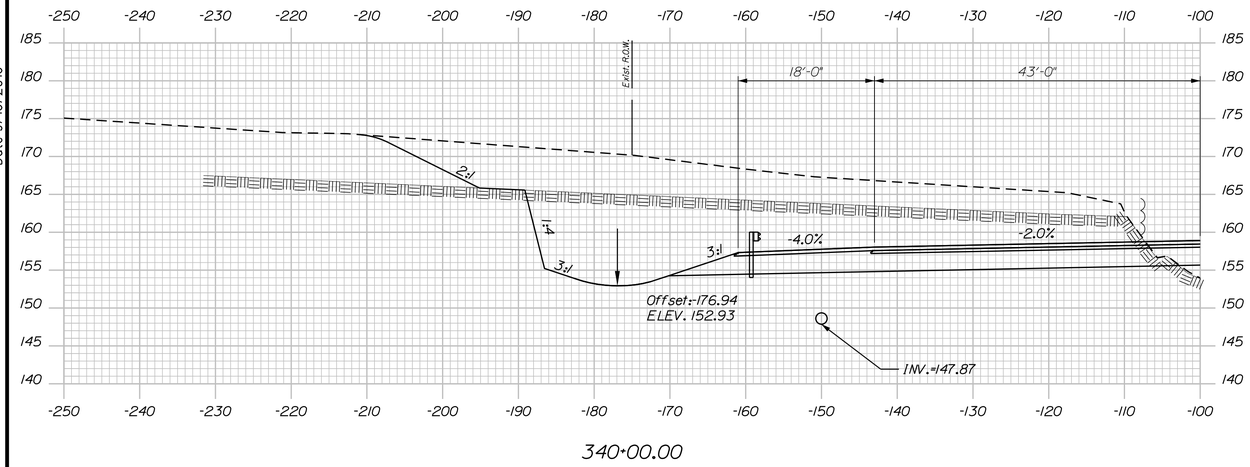
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 339+50

SHEET NUMBER: XS-54

CONTRACT:2017.XX

Date:9/16/2016



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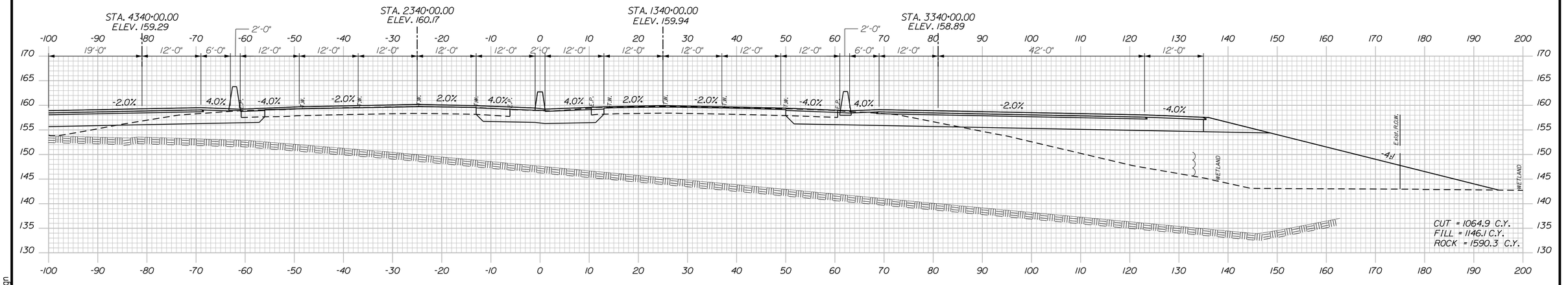

340+00.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

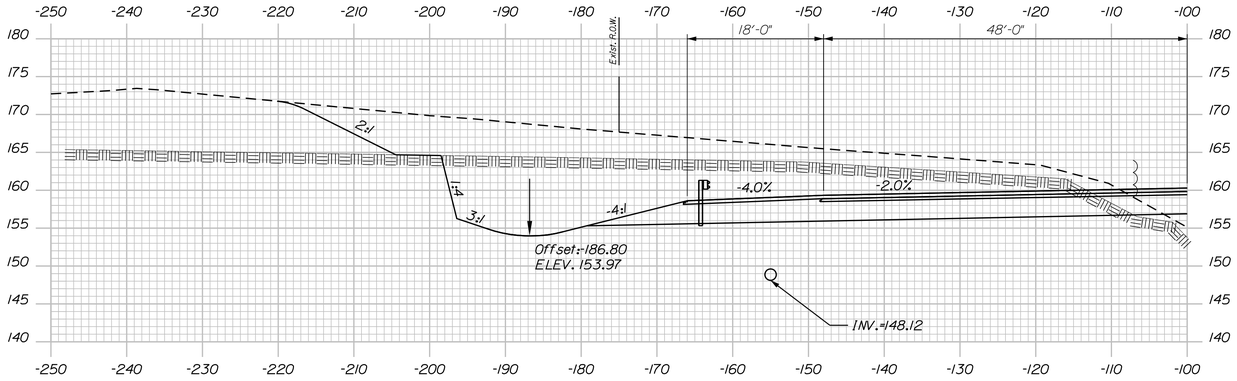
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 340+00

SHEET NUMBER: XS-55

CONTRACT:2017.XX

Date:9/16/2016



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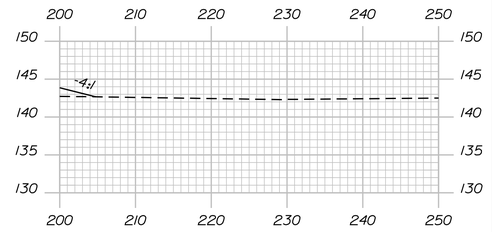

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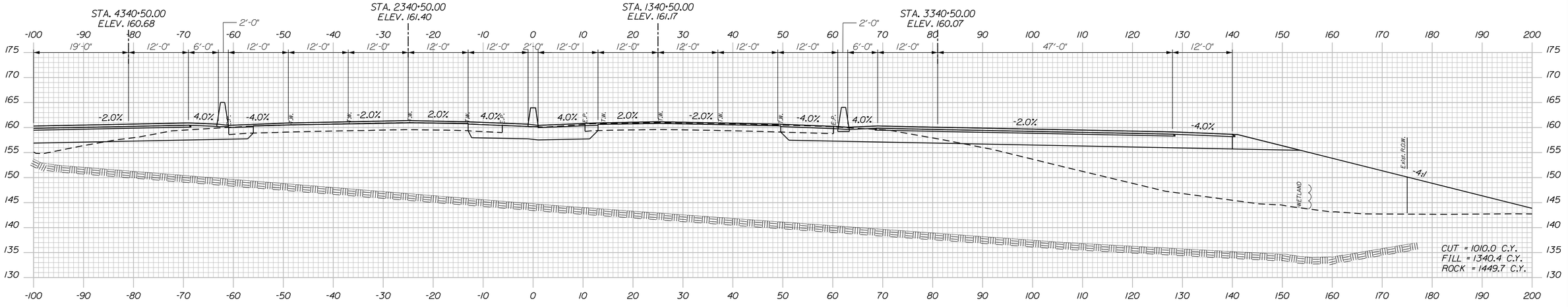

340+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

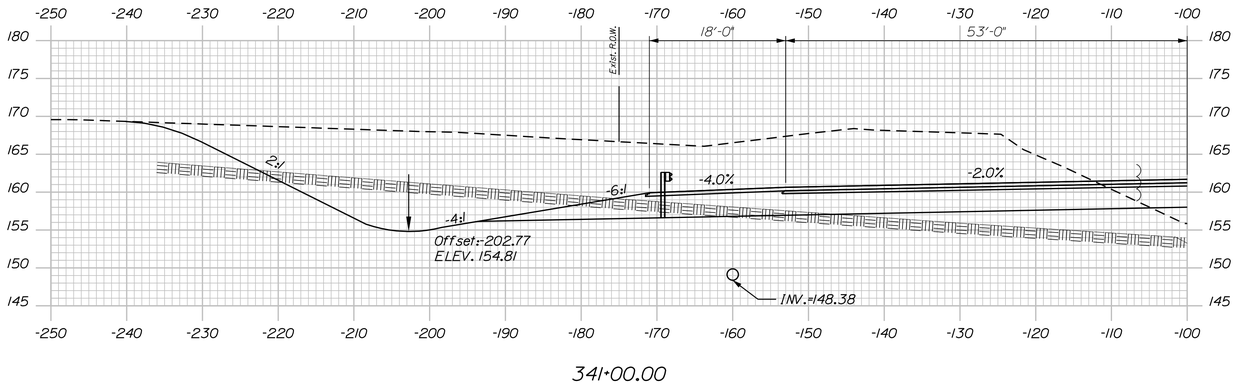
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 340+50

SHEET NUMBER: XS-56

CONTRACT:2017.XX

Date:9/16/2016



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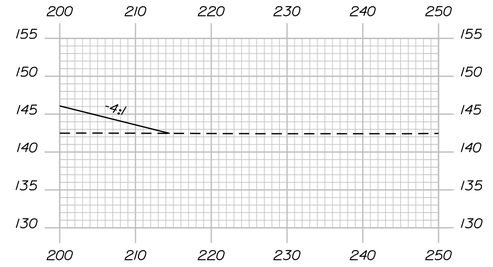

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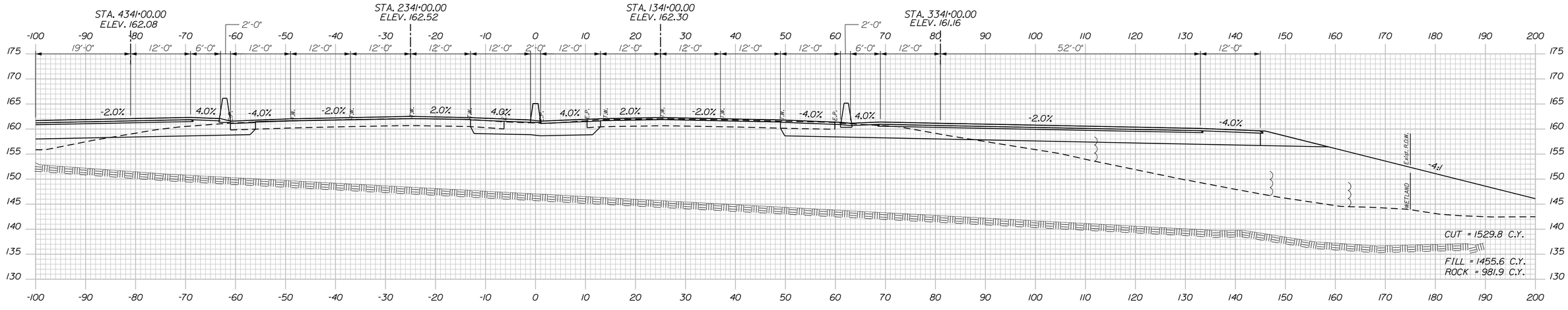

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Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

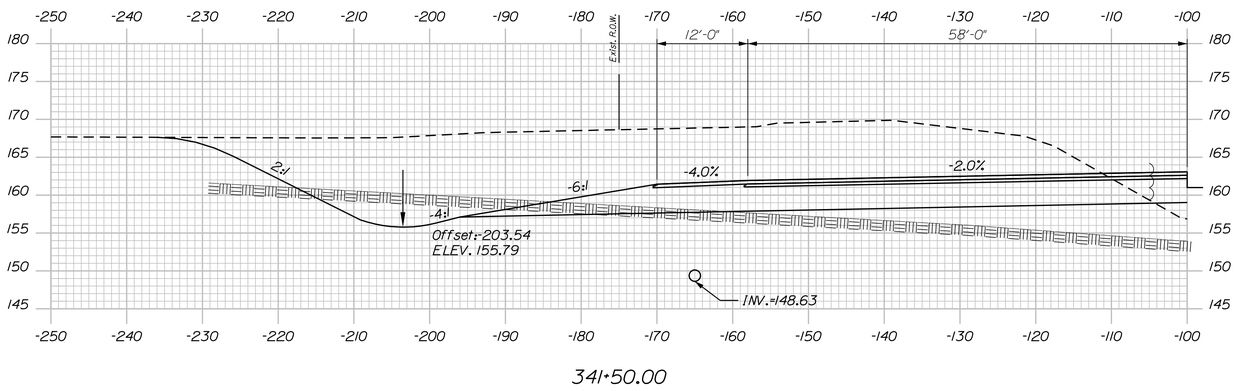
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 341+00

SHEET NUMBER: XS-57

CONTRACT:2017.XX

Date:9/16/2016



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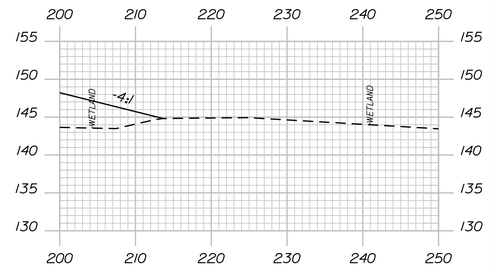

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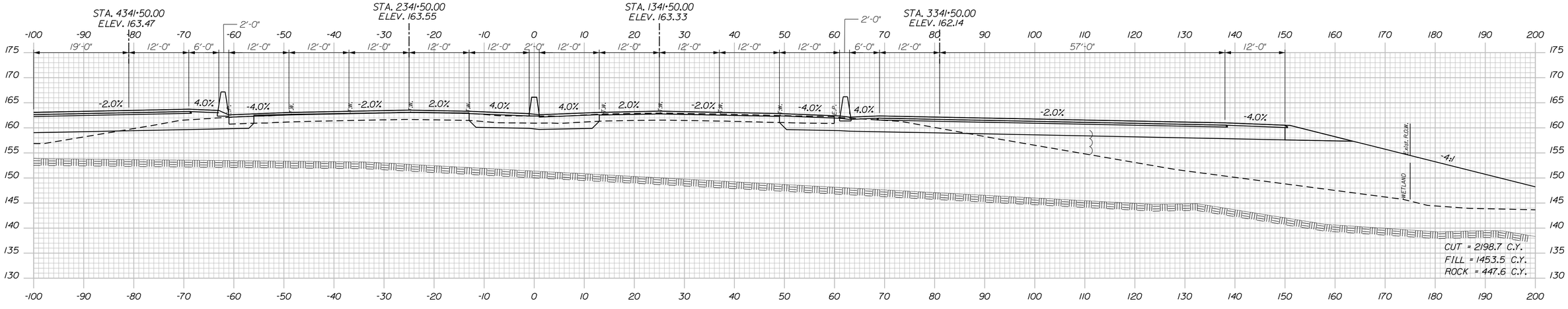

341+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

Designed by:

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

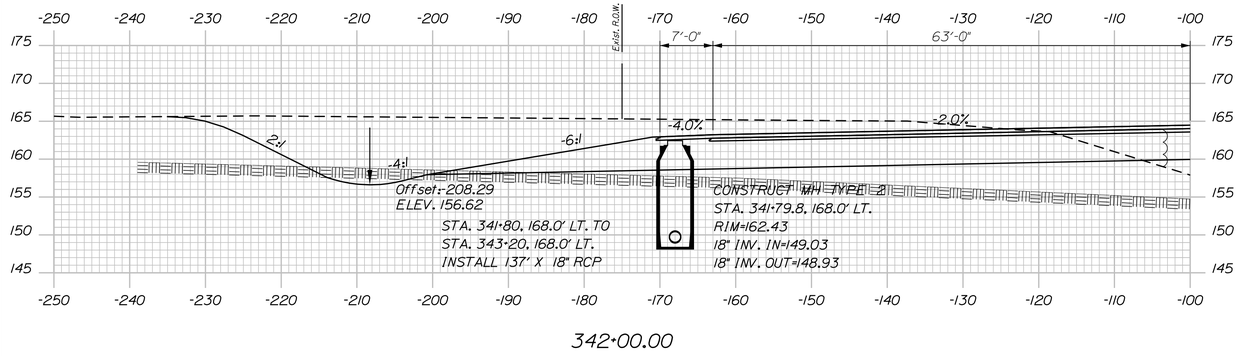
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 341+50

SHEET NUMBER: XS-58

CONTRACT:2017.XX

Date:9/16/2016



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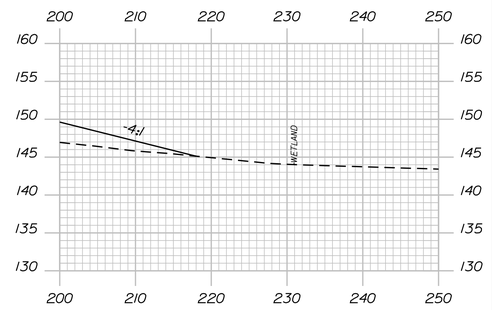

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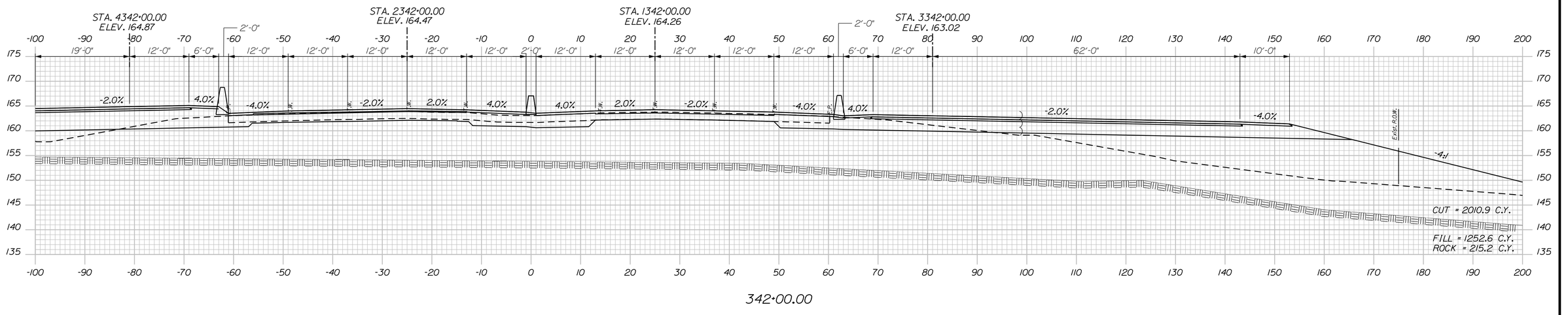

342+00.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

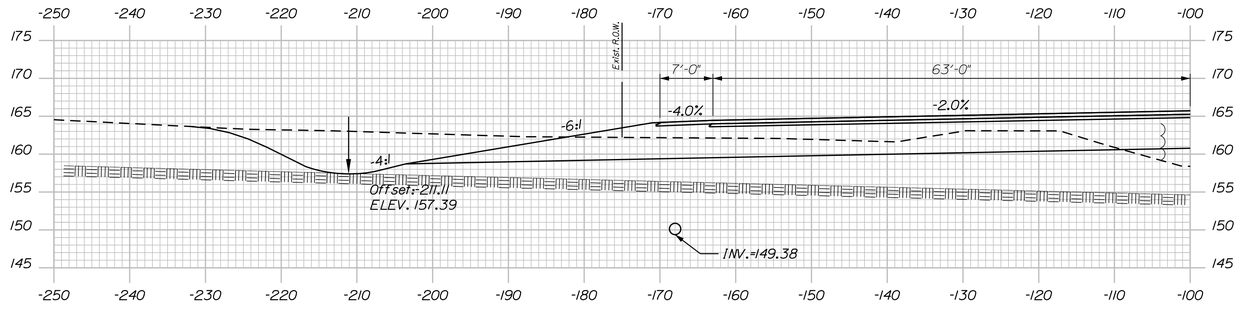
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 342+00

SHEET NUMBER: XS-59

CONTRACT:2017.XX

Date:9/16/2016



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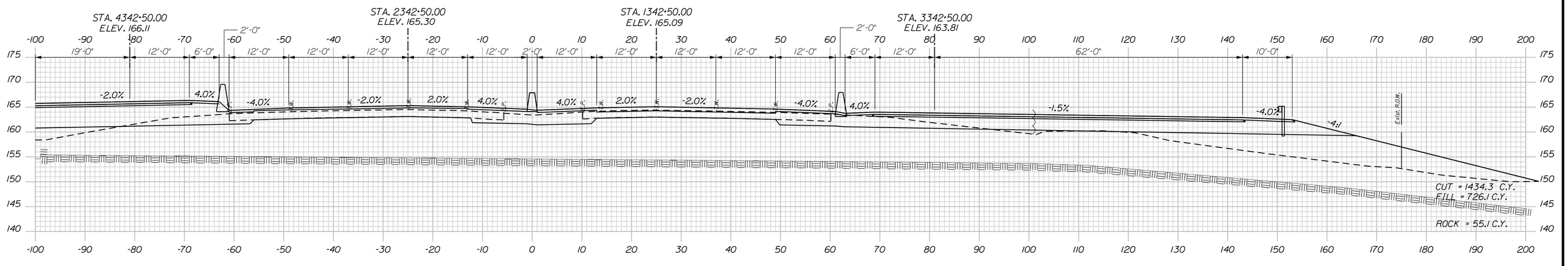

342+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

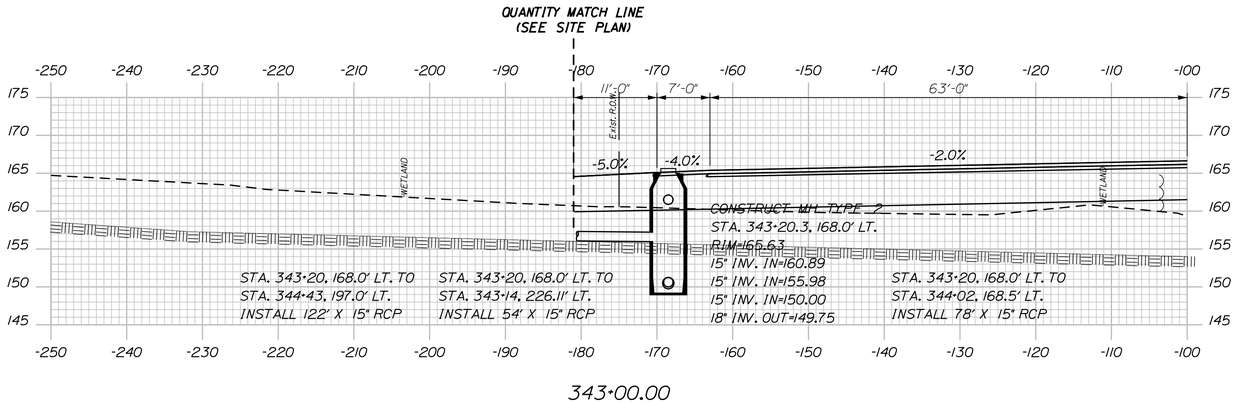
MTA PROJECT MANAGER: R. NORWOOD

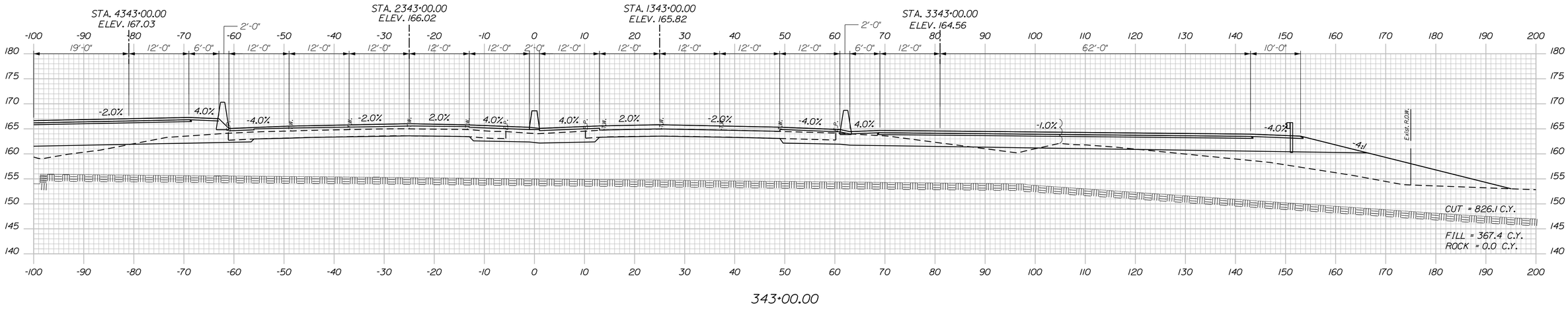
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 342+50

SHEET NUMBER: XS-60

CONTRACT:2017.XX





Date:9/16/2016

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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	By	Date		By	Date
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

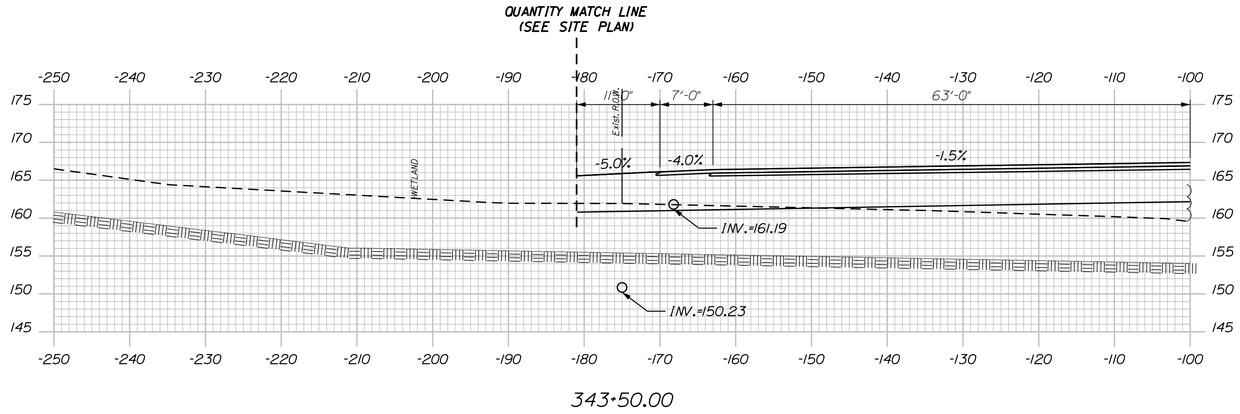
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 343+00

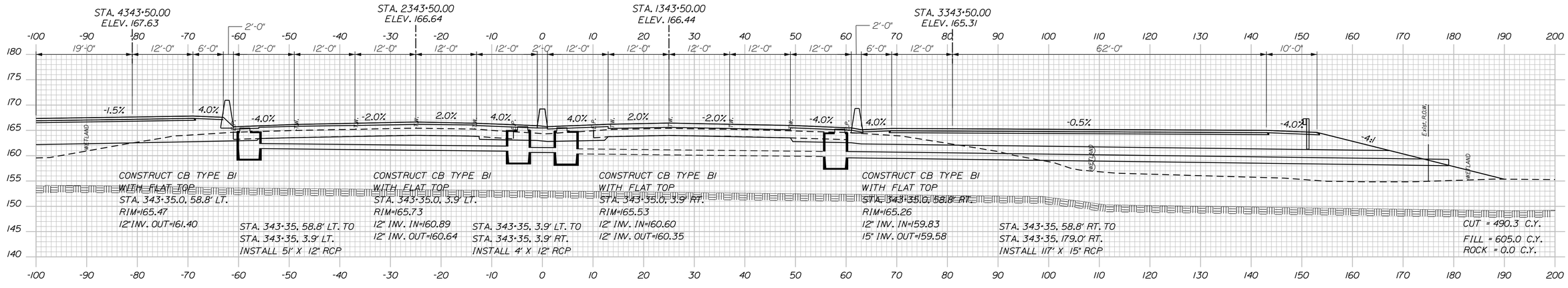
SHEET NUMBER: XS-61

CONTRACT:2017.XX

Date:9/16/2016



343+50.00



343+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

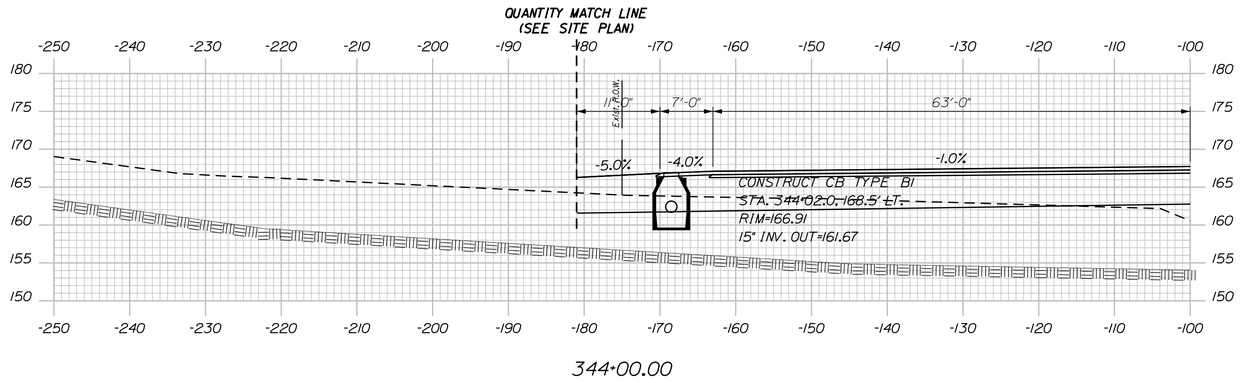
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 343+50

SHEET NUMBER: XS-62

CONTRACT:2017.XX

Date:9/16/2016



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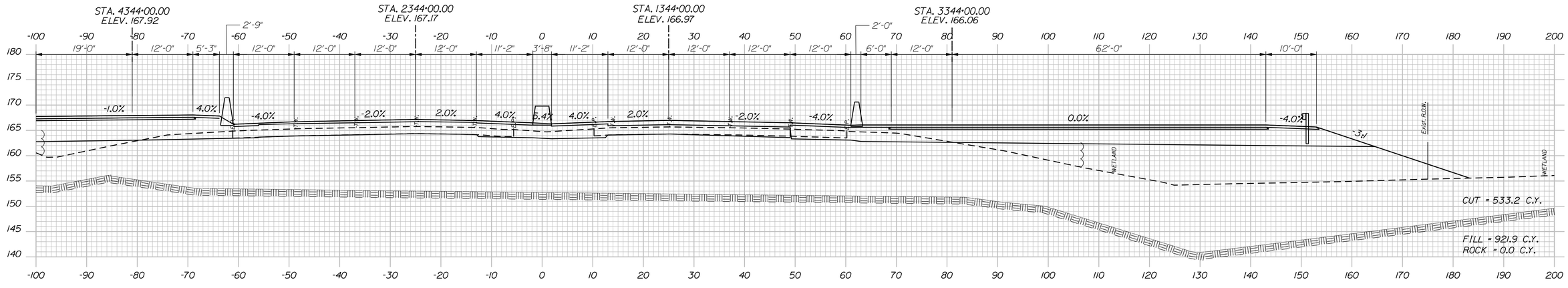

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Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

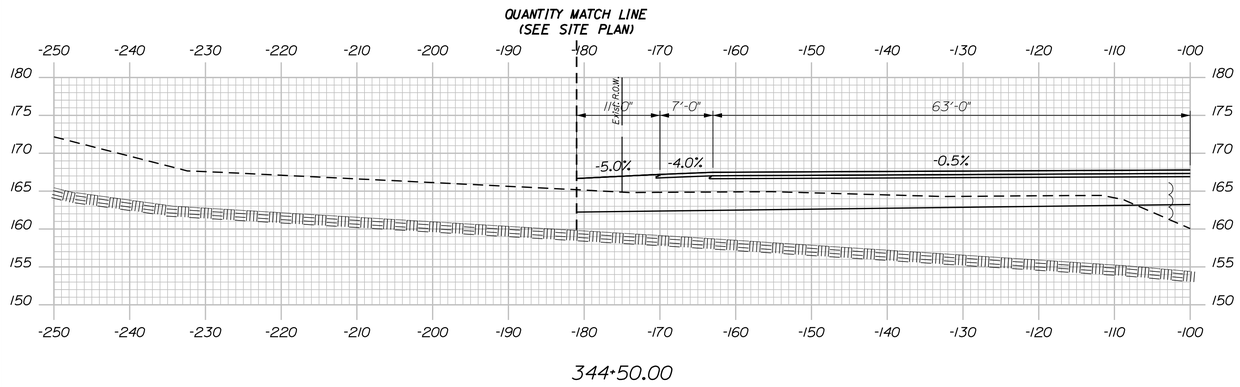
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 344+00

SHEET NUMBER: XS-63

CONTRACT:2017.XX

Date:9/16/2016



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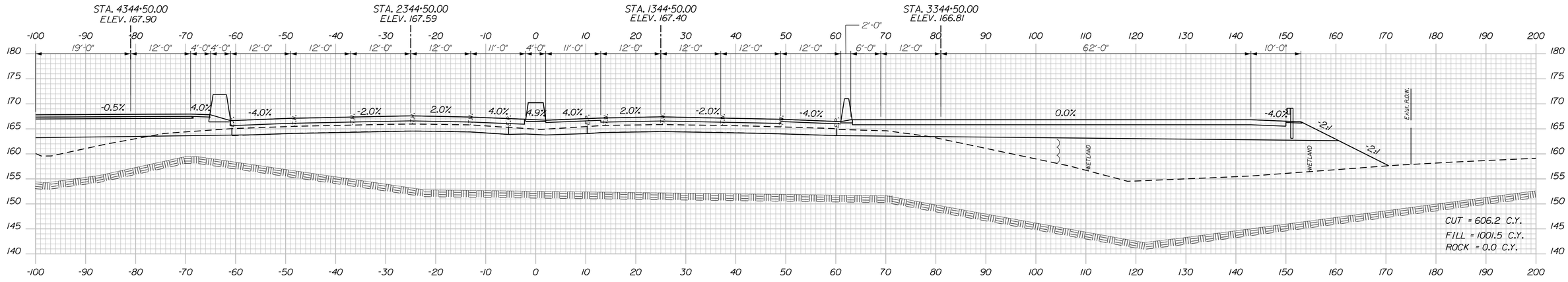

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Scale of Feet

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MAINE TURNPIKE

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MTA PROJECT MANAGER: R. NORWOOD

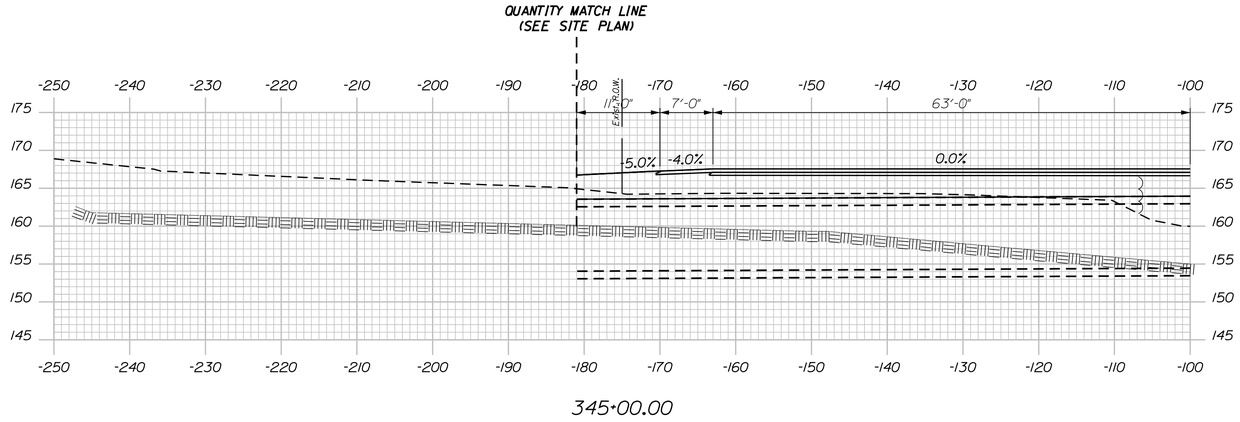
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 344+50

SHEET NUMBER: XS-64

CONTRACT:2017.XX

Date:9/16/2016



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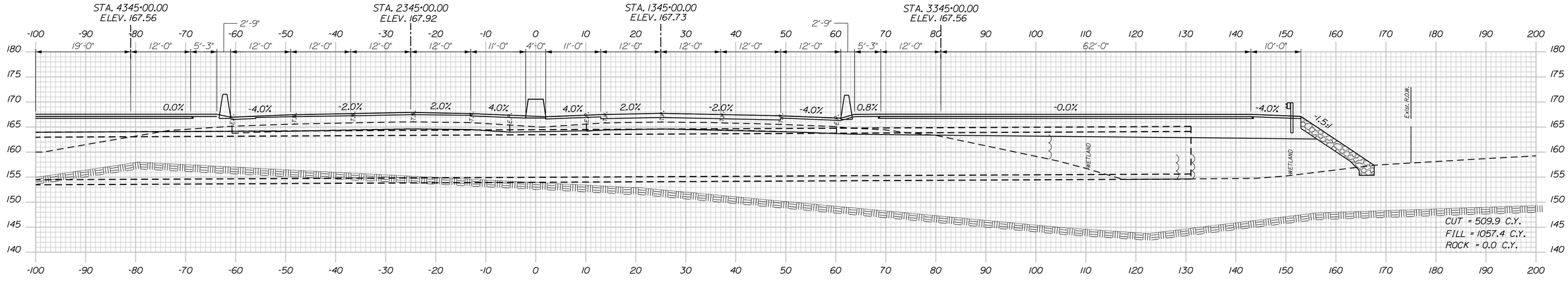

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Filename: ...\d0259637\Xsect3_195.dgn

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MTA PROJECT MANAGER: R. NORWOOD

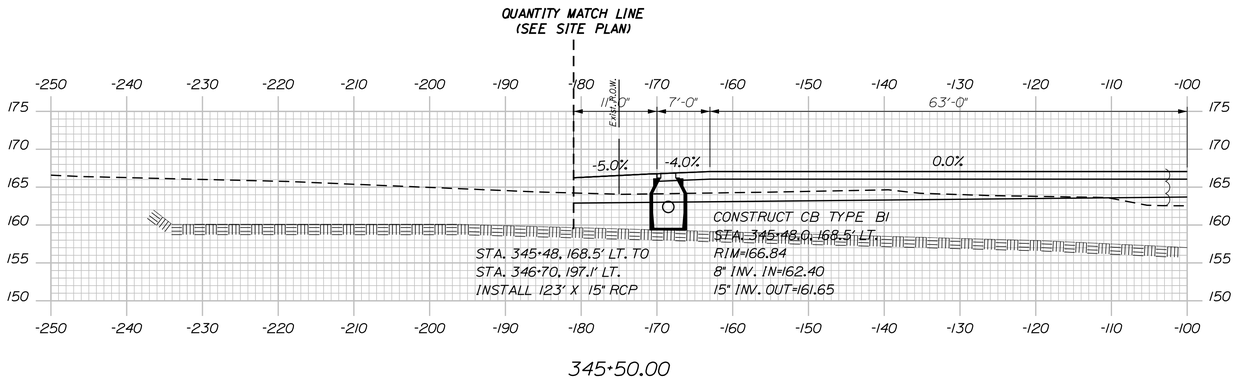
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 345+00

SHEET NUMBER: XS-65

CONTRACT:2017.XX

Date:9/16/2016



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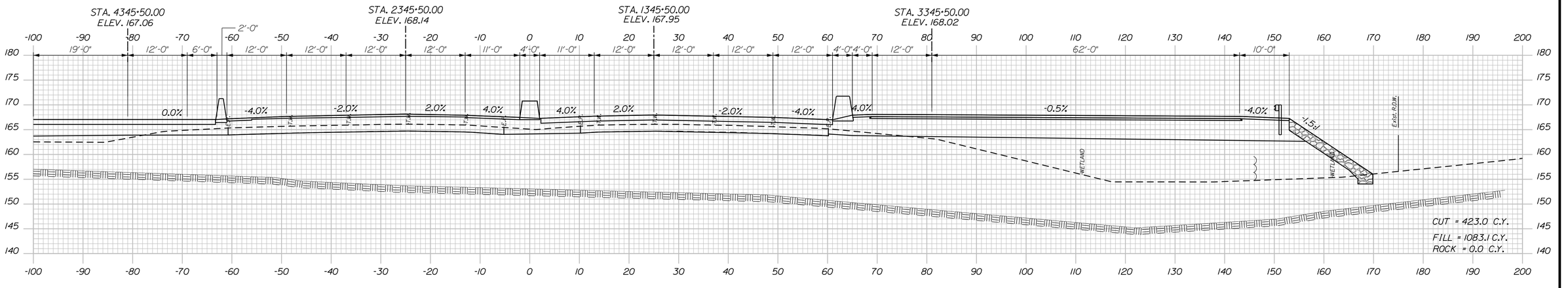

345+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

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Designed by:

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MAINE TURNPIKE

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MTA PROJECT MANAGER: R. NORWOOD

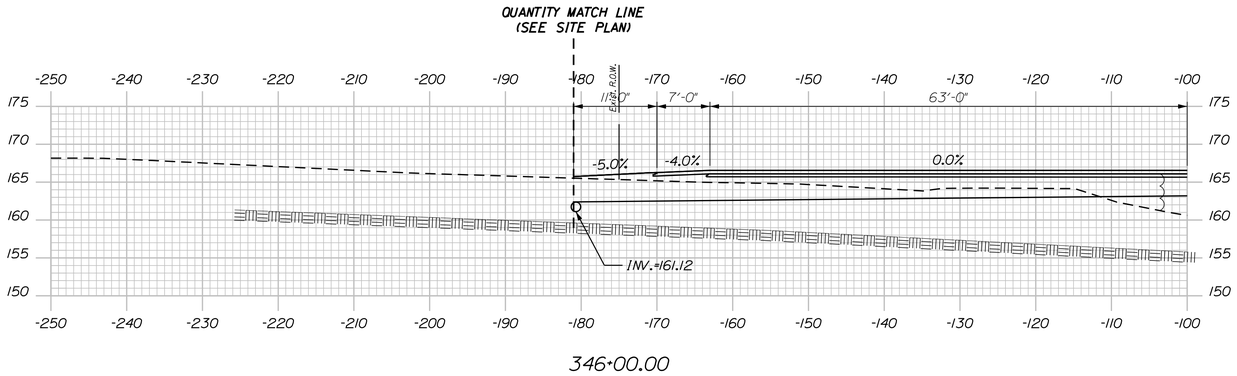
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 345+50

SHEET NUMBER: XS-66

CONTRACT:2017.XX

Date:9/16/2016



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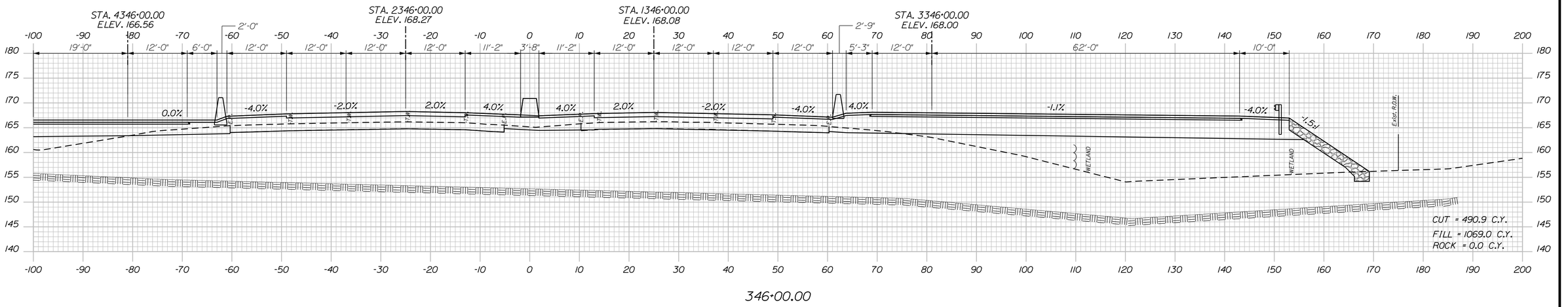

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Filename: ...\d0259637\Xsect3_195.dgn

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10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

JACOBS ENGINEERING GROUP
343 CONGRESS STREET
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TEL (617) 242-9222
FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

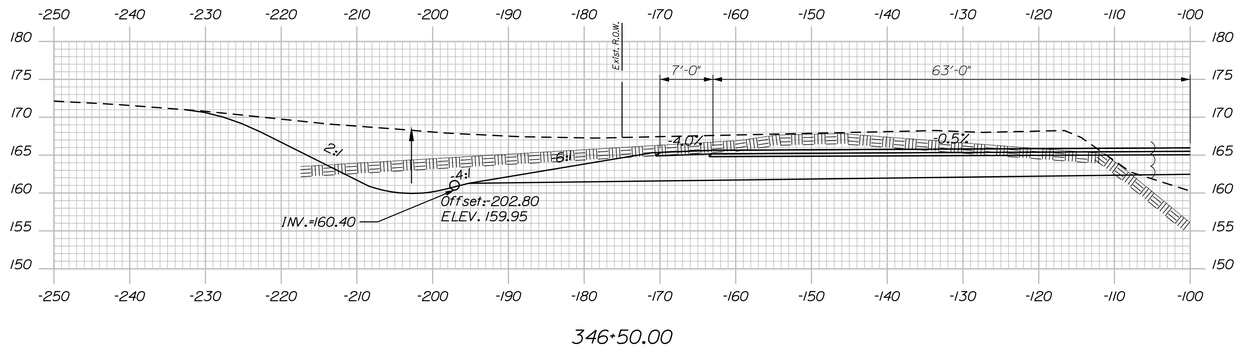
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 346+00

SHEET NUMBER: XS-67

CONTRACT:2017.XX

Date:9/16/2016



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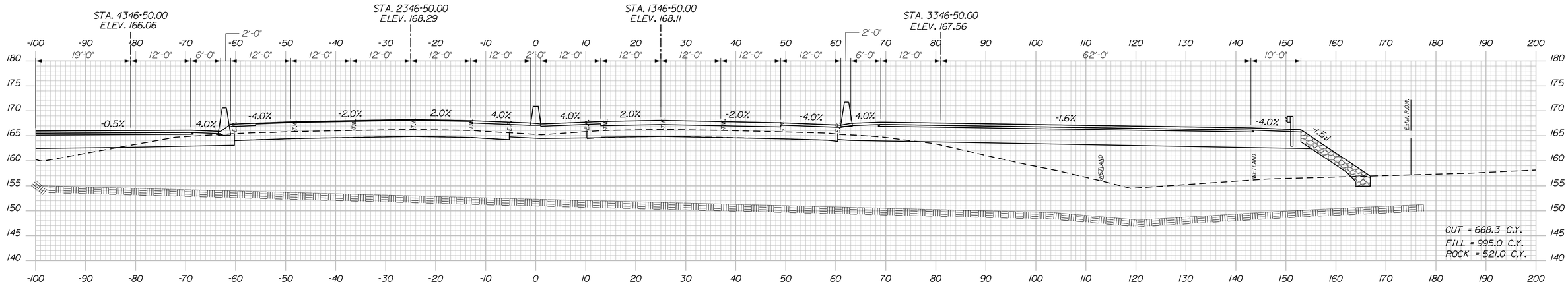

346+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

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CONSULTANT PROJECT MANAGER: R. EMERY

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

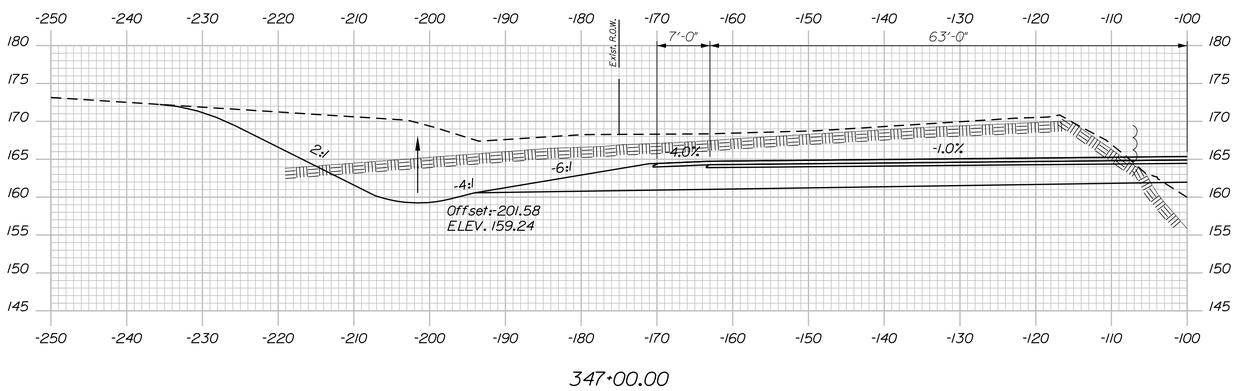
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 346+50

SHEET NUMBER: XS-68

CONTRACT:2017.XX

Date:9/16/2016



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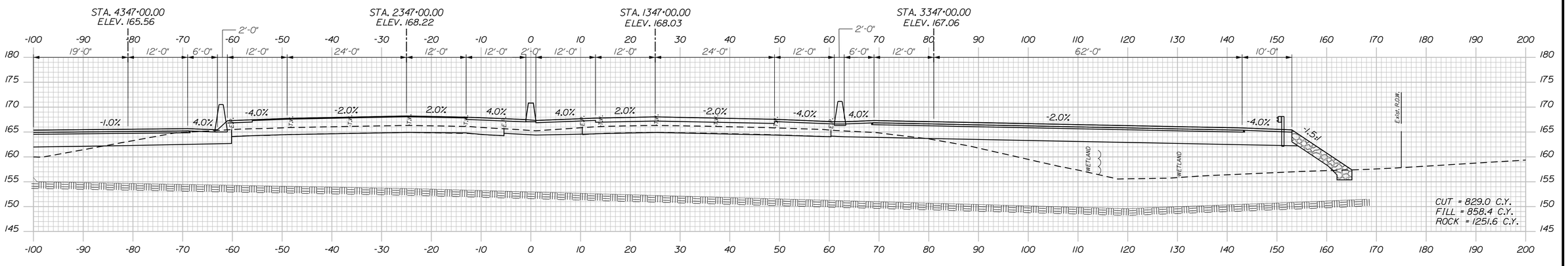

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Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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MTA PROJECT MANAGER: R. NORWOOD

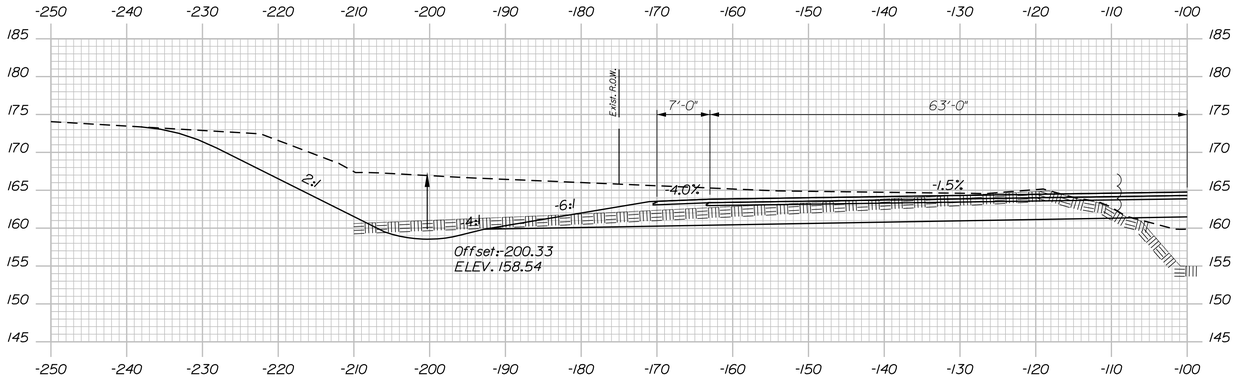
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 347+00

SHEET NUMBER: XS-69

CONTRACT:2017.XX

Date:9/16/2016



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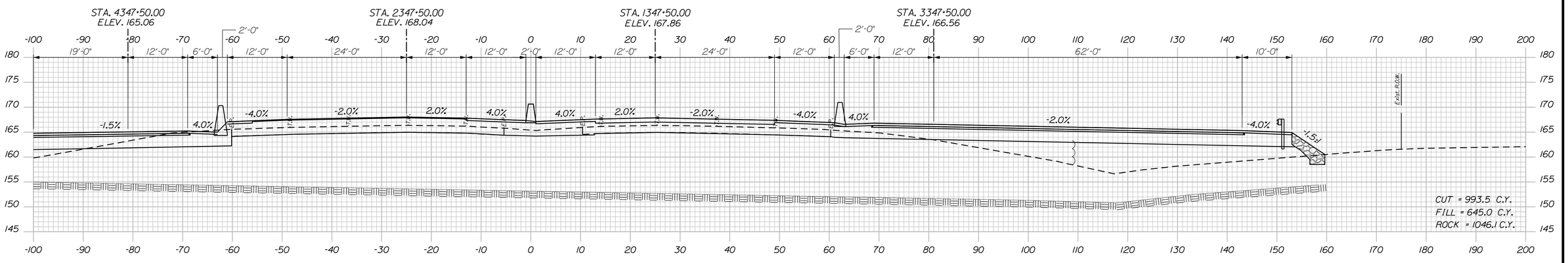

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Scale:

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Scale of Feet

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MAINE TURNPIKE

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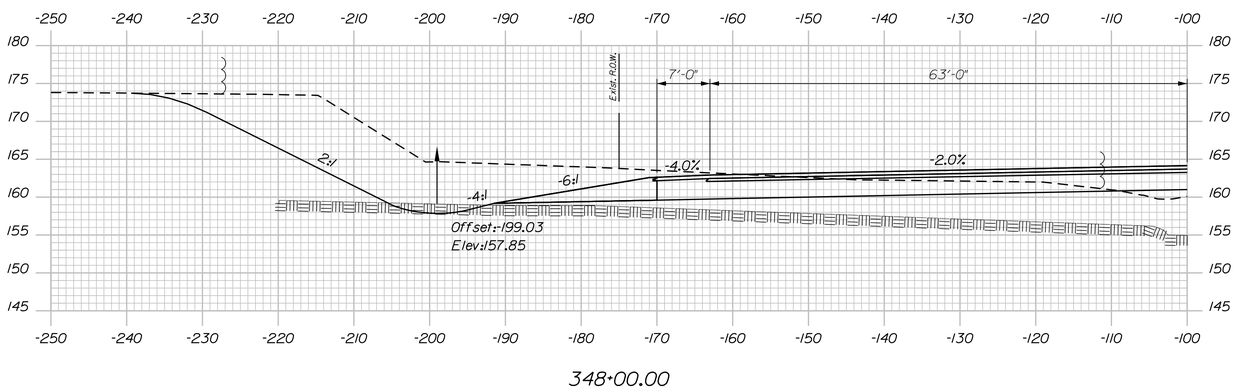
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 347+50

SHEET NUMBER: XS-70

CONTRACT:2017.XX



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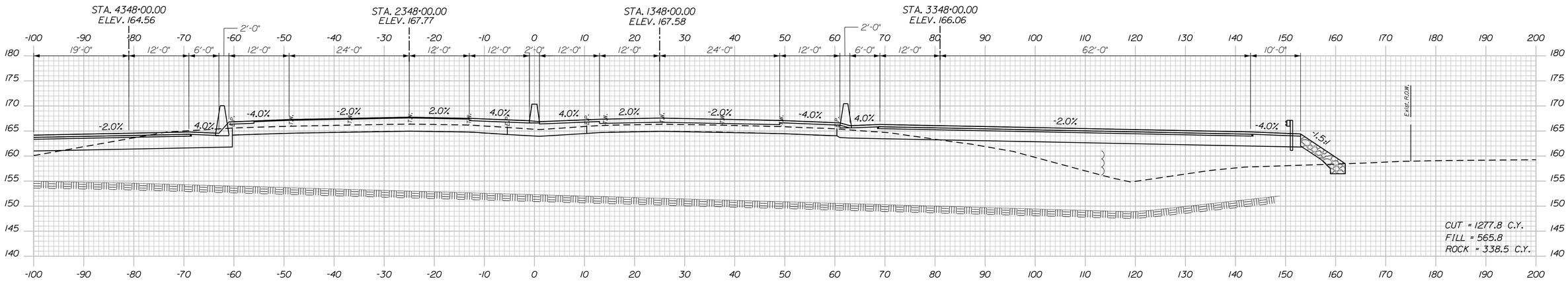

348+00.00

Date:9/16/2016

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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MAINE TURNPIKE

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MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

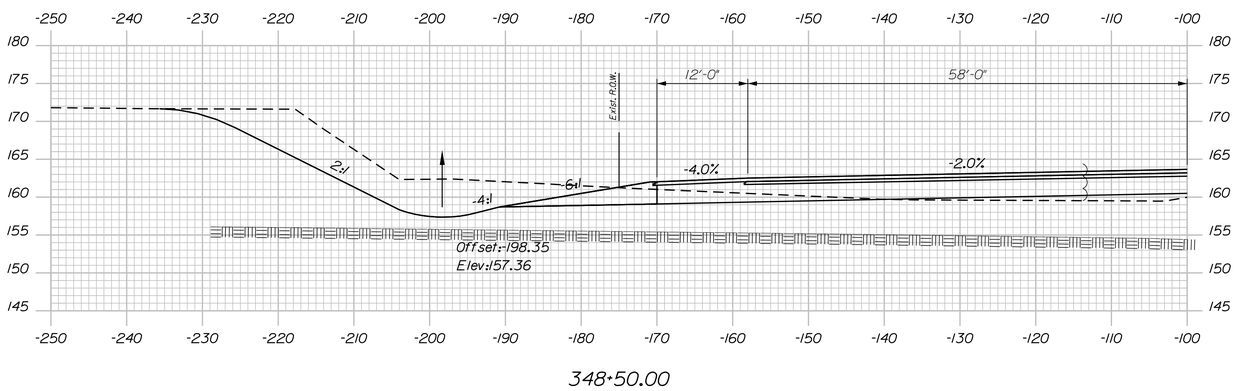
I-95 CROSS SECTIONS
STA. 348+00

SHEET NUMBER: XS-71

CONTRACT:2017.XX

261OF 465

Date:9/16/2016



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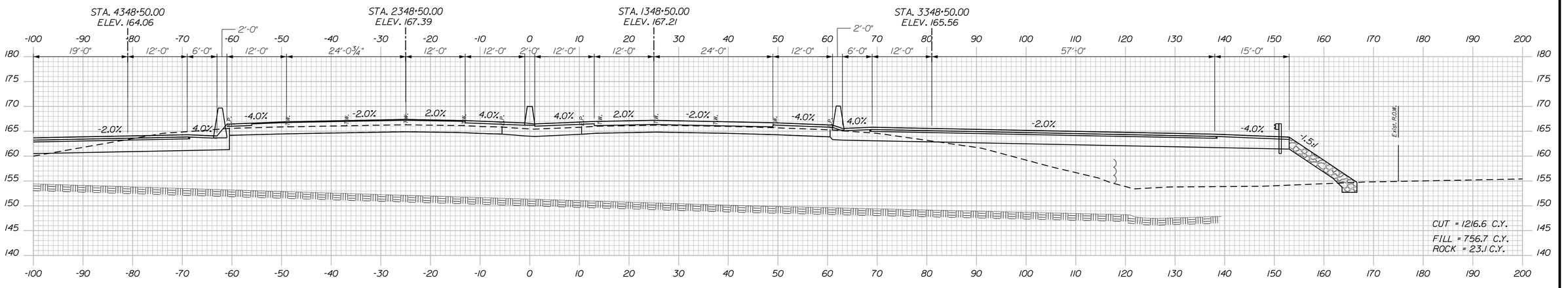

348+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

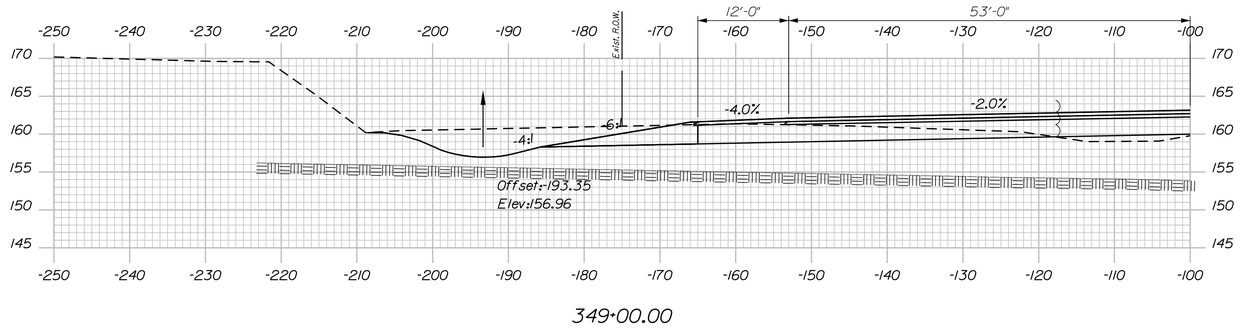
YORK TOLL PLAZA

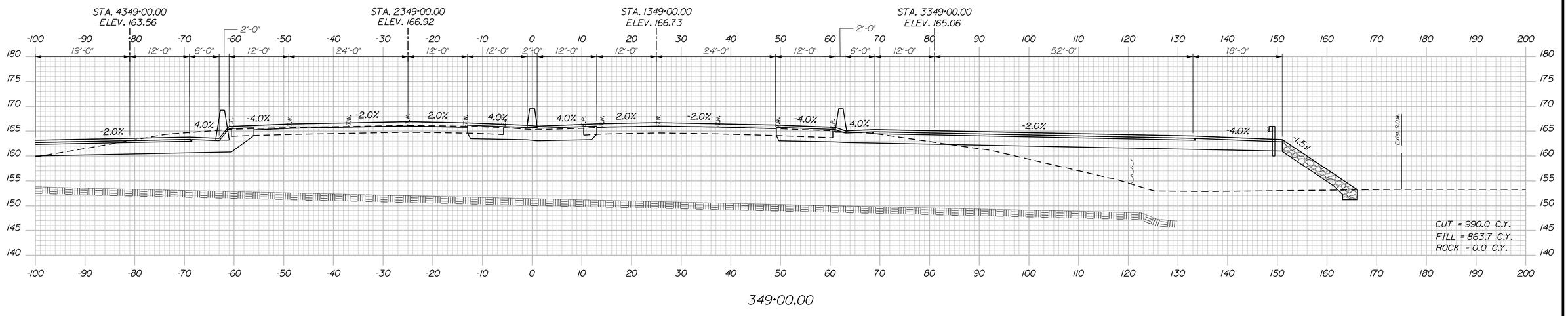
I-95 CROSS SECTIONS STA. 348+50

SHEET NUMBER: XS-72

CONTRACT:2017.XX

Date:9/16/2016





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Scale:

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Scale of Feet

No.	Revision	By	Date

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MTA PROJECT MANAGER: R. NORWOOD

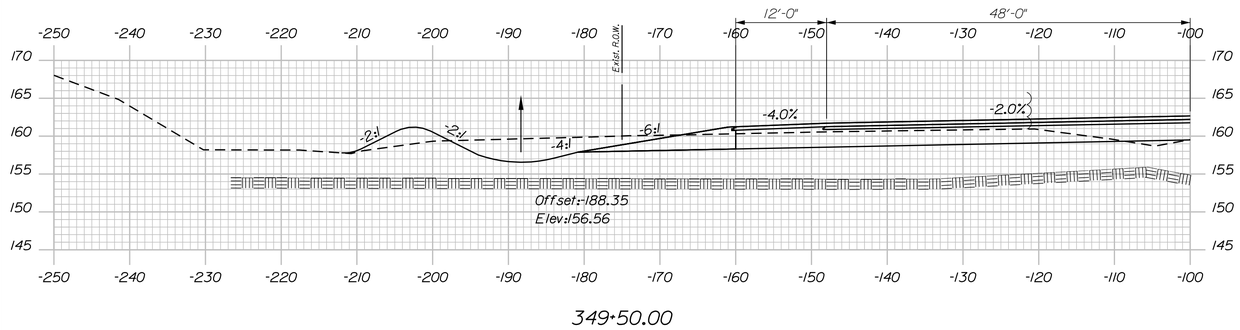
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 349+00

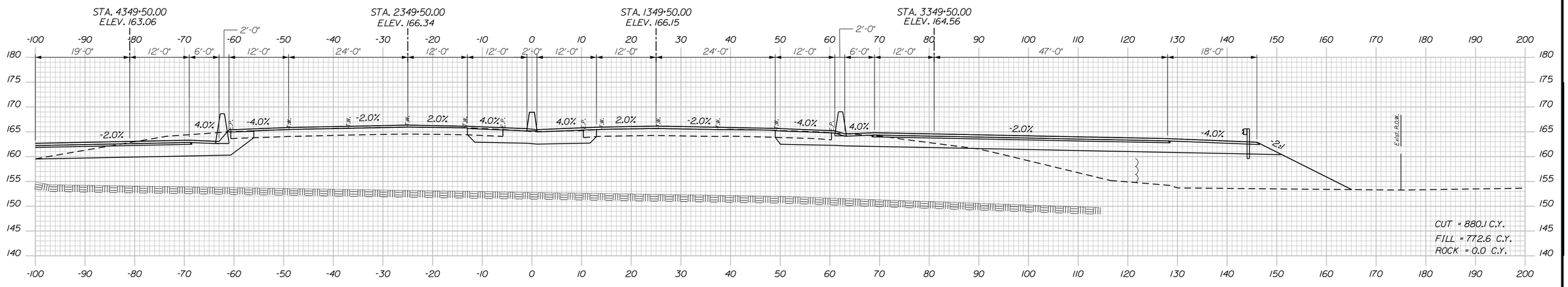
SHEET NUMBER: XS-73

CONTRACT:2017.XX

Date:9/16/2016



349+50.00



349+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

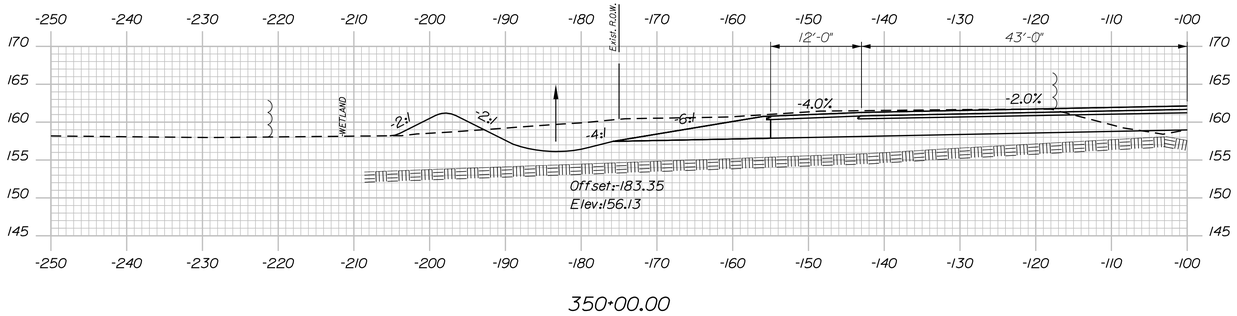
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 349+50

SHEET NUMBER: XS-74

CONTRACT:2017.XX

Date:9/16/2016



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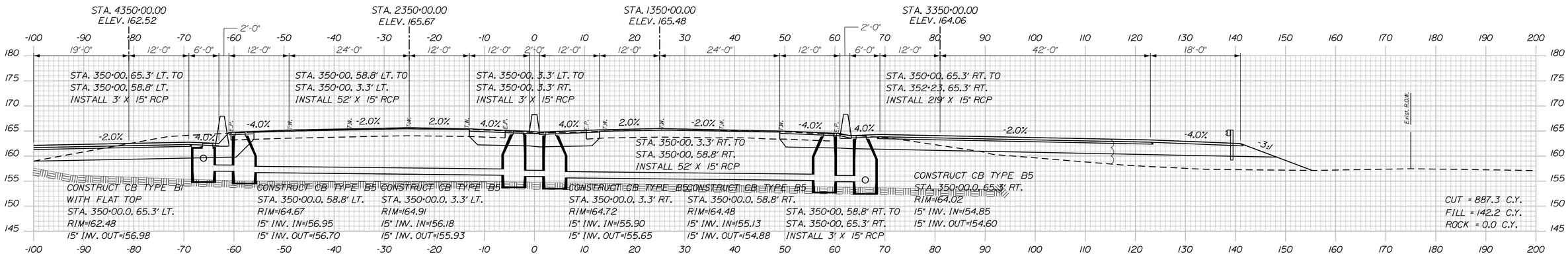

350+00.00

Filename: ...\d0259637\Xsect3_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

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CONSULTANT PROJECT MANAGER: R. EMERY

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

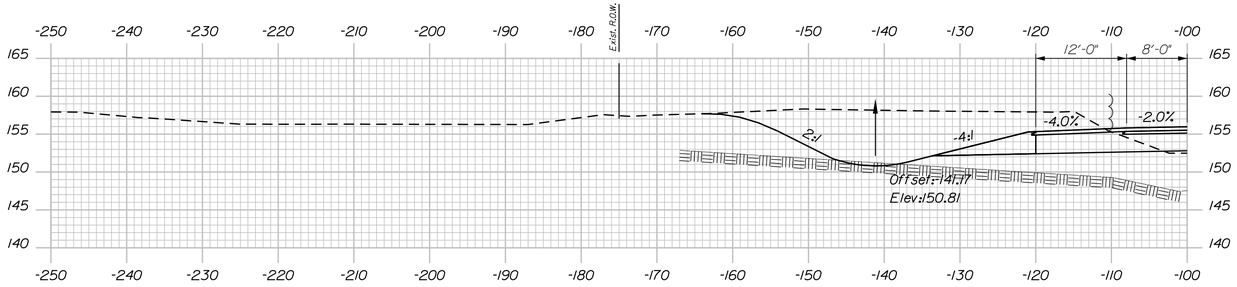
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 350+00

SHEET NUMBER: XS-75

CONTRACT:2017.XX

Date:9/16/2016



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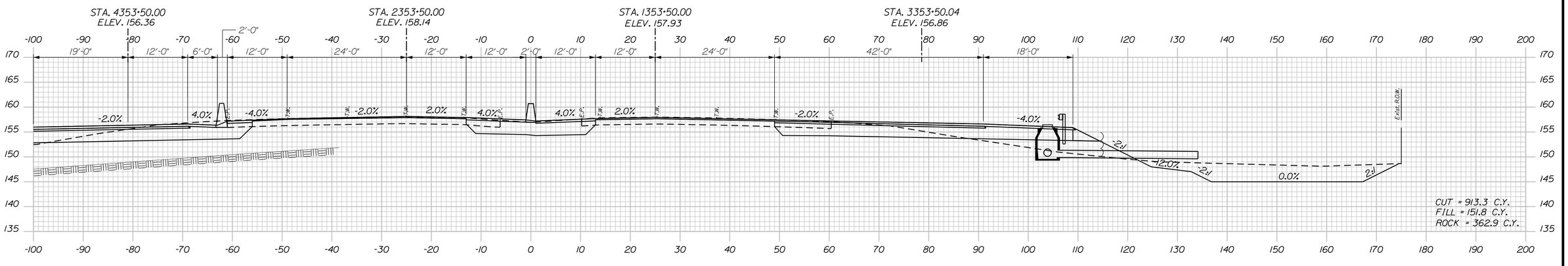

353+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

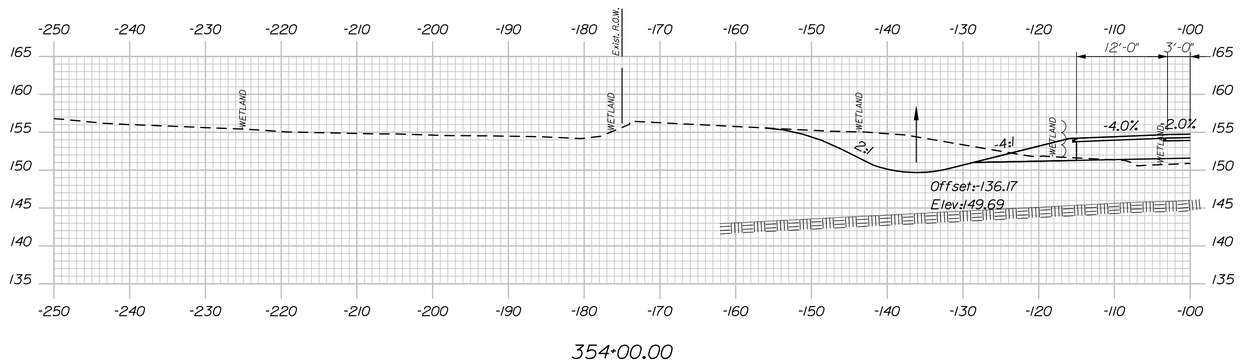
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 353+50

SHEET NUMBER: XS-82

CONTRACT:2017.XX



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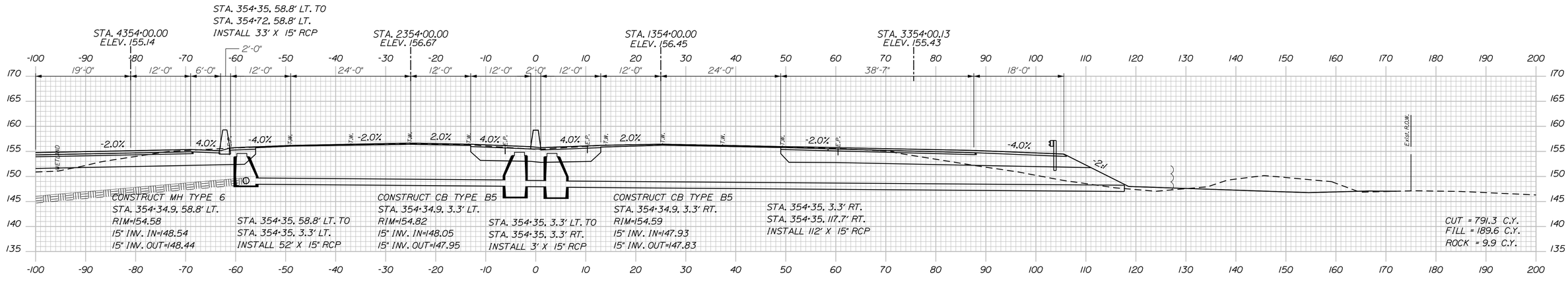

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Date:9/16/2016

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

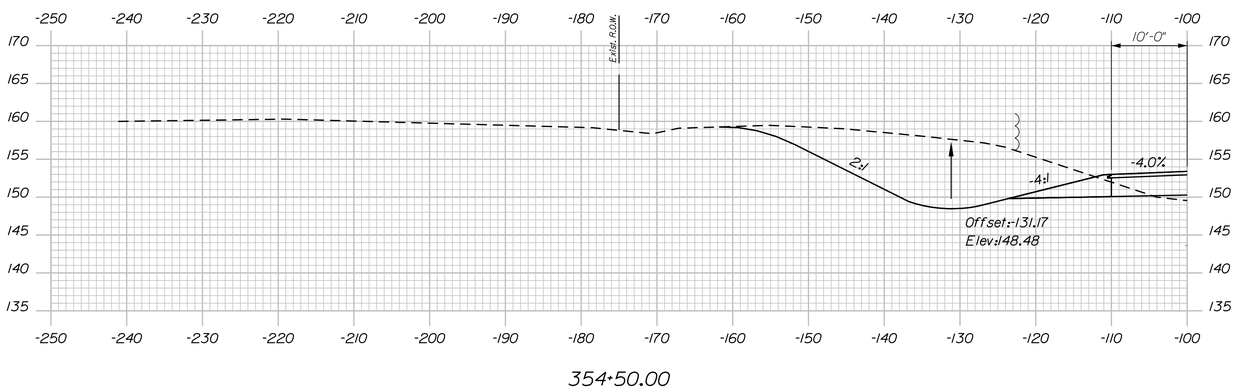
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 354+00

SHEET NUMBER: XS-83

CONTRACT:2017.XX

Date:9/16/2016



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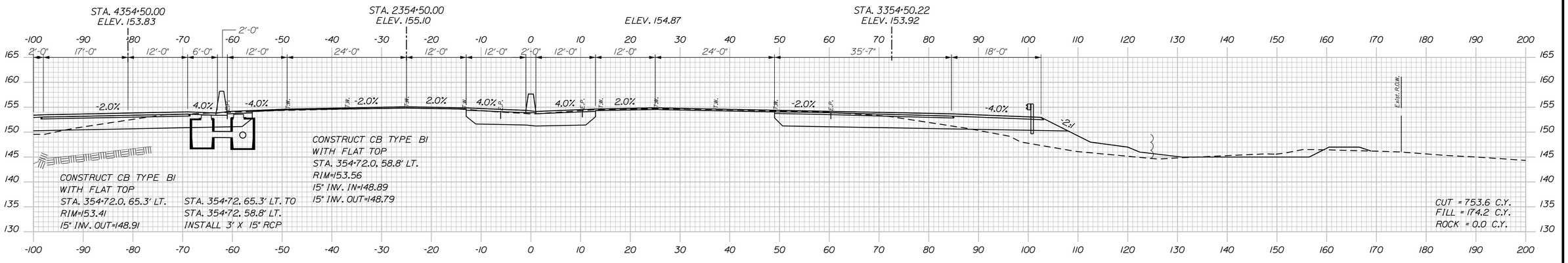

354+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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CONSULTANT PROJECT MANAGER: R. EMERY

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

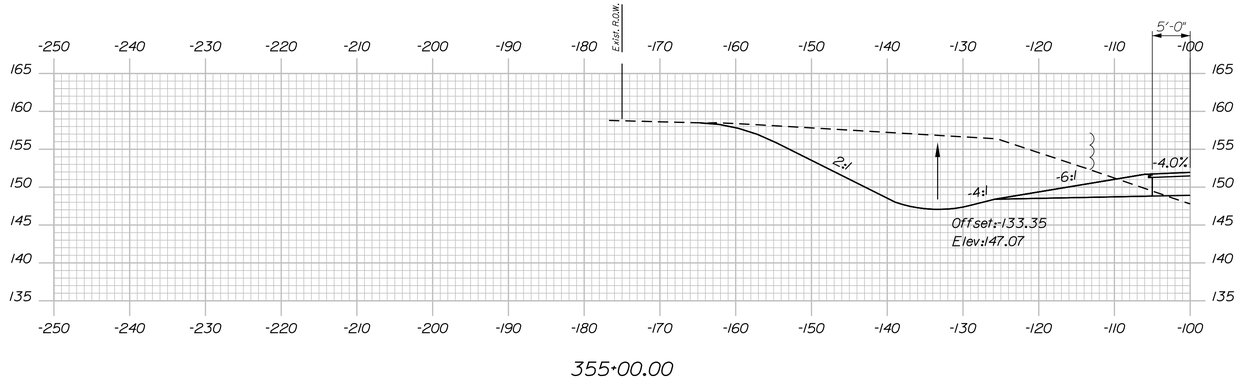
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 354+50

SHEET NUMBER: XS-84

CONTRACT:2017.XX

Date:9/16/2016



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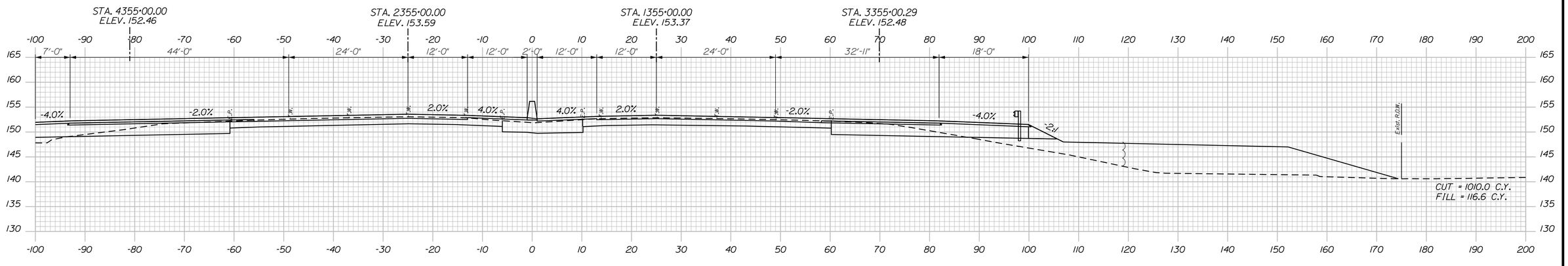

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Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

No.	Revision	By	Date

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CONSULTANT PROJECT MANAGER: R. EMERY

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

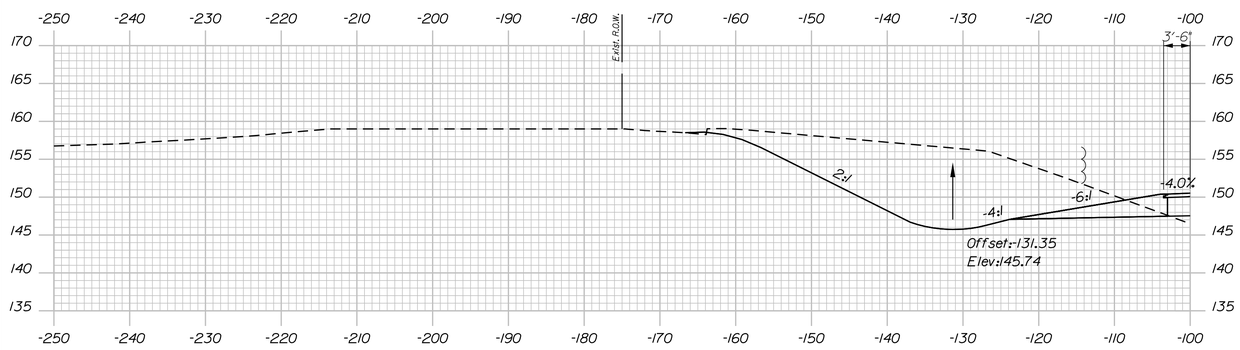
YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 355+00

SHEET NUMBER: XS-85

CONTRACT:2017.XX

Date:9/16/2016



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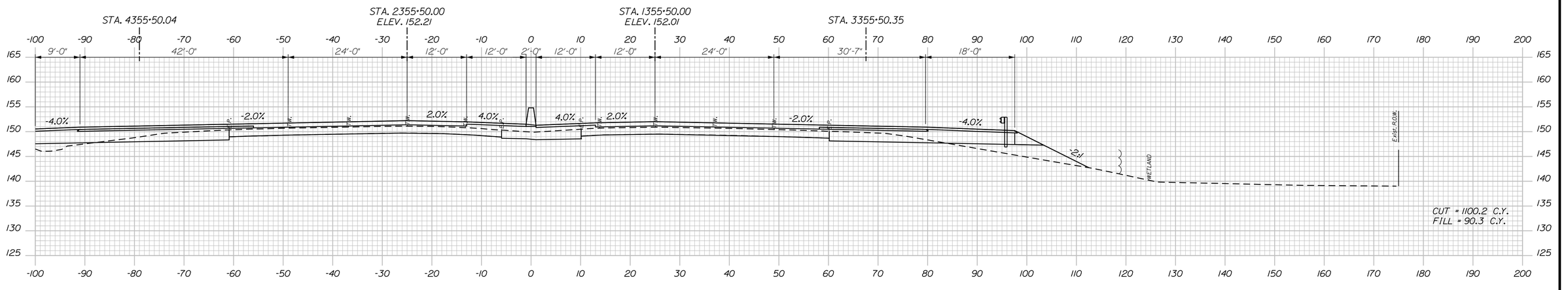

355+50.00

Filename: ...\d0259637\Xsect3_195.dgn

Scale:

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Scale of Feet

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

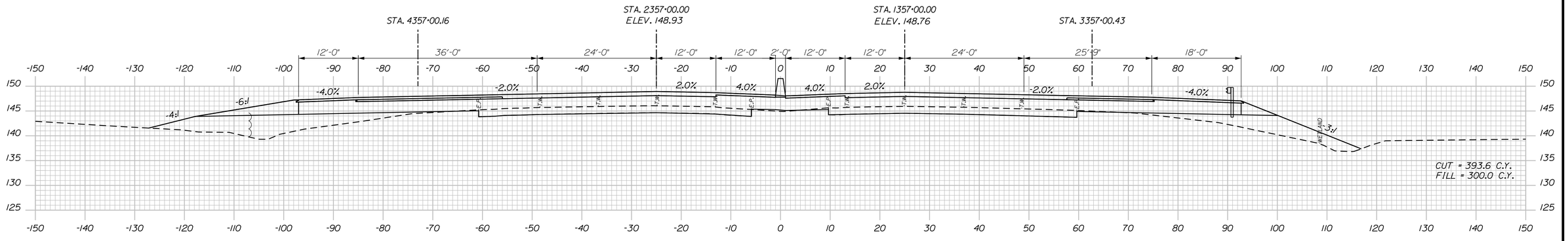
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 355+50

SHEET NUMBER: XS-86

CONTRACT:2017.XX



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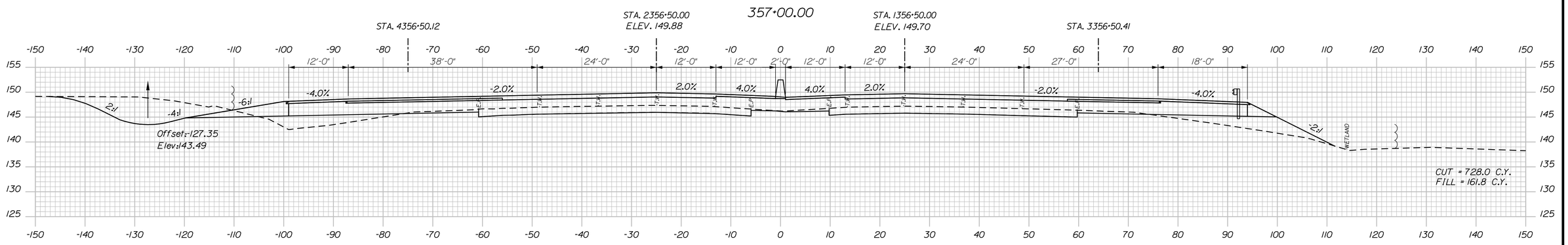

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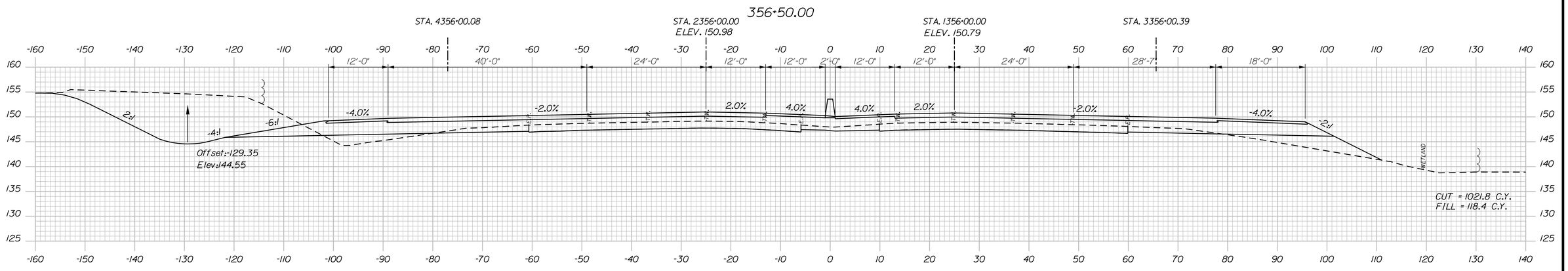

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Date:9/16/2016

Filename: ...\d0259637\Xsect4_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

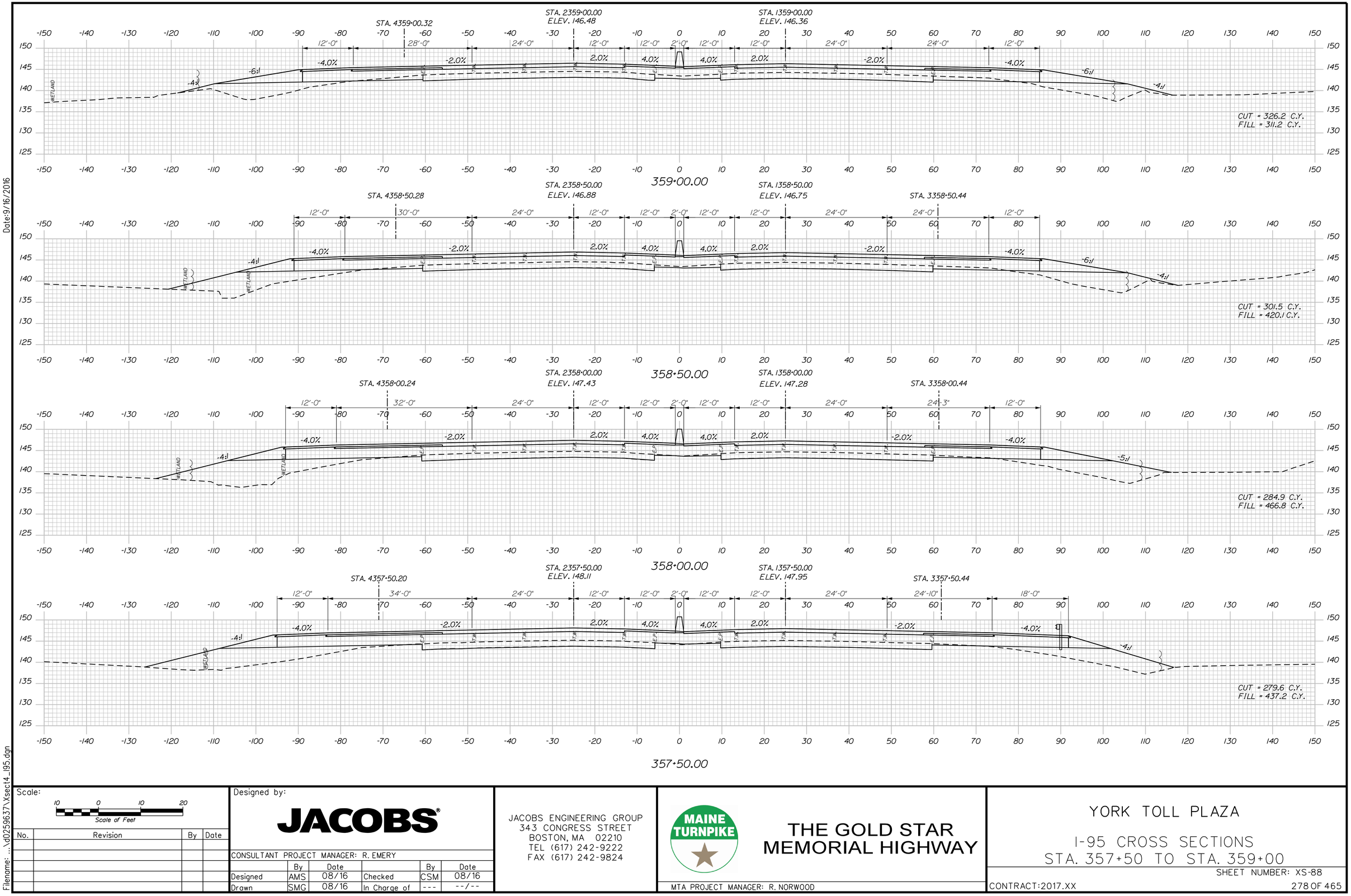
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 356+00 TO STA. 357+00

SHEET NUMBER: XS-87

CONTRACT:2017.XX



Date:9/16/2016

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Scale:

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Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

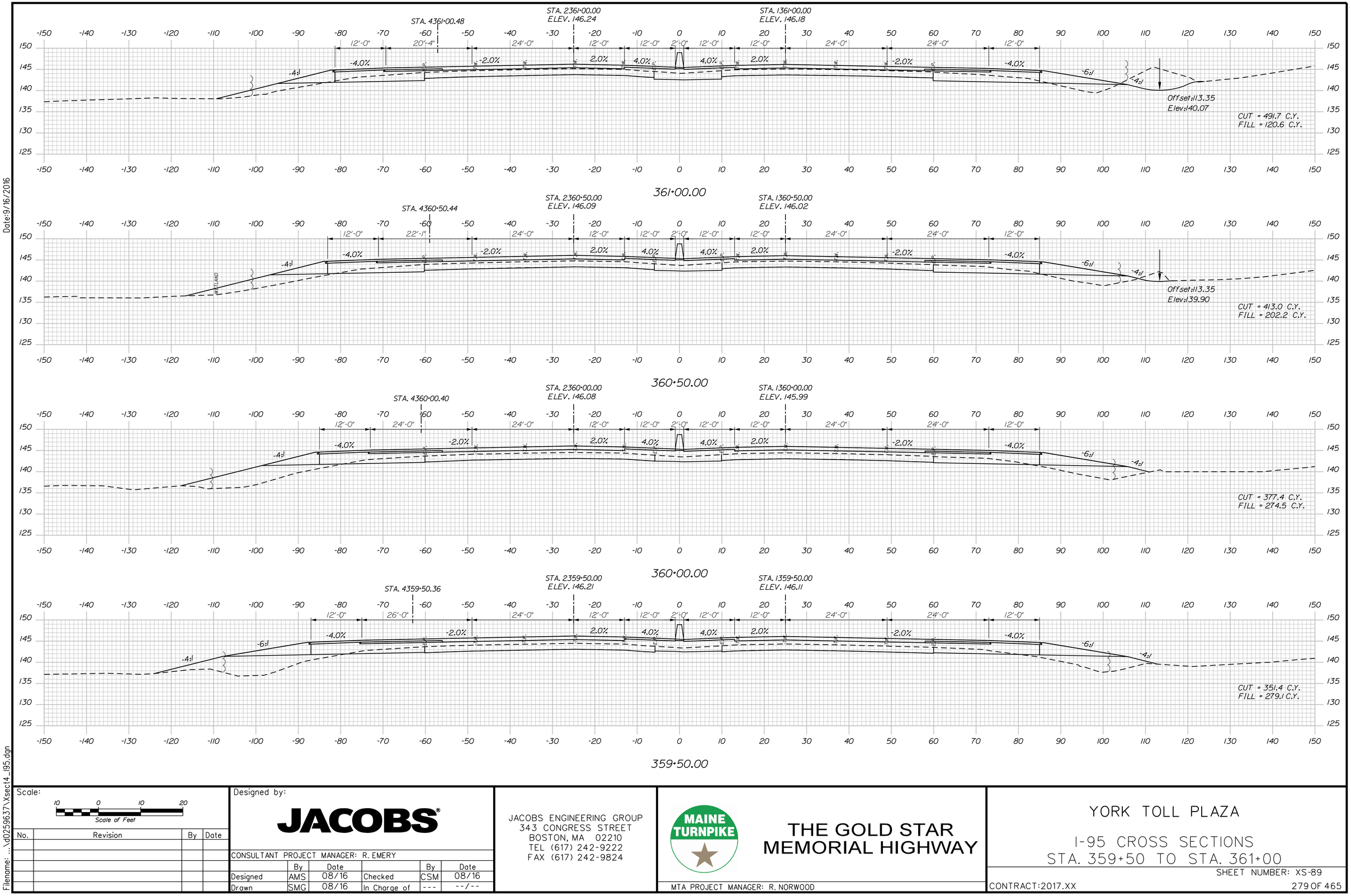
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 357+50 TO STA. 359+00

SHEET NUMBER: XS-88

CONTRACT:2017.XX



Date:9/16/2016

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Scale:

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Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 359+50 TO STA. 361+00

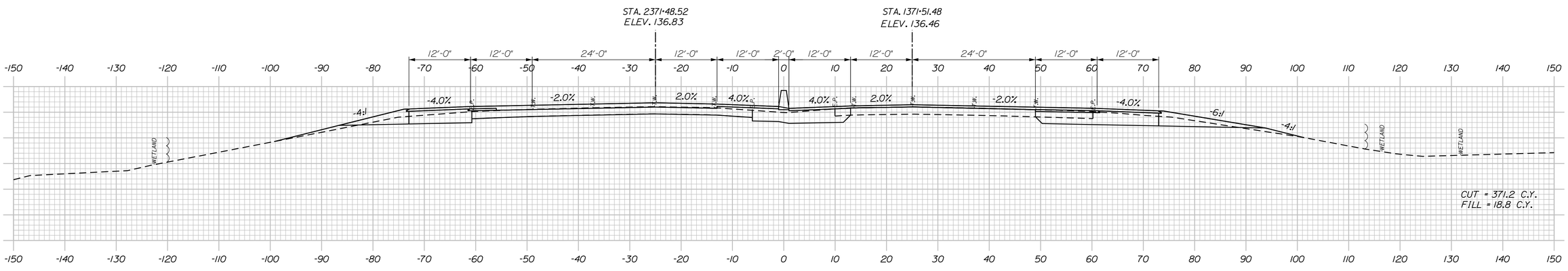
SHEET NUMBER: XS-89

CONTRACT:2017.XX

Date:9/16/2016

STA. 2371+48.52
ELEV. 136.83

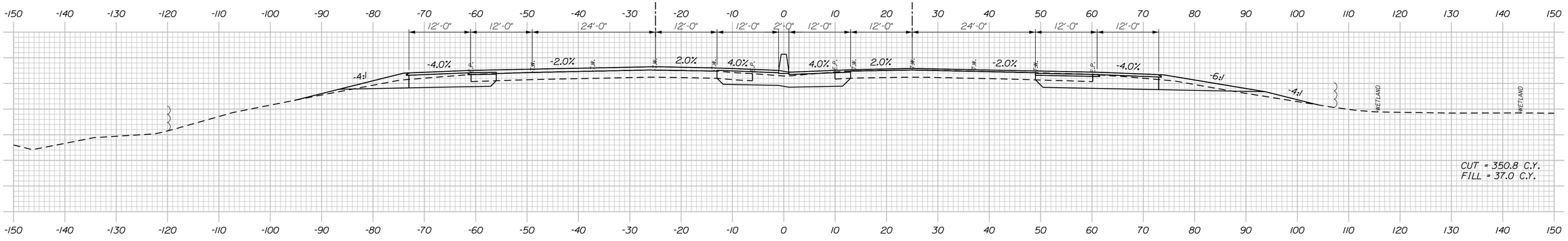
STA. 1371+51.48
ELEV. 136.46



371+50.00

STA. 2370+98.67
ELEV. 138.26

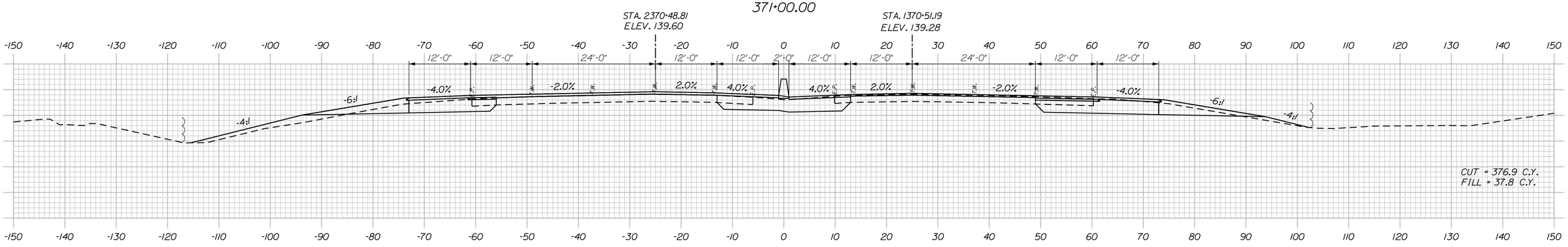
STA. 1371+01.33
ELEV. 137.92



371+00.00

STA. 2370+48.81
ELEV. 139.60

STA. 1370+51.19
ELEV. 139.28



370+50.00

Filename: ...\d0259637\Xsect4_I95.dgn

Scale:
10 0 10 20
Scale of Feet

No.	Revision	By	Date

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Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

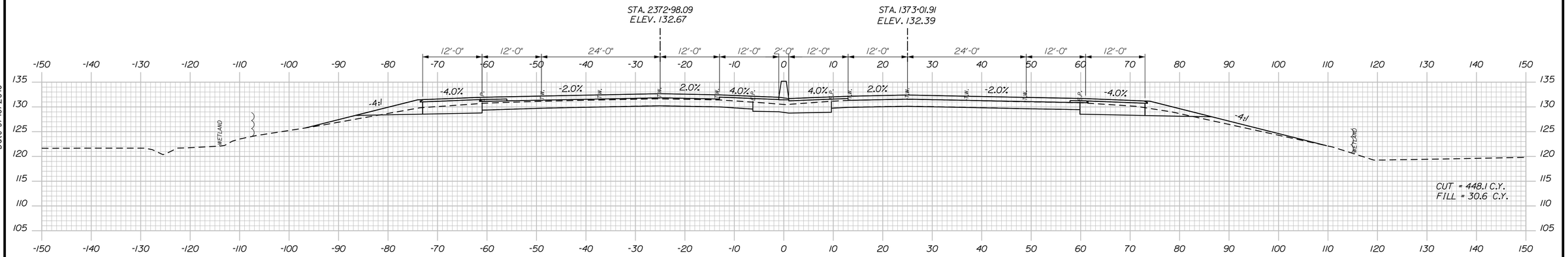
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 370+50 TO STA. 371+50

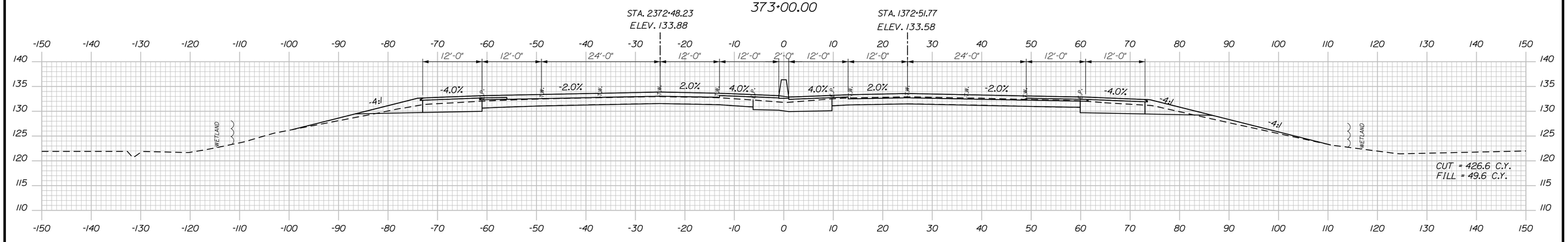
SHEET NUMBER: XS-96

CONTRACT:2017.XX

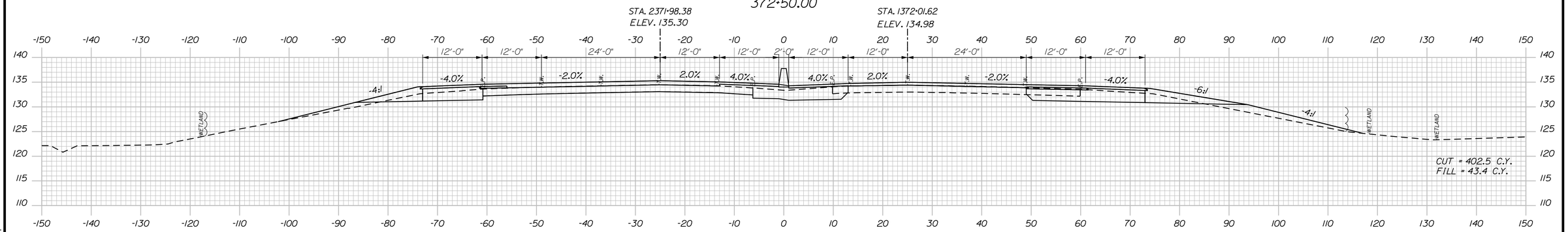
Date:9/16/2016



373+00.00



372+50.00



372+00.00

Filename: ...\d0259637\Xsect4_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
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Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

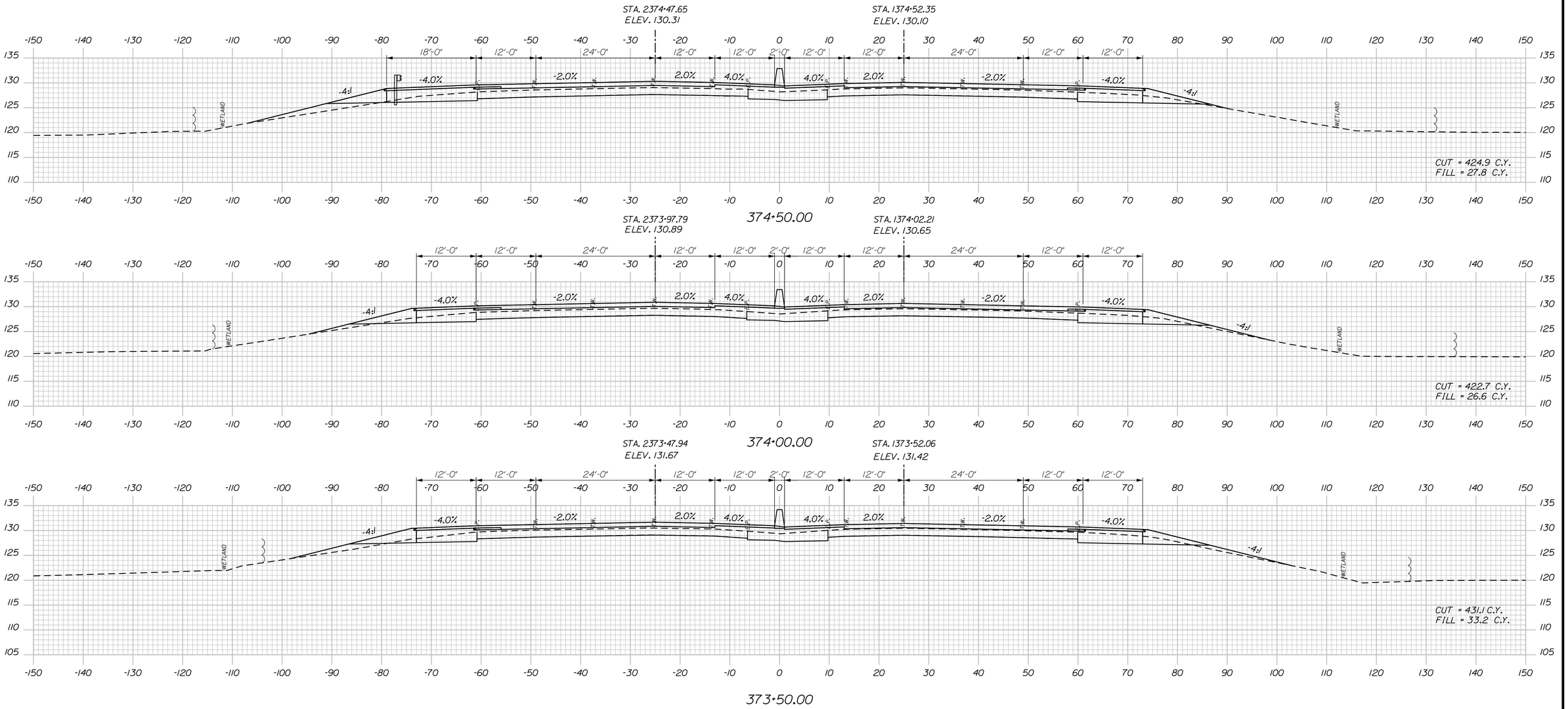
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 372+00 TO STA. 373+00

SHEET NUMBER: XS-97

CONTRACT:2017.XX

Date:9/16/2016



Filename: ...\d0259637\Xsect4_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

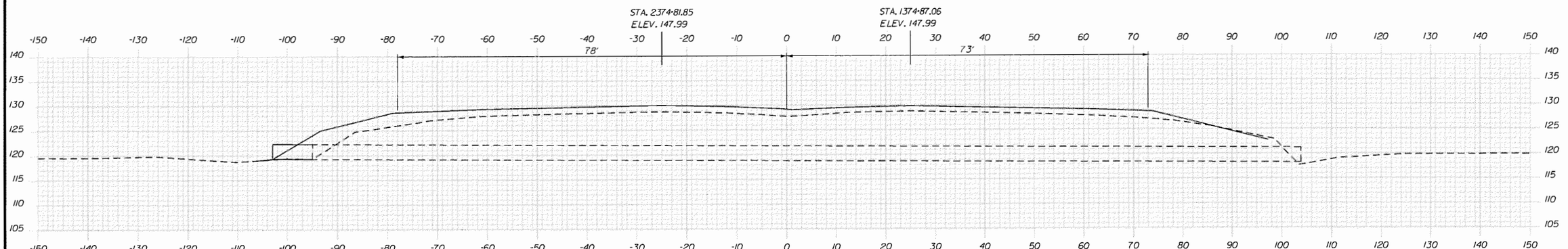
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 373+50 TO STA. 374+50

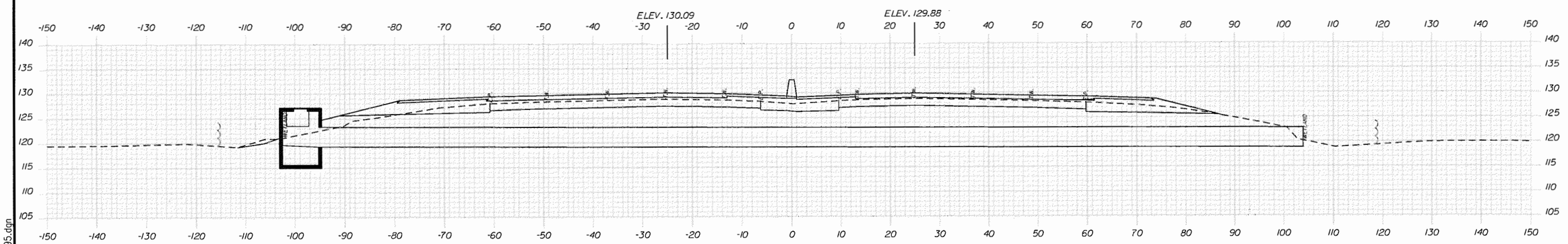
SHEET NUMBER: XS-98

CONTRACT:2017.XX

Date:10/14/2016



374+84.45 (SKEW)



374+77.00, SKEWED

Filename: ...\HIGHWAY\MSTA\Xsect6_I95.dgn

Scale:
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Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: $PROJMANAGER$

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

ROUTE 27

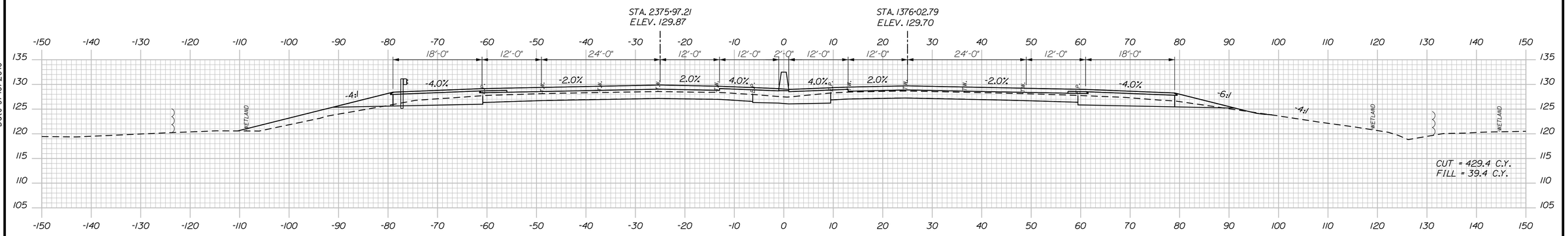
I-95 CROSS SECTIONS
STA. 374+77 TO 374+84

SHEET NUMBER: XX-X

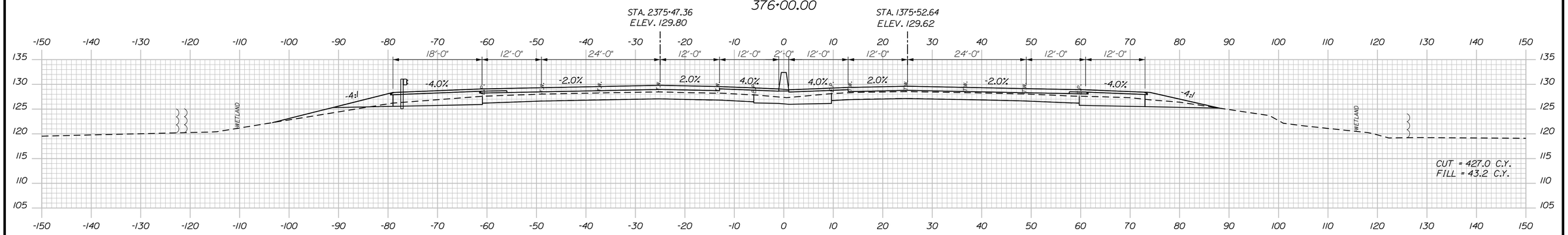
CONTRACT:PIN 15306.00

1OF _

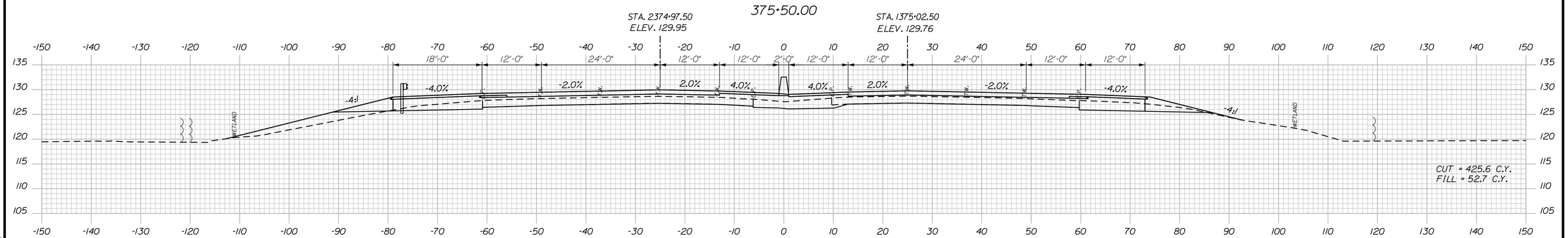
Date:9/16/2016



376+00.00



375+50.00



375+00.00

Filename: ...\c0259637\Xsect4_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

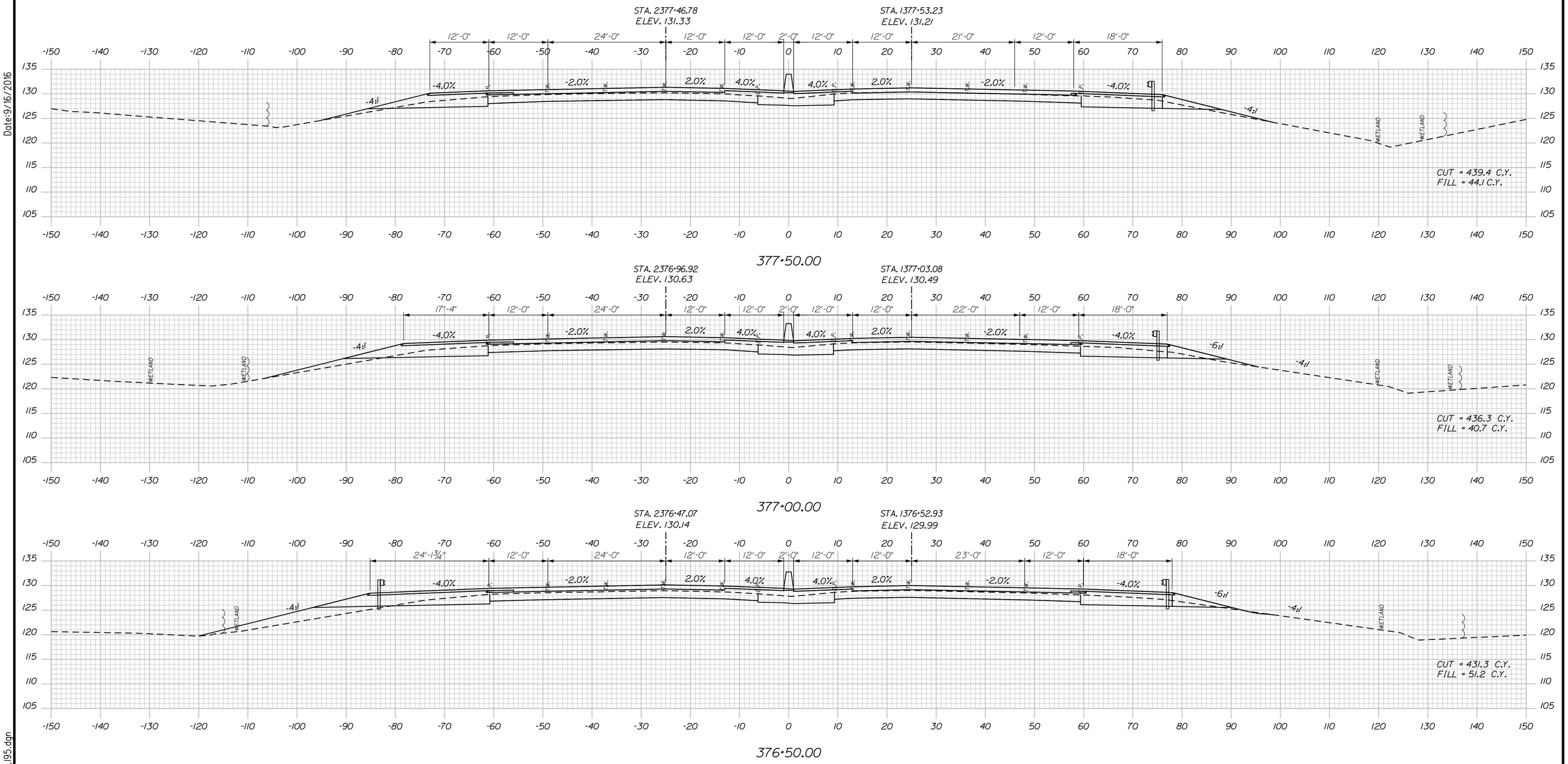
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 375+00 TO STA. 376+00

SHEET NUMBER: XS-99

CONTRACT:2017.XX



Date:9/16/2016

Filename: ...\c0259637\Xsect4_I95.dgn

Scale:

10 0 10 20
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

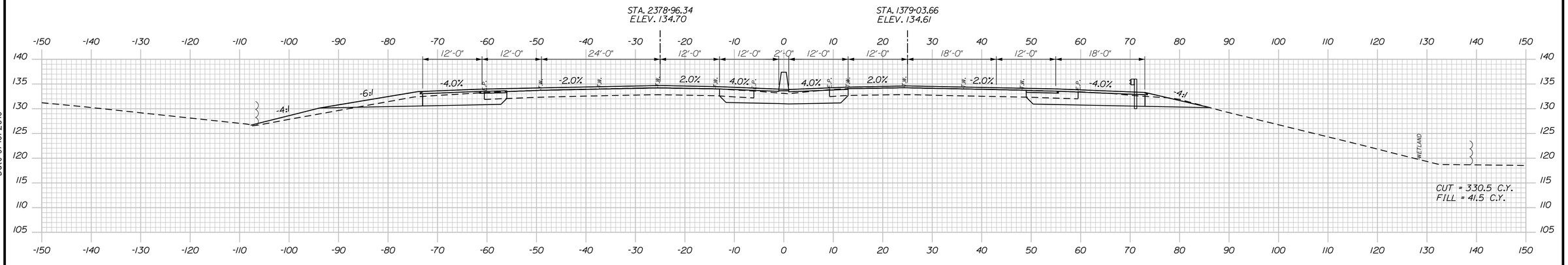
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

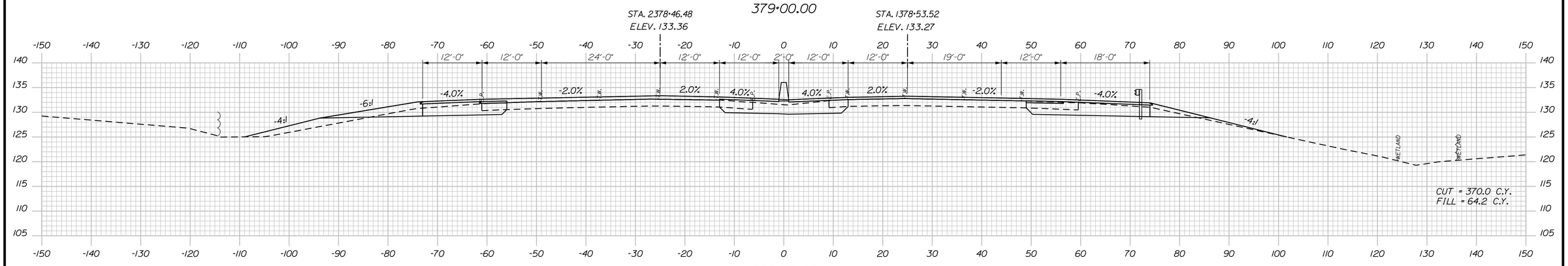
I-95 CROSS SECTIONS
STA. 376+50 TO STA. 377+50

SHEET NUMBER: XS-100

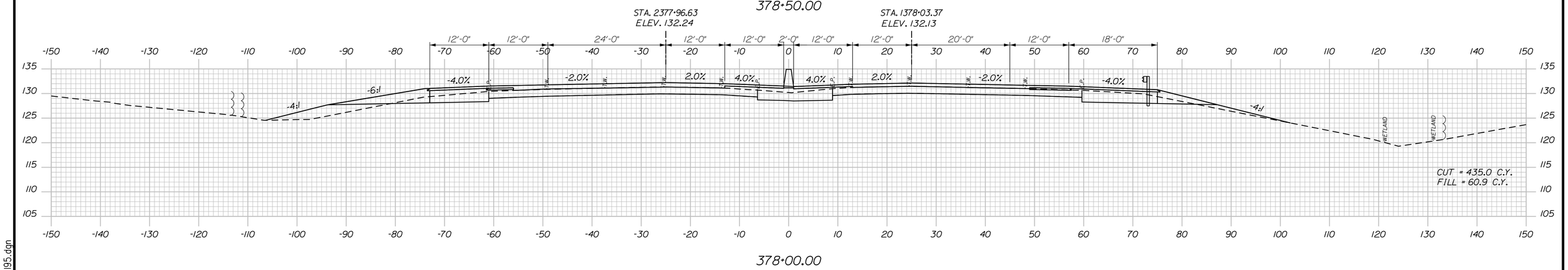
CONTRACT:2017.XX



379+00.00



378+50.00



378+00.00

Date:9/16/2016

Filename: ...\d0259637\Xsect4_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

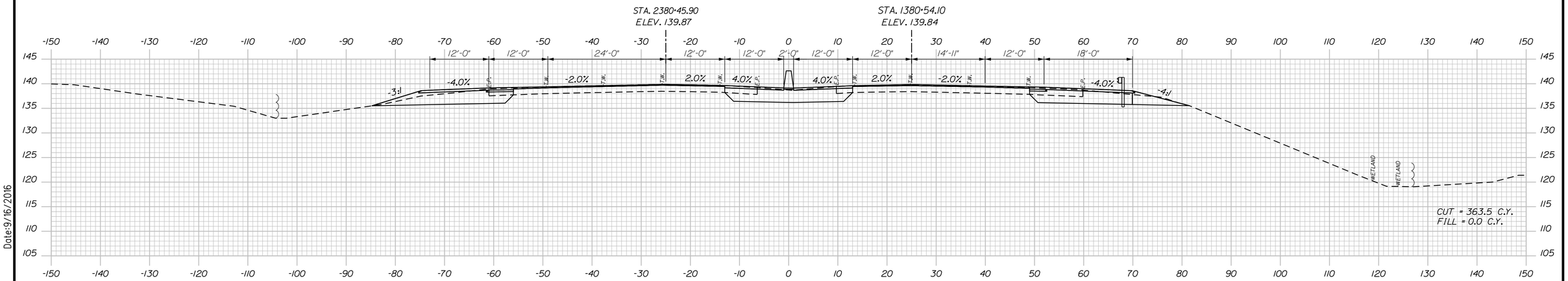
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

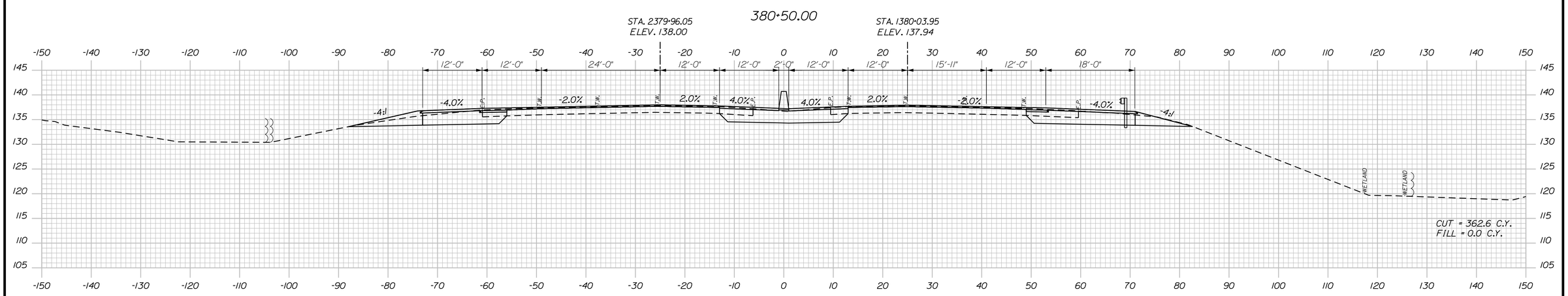
I-95 CROSS SECTIONS
STA. 378+00 TO STA. 379+00

SHEET NUMBER: XS-101

CONTRACT:2017.XX



380+50.00



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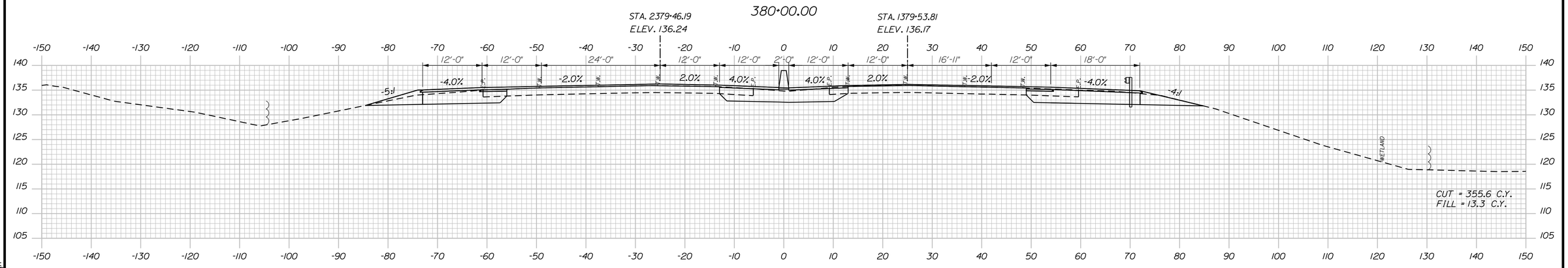

379+50.00

Date:9/16/2016

Filename: ...\d0259637\Xsect4_I95.dgn

Scale:

10 0 10 20

Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

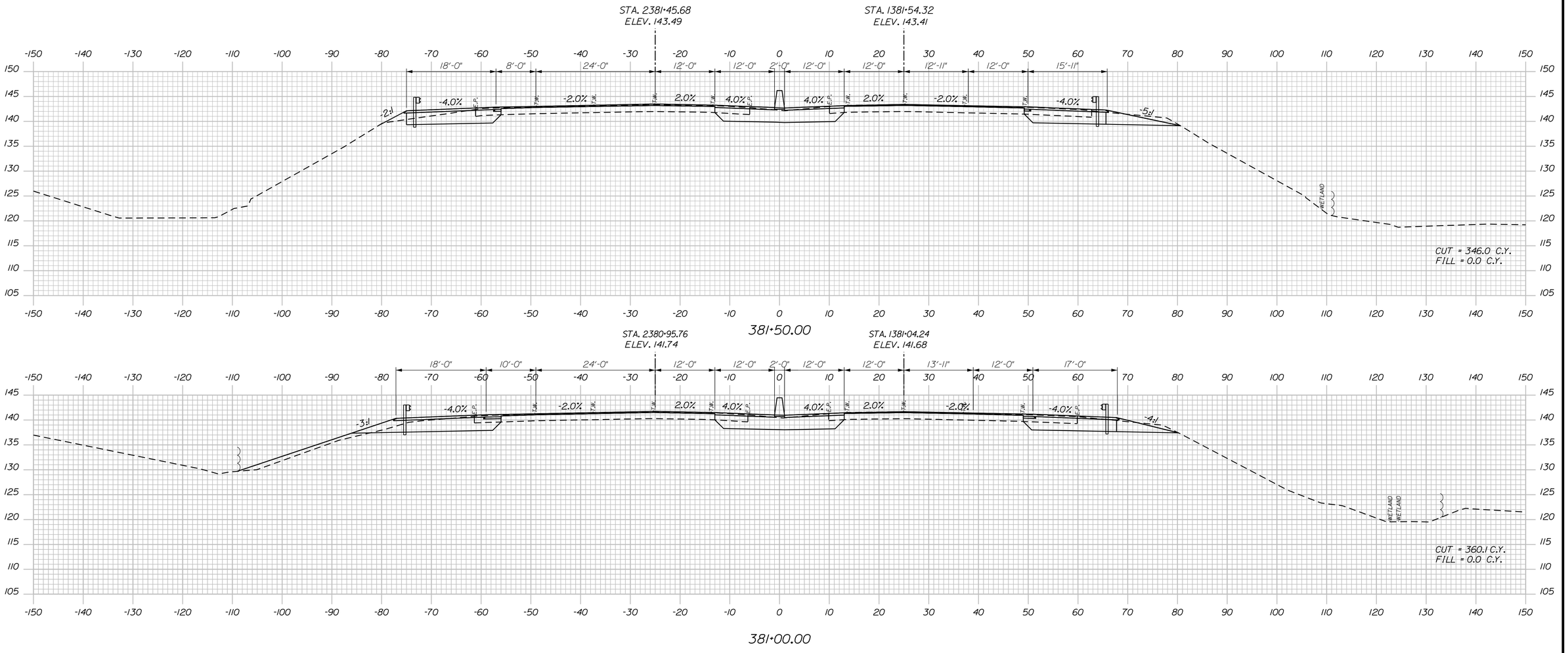
YORK TOLL PLAZA

I-95 CROSS SECTIONS
STA. 379+50 TO STA. 380+50

SHEET NUMBER: XS-102

CONTRACT:2017.XX

Date:9/16/2016



Scale:

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Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	AMS	08/16	Checked	CSM	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

I-95 CROSS SECTIONS STA. 381+00 TO STA. 381+50

SHEET NUMBER: XS-103

CONTRACT:2017.XX

Filename: ...\d0259637\Xsect4_I95.dgn

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ATTACHMENT 7. CONSTRUCTION PLAN

The proposed construction plan is intended to minimize impacts to the natural resources while accommodating existing traffic volumes through the use of existing and proposed roadway. This section depicts the proposed construction sequence and methodology. References to erosion control measures are further described in the Erosion and Sedimentation Control Plan narrative provided in Attachment 8.

Construction of the project will require a sequenced approach that will be made a requirement of the project contract documents. In general the construction sequencing will be a performance based sequence to be proposed by the contractor and approved by the MTA.

A general outline is as follows:

1. Pre-construction coordination after award to contractor.
2. Submission and review/approval of pre-construction phasing plan including work plan and sequencing of work.
3. Review of environmental permits, conditions and requirements. Establish roles and responsibilities together with agency coordination/notification.
4. Site mobilization.
5. Placement of erosion control measures and maintenance of erosion control measures.
6. Site clearing, stumping & grubbing per work plan and project phasing.
7. Earthwork – cuts/fills
8. Drainage improvements
9. Subbase and Subgrade preparation
10. Demolition, site and building improvements per work and sequencing plan.
11. Permanent erosion control and site stabilization including winter conditions.

The following are the general project plans depicting the project improvements.

Environmental Training for Construction

Environmental training will be provided to both MTA and contractor personnel who will be active at the work site during construction. The training program will cover regulated natural resources, the E&SC Plan, procedures for handling and storing petroleum products and hazardous materials, relevant conditions and requirements related to environmental permits, company policies, and any other pertinent information related to the project. In addition to the resident engineer, all other construction personnel are expected to actively comply with all permit conditions and identify any issues to the resident engineer to protect the environment during construction.

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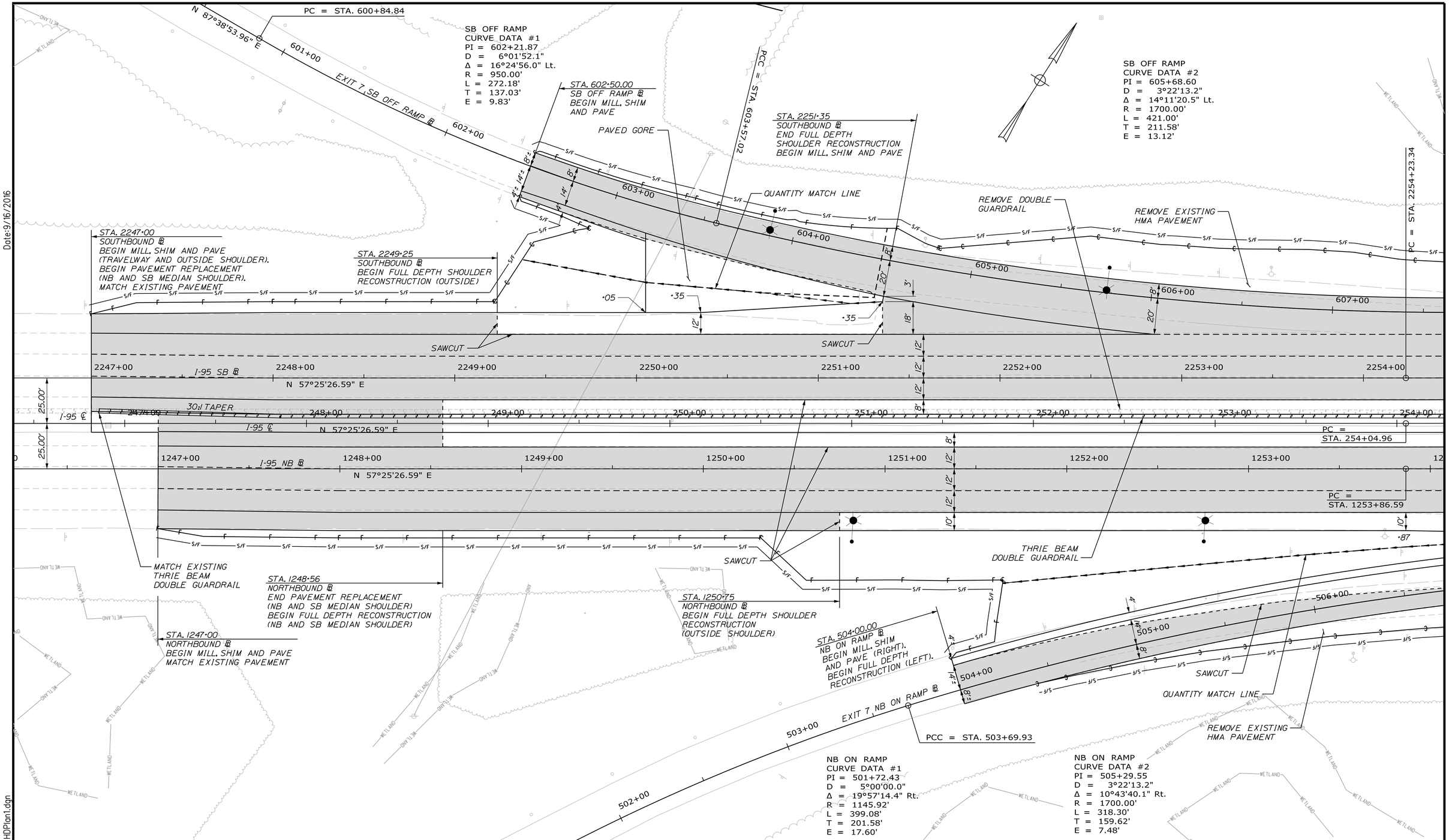

Date:9/16/2016

Filename: ...\d0259637\072_HDPlan1.dgn

Scale: 25 0 25 50 Scale of Feet

No.	Revision	By	Date

Designed by: JACOBS

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 1

SHEET NUMBER: GP-01

CONTRACT:2017.XX

Date:9/16/2016

SB OFF RAMP
CURVE DATA #3
PI = 609+42.30
D = 1°00'38.7"
Δ = 3°19'12.2" Lt.
R = 5668.57'
L = 328.47'
T = 164.28'
E = 2.38'

PC = STA. 2254+23.34

PCC = STA. 607+78.01

PT = STA. 611+06.49

STA. 2257+67
SOUTHBOUND ℄
END MILL SHIM AND PAVE (RIGHT LANE). BEGIN FULL DEPTH RECONSTRUCTION (RIGHT LANE).

REMOVE GUARDRAIL

REMOVE EXISTING HMA PAVEMENT

REMOVE DOUBLE GUARDRAIL

THRIE BEAM DOUBLE RAIL

607+00 608+00 609+00 610+00 611+00 2254+00 I-95 SB ℄ 2255+00 2256+00 2257+00 2258+00 2259+00 2260+00 2261+00

254+00 255+00 256+00 257+00 258+00 259+00 260+00 261+00

PC = STA. 254+04.96

I-95 ℄

1254+00 I-95 NB ℄ 1255+00 1256+00 1257+00 1258+00 1259+00 1260+00 1261+00

PC = STA. 1253+86.59

507+00 508+00 509+00 510+00 511+00

SAWCUT

CB TYPE BI WITH FLAT TOP

CB TYPE BI

25:1 TAPER

10:1 TAPER

15" X 52' RCP

15" X 4' RCP

15" X 3' RCP

15" X 54' RCP

15" X 61' RCP

15" X 29' RCP

18" X 59' RCP

18" X 35' RCP

MH TYPE 6 WITH FLAT TOP

PAVED GORE

QUANTITY MATCH LINE

N 50°58'15.36" E

STA. 507+50
NB ON RAMP ℄
BEGIN MILL, SHIM AND PAVE. END FULL DEPTH RECONSTRUCTION.

PT = STA. 506+88.23

STA. 508+50
NB ON RAMP ℄
END FULL DEPTH RECONSTRUCTION (NB ON-RAMP).
BEGIN FULL DEPTH RECONSTRUCTION (RIGHT LANE AND OUTSIDE SHOULDER).

NB ON RAMP
CURVE DATA #3
PI = 510+61.04
D = 0°22'55.1"
Δ = 1°03'11.3" Rt.
R = 15000.00'
L = 275.71'
T = 137.86'
E = 0.63'

PC = STA. 509+23.18

STA. 1256+83
NORTHBOUND ℄
BEGIN FULL DEPTH RECONSTRUCTION (RIGHT LANE AND OUTSIDE SHOULDER).
END MILL, SHIM AND PAVE (RIGHT LANE AND OUTSIDE SHOULDER).

STA. 1257+83
NORTHBOUND ℄
END MILL, SHIM AND PAVE (LEFT LANE).
BEGIN FULL DEPTH RECONSTRUCTION (LEFT LANE).

STA. 1258+84
NORTHBOUND ℄
END MILL, SHIM AND PAVE (RIGHT LAND AND OUTSIDE SHOULDER).
BEGIN FULL DEPTH RECONSTRUCTION (RIGHT LANE AND OUTSIDE SHOULDER).

PRC = STA. 511+98.90

REMOVE EXISTING HMA PAVEMENT

REMOVE GUARDRAIL

STA. 1261+10
NORTHBOUND ℄
END FULL DEPTH RECONSTRUCTION (RIGHT LANE AND OUTSIDE SHOULDER). BEGIN MILL, SHIM AND PAVE (RIGHT LANE AND OUTSIDE SHOULDER).

APPROX. EXIST. ROW

Filename: ...\d0259637\073_HDPlan2.dgn

Scale: 25 0 25 50 Scale of Feet

No.	Revision	By	Date

Designed by: JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

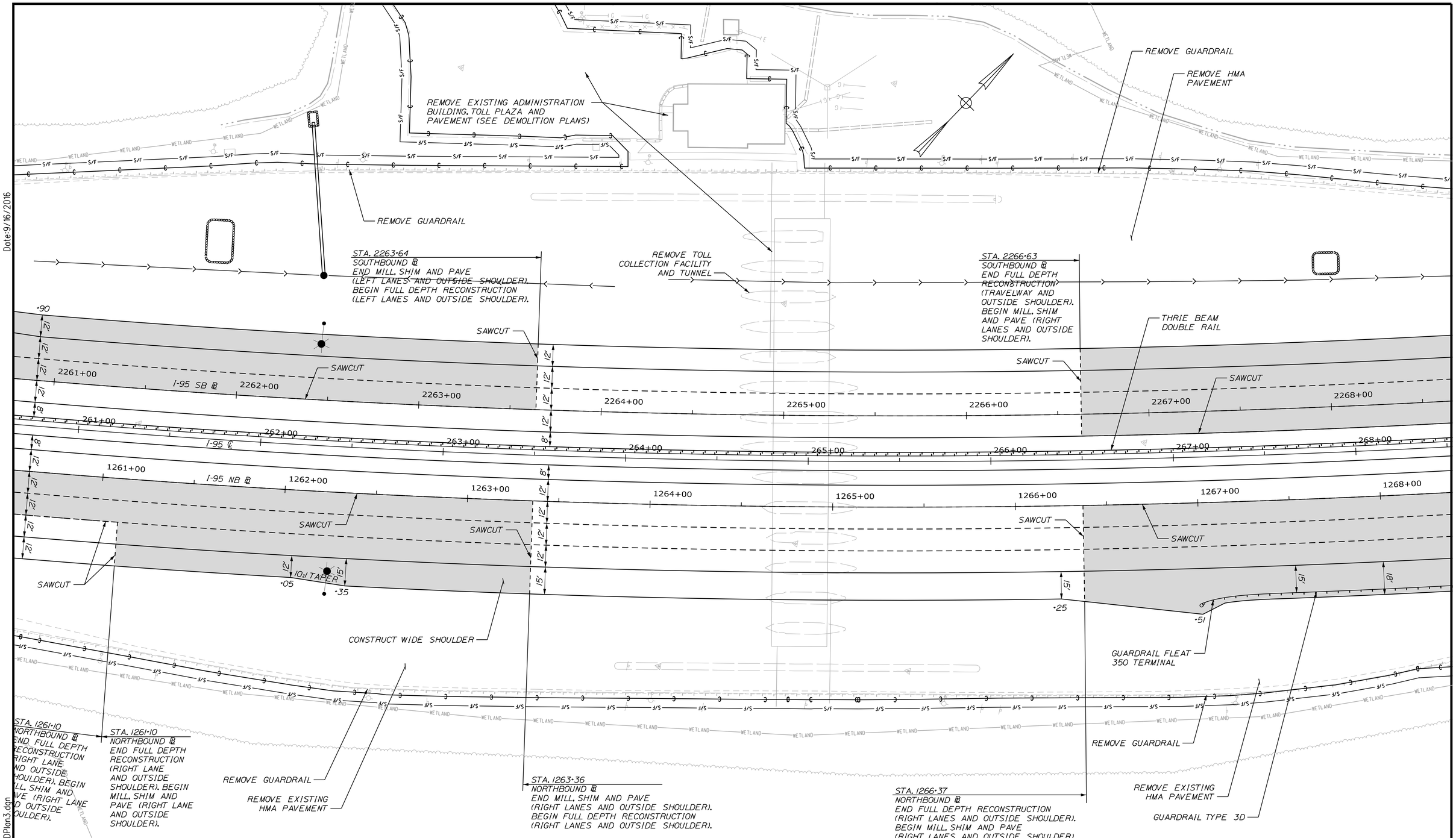
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 2

SHEET NUMBER: GP-02

CONTRACT: 2017.XX



Date:9/16/2016

Filename: ...\d0259637\074_HDPlan3.dgn

Scale: 25 0 25 50 Scale of Feet

No.	Revision	By	Date

Designed by: JACOBS

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 3

SHEET NUMBER: GP-03

CONTRACT: 2017.XX

Date:9/16/2016

APPROX. EXIST. ROW

I95 ℄
CURVE DATA #1
PI = 276+10.55
D = 1°00'00.0"
Δ = 42°06'29.8" Lt.
R = 5729.57'
L = 4210.82'
T = 2205.59'
E = 409.86'

I95 NB ℄
CURVE DATA #1
PI = 1276+01.80
D = 0°59'44.4"
Δ = 42°06'29.8" Lt.
R = 5754.57'
L = 4229.20'
T = 2215.21'
E = 411.65'

I95 SB ℄
CURVE DATA #1
PI = 2276+19.30
D = 1°00'15.8"
Δ = 42°06'29.8" Lt.
R = 5704.57'
L = 4192.45'
T = 2195.97'
E = 408.07'

REMOVE HMA PAVEMENT
REMOVE GUARDRAIL
REMOVE DOUBLE GUARDRAIL
THRIE BEAM DOUBLE RAIL
SAWCUT
CB TYPE BI
15" X 4' RCP
15" X 29' RCP
CB TYPE BI WITH FLAT TOP
15" X 3' RCP
MH TYPE 6
15" X 31' RCP
15" X 42" RCP
15" X 94" RCP
15" X 105" RCP
MH TYPE 6 WITH FLAT TOP
GUARDRAIL TYPE 3D
I-95 SB ℄
I-95 ℄
I-95 NB ℄
2268+00
2269+00
2270+00
2271+00
2272+00
2273+00
2274+00
2275+00
268+00
269+00
270+00
271+00
272+00
273+00
274+00
275+00
1268+00
1269+00
1270+00
1271+00
1272+00
1273+00
1274+00
1275+00
12'
8'
15'
18'

STA. 1271+14
NORTHBOUND ℄
END MILL, SHIM AND PAVE (RIGHT LANE AND OUTSIDE SHOULDER).
BEGIN FULL DEPTH RECONSTRUCTION (RIGHT LANE AND OUTSIDE SHOULDER).

STA. 1273+75
NORTHBOUND ℄
END FULL DEPTH RECONSTRUCTION (LEFT LANE).
BEGIN MILL, SHIM AND PAVE (LEFT LANE).

APPROX. EXIST. ROW

N/F
CHILDS CHARLES P JR/GAIL L
2 NEW TOWN ROAD
MAP 122, LOT 01
BK 7502, PG 127

N/F
CENTRAL MAINE POWER CO
44 NEW TOWN ROAD
MAP 221, LOT 281
BK 7202, PG 112

Filename: ...\d0259637\075_HDPlan4.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 4

SHEET NUMBER: GP-04

CONTRACT: 2017.XX

Date:9/16/2016

N/F
CHILDS SANDRA
2 OLD CHASES POND ROAD
MAP 220, LOT 179
BK 12140, PG 234

APPROX. EXIST. ROW

STA. 2281+60
SOUTHBOUND ℄ END PAVEMENT RECONSTRUCTION (SOUTHBOUND).
END FULL DEPTH RECONSTRUCTION (SOUTHBOUND).
MATCH EXISTING PAVEMENT.

STA. 1278+50
NORTHBOUND ℄ END THRIE BEAM DOUBLE RAIL.
BEGIN THRIE BEAM NB & SB.
BEGIN 15:1 NB TAPER.

STA. 1281+00
END 15:1 NB TAPER OF THRIE BEAM RAIL

THRIE BEAM DOUBLE RAIL

REMOVE DOUBLE GUARDRAIL

THRIE BEAM SINGLE RAIL

MATCH EXISTING THRIE BEAM RAIL

SAWCUT

I-95 SB ℄

I-95 ℄

I-95 NB ℄

15:1

2275+00 2276+00 2277+00 2278+00 2279+00 2280+00 2281+00 2282+00

275+00 276+00 277+00 278+00 279+00 280+00 281+00 282+00

1275+00 1276+00 1277+00 1278+00 1279+00 1280+00 1281+00

12' 12' 12' 12' 8' 8' 12' 12' 15' 18'

15" X 3' RCP

CB TYPE BI WITH FLAT TOP

SAWCUT

SAWCUT

OVERHEAD SIGN STRUCTURE

TERMINAL END ANCHORED END

STA. 1279+00
NORTHBOUND ℄ END FULL DEPTH RECONSTRUCTION (RIGHT LANE).
BEGIN MILL, SHIM AND PAVE (RIGHT LANE).

GUARDRAIL TYPE 3D

APPROX. EXIST. ROW

N/F
CENTRAL MAINE POWER CO
44 NEW TOWN ROAD
MAP 221, LOT 281
BK 7202, PG 112

STA. 1281+94
NORTHBOUND ℄ END PAVEMENT RECONSTRUCTION (NORTHBOUND).
END FULL DEPTH RECONSTRUCTION (NORTHBOUND).
MATCH EXISTING PAVEMENT
BEGIN SHOULDER WIDENING (OUTSIDE SHOULDER)

Filename: ...\d0259637\076_HDPlan5.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:
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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

MTA PROJECT MANAGER: R. NORWOOD

THE GOLD STAR MEMORIAL HIGHWAY

YORK TOLL PLAZA

GENERAL PLAN 5

SHEET NUMBER: GP-05

CONTRACT: 2017.XX

N/F
HUTCHINS MATTHEW E
3 BROWNS FREEHOLD
MAP 221, LOT 253
BK 16784, PG 553

APPROX. EXIST. ROW

REMOVE OVERHEAD SIGN STRUCTURE AND FOUNDATIONS

REMOVE GUARDRAIL

MATCH EXISTING THRIE BEAM RAIL

CB TYPE 8J WITH FLAT TOP

2282+00 2283+00 2284+00 2285+00 2286+00 2287+00 2288+00 2289+00

I-95 SB ℄

282+00 283+00 284+00 285+00 286+00 287+00 288+00 289+00

I-95 ℄

1282+00 1283+00 1284+00 1285+00 1286+00 1287+00 1288+00 1289+00

I-95 NB ℄

APPROX. EXIST. ROW

N/F
CENTRAL MAINE POWER CO
44 NEW TOWN ROAD
MAP 221, LOT 281
BK 7202, PG 112

Date:9/16/2016

Filename: ...\c0259637\077_HDPlan6.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by: JACOBS®

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 6

SHEET NUMBER: GP-06

CONTRACT: 2017.XX

Date:9/16/2016

N/F
GARVEY, ALYSSA M & PIERCE, ADAM M
9 BROWNS FREEHOLD
MAP 221 LOT 259
BK 17142 PG 995

N/F
HANSON, EARL K
60 OLD EAST SCITUATE ROAD
MAP 221 LOT 254
BK 2619 PG 54

APPROX. EXIST. ROW

STA. 2306+00.00
SOUTHBOUND ℄
BEGIN MILL, SHIM AND PAVE (TRAVELWAY AND 7' INTO OUTSIDE SHOULDER).
BEGIN FULL DEPTH RECONSTRUCTION (BEYOND 7' INTO OUTSIDE SHOULDER AND MEDIAN SHOULDER).
MATCH EXISTING PAVEMENT

MEDIAN BARRIER TRANSITION (TYP.)

MEDIAN BARRIER TYPE II

REMOVE OVERHEAD SIGN STRUCTURE AND FOUNDATIONS

PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS. UTILIZE FOR TEMPORARY DRAINAGE. ABANDON IN PLACE WHEN NEW DRAINAGE IS COMPLETED.

REMOVE GUARDRAIL

REMOVE DOUBLE GUARDRAIL

15" X 31' RCP

SAWCUT

REMOVE GUARDRAIL

CB TYPE BI

50:1 TAPER

15" X 4' RCP

CB TYPE BI

CB TYPE BI

CB TYPE BI WITH FLAT TOP

CB TYPE BI WITH FLAT TOP

15" X 4' RCP

15" X 3' RCP

15" X 3' RCP

15" X 73' RCP

15" X 74' RCP

15" X 74' RCP

CB TYPE BI WITH FLAT TOP

CB TYPE BI

CB TYPE BI WITH FLAT TOP

CB TYPE BI WITH FLAT TOP

CB TYPE BI

SAWCUT

MEDIAN BARRIER TYPE I

THRIE BEAM DOUBLE RAIL

GUARDRAIL TYPE 3D

GUARDRAIL FLEAT 350 TERMINAL

STA. 1306+00.00
NORTHBOUND ℄
BEGIN FULL DEPTH RECONSTRUCTION (MEDIAN SHOULDER)

TERMINAL END ANCHORED END

OVERHEAD SIGN STRUCTURE

PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS. UTILIZE FOR TEMPORARY DRAINAGE. REMOVE OR ABANDON IN PLACE WHEN NEW DRAINAGE IS COMPLETED.

2304+00 I-95 SB ℄ 2305+00 2306+00 2307+00 2308+00 2309+00 2311+00

304+00 305+00 306+00 307+00 308+00 309+00 310+00 311+00

I-95 ℄

N 15°18'56.74" E

1304+00 I-95 NB ℄ 1305+00 1306+00 1307+00 1308+00 1309+00 1310+00 1311+00

N 15°18'56.74" E

APPROX. EXIST. ROW

N/F
VERIZON WIRELESS
49 NEW TOWN ROAD
MAP 222 PG 189
BK 15386, PG 134

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by: JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 7

SHEET NUMBER: GP-07

CONTRACT: 2017.XX

Filename: ...\d0259637\078_HDPlan7.dgn

Date:9/16/2016

N/F
HANSON, EARL K
60 OLD EAST SCITUATE ROAD
MAP 221 LOT 254
BK 2619 PG 54

APPROX. EXIST. ROW

PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS

ABANDON EXISTING PIPE

SAWCUT

50:1 TAPER

I-95 SB ℄

I-95 ℄

I-95 NB ℄

MH TYPE 6

5" X 74' RCP

CB TYPE BI WITH FLAT TOP

12" X 3' RCP

N 15°18'56.74" E

MEDIAN BARRIER TYPE I

GUARDRAIL TYPE 3D

REMOVE DOUBLE GUARDRAIL

REMOVE EXISTING TERMINAL END CONNECT TO EXISTING GUARDRAIL

N/F
VERIZON WIRELESS
49 NEW TOWN ROAD
MAP 222 PG 189
BK 15386, PG 134

APPROX. EXIST. ROW

Filename: ...\d0259637\079_HDPlan8.dgn

Scale: 25 0 25 50 Scale of Feet

No.	Revision	By	Date

Designed by: JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 8

SHEET NUMBER: GP-08

CONTRACT: 2017.XX

N/F
YORK TOWN OF
179 CHASES POND ROAD
MAP 222, LOT 178

APPROX. EXIST. ROW

SAWCUT

25:1 TAPER

2319+00 I-95 SB ℄ 2320+00 2321+00 2322+00 2323+00 2324+00 2325+00 2326+00

CB TYPE B1 WITH FLAT TOP

12" X 3' RCP

N 15°18'56.74" E

319+00 I-95 ℄ 320+00 321+00 323+00 324+00 325+00 326+00

N 15°18'56.74" E

1319+00 I-95 NB ℄ 1320+00 1321+00 1322+00 CB TYPE B1 WITH FLAT TOP 1323+00 1324+00 1325+00 1326+00

N 15°18'56.74" E

SAWCUT

SAWCUT

REMOVE DOUBLE GUARDRAIL

MEDIAN BARRIER TYPE 1

PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS

STA. 1325+50.00 NORTHBOUND ℄ BEGIN MILL, SHIM AND PAVE (TRAVELWAY). BEGIN FULL DEPTH RECONSTRUCTION (MEDIAN AND OUTSIDE SHOULDER).

TERMINAL END ANCHORED END

OVERHEAD SIGN STRUCTURE

APPROX. EXIST. ROW

N/F
VERIZON WIRELESS
49 NEW TOWN ROAD
MAP 222 PG 189
BK 15386, PG 134

Date:9/16/2016

Filename: ...\d0259637\080_HDPlan9.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:

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Designed	CSM	08/16	Checked	RRP	08/16
Drawn	SMG	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

MTA PROJECT MANAGER: R. NORWOOD

THE GOLD STAR MEMORIAL HIGHWAY

YORK TOLL PLAZA

GENERAL PLAN 9

SHEET NUMBER: GP-09

CONTRACT: 2017.XX

N/F
CARR VICTORIA L/JEFFREY M
3 WOODS RUN
MAP 222 LOT 168
BK 14301 PG 711

N/F
CLARK CURTIS W JR
4 WOODS RUN
MAP 222 LOT 166
BK 14692 PG 721

N/F
CLARK CU
4 WOO
MAP 222
BK 1469

SB CASH ℄
CURVE DATA #1
PI = 4331+79.54
D = 0°48'00.0"
Δ = 3°47'02.4" Lt.
R = 7162.00'
L = 473.00'
T = 236.59'
E = 3.91'

PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS. UTILIZE FOR TEMPORARY DRAINAGE. REMOVE OR ABANDON IN PLACE WHEN NEW DRAINAGE IS COMPLETED.

CLEAR TO FILL SLOPE IN WETLAND

APPROX. EXIST. ROW

REMOVE DOUBLE GUARDRAIL

MEDIAN BARRIER TYPE I

MEDIAN BARRIER TRANSITION (TYP.)

PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS

SAWCUT

PC = STA. 4329+42.95

MEDIAN BARRIER TYPE II

30" x 25" RCP

15" x 28" RCP

15" x 4' RCP

4330+00 SB CASH ℄ 4331+00 4332+00 4333+00

2326+00 I-95 SB ℄ 2327+00 2328+00 2329+00 2330+00 2331+00 2332+00 2333+00

N 15°18'56.74" E

CB TYPE B5

326+00 327+00 328+00 329+00 330+00 331+00 332+00 333+00

I-95 ℄

CB TYPE B5

CB TYPE BI WITH FLAT TOP

15" X 3' RCP

15" X 73' RCP

1326+00 I-95 NB ℄ 1327+00 1328+00 1329+00 1330+00 1331+00 1332+00 1333+00

N 15°18'56.74" E

CB TYPE BI WITH FLAT TOP

18" X 70' RCP

3327+00 3328+00 3329+00 3330+00 NB CASH ℄ 3331+00 3332+00 3333+00

12' ·50 ·40 ·78 ·28

18' 15'

SAWCUT

SAWCUT

30"x30" RCP

GUARDRAIL TYPE 3D

OVERHEAD SIGN STRUCTURE

REMOVE EXISTING PIPE AND CB

PC = STA. 3326+49.77

PT = STA. 3331+49.50

GUARDRAIL FLEAT 350 TERMINAL

NB CASH ℄
CURVE DATA #1
PI = 3328+99.67
D = 0°27'30.1"
Δ = 2°17'26.2" Rt.
R = 12500.00'
L = 499.73'
T = 249.90'
E = 2.50'

REMOVE AND RELOCATE EXISTING WATERLINE (SEE UTILITY PLANS)

APPROX. EXIST. ROW

4000+00 SB W

30' WIDE YORK WATER DISTRICT EASEMENT

WETLAND

Date:9/16/2016

Filename: ...\d0259637\081_HDPlan10.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:

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Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 10

SHEET NUMBER: GP-10

CONTRACT: 2017.XX

N/F
CLARK CURTIS W JR
4 WOODS RUN
MAP 222 LOT 166
BK 14692 PG 721

PARCEL D
BK 16881, PG 620

SB CASH ℄
CURVE DATA #2
PI = 4334+82.42
D = 2°50'51.7"
Δ = 3°47'02.4" Rt.
R = 2012.00'
L = 132.88'
T = 66.46'
E = 1.10'

PRC = STA. 4334+15.95

APPROX. EXIST. ROW

GUARDRAIL TYPE 3D

CLEAR TO FILL SLOPE IN WETLAND

18" X 108' RCP

18" X 369' RCP

10:1 TAPER

MH TYPE 6

REMOVE DOUBLE GUARDRAIL

MEDIAN BARRIER TYPE I

MEDIAN BARRIER (SEE MEDIAN BARRIER DETAILS FOR TYPE)

18" X 28' RCP

15" X 27' RCP

CB TYPE BI

15" x 4' RCP

CB TYPE BI

PT = STA. 4335+48.83

15" X 77' RCP

12" X 42' RCP

CB TYPE BI WITH FLAT TOP

15" x 24' RCP

CB TYPE BI WITH FLAT TOP

SB CASH ℄

N 15°18'56.74" E

4334+00 4335+00 4336+00 4337+00 4338+00 4339+00 4340+00 4341+00

CB TYPE BI

15" X 4' RCP

CB TYPE BI WITH FLAT TOP

15" X 113' RCP

CB TYPE BI WITH FLAT TOP

CB TYPE BI WITH FLAT TOP

I-95 SB ℄

SAWCUT

2334+00 2335+00 2336+00 2337+00 2338+00 2339+00 2340+00 2341+00

15" X 74' RCP

15" X 3' RCP

15" X 3' RCP

I-95 ℄

N 15°18'56.74" E

18" X 70' RCP

CB TYPE BI WITH FLAT TOP

CB TYPE BI WITH FLAT TOP

I-95 NB ℄

1334+00 1335+00 1336+00 1337+00 1338+00 1339+00 1340+00 1341+00

15" X 4' RCP

CB TYPE BI

CB TYPE BI WITH FLAT TOP

15" X 19' RCP

SAWCUT

3334+00 3335+00 3336+00 3337+00 3338+00 3339+00 3340+00 3341+00

CB TYPE BI

N 17°36'22.94" E

CB TYPE BI WITH FLAT TOP

NB CASH ℄

N 15°18'56.74" E

18" X 4' RCP

18" X 28' RCP

CB TYPE BI

PI = STA. 3337+00.24

15" X 69' RCP

10:1 TAPER

REMOVE AND RELOCATE EXISTING WATERLINE (SEE UTILITY RELOCATION PLANS)

NB CASH ℄
CURVE DATA #2
PI = 3337+00.24
Δ = 2°17'26.2" Lt.

CENTER BARRIER CRASH ATTENUATOR

MEDIAN BARRIER (SEE MEDIAN BARRIER DETAILS FOR TYPE)

APPROX. EXIST. ROW

BARRIER MOUNTED FLASHING BEACON (SOLAR)

CLEAR TO FILL SLOPE IN WETLAND

N/F
YORK WATER DISTRICT
5 NEAR TURNPIKE
MAP 222, LOT 193
BK 2854, PG 1

4008+00

Date:9/16/2016

Filename: ...\d0259637\082_HDPlan11.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

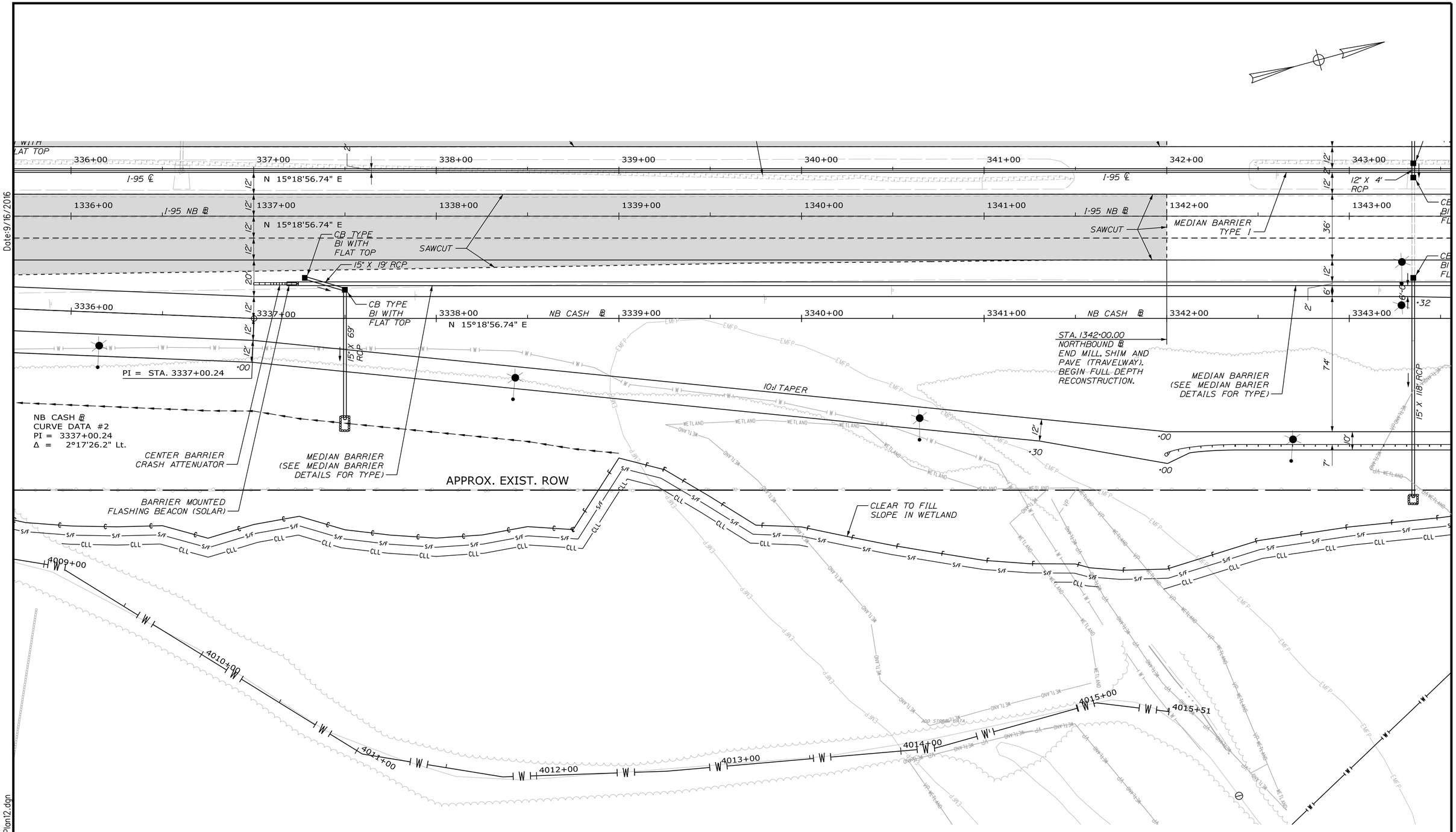
YORK TOLL PLAZA

GENERAL PLAN 11

SHEET NUMBER: GP-11

CONTRACT: 2017.XX

Date:9/16/2016



Filename: ...\d0259637\083_HDPlan12.dgn

Scale:

25 0 25 50

Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 12

SHEET NUMBER: GP-12

CONTRACT: 2017.XX

PARCEL D
BK 16881, PG 620

GATE

ADD CULVERT
15" X 122' RCP

ADMINISTRATION BUILDING

12" X 92' RCP

PARCEL E
BK 16881, PG 623

15" X 122' RCP

N/F
PRICHARD JAMES M/KAREN A TRUST
205 CHASES POND ROAD
MAP 222 LOT 133
BK 14382, PG 239

APPROX. EXIST. ROW

10:1 TAPER

MH TYPE 6

18" X 137' RCP

15" X 78' RCP

MH TYPE 6

CB TYPE B5

CB TYPE B5

10:1 TAPER

STA. 2342+00.00
SOUTHBOUND ℄
END MILL, SHIM AND PAVE (TRAVELWAY AND 7' INTO OUTSIDE SHOULDER). BEGIN FULL DEPTH RECONSTRUCTION.

MEDIAN BARRIER (SEE MEDIAN BARIER DETAILS FOR TYPE)

MEDIAN BARRIER (SEE MEDIAN BARIER DETAILS FOR TYPE)

CANOPY ROOF DRAIN

MEDIAN BARRIER (SEE MEDIAN BARIER DETAILS FOR TYPE)

4341+00 SB CASH ℄ 4342+00 4343+00 4344+00 4345+00 4346+00 4347+00 4348+00

N 15°18'56.74" E

SAWCUT

I-95 SB ℄

CB TYPE BI WITH FLAT TOP

12" X 5'1 RCP

CB TYPE BI WITH FLAT TOP

ORT CONCRETE SLAB

REMOVE DOUBLE GUARDRAIL

2341+00 2342+00 2343+00 2344+00 2345+00 2346+00 2347+00 2348+00

N 15°18'56.74" E

341+00 342+00 343+00 344+00 345+00 346+00 347+00 348+00

N 15°18'56.74" E

I-95 ℄

12" X 4' RCP

CB TYPE BI WITH FLAT TOP

1341+00 1342+00 1343+00 1344+00 1345+00 1346+00 1347+00 1348+00

I-95 NB ℄

SAWCUT

MEDIAN BARRIER TYPE 1

MEDIAN BARRIER TRANSITION

12" x 329' U.D. TYPE 'C'

12" x 329' U.D. TYPE 'C'

MEDIAN BARRIER TRANSITION

MEDIAN BARRIER TYPE 1

N 15°18'56.74" E

N 15°18'56.74" E

CB TYPE BI WITH FLAT TOP

3341+00 NB CASH ℄ 3342+00 3343+00 3344+00 3345+00 3346+00 3347+00 3348+00

N 15°18'56.74" E

N 15°18'56.74" E

STA. 1342+00.00
NORTHBOUND ℄
END MILL, SHIM AND PAVE (TRAVELWAY). BEGIN FULL DEPTH RECONSTRUCTION.

MEDIAN BARRIER (SEE MEDIAN BARIER DETAILS FOR TYPE)

15" X 118' RCP

CANOPY ROOF DRAIN

MEDIAN BARRIER (SEE MEDIAN BARIER DETAILS FOR TYPE)

ORT CONCRETE SLAB

MEDIAN BARRIER (SEE MEDIAN BARIER DETAILS FOR TYPE)

GUARDRAIL TYPE 3D

10:1 TAPER

TUNNEL ℄
STA. 345+00

N/F
YORK WATER DISTRICT
5 NEAR TURNPIKE
MAP 222, LOT 193
BK 2854, PG 1

N/F
YORK WATER DISTRICT
WHIPPOORWILL HOMEOWNERS ASSOC
948 US ROUTE 1
MAP 134, PG 050

CONSTRUCT 1.5:1 STONE SLOPE

APPROX. EXIST. ROW

CLEAR TO EXIST R.O.W.

Date:9/16/2016

Filename: ...\d0259637\084_HDPlan13.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

JACOBS ENGINEERING GROUP
343 CONGRESS STREET
BOSTON, MA 02210
TEL (617) 242-9222
FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

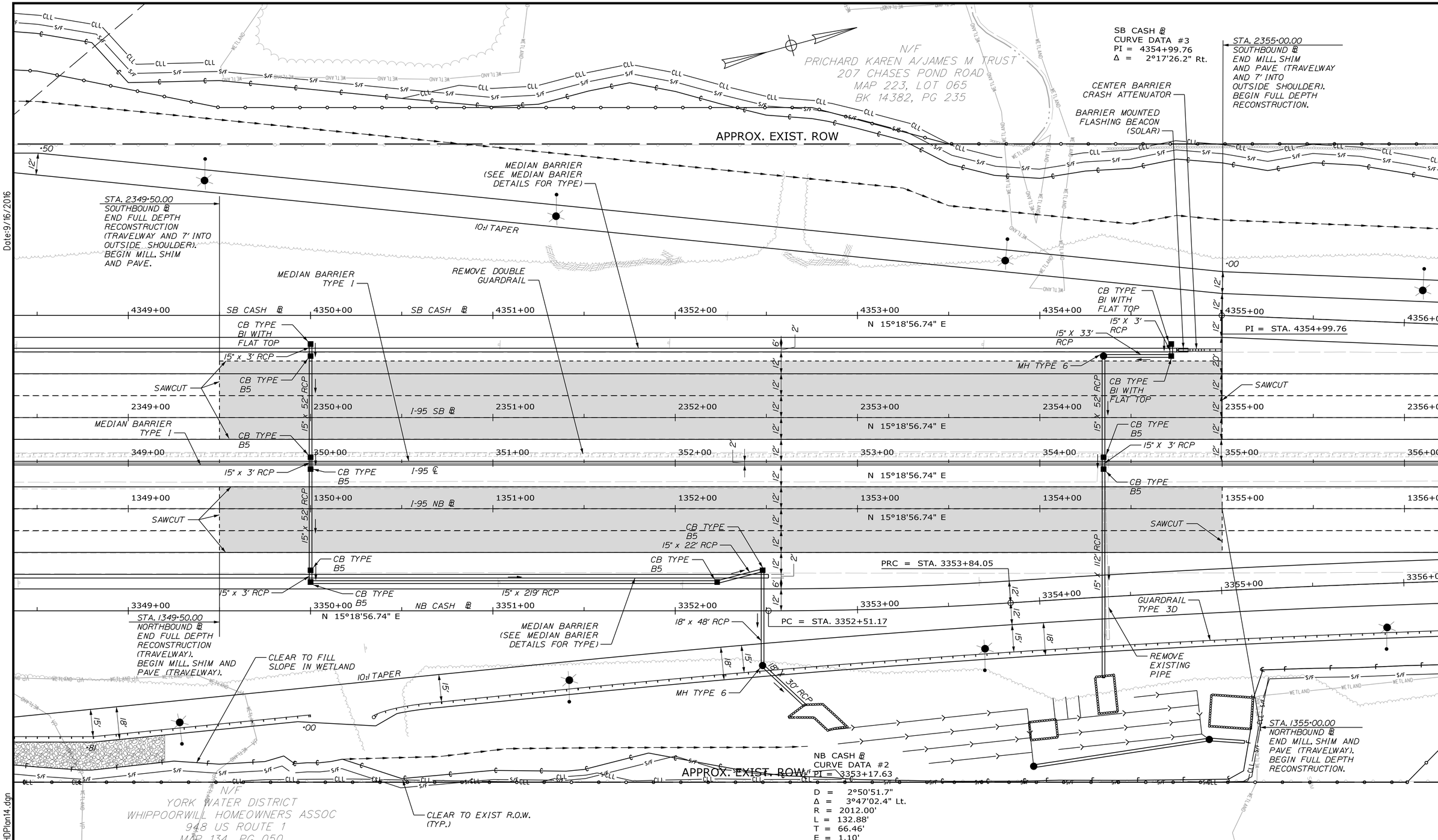
MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 13

SHEET NUMBER: GP-13

CONTRACT: 2017.XX



Date:9/16/2016

Filename: ...\d0259637\085_HDPlan14.dgn

Scale: 25 0 25 50 Scale of Feet

No.	Revision	By	Date

Designed by: JACOBS

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 14

SHEET NUMBER: GP-14

CONTRACT: 2017.XX

N/F
PRICHARD KAREN A/JAMES M TRUST
207 CHASES POND ROAD
MAP 223, LOT 065
BK 14382, PG 235

N/F
RUSHLOW, GLADYS
FKA POTTER, GLADYS
265 CHASES POND ROAD
MAP 223, LOT 049
BK 2064, PG 616

SB CASH ℄
CURVE DATA #3
PI = 4363+00.40
D = 0°27'30.1"
Δ = 2°17'26.2" Lt.
R = 12500.00'
L = 499.73'
T = 249.90'
E = 2.50'

APPROX. EXIST. ROW

CLEAR TO FILL SLOPE IN WETLAND (TYP.)

36" X 30' RCP

REMOVE EXISTING PIPE AND CB

15" X 31' RCP

CB TYPE BI

CB TYPE BI

15" X 4' RCP

OVERHEAD SIGN STRUCTURE

GUARDRAIL TYPE 3D

REMOVE DOUBLE GUARDRAIL

STA. 2363+00.00
SOUTHBOUND ℄ END FULL DEPTH RECONSTRUCTION (TRAVELWAY AND 7' INTO OUTSIDE SHOULDER).
BEGIN MILL, SHIM AND PAVE.

MEDIAN BARRIER TYPE I

4356+00 SB CASH ℄ 4357+00 4358+00 4359+00 4360+00 4361+00 4362+00 4363+00

N 17°36'22.94" E

PC = STA. 4360+50.50

SAWCUT

2356+00 I-95 SB ℄ 2357+00 2358+00 2359+00 2360+00 2361+00 2362+00 2363+00

N 15°18'56.74" E

CB TYPE BI WITH FLAT TOP

15" x 70' RCP

CB TYPE BI WITH FLAT TOP

356+00 357+00 358+00 359+00 360+00 361+00 362+00 363+00

I-95 ℄

N 15°18'56.74" E

15" x 3' RCP

15" x 52' RCP

15" X 4' RCP

CB TYPE BI

CB TYPE BI WITH FLAT TOP

15" X 3' RCP

1356+00 I-95 NB ℄ 1357+00 1358+00 1359+00 1360+00 1361+00 1362+00 1363+00

N 15°18'56.74" E

15" X 5' RCP

CB TYPE BI WITH FLAT TOP

CB TYPE BI WITH FLAT TOP

SAWCUT

MEDIAN BARRIER TRANSITION (TYP.)

MEDIAN BARRIER TYPE II

3356+00 NB CASH ℄ 3357+00 3358+00 3358+57

18' 15' 12' ·50 ·00

PT = STA. 3358+57.05

CB TYPE BI

15" X 4' RCP

15" X 60' RCP

CB TYPE BI

15" X 25' RCP

36" X 20' RCP

NB CASH ℄
CURVE DATA #3
PI = 3356+20.64
D = 0°48'00.0"
Δ = 3°47'02.4" Rt.
R = 7162.00'
L = 473.00'
T = 236.59'
E = 3.91'

CLEAR TO FILL SLOPE IN WETLAND

PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS. UTILIZE FOR TEMPORARY DRAINAGE. REMOVE OR ABANDON IN PLACE WHEN NEW DRAINAGE IS COMPLETED.

STA. 1363+00.00
NORTHBOUND ℄ END FULL DEPTH RECONSTRUCTION (TRAVELWAY).
BEGIN MILL, SHIM AND PAVE (TRAVELWAY).

CLEAR TO FILL SLOPE IN WETLAND

APPROX. EXIST. ROW

N/F
YORK WATER DISTRICT
WHIPPOORWILL HOMEOWNERS ASSOC
948 US ROUTE 1

Date:9/16/2016

Filename: ...\d0259637\086_HDPlan15.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

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Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

JACOBS ENGINEERING GROUP
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 15

SHEET NUMBER: GP-15

CONTRACT: 2017.XX

N/F
RUSHLOW, GLADYS
FKA POTTER, GLADYS
265 CHASES POND ROAD
MAP 223, LOT 049
BK 2064, PG 616

APPROX. EXIST. ROW

GUARDRAIL FLEAT 350 TERMINAL

PT = STA. 4365+50.23

REMOVE DOUBLE GUARDRAIL

PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS

12" X 7' RCP

MEDIAN BARRIER TYPE I

SAWCUT

4364+00 R=12500' 4365+00

PC = STA. 2366+42.72

2364+00 I-95 SB ℄ 2365+00 2366+00 2367+00 2368+00 2369+00 2370+00 2371+00

N 15°18'56.74" E

PC = STA. 366+42.72

364+00 365+00 366+00 366+50 367+00 368+00 369+00 370+00 371+00

CB TYPE BI WITH FLAT TOP

12" X 3' RCP

N 15°18'56.74" E I-95 ℄

1364+00 I-95 NB ℄ 1365+00 1366+00 1367+00 1368+00 1369+00 1370+00 1371+00

N 15°18'56.74" E

PC = STA. 1366+42.72

25:1 TAPER

ABANDON EXISTING PIPE

SAWCUT

APPROX. EXIST. ROW

N/F
YORK WATER DISTRICT
WHIPPOORWILL HOMEOWNERS ASSOC
948 US ROUTE 1

N/F
TRAFTON, ELIZABETH HRS
4 NEAR TURNPIKE
MAP 223, LOT 141
BK 1080, PG 149

Date:9/16/2016

Filename: ...\d0259637\087_HDPlan16.dgn

Scale: 25 0 25 50 Scale of Feet

No.	Revision	By	Date

Designed by: JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 16

SHEET NUMBER: GP-16

CONTRACT: 2017.XX

Date:9/16/2016

STA. 2371+25.00
SOUTHBOUND ℄
END MILL, SHIM AND PAVE (TRAVELWAY AND 7' INTO OUTSIDE SHOULDER).
BEGIN FULL DEPTH RECONSTRUCTION.

N/F
RUSHLOW, GLADYS
FKA POTTER, GLADYS
265 CHASES POND ROAD
MAP 223, LOT 049
BK 2064, PG 616

I95 ℄
CURVE DATA #2
PI = 373+86.22
D = 0°40'03.0"
Δ = 9°54'04.1" Lt.
R = 8583.49'
L = 1483.29'
T = 743.50'
E = 32.14'

I95 NB ℄
CURVE DATA #2
PI = 1373+88.38
D = 0°39'56.1"
Δ = 9°54'04.1" Lt.
R = 8608.49'
L = 1487.61'
T = 745.66'
E = 32.23'

I95 SB ℄
CURVE DATA #2
PI = 2373+84.05
D = 0°40'10.1"
Δ = 9°54'04.1" Lt.
R = 8558.49'
L = 1478.97'
T = 741.33'
E = 32.05'

N/F
YORK WATER DISTRICT
273 CHASES POND ROAD
MAP 223, PG 045
BK 14028, PG 701
PLAN BK 169, PG 39

STA. 2378+25.00
SOUTHBOUND ℄
END FULL DEPTH RECONSTRUCTION (TRAVELWAY AND 7' INTO OUTSIDE SHOULDER).
BEGIN MILL, SHIM AND PAVE.

APPROX. EXIST. ROW

36" X 18' RCP
INV. IN=119.30
INV. IN=119.30
PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS
36" X 201' RCP
OVERHEAD SIGN STRUCTURE
GUARDRAIL TYPE 3D
PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS. UTILIZE FOR TEMPORARY DRAINAGE. REMOVE OR ABANDON IN PLACE WHEN NEW DRAINAGE IS COMPLETED.
MEDIAN BARRIER TYPE I
TERMINAL END ANCHORED END
12" X 7' RCP
REMOVE DOUBLE GUARDRAIL
GUARDRAIL FLEAT 350 TERMINAL
15" X 27' RCP
CB TYPE BI
15" X 4' RCP
CB TYPE BI
SAWCUT
CB TYPE BI
CB TYPE BI WITH FLAT TOP
15" X 4' RCP
15" X 56' RCP
CB TYPE BI WITH FLAT TOP
15" X 3' RCP
CB TYPE BI WITH FLAT TOP
15" X 3' RCP
15" X 56' RCP
15" X 4' RCP
CB TYPE BI WITH FLAT TOP
CB TYPE BI
18" X 48' RCP
CB TYPE BI
18" X 4' RCP
CB TYPE BI
18" X 29' RCP
50:1 TAPER
SAWCUT
SAWCUT
I-95 SB ℄
I-95 ℄
I-95 NB ℄
TYPE BI
H FLAT TOP
2371+00
2372+00
2373+00
2374+00
2375+00
2376+00
2377+00
2378+00
371+00
372+00
373+00
374+00
375+00
376+00
377+00
378+00
1371+00
1372+00
1373+00
1374+00
1375+00
1376+00
1377+00
1378+00
•86
•36
•50
•30
•00
•54
•41
18'
15'
12'
21'
2'
INV. IN=118.30
PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS
REMOVE EXISTING PIPE AND CB
GUARDRAIL FLEAT 350 TERMINAL
GUARDRAIL TYPE 3D
REMOVE GUARDRAIL TERMINAL
REMOVE GUARDRAIL
CLEAR TO FILL SLOPE
STA. 1372+50.00
NORTHBOUND ℄ END MILL, SHIM AND PAVE (TRAVELWAY). BEGIN FULL DEPTH RECONSTRUCTION (TRAVELWAY).
STA. 1378+50.00
NORTHBOUND ℄ END FULL DEPTH RECONSTRUCTION (TRAVELWAY). BEGIN MILL, SHIM AND PAVE (TRAVELWAY).
APPROX. EXIST. ROW
N/F
TRAFTON, ELIZABETH HRS
4 NEAR TURNPIKE
MAP 223, LOT 141
BK 1080, PG 149
WETLAND
CLL
S/F

Filename: ...\d0259637\088_HDPlan17.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:
JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

JACOBS ENGINEERING GROUP
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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 17

SHEET NUMBER: GP-17

CONTRACT: 2017.XX

N/F
YORK WATER DISTRICT
273 CHASES POND ROAD
MAP 223, PG 045
BK 14028, PG 701
PLAN BK 169, PG 39

APPROX. EXIST. ROW

STA. 2378+25.00
SOUTHBOUND ℄
END FULL DEPTH RECONSTRUCTION (TRAVELWAY AND 7' INTO OUTSIDE SHOULDER).
BEGIN MILL, SHIM AND PAVE.

REMOVE DOUBLE GUARDRAIL

MEDIAN BARRIER TYPE I

OVERHEAD SIGN STRUCTURE

REMOVE GUARDRAIL

GUARDRAIL TYPE 3D

STA. 2384+44.4
SOUTHBOUND ℄
END MILL, SHIM AND PAVE (TRAVELWAY AND 7' INTO OUTSIDE SHOULDER).
END FULL DEPTH RECONSTRUCTION (BEYOND 7' INTO OUTSIDE SHOULDER AND MEDIAN SHOULDER).
BEGIN SHOULDER WIDENING (OUTSIDE SHOULDER).

GUARDRAIL FLEAT 350 TERMINAL

SAWCUT

25:1 TAPER

PT = STA. 2381+21.69

PT = STA. 381+26.01

MEDIAN BARRIER TYPE II

THRIE BEAM TERMINAL END

I-95 SB ℄

I-95 ℄

I-95 NB ℄

CB TYPE BI WITH FLAT TOP

12" X 3' RCP

PT = STA. 1381+30.33

50:1 TAPER

MATCH EXISTING GUARDRAIL

STA. 1383+54.3
NORTHBOUND ℄
END FULL DEPTH RECONSTRUCTION (MEDIAN SHOULDER)

STA. 1382+00.00
NORTHBOUND ℄
END MILL, SHIM AND PAVE (TRAVELWAY).
END FULL DEPTH RECONSTRUCTION (OUTSIDE SHOULDER).

PROTECT EXISTING CULVERT FROM CONSTRUCTION DEBRIS

REMOVE EXISTING PIPE

STA. 1378+50.00
NORTHBOUND ℄
END FULL DEPTH RECONSTRUCTION (TRAVELWAY).
BEGIN MILL, SHIM AND PAVE (TRAVELWAY).

APPROX. EXIST. ROW

N/F
TRAFTON, ELIZABETH HRS
& NEAR TURNPIKE
MAP 223, LOT 141
BK 1080, PG 149

Date: 9/16/2016

Filename: ...\d0259637\089_HDPlan18.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:
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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 18

SHEET NUMBER: GP-18

CONTRACT: 2017.XX

Date:9/16/2016

STA. 20+08
ACCESS ROAD ℄
BEGIN MILL, SHIM
AND PAVE

STA. 20+12
ACCESS ROAD ℄
END MILL, SHIM
AND PAVE.
BEGIN FULL DEPH
CONSTRUCTION.

SAWCUT

POB = STA. 20+00.00

CHASES POND ROAD

20+00

R=20'

R=20'

S 88°29'28" E

INV. OUT = 188.00

15" X 52' OPTION III

INV. IN = 188.75

10'

21+00

22+00

N/F
WILLIAM A. MEADER IV & RADKA MEADER
173 CHASES POND RD.
MAP 94, LOT 35D
BK 14941, PG 183

N/F
HARRY O. POLLARD IV & CALEIGH L. POLLARD
175 CHASES POND RD.
MAP 94, LOT 35E
BK 16554, PG 424

PC = STA. 21+57.63

PARCEL A
BK 16881, PG 623

PARCEL H
BK 16881, PG 620

N/F
JAMES R. RUTHERFORD III
& JOANNE RUTHERFORD
191 CHASES POND RD.
MAP 94, LOT 36
BK 2361, PG 148

CURVE DATA #1
= 22+50.55
= 16°22'12.8"
= 29°44'13.7" Rt.
= 350.00'
= 181.65'
= 92.92'
= 12.13'

WETLAND

Filename: ...\d0259637\090_HDPlan19.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:

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CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 19

SHEET NUMBER: GP-19

CONTRACT: 2017.XX

Date:9/16/2016

PARCEL H
BK 16881, PG 620

PARCEL G
BK 16881, PG 622

PARCEL F
BK 16881, PG 620

35' LONG STONE
BERM SPREADER

INV. OUT = 186.00

15" X 70' OPTION III

PC = STA. 24+05.62

30' LONG STONE
BERM SPREADER

INV. OUT = 182.00

18" X 80'
OPTION III

CURVE DATA #2
PI = 26+05.29
D = 11°27'33.0"
Δ = 43°32'16.2" Lt.
R = 500.00'
L = 379.94'
T = 199.67'
E = 38.39'

PT = STA. 28+85.55

22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00

S 56°45'14.99" E

N 79°42'28.86" E

10'
10'

191.50

PC = STA. 22+50.55
CURVE DATA #1
PI = 22+50.55
D = 16°22'12.8"
Δ = 29°44'13.7" Rt.
R = 350.00'
L = 181.65'
T = 92.92'
E = 12.13'

PARCEL A
BK 16881, PG 623

PT = STA. 23+39.29

INV. IN = 187.00

INV. IN = 184.50

R.O.W.
BK 16881, PG 624

PARCEL C
BK 16881, PG 622

PARCEL A
BK 16881, PG 623

PARCEL B
BK 16881, PG 621

Filename: ...\d0259637\091_HDPlan20.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 20

SHEET NUMBER: GP-20

CONTRACT: 2017.XX

PARCEL C
BK 16881, PG 622

PARCEL F
BK 16881, PG 620

PARCEL E
BK 16881, PG 623

R.O.W.
BK 16881, PG 624

PARCEL D
BK 16881, PG 620

CURVE DATA #3
PI = 30+04.03
PI = 11°27'33.0" Rt.
D = 25°37'21.0"
Δ = 500.00'
R = 223.60'
L = 113.70'
T = 12.76'
E = 12.76'

PT = STA. 31+13.93

STA. 32+78.1
ACCESS ROAD TO
END FULL DEPH
CONSTRUCTION

30+00

31+00

32+00 S 74°40'10.13" E

10' 10'

SEE SITE PLAN FOR PARKING
AND GRADING DETAILS

15" X 86' OPTION III

12" X 111' OPTION III

12" X 16' OPTION III

12" X 14' OPTION III

15" X 100' OPTION III

TERMINAL CURB
TYPE I

POE = STA. 32+78.13

PARKING

12" X 111' OPTION III

32.5'

32.5'

13'

GATE

14.00'

ADD CULVERT
15" X 122' RCP

ADMINISTRATION
BUILDING

12" X 92' RCP

15" X 122' RCP

WETLAND

CLL S/F

Date:9/16/2016

Filename: ...\d0259637\092_HDPlan21.dgn

Scale:
25 0 25 50
Scale of Feet

No.	Revision	By	Date

Designed by:

JACOBS®

CONSULTANT PROJECT MANAGER: R. EMERY

	By	Date		By	Date
Designed	CSM	08/16	Checked	RRP	08/16
Drawn	AMS	08/16	In Charge of	---	--/--

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FAX (617) 242-9824

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: R. NORWOOD

YORK TOLL PLAZA

GENERAL PLAN 21

SHEET NUMBER: GP-21

CONTRACT: 2017.XX

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ATTACHMENT 8. EROSION CONTROL PLAN

The General Permit for the Maine Turnpike Authority (MTA) as per the memorandum of agreement requires under 38 M.R.S.A. 484(4-a)) for MTA to comply with the Stormwater Management and Erosion Control Standards that are outlined in the General Permit. The York Toll Plaza Replacement project must comply with the basic standards and the general standards as written below:

> *"Basic Standards: MTA Requires an Erosion Control Plan (developed by the contractor and approved by MTA) for all projects in accordance with the* Maine Department of Transportation's Best Management Practices for Erosion and Sediment Control *(BMP's), dated February 2008. All projects meeting this GP shall comply with the Basic Standards of the DEP Stormwater Rules."*
>
> *General Standards: For projects that are large enough to trigger the General Standard threshold in the DEP's Chapter 500 Stormwater Management Rules, MTA shall meet the General Standards for all projects as follows:*
>
> a) *A linear portion of a project associated with an existing travel corridor shall meet the General Standards to the extent practicable using existing available right of way as determined through consultation with, and agreement by, DEP.*
> b) *A linear portion of a project that is not associated with an existing travel corridor shall meet the General Standards to the extent practicable as determined through the consultation with, and agreement by, DEP.*
> c) *A non-linear portion of a project shall meet the General Standards, except that redevelopment of existing impervious area may qualify for the exception in DEP's Chapter 500 § 4(C)(2)(d)*

The MTA and its consultant team will prepare contract documents including technical specifications and drawings that will be provided to bidding contractors. As part of their documents, the selected contractor will be required to submit a phasing plan and erosion control plan prior to construction for MTA approval. This plan will be required to meet the general permit requirements. Furthermore, these documents are designed to provide specifications for the installation and implementation of soil erosion and sedimentation control measures while allowing adequate flexibility to apply the most appropriate measures based on site-specific conditions, the construction sequence, timing, and weather. Bid packages and contracts for work to be performed for the project will include these specific guidelines to ensure the work is completed in an environmentally sensitive manner. MTA personnel and their representatives will ensure that the procedures contained in the Erosion and Sedimentation Control Plan prepared for the project are followed by regularly inspecting all work and requiring corrective action when necessary.

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ATTACHMENT 9. SITE CONDITIONS

The project location is mile 8.8 on the Maine Turnpike (US Interstate 95) in York, Maine just 1.5 miles north of the existing toll plaza. This location was selected based on several factors discussed in previous sections and was determined to be the Least Environmentally Damaging Practicable Alternative (LEDPA) for this project. The conditions of the site are such that the impacts to natural resources are 1.46 acres of wetland impacts and will not require extensive soil remediation like the existing site of the plaza. The following narrative is a brief summary of the site conditions based on the assessments completed as part of the pre-application process. The reports detailing the following information can be found in appendix 9 of this application.

9.1 Wetlands and Waterbodies

The wetlands in the selected project area, mile 8.8, are governed by the U.S. Army Corps of Engineers (USACE) under Section 404 of the clean water Act and Section 10 of the Rivers and Harbors Act and by the Maine Department of Environmental Protection (MDEP) under the Natural Resources Protection Act (NRPA) (38 M.R.S.A. §480A- HH) and the applicable Wetland and Waterbodies Protection Rules (Chapter 310). The wetlands at this location were delineated by Gary M. Fullerton of Sebago Technics in April and May of 2015. The delineation conforms to the standards and methods outlined in the 1987 Wetlands Delineation Manual and Regional Supplement authored and published by the U.S. Army Corps of Engineers. The delineated wetland boundaries were located in the field using a Trimble global positioning system (GPS) backpack unit.

The wetlands on the site fall within two general classifications as defined by Classification of Wetlands and Deepwater Habitats (Cowardin, et al., 1979). The two classifications are forested and emergent wetlands all within the Palustrine (non-tidal) system.

There are several significant vernal pools that have been identified within the project area. The Maine Department of Inland Fisheries and Wildlife (MDIFW) has indicated the access road will cause some fragmentation of the upland habitat between some of the pools, but the impact should be minimal as traffic will be limited to toll plaza and maintenance employees. The alignment of the access road is designed in order to minimize upland impacts to the vernal pools in the area while considering the constraints of the project area. There will be no direct impact to the significant vernal pools as a result of this project.

A detailed report describing the findings of the field evaluation of wetland and vernal pool characteristics, photos, and field data forms, are provided in appendix 9.

9.2 Threatened and Endangered Species

As part of the Environmental Assessment conducted for this project, the Maine Natural Areas Program (MNAP), the Maine Department of Inland Fisheries and Wildlife (MDIFW), and the U.S. Fish and Wildlife

Services (USFWS) were contacted for information on rare or exemplary natural communities threated or endangered species known to occur within the project area. (See Appendix 9I)

The Maine Department of inland Fisheries and Wildlife responded to a request for information on threatened or endangered species and determined that there were no Essential Habitats that would be directly impacted by this project. There are several state-listed Endangered, Threatened, and Species of Special Concern that have been documented in the project area. The species are as follows; New England Cottontail (Endangered), Spotted Turtle (Threatened), and Eastern Ribbon Snake (Special Concern). The project area is immediately adjacent to Inland Waterfowl and Wading Bird Habitats (IWWHs). MDIFW recommends these resources be avoided in the design of this project.

The Maine Natural Areas Program responded to the request for information on Rare and Exemplary Botanical Features within the project area and determined that there were several locations where such features were mapped. There were four locations with Sweet-Pepper Bush and one location with Smooth Winterberry Holly within the mile 8.8 project area but not within the direct impact area. MNAP was contacted again February 18, 2016 to request an updated review of the selected location. The response indicated that MNAP has no concerns about the project area as the Exemplary Botanical Features do not fall within the direct impact area of the project.

9.2.1 New England Cottontail

The New England Cottontail is identified by the Maine Department of Inland Fisheries and Wildlife Service as a candidate for listing as an endangered species. The New England Cottontail is limited to York and Cumberland County Maine, although their range once extended as far north as Augusta according to IF&W information. The IF&W reports that in recent years cottontails have been found in Berwick, Biddeford, Cape Elizabeth, Cumberland, Dayton, Elliot, Falmouth, Gorham, Kittery, Portland, Saco, Scarborough, South Berwick, South Portland, Wells, Westbrook, Windham, and York. As part of the permitting, IF&W requires a review of the site for potential habitat and indications of Cottontail presence. In July 2010 a New England Cottontail Pellet Study was completed by Normandeau Associates, Inc. in the area of mile 7.3 to 8.7 and noted no conclusive signs of the New England Cottontail. The Maine Department of Inland Fisheries and Wildlife (MDIFW) has confirmed that there has been no evidence observed that New England Cottontail are present at the project site, but that there are populations both north and south of the area. (See Appendix 9H)

9.2.2 Northern Long-eared Bat

A final version of the Northern Long-Eared Bat 4(d) rule of the Endangered Species Act was published in January of 2016 to replace the interim rule initially used to evaluate the York Toll Plaza Replacement Project. The final 4(d) rule states that any incidental take of Northern Long-Eared Bats resulting from tree removal is prohibited if activity occurs within a 0.25 mile radius of known Northern Long-Eared Bat hibernacula or if the activity cuts or otherwise destroys known occupied maternity roosts or any other trees within a 150-foot radius of the known maternity roosts between June 1 and July 31. In July 2015 a Rare Bat Acoustic Study was completed by Stantec Consulting Services, Inc. for the project area at mile 8.8 (Appendix 9G). The conclusion of this study indicated an “unlikely presence” of the Northern Long-

Eared Bat (*Myotis septentrionalis*) within the project area. The actions taken to satisfy the interim 4(d) rule remain sufficient in the adoption of the final 4(d) rule. (See Appendix 9G)

9.2.3 Spotted Turtles and Ribbon Snakes:

Maine Department of Inland Fisheries and Wildlife (MDIFW) has identified a population of spotted turtles (threatened) and a population of ribbon snake (special concern) within the project area. Both the spotted turtles and ribbon snakes are likely to travel between surrounding wetlands within a larger complex. There are wetlands within the inhabited complex, wetlands 12, 13, and 15, which will be impacted by this project as well as some loss of the forested buffer for wetland 11. Correspondence between MTA and MDIFW has indicated that compensation and mitigation efforts, including plans to fund a turtle crossing on route 236 in Elliot, ME, are sufficient for the minimal impacts to habitat. (See Appendix 9I and Attachment 13).

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APPENDIX A: MDEP VISUAL EVALUATION
FIELD SURVEY CHECKLIST
(Natural Resources Protection Act, 38 M.R.S.A. §§ 480 A - Z)

Name of applicant: Maine Turnpike Authority Phone: _____

Application Type: Natural Resource Protection Act Permit

Activity Type: (brief activity description) Toll Plaza Replacement

Activity Location: Town: York Court: Cumberland

GIS Coordinates, if known: _____

Date of Survey: 10-14-16 Observer: Emmy Irvin Phone: 207-200-2096

1. Would the activity be visible from:	Distance Between the Proposed Activity and Resource (in Miles) 0-¼	¼-1	1+
A. A National Natural Landmark or other outstanding natural feature? **No**	☐	☐	☐
B. A State or National Wildlife Refuge, Sanctuary, or Preserve or a State Game Refuge? **No**	☐	☐	☐
C. A state or federal trail? **No**	☐	☐	☐
D. A public site or structure listed on the National Register of Historic Places? **No**	☐	☐	☐
E. A National or State Park?	☐	☐	☐
F. 1) A municipal park or public open space?	☐	☐	☐
2) A publicly owned land visited, in part, for the use, observation, enjoyment and appreciation of natural or man-made visual qualities? **York Land Trust**	X	☐	☐
3) A public resource, such as the Atlantic Ocean, a great pond or a navigable river? **Not within visibility range**	☐	X	☐
2. What is the closest estimated distance to a similar activity? **N/A**	☐	☐	☐
3. What is the closest distance to a public facility intended for a similar use? **N/A**	☐	☐	☐
4. Is the visibility of the activity seasonal? (i.e., screened by summer foliage, but visible during other seasons)		☐Yes	☐No
5. Are any of the resources checked in question 1 used by the public during the time of year during which the activity will be visible?		☐Yes	☐No

A listing of National Natural Landmarks and other outstanding natural features in the State of Maine can be found at: www.nature.nps.gov/nnl/Registry/USA_map/states/Maine/maine.htm . In addition, unique natural areas are listed in the Maine Atlas and Gazetteer published by DeLorme.

(pink)

Most Maine State and National Wildlife Refuges, Sanctuaries, and Preserves and State Game Refuges are listed in the Maine Atlas and Gazetteer published by DeLorme.

Most State and federal trails are listed in the Maine Atlas and Gazetteer published by DeLorme. In addition, the Maine Department of Conservation maintains a list of state parks with trails that can be searched by county at: www.state.me.us/doc/parks/programs/db_search/index.html

Maine sites and structures listed on the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966, as amended, can be searched by town at: www.cr.nps.gov/nr/research/nris.htm

In addition, State historic sites can be found at: www.state.me.us/doc/parks/programs/db_search/index.html A partial listing of historic sites in Maine can be found in the Maine Atlas and Gazetteer published by DeLorme.

A listing of Maine State Parks can be found at: www.state.me.us/doc/parks/programs/db_search/index.html or in the Maine Atlas and Gazetteer published by DeLorme. Acadia National Park on Mount Desert Island is Maine's only National Park.

For guidance on completing this field survey checklist, please contact Licensing staff in the Division of Land Resource Regulation at the following offices:

(Headquarters)
Central Maine Regional Office
17 State House Station
Ray Building, Hospital Street
Augusta, Maine 04333
(207) 287-3901 or
toll free at **1-800-452-1942**

Eastern Maine Regional Office
106 Hogan Road
Bangor, Maine 04401
(207) 941-4570 or
toll free at **1-888-769-1137**

Northern Maine Regional Office
1235 Central Drive
Presque Isle, Maine 04769
(207) 764-0477 or
toll free at **1-888-769-1053**

Southern Maine Regional Office
312 Canco Road
Portland, Maine 04103
(207) 822-6300 or
toll free at **1-888-769-1036**

(pink)

ATTACHMENT 10. NOTICE OF INTENT

The MTA will circulate the Public Notice that follows in an area newspaper and will notify project abutters. The abutters for this project area were identified using York GIS tax map information. The list of abutters is provided in Appendix 10 of this application.

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08/08

PUBLIC NOTICE:

NOTICE OF INTENT TO FILE

Please take notice that

Maine Turnpike Authority
2360 Congress Street
Portland, Maine 04102
(207) 871-7771

is intending to file a Natural Resources Protection Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. §§ 480-A thru 480-BB on or about

October 17, 2016

The application is for:

The construction of a new York Toll Plaza

at the following location:

Mile 8.8 U.S. I-95 Turnpike, York, Maine

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Environmental Protection's office in Portland during normal working hours. A copy of the application may also be seen at the municipal offices in York, Maine.

Written public comments may be sent to the regional office in Portland where the application is filed for public inspection:

MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103

PUBLIC NOTICE FILING AND CERTIFICATION

Department Rules, Chapter 2, require an applicant to provide public notice for all Tier 2, Tier 3 and individual Natural Resources Protect Act projects. In the notice, the applicant must describe the proposed activity and where it is located. **"Abutter"** for the purposes of the notice provision means any person who owns property that is BOTH (1) adjoining and (2) within one mile of the delineated project boundary, including owners of property directly across a public or private right of way.

1. **Newspaper:** You must publish the Notice of Intent to File in a newspaper circulated in the area where the activity is located. The notice must appear in the newspaper within 30 days prior to the filing of the application with the Department. You may use the attached Notice of Intent to File form, or one containing identical information, for newspaper publication and certified mailing.

2. **Abutting Property Owners:** You must send a copy of the Notice of Intent to File by certified mail to the owners of the property abutting the activity. Their names and addresses can be obtained from the town tax maps or local officials. They must receive notice within 30 days prior to the filing of the application with the Department.

3. **Municipal Office:** You must send a copy of the Notice of Intent to File and a **duplicate of the entire application** to the Municipal Office.

   ATTACH a list of the names and addresses of the owners of abutting property.

CERTIFICATION

By signing below, the applicant or authorized agent certifies that:

1. A Notice of Intent to File was published in a newspaper circulated in the area where the project site is located within 30 days prior to filing the application;
2. A certified mailing of the Notice of Intent to File was sent to all abutters within 30 days of the filing of the application;
3. A certified mailing of the Notice of Intent to File, and a duplicate copy of the application was sent to the town office of the municipality in which the project is located; and
4. Provided notice of and held a public informational meeting, if required, in accordance with Chapter 2, Rules Concerning the Processing of Applications, Section 13, prior to filing the application. Notice of the meeting was sent by certified mail to abutters and to the town office of the municipality in which the project is located at least ten days prior to the meeting. Notice of the meeting was also published once in a newspaper circulated in the area where the project site is located at least seven days prior to the meeting.

The Public Informational Meeting was held on _____.
Date

Approximately _____ members of the public attended the Public Informational Meeting.

_____ _____
Signature of Applicant or authorized agent Date

FOR IMMEDIATE RELEASE
September 23, 2016

Erin Courtney
513-2982
ecourtney@maineturnpike.com

Notice of public meeting pertaining to York Toll Plaza - October 5, 2016

Public Meeting will take place on at York Maintenance at 7:00 p.m.

On October 5, the Maine Turnpike Authority will hold a public informational meeting in preparation for applying for a Tier 3 permit under Maine's Natural Resources Protection Act. The purpose of the permit is to relocate the York Toll Plaza to mile 8.8 on the turnpike. For the same project, the MTA will also file a Notice of Intent under its General Permit issued under the Site Location of Development Act.

The application will be processed under the Natural Resources Protection Act, 38 M.R.S.A. 480-A, et. Seq. and its associated regulations and under a General Permit issued to the Maine Turnpike Authority on February 29, 2016, by the DEP under the Site Location of Development Act pursuant to 38 M.R.S.A. 486-B.

The purpose of the meeting is for the Turnpike to inform the public about the project and its anticipated environmental impacts and to educate the public about opportunities to provide comment to the Department of Environmental Protection during the application process.

The meeting will be held October 5, 2016, at 7pm at the Turnpike's York Maintenance Facility at 10 Spur Road, York Maine. The facility is on the west side of the Turnpike near Exit 7.

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Project Description

Background. After a decade of analysis, the Maine Turnpike Authority (MTA) is applying for state and federal environmental permits to construct a modern Open Road Tolling (ORT) plaza at Mile 8.8 in York and to demolish the existing barrier plaza at Mile 7.3.

ORT plazas allow travelers to cruise through in open center lanes and pay tolls electronically at highway speeds (70 mph), and also allow non-E-ZPass customers to pay cash at staffed toll booths to the right. ORT facilities are already built and operating on I-95 in Hampton, New Hampshire and on the Maine Turnpike in New Gloucester. Two other MTA ORT plazas are under construction in West Gardiner and Falmouth, and another is in design in Scarborough.

While the York will be the fifth ORT plaza on the Maine Turnpike, it is clearly the most important. Located at the gateway to Maine, the York plaza handles about 30 million travelers and collects over $50 million per year, which represents about 40% of all MTA revenue.

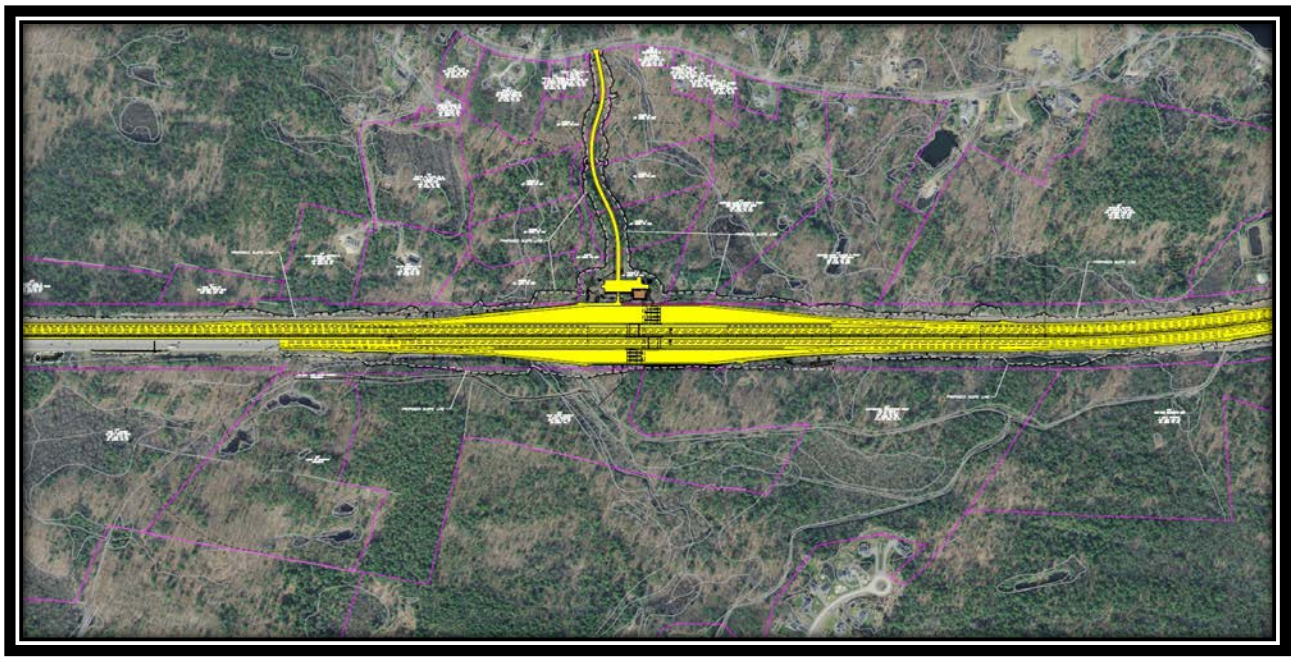
The Problem. The existing barrier plaza at Mile 7.3 has serious safety, operational, and condition deficiencies. Originally designed in the late 1960's as a temporary barrier plaza for all vehicles to stop to take paper tickets and pay cash, it has approaches sinking into clay soils, is surrounded by wetlands, has a leaking tunnel full of electrical components, and uses outdated software and toll equipment held together with used parts. Further, it is located on a curve at the bottom of a hill near an interchange and overpass, which causes sight distance restrictions, weaving, and other safety concerns. And it does not allow tolling at highway speeds as travelers now expect. Accordingly, the USACE-approved purpose of this project is to address these deficiencies by replacing the existing barrier toll plaza with highway speed electronic tolling lanes and cash (non-EZ pass) lanes.

The Solution. The project calls for the construction of a modern ORT plaza at Mile 8.8.



The project has an estimated construction cost of $40 million. The scope includes:

- 6 open, high-speed (70 mph) E-ZPass center lanes (3 in each direction) with overhead open frame gantries with electronic toll collection equipment
- Construction of 9 cash lanes with toll booths (4 northbound and 5 southbound)
- Service tunnel for toll equipment, utilities, and safe passage of staff
- Highway reconstruction of mainline to accommodate approach and departure lanes
- Driveway and utilities from Chases Pond Road
- Administration building and parking lot near the Turnpike
- Construction of stormwater management measures within the Turnpike right of way
- Demolition of the existing 17-lane barrier plaza, administration building and driveway at Mile 7.3.



Plan view showing improvements at Mile 8.8.

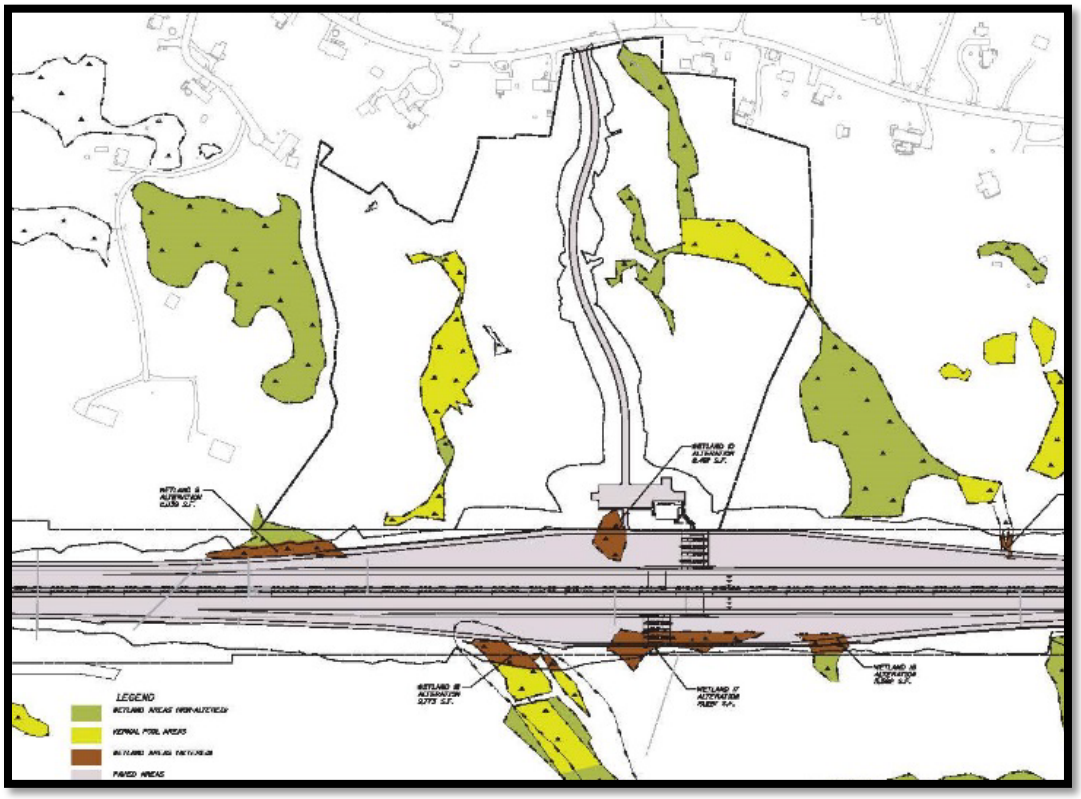
If permitting goes as planned, travelers will be enjoying the new ORT plaza by 2020.

You may submit permitting-related comments to Robert Green at the Maine Department of Environmental Protection via email at Robert.Green@maine.gov or by mail at 312 Canco Road, Portland, Maine 04103.

Minimal Impacts

Although a substantial piece of construction, careful design and siting in close collaboration with environmental agencies has resulted in minimal environmental impacts.

- 1.46 acres of total wetland impact, being mostly forested wetlands with relatively low functions & values. (*Direct impacts are shown in brown in the map below.*)
- No direct impacts to significant vernal pool impacts. 1.41 ac of impact to buffers of significant vernal pools.
- 24 linear feet of stream impacts.
- No impacts to any federally listed Threatened and Endangered species.
- 0.13 acres of impact to the habitat of two state Threatened and Endangered Species.
- All impacts are being mitigated in cooperation with federal and state agencies at an estimated cost of over $450,000.



By USACE definition, this project has "no more than **minimal** . . . adverse effects on the aquatic environment".

This project does not displace any home. In fact, there are only 4 houses within 1,000 feet of the new site.

From dozens of meetings with York officials and residents over the years, it is apparent that there have been local concerns regarding air, noise, and light. The MTA commissioned expert analyses of all these issues. Full copies of these analyses are available on the MTA website. Taken together, they show that this project generally will **reduce impacts and affect fewer York residents**.

Air

- The new ORT plaza is located on the top of a hill and on a straight stretch of highway and allows 70% of cars and 85% of trucks to pass without braking and accelerating.
- Jacobs Engineering studied air impacts using state-of-the-science air and traffic models.
- This study found that **net emissions will be cut by 16% overall.**

Noise

- Although vehicle noise from public ways is exempt from permitting consideration, the MTA commissioned a detailed noise analysis from Jacobs due to local concerns.
- The audible change in sound that is perceivable by the typical human ear is 3 dB(A). The largest difference between existing and future noise levels caused by this project will be 1 dB(A).
- Residences in the Whippoorwill subdivision or along Chase's Pond Road will not experience perceptible noise impacts from this project. Two homes built in close proximity to the Turnpike on Woods Run already experience relatively high noise levels. This project will not make that existing situation perceptibly worse.
- The use of engine brakes at the proposed ORT plaza should be virtually eliminated given that 85% of trucks now use E-Z Pass and will not be slowing, and the location of the plaza on the crest of a hill will help to slow down the remaining 15% of trucks that pay cash.
- Jacobs bottom line conclusion: **There will be no perceptible noise impacts due to the relocation of the toll plaza to Mile 8.8**.

Light

- Jacobs Engineering is designing the lighting using the latest design standards and fixtures. Modern LED "fully cut off" lighting complying with dark sky laws will be used. House-side light shields will control light trespass. These fixtures direct the light in a narrower beam, "painting" the road and other points of interest. The glow from a distance is extremely limited.
- The color of light will be toward the "warmer" end of the spectrum, as opposed to the cooler, blueish hues that some LEDs emit.
- Due to the fixtures used and the height of the trees that surround the proposed plaza, Jacobs expects that **lighting will be practically undetectable to abutters** in the vicinity of the proposed toll plaza.
- Two homes built in close proximity to the Turnpike on Woods Run likely will see the lighted highway, at least when the leaves are off the trees. Residences in the Whippoorwill subdivision or along Chase's Pond Road will not.

You may submit permitting-related comments to Robert Green at the Maine Department of Environmental Protection via email at Robert.Green@maine.gov or by mail at 312 Canco Road, Portland, Maine 04103.

ATTACHMENT 11. MHPC CORRESPONDENCE

Maine Turnpike Authority is submitting a permit application to the U.S. Army Corps of Engineers (USACE) for a 404 permit as well as a Maine Department of Environmental Protection (MDEP) tier three National Resources Preservation Act Permit. Therefore the Maine Historic Preservation Commission (MHPC) and Historic Preservation Officers of Maine's Native American Tribes have been contacted for information on the location and existence of historic or tribal resources.

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SEBAGO
TECHNICS

February 18, 2016
14181

Mr. Earle G. Shettleworth, Jr.
Maine Historic Preservation Commission
55 Capitol Street
State House Station 65
Augusta, ME 04333-0055

Maine Historic Preservation Commission Review
Maine Turnpike Authority, Corridor Study for Toll Plaza

Dear Mr. Shettleworth:

Sebago Technics, Inc. has been retained by the Maine Turnpike Authority (MTA) to assist with the environmental permitting for the proposed York Toll Plaza Relocation. The MTA has identified a new toll plaza location based upon the results of a comprehensive corridor study that was recently completed. The location selected is in the vicinity of mile 8.2 to mile 9.4 with the new toll plaza being located at mile 8.8.

We are in the process of preparing agency applications to include a MDEP Natural Resources Permit Application and US Army Corp of Engineers 404 permit application and would request an updated review of the project area for archaeological sites as well as historic buildings, objects and districts. We have enclosed a location map depicting the project location for your reference.

If you have any questions, please do not hesitate to contact me.

Sincerely,

SEBAGO TECHNICS, INC.

Owens A. McCullough, P.E.., LEED-AP
Vice President- Engineering & Project Development

OAM/llg
Enc.

cc: Ralph Norwood, P.E., PTOE – MTA
Sarah Zografos, Planner/Agency Liaison
Rod Emery, P.E – Jacobs Engineering

Emmerald Irvin

From: Aaron Hunter
Sent: Wednesday, January 07, 2015 4:25 PM
To: Owens McCullough
Subject: FW: Maine Turnpike, corridor study for toll plaza
Attachments: York Toll Plaza archaeology.pdf

FYI

From: Spiess, Arthur [mailto:Arthur.Spiess@maine.gov]
Sent: Wednesday, January 07, 2015 4:21 PM
To: Aaron Hunter
Cc: Smith, Leith
Subject: Maine Turnpike, corridor study for toll plaza

Hello Mr. Hunter:

Please pass this along to Owens McCullough as necessary. Dr. Leith Smith (MHPC historic archaeologist) and I have considered how best to respond to the Sebago Technics inquiry of November 13 (and your follow up map of December 29) for archaeological site information that might exist along the Turnpike corridor. In this case we think that the easiest thing is to send you a copy of our archaeological survey report on a recent previous round of planning for a new Turnpike toll plaza (pdf attached). The report provides background historic information and shows exactly where we dug archaeological testpits and/or did other archaeological fieldwork. We did not identify any significant archaeological sites in the limited areas where we worked. So, releasing the report in its entirety represents little risk that a significant site would be looted, if the details are made public. (We would prefer not, but understand that you may have to do so.) Our work was limited very tightly to the Turnpike right of way and several potential localized areas abutting the right of way.

When a new toll plaza location and work limit is chosen (or multiple locations), unless the new locations are identical in footprint with the several considered in this report, more archaeological fieldwork is likely to be necessary. Consequently, we would consider that further project review for archaeology at your request at any time in the planning process.

Sincerely, Arthur Spiess

Dr. Arthur Spiess
Senior Archaeologist, Maine Historic Preservation
State House Station 65
Augusta, ME 04333
desk phone: 207-287-2789

Emmerald Irvin

From: Reed, Robin K <robin.k.reed@maine.gov>
Sent: Tuesday, January 13, 2015 5:20 PM
To: Aaron Hunter
Cc: Owens McCullough
Subject: RE: MHPC# 1772-14 Maine Turnpike Authority; corridor study for toll plaza; York (mile markers 7.3 to 10.4)
Attachments: CARMA Trained Consultants.pdf

MHPC# 1772-14

Aaron:

In addition to Art Spiess' email to you dated January 7, 2015, please find our additional comments below regarding above ground architectural resources:

There are no National Register listed within the project site boundaries. There may be some prior architectural survey records in our files, but those properties have not been evaluated for National Register eligibility. Therefore, architectural survey will likely be necessary for this project.

Architectural survey identifies and records information on all resources within the APE that are 50 years old or older. The APE for architectural resources must be clearly outlined on a USGS topographical map in consultation with our office. Survey must be completed according to our "Revised Above Ground Cultural Resource Survey Manual Project Review Specific." All surveys must now be submitted electronically via our new on-line CARMA database. See http://www.maine.gov/mhpc/architectural_survey/survey_guidelines.html for more information. On that webpage, please also review our "Project Review Survey Procedures." Please contact Christi Mitchell, our survey coordinator, at 287-1453 or christi.mitchell@maine.gov to schedule an appointment to review our files.

Regarding conducting architectural survey, a list of historic preservation consultants is enclosed for your information and use. Our office encourages you to utilize consultants who meet the Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61, Appendix A), and who have a thorough understanding of the survey process and the National Register of Historic Places Criteria for eligibility. Generally these are architectural historians, but there are also professional standards for historians, architects and historic architects. While there certainly is some cross over between the categories, it is important to realize that having a broad and detailed knowledge of architectural styles, as represented in Maine, is crucial to completing a successful project efficiently. If you have questions about whether a particular firm has conducted survey for our office, please contact our survey coordinator, Ms. Mitchell.

In addition, an assessment of effects must be submitted to our office for historic properties that are identified, pursuant to the Section 106 regulations.

Let me know if you have any questions.

Robin K. Reed
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station

Augusta, ME 04333
phone: 207-287-2132 ext. 1
fax: 207-287-2335
robin.k.reed@maine.gov
http://www.maine.gov/mhpc

From: Aaron Hunter [mailto:ahunter@sebagotechnics.com]
Sent: Monday, December 29, 2014 10:19 AM
To: Reed, Robin K
Cc: Owens McCullough
Subject: MHPC# 1772-14 Maine Turnpike Authority; corridor study for toll plaza; York (mile markers 7.3 to 10.4)

Good Morning Robin,

Attached you will find a USGS topo map that indicates the boundaries of this project. If you have any further questions please let me know.

Thank you,

Aaron Hunter
Civil Engineer

SEBAGO
TECHNICS

www.sebagotechnics.com
An Employee Owned Company

75 John Roberts Road – Suite 1A
South Portland, ME 04106-6963

Office: 207.200.2100
Direct: 207.200.2090
Email: ahunter@sebagotechnics.com

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SEBAGO
TECHNICS

November 13, 2014
14181

Mr. Earle G. Shettleworth, Jr.
Maine Historic Preservation Commission
55 Capitol Street
State House Station 65
Augusta, ME 04333-0055

Maine Historic Preservation Commission Review
Maine Turnpike Authority, Corridor Study for Toll Plaza

Dear Mr. Shettleworth:

Sebago Technics, Inc. has been retained by the Maine Turnpike Authority (MTA) to assist with an environmental corridor study for a section of the Maine Turnpike. The study is part of a larger planning assessment that Jacobs Engineering has recently undertaken for the Southern Maine Toll Plaza in York. The York Toll Plaza was constructed in 1969 and surpassed its useful design life due to traffic, operational and structural deficiencies.

During the past several years, the MTA has initiated a program to evaluate the feasibility for a new Toll Plaza within an identified corridor of the Turnpike that includes the existing Toll Plaza (mile marker 7.3) and an area extending northerly of the York Plaza to mile marker 10.4. In addition the area between mile marker 12.7 and 13.7 was also identified for a potential toll plaza.

As we conduct the planning study, we would appreciate the MHPC's review of the study corridor for the identification of archaeological sites as well as historic buildings, objects and districts. We have enclosed a location map depicting the study area for your reference. If you have any questions, please do not hesitate to contact me.

Sincerely,

SEBAGO TECHNICS, INC.

Owens A. McCullough, P.E.., LEED-AP
Vice President- Engineering & Project Development

OAM/llg
Enc.

cc: Ralph Norwood, P.E., PTOE - MTA
Rod Emery, P.E – Jacobs Engineering

Emmerald Irvin

From: Owens McCullough
Sent: Monday, April 18, 2016 1:59 PM
To: Reed, Robin K
Subject: Re: MHPC# 0273-16 Maine Turnpike Authority; Mile 8.2 to 9.4; York; new toll plaza

Hi Robin, No permits have been issued yet. With our project at 30% design level we wanted to provide you with the site specific layout for a follow-up review.

The project work is predominately within the existing highway corridor with some widening activities for the new toll plaza and approaches. An access road will also be constructed from Chases Pond road to the toll administration building. The plan I had sent you provides an overview of the project limits.

Let me know if you have any questions.

Thank you, Owens

Sent from my mobile phone.
Owens A. McCullough, PE
Sebago Technics, Inc.

On Apr 15, 2016, at 4:49 PM, Reed, Robin K <robin.k.reed@maine.gov> wrote:

> **MHPC# 0273-16 Maine Turnpike Authority; Mile 8.2 to 9.4; York; new toll plaza**
>
> Owens:
>
> I just found your request for project review from late February 2016.
>
> Do you still require our comments? Have the permits been issued yet?
>
> I am copying the Army Corps and Maine DEP on this email to facilitate their review.
>
> Please advise.
>
> Robin K. Reed
> Maine Historic Preservation Commission
> 55 Capitol Street
> 65 State House Station
> Augusta, ME 04333
> phone: 207-287-2132 ext. 1
> fax: 207-287-2335
> robin.k.reed@maine.gov
> http://www.maine.gov/mhpc

Emmerald Irvin

From: Emmerald Irvin
Sent: Friday, June 17, 2016 9:10 AM
To: 14181
Subject: FW: MHPC# 0273-16 Maine Turnpike Authority; Mile 8.2 to 9.4; York; new toll plaza

From: Emmerald Irvin
Sent: Tuesday, June 07, 2016 4:22 PM
To: Reed, Robin K <robin.k.reed@maine.gov>
Subject: RE: MHPC# 0273-16 Maine Turnpike Authority; Mile 8.2 to 9.4; York; new toll plaza

Hi Robin,

I have been working with Owens on the York Toll Plaza project and would like to follow up on his request for an updated review of the project location. There have been no permits issued for this project yet. Please let me know if you need any additional information.

Thanks,
Emmy

Emmy Irvin *Permitting Specialist/Permitting Coordinator*
Office: 207.200.2100 | Direct: 207.200.2096
75 John Roberts Rd., Suite 1A, South Portland, ME 04106
eirvin@sebagotechnics.com | www.sebagotechnics.com
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From: Owens McCullough
Sent: Monday, April 18, 2016 1:59 PM
To: Reed, Robin K <robin.k.reed@maine.gov>
Subject: Re: MHPC# 0273-16 Maine Turnpike Authority; Mile 8.2 to 9.4; York; new toll plaza

Hi Robin, No permits have been issued yet. With our project at 30% design level we wanted to provide you with the site specific layout for a follow-up review.

The project work is predominately within the existing highway corridor with some widening activities for the new toll plaza and approaches. An access road will also be constructed from Chases Pond road to the toll administration building. The plan I had sent you provides an overview of the project limits.

Let me know if you have any questions.

Thank you, Owens

Sent from my mobile phone.
Owens A. McCullough, PE
Sebago Technics, Inc.

On Apr 15, 2016, at 4:49 PM, Reed, Robin K <robin.k.reed@maine.gov> wrote:

> **MHPC# 0273-16 Maine Turnpike Authority; Mile 8.2 to 9.4; York; new toll plaza**
>
> Owens:
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> Robin K. Reed
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> fax: 207-287-2335
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> http://www.maine.gov/mhpc

Emmerald Irvin

From: Emmerald Irvin
Sent: Friday, September 02, 2016 3:14 PM
To: 14181
Subject: FW: York Toll Plaza Project
Attachments: MHPC Correspondence full.pdf

From: Emmerald Irvin
Sent: Friday, September 02, 2016 8:58 AM
To: 'Reed, Robin K' <robin.k.reed@maine.gov>
Subject: RE: York Toll Plaza Project

Robin,

I have attached our record of correspondence to this e-mail.

Thank you,
Emmy

From: Reed, Robin K [mailto:robin.k.reed@maine.gov]
Sent: Friday, September 02, 2016 8:49 AM
To: Emmerald Irvin <eirvin@sebagotechnics.com>
Subject: RE: York Toll Plaza Project

Emmy-

Do you have a copy of our previous correspondence? Did we issue a letter or email comments?

Robin K. Reed
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, ME 04333
phone: 207-287-2132 ext. 1
fax: 207-287-2335
robin.k.reed@maine.gov
http://www.maine.gov/mhpc

From: Emmerald Irvin [mailto:eirvin@sebagotechnics.com]
Sent: Friday, September 02, 2016 8:24 AM
To: Reed, Robin K
Cc: Owens McCullough
Subject: York Toll Plaza Project

Good Morning Robin,

I would like to follow up once more to confirm the findings of the MHPC for the York Toll Plaza Relocation project before we submit the permit applications. According to previous correspondence there is no concern about this project, I have attached the project location map to this e-mail for reference. If there is any other materials you need please let me know.

Thank you,
Emmy

Emmy G. Irvin *Permitting Specialist/Project Coordinator*
Office: 207.200.2100 | Direct: 207.200.2096
75 John Roberts Rd., Suite 1A, South Portland, ME 04106
eirvin@sebagotechnics.com | www.sebagotechnics.com
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PENOBSCOT NATION
CULTURAL & HISTORIC PRESERVATION
12 WABANAKI WAY, INDIAN ISLAND, ME 04468
CHRIS SOCKALEXIS – TRIBAL HISTORIC PRESERVATION OFFICER
E-MAIL: chris.sockalexis@penobscotnation.org FAX: 207-817-7450

NAME	Owens McCullough
ADDRESS	Sebago Technics 75 John Roberts Road, Suite 1A South Portland, ME 04106
OWNER'S NAME	Maine Turnpike Authority
TELEPHONE	(207) 200-2100
FAX	
EMAIL	omccullough@sebagotechnics.com
PROJECT NAME	York Toll Plaza Relocation
PROJECT SITE	York, ME
DATE OF REQUEST	September 13, 2016
DATE REVIEWED	October 12, 2016

Thank you for the opportunity to comment on the above referenced project. This project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966, as amended.

If Native American cultural materials are encountered during the course of the project, please contact my office at (207) 817-7471. Thank you for consulting with the Penobscot Nation on this project.

CHRIS SOCKALEXIS, THPO
Penobscot Nation

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ATTACHMENT 12. WETLAND FUNCTIONS AND VALUES ASSESSMENT

Mile 8.8 York Toll Plaza Relocation

The wetland functions and values assessment was conducted in accordance with the "Wetland Functions and Values: Descriptive Approach" described in the September 1999 (NAEEP 360-1-30a) supplement to "The Highway Methodology Workbook" by the New England Division of the US Army Corps of Engineers. This method is a descriptive approach combining both a qualitative description of physical characteristics of wetlands and best professional judgment. This approach allows the evaluator to use "descriptors" in determining which functions and values are most representative of each wetland. An evaluation for each wetland can be found in this report. The functions and values assessment forms are provided in appendix 12 of this application.

West Side of the Turnpike:

Wetland 8 (PFO1E)

A small portion of this forested wetland was mapped near the Maine Turnpike. It extends beyond the limits of this project area. This forested wetland is dominated by red maple, gray birch, winterberry, speckled alder, meadowsweet, royal fern, sensitive fern, iris and cattail. The soils are classified as poorly drained Brayton fine sandy loam. The primary functions which are served by this wetland are *sediment/toxicant retention and nutrient removal*. This is a large headwater wetland which drains through a 48-inch culvert under the turnpike and forms a stream at the outlet on the east side of the turnpike. No direct impacts are proposed in this wetland.

Wetland 9 (PFO1E)

A small portion of this forested wetland was mapped near the turnpike. It extends beyond the limits of this project area up a steep slope to the west. This forested wetland is dominated by red maple, winterberry, highbush blueberry, sensitive fern, royal fern, iris and various sedges. The soils are classified as very poorly drained Sebago mucky peat with greater than 36 inches of organic soil as identified using a soil auger in the field. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, and some groundwater recharge.* This wetland drains from Chases Pond Road and then eventually down a steep slope into this small wetland near the turnpike. The water seems to pond up here before it leaves through a 30-inch culvert under the turnpike. There may be some groundwater recharge occurring prior to entering the culvert. There are direct impacts proposed in this wetland for the project.

Wetland 10 (PFO1E)

This is an isolated forested wetland adjacent to the turnpike which is proposed to be completely filled in for the project. It is approximately 8,500 square feet in size. This wetland is dominated by white pine, red maple, winterberry, witchazel, cinnamon fern and sensitive fern. The soils are fine-textured silt loam

with stones. The primary functions which are served by this wetland are *sediment/toxicant retention and nutrient removal*. There is no outlet to this wetland; it is possible that this did not exist prior to the turnpike construction. The fill from the turnpike may have "dammed" up this area not allowing it to drain.

Wetland 11 (PEM1F)

This wetland is an emergent marsh which is a basin in the middle of a large wetland complex. There are several wetlands to the southwest that drain from Chases Pond Road to this marsh. This wetland then drains northeasterly towards the turnpike, draining then through the turnpike ditch for approximately 400 feet. It then meets up with water from a 36-inch culvert under the turnpike and runs northwesterly creating a jurisdictional stream. This stream eventually drains into Westland 30. This area drains back under the turnpike via a 36-inch culvert and empties into the Cape Neddick River on the east side of the turnpike.

The dominant vegetation in Wetland 11 is cattail but the dryer portions contain meadowsweet and speckled alder. The soils are classified as very poorly drained Chocorua peat with greater than 36 inches of organic soil as identified using a soil auger in the field. The primary functions which are served by this wetland are *groundwater recharge, floodflow alteration, sediment/toxicant retention, nutrient removal, wildlife habitat, and endangered species habitat.* There are no direct impacts proposed in this wetland for the project.

Wetland 12 (PFO1E)

This is the forested portion of the large wetland complex described above. It is located at the outlet of Wetland 11 and ends at the turnpike ditch. It contains a non-significant vernal pool as mapped by HNTB. The dominant vegetation is red maple, highbush blueberry, royal fern and cinnamon fern. The soils are very poorly drained and consist of approximately 8 inches of organic topsoil overlying sandy loam subsoil. The primary function which is served by this wetland is *wildlife habitat*. The portion of this wetland closest to the turnpike is proposed to be altered.

Wetland 13 (PFO1E)

This wetland receives water from Wetland 12 as well as from Wetland 15 on the east side of the turnpike. This is a forested wetland that contains a jurisdictional stream. The dominant vegetation is red maple, white ash, yellow birch, ironwood, witchazel, cinnamon fern and sensitive fern. The soils are poorly drained glacial till consisting of fine sandy loam. The primary function which is served by this wetland is *groundwater discharge.* This is a low area which contains shallow ledge allowing for groundwater to surface in a stream.

Wetland 30 (PFO1E)

This wetland is a large wetland that is downslope of wetland 13. It eventually outlets through a 36-inch culvert to the east side of the turnpike into Wetland 42, eventually ending at the Cape Neddick River. This is a typical maple swamp that includes red maple, speckled alder, winterberry, meadowsweet, sensitive

fern and various sedges. The soils contain a thin organic layer overlying a firm silt loam and would most likely be classified as poorly drained Scantic silt loam. The primary functions which are served by this wetland are *sediment/toxicant retention and nutrient removal.* This wetland contains slow moving water and little to no channel which may be due to the constricted outlet at the turnpike. This allows the sediments and nutrients from the turnpike to get "trapped" in the wetland prior to entering the Cape Neddick River. Less than 1,300 square feet of wetland disturbance is proposed in this area.

Wetland 53 (PFO1E)

This is an isolated wetland within the "Morrison subdivision" parcel. It is classified as a non-significant vernal pool. The dominant wetland vegetation is highbush blueberry and cinnamon fern. The soils contain a thin organic layer overlying firm silt loam and would be classified as poorly drained Scantic silt loam. This wetland can contain approximately 2 feet of water during early spring which allows for amphibian breeding. The primary function which is served by this wetland is *wildlife habitat.* There are no direct impacts proposed in this wetland; there will be no impacts to the critical terrestrial habitat within 750 feet of the pool.

Wetland 54 (PFO1E)

This is an isolated, forested wetland in the "Morrison subdivision" parcel. It is approximately 1 acre in size and contains 3 significant vernal pools and 1 non-significant vernal pool. The non-significant vernal pool is located at the westernmost portion of the wetland where the shallowest water occurs. It included a total of 4 spotted salamander egg masses. The next vernal pool to the east (VP 54-2) contained 38 spotted salamander egg masses and 4 wood frog egg masses. The large vernal pool in the middle (VP 54-3) contained 70 wood frog egg masses and 72 spotted salamander egg masses. The vernal pool closest to the turnpike (VP 54-4) contained no indicator species in the 2015 and 2016 survey dates, but is listed as a significant vernal pool based on a previous survey that found 60 fairy shrimp and one spotted salamander egg mass.

There were varying amounts of organic soil overlying loamy subsoil throughout the wetland. The largest portion of the wetland contained greater than 36 inches of organic soil; other areas were limited by ledge at less than 10 inches. The dominant vegetation in this wetland is red maple, spruce, speckled alder, highbush blueberry, winterberry, cinnamon fern and royal fern. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, and wildlife habitat.* The surrounding land contains ledge outcrops and shallow to bedrock soils with variable topography. There are no direct impacts proposed in this wetland; there will no impacts to the critical terrestrial habitat within 750 feet of the pool.

Wetland 55 (PFO1E)

This is a small, isolated wetland in the westerly corner of the "Morrison subdivision" parcel. It is a small depression that only contains vegetation on the edge including red maple and american beech. There is approximately 6 inches of loamy soil overlying bedrock. Due to its size, this wetland has little to no functions and values. There are no direct impacts proposed in this wetland.

Wetland 56 (PFO1E)

This is part of the large wetland complex that begins at Chases Pond Road and eventually ends at the Cape Neddick River. This is the portion west of the emergent marsh (Wetland 11). There is one non-significant vernal pool. The vegetation found in this wetland included yellow birch, red maple, highbush blueberry, speckled alder, sensitive fern, cinnamon fern and iris. The poorly drained soils contained a thin organic layer overlying silt loam. The vernal pool area is at a higher elevation and is not able to drain due to depth to bedrock of less than 8 inches. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, and potential wildlife habitat.* The surrounding land contains ledge outcrops and shallow to bedrock soils with variable topography. There are no direct impacts proposed in this wetland; there will be some impacts to the critical terrestrial habitat within 750 feet of the pool for the proposed access road.

East Side of the Turnpike:

Wetland 14 (PFO1E)

A small portion of this forested wetland was mapped near the turnpike. It extends beyond the limits of this project area to the east. This forested wetland is dominated by red maple, eastern hemlock, winterberry, highbush blueberry, cinnamon fern and iris. The hydric soils contain a thin layer of organic soil overlying fine sand and loam. The primary functions which are served by this wetland are *sediment/toxicant retention and nutrient removal.* This wetland drains away from the turnpike. No alteration to this wetland is proposed for the project.

Wetland 15 (PFO1E)

A small portion of this forested wetland was mapped near the turnpike. This wetland drains through a 36-inch culvert to Wetland 13 on the west side of the turnpike where it forms a stream.
The dominant vegetation includes red maple, red oak, gray birch, winterberry, cinnamon fern and royal fern. The hydric soils are fine to very fine sandy loam with no organic horizon. The primary functions which are served by this wetland are *sediment/toxicant retention and nutrient removal.* There is a large subdivision to the east which most likely contributes some sediment and nutrients to this wetland. The existing culvert is proposed to be extended which will include impacting a small portion of this wetland.

Wetland 16 (PFO1E)

This is part of a wetland complex that begins at the turnpike and runs easterly. There is a potential vernal pool as mapped by HNTB. No egg masses were found. The vegetation found in this wetland included red maple, yellow birch, white pine, highbush blueberry, winterberry, speckled alder, royal fern, cinnamon fern, iris and cattail. The very poorly drained Chocorua mucky peats contained approximately 18 inches of organic muck overlying fine sandy loam soils. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, and potential wildlife habitat.* This wetland accepts stormwater runoff from the turnpike and could contain amphibian breeding habitat. There is a portion of this wetland which is proposed to be filled in for the project.

Wetland 17 (PFO1E)

This is an isolated forested wetland that appears to have been impacted when the turnpike was constructed. It contains one non-significant vernal pool that contained 7 spotted salamander egg masses. The vegetation found in this wetland included red maple, yellow birch, white pine, highbush blueberry, winterberry, speckled alder, royal fern, cinnamon fern, sensitive fern and iris . This wetland contains poorly drained Scantic silt loam and very poorly drained Chocorua mucky peat with as much as 18 inches of organic muck overlying silt loam soils. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, and wildlife habitat.* The majority of this wetland is proposed to be filled in for the project.

Wetland 18 (PFO1E)

This is an isolated forested wetland that is located between the turnpike and the York Water District's maintenance road. There were no vernal pools in this wetland but there were two non-significant vernal pools found on the east side of the maintenance road. The vegetation found in this wetland included red maple, white pine, highbush blueberry, winterberry, speckled alder, royal fern, cinnamon fern, iris and cattail. This wetland contains very poorly drained Chocorua mucky peat with as much as 24 inches of mucky peat overlying silt loam soils. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, and wildlife habitat.* A small area of wetland adjacent to the turnpike is proposed to be filled in for the project.

Wetland 42 (PFO1E)

This forested wetland contains a stream that runs in the road ditch next to the turnpike. Wetland 30 drains into this wetland through a 36-inch culvert. The stream runs northerly into the Cape Neddick River. HNTB mapped two vernal pools in this wetland. The vegetation found in this wetland included red maple, highbush blueberry, winterberry, speckled alder, sheep laurel, meadowsweet, red osier dogwood and tussock sedge, royal fern, cinnamon fern, iris and cattail. This wetland contains very poorly drained Chocorua mucky peat with greater than 36 inches of organic soil. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, wildlife habitat and possible fish habitat.* The Cape Neddick River contains fish habitat which is part of this wetland; it is not believed that the stream near the turnpike contains fish habitat. There are no impacts proposed in this wetland for the project.



Gary M. Fullerton, CSS, LSE
Director of Natural Resources

February 8, 2016

Mile 7.3 York Toll Booth Relocation

The wetland functions and values assessment was conducted in accordance with the "Wetland Functions and Values: Descriptive Approach" described in the September 1999 (NAEEP 360-1-30a) supplement to "The Highway Methodology Workbook" by the New England Division of the US Army Corps of Engineers. This method is a descriptive approach combining both a qualitative description of physical characteristics of wetlands and best professional judgment. This approach allows the evaluator to use "descriptors" in determining which functions and values are most representative of each wetland.

Sebago Technics, Inc. has mapped the portion of land within the turnpike property in the vicinity of mile marker 7.3, the existing toll plaza. There is generally one large wetland complex in this area including Wetlands 3, 4, 24, and 25. Wetlands 3 and 4 are on the west side and wetlands 24 and 25 are on the east side. It is classified as a seasonally saturated, broad-leaved deciduous forested wetland (PFO1E) as defined by *Classification of Wetlands and Deepwater Habitats* (Cowardin, et al., 1979). There is a road ditch on the west side of the turnpike which drains through a 60-inch culvert forming a stream on the east side of the turnpike. This stream is mapped as the Little River and runs easterly for approximately two miles before draining into the Atlantic Ocean. There is a 100-year floodplain around the Little River. The soils in these wetlands are classified as Scantic silt loam and Chocorua peat. These soils contain either deep organic soils or fine-textured mineral soil and can keep water perched for much of the growing season, especially after large rain events.

The primary functions which are served by this wetland are *groundwater discharge*, *floodflow alteration, sediment/ toxicant retention, nutrient removal and wildlife habitat.* This area is low in the watershed and due to the fine-textured soils, is most likely a groundwater discharge site. This is evidenced by the start of the Little River flowing out of this wetland. Since there is a floodplain along the Little River and the fact that it is a large, flat wetland, it serves as floodflow alteration for downstream properties. The fine-textured and organic soils trap sediment and nutrients and prevent them from moving downstream. There are several vernal pools in the wetland as well as the stream that contain amphibian habitat.



Gary M. Fullerton, CSS, LSE
Director of Natural Resources

February 8, 2016

ATTACHMENT 13. MITIGATION PLAN MILE 8.8

Avoidance, Minimization and Compensation for Natural Resources on LEDPA Site (Mile 8.8)

13.1 Summary of LEDPA – Mile 8.8 Alternative:

Pursuant to the 404(b) (1) Guidelines of the Clean Water Act, the applicant must demonstrate, through an alternatives analysis, that the proposed project is the Least Environmentally Damaging Practicable Alternative (LEDPA) that would achieve the Basic Project Purpose.

To establish the LEDPA, the Maine Turnpike Authority (MTA) undertook a multi-year planning process involving several consultants to evaluate alternatives and establish a project purpose and need statement. The initial evaluation of alternatives spanned from mile 2.2 in Kittery to mile 19.3 in Wells as the study corridor. The results of this study prompted further explorations to be limited to the section between the existing plaza at mile 7.3 to mile 13.2 because of the lower potential impacts when compared to the remaining corridor segments reviewed. The results of the culmination of studies and evaluations are discussed in Attachment 2 and the alternatives analysis completed for the five alternatives referenced in this section can be found in Appendix 2L. The report on the initial 18 alternatives is publicly available on the MTA website in the Phase 1 draft prepared by HNTB in 2009.

In 2015, MTA contracted with Jacobs Engineering to conduct a southern Maine corridor study extending from the existing York Toll Plaza at Mile 7.3 to Mile 13.2. This study is discussed in Attachment 2 of the NRPA Permit Application and included as Appendix 2L. Through the corridor study, the following five (5) alternative sites were evaluated as potential tolling plaza locations:

- Mile 7.3 (Existing Toll Plaza)
- Mile 8.1
- Mile 8.8 (LEDPA)
- Mile 10.0
- Mile 13.2

The study concluded that mile 8.8 was The Least Environmentally Damaging Practicable Alternative, (LEDPA) meeting the project purpose and need. (See Attachment 2 and supporting Appendices).

13.2 Public and Regulatory Involvement:

The MTA held public meetings together with community outreach and an internal review process culminating with MTA Board meetings for the selection of a preferred alternative at mile 8.8. During this process, the regulatory community was consulted including meetings and communications with the US Army Corps of Engineers, Maine Department of Environmental Protection, as well as State and Federal Fish and Wildlife agencies. Refer to Appendix 1A and Attachment 1 subsection 1.4 – Public Process and Interest.

13.3 Project Design - Avoidance and Minimization:

General:

Upon selection of the preferred alternative at mile 8.8, a 60% design effort was undertaken to develop and refine a project design consistent with FHWA design guidelines and the outcome of the MTA tolling

study. The result is a project that will involve 7,200 linear feet of MTA highway for construction of the toll plaza and transition lanes as well as the construction of an access road from Chases Pond Road to a new administration building and staff parking lot.

The linear portion of the project follows the existing MTA Turnpike corridor and involves widening of the existing turnpike to accommodate the new toll plaza, approach and departure lanes compliant with FHWA highway design guidelines. This includes geometric and dimensional improvements along with tolling lanes to accommodate the design volume and "thru-put" of traffic in both the North and South directions to meet highway design safety requirements.

The Jacobs Engineering assessment determined the necessary length of the toll plaza approach transitions, number of toll plaza lanes and limits of grading activities to meet safe highway design practices and FHWA design guidelines. The result is a project design that avoids and minimizes resource impacts to the maximum extent practicable while meeting highway design standards and tolling requirements for this project.

The design and engineering of the improvements needed to incorporate the toll plaza sizing requirements (Attachment 2 (2.1.4)) together with toll plaza design guidelines (Attachment 2 (2.1.3)) and FHWA highway design requirements. A significant consideration in the design was the lane tapers for the tolling plaza approaches and departures. At highway speeds, approaches must provide for stacking, safe deceleration and acceleration, merging traffic and through traffic at the high speed portions of the plaza. Alternative considered and evaluated included the following:

1. Highway Approach and Departure Tapers at the Toll Plaza. Alternatives for the highway approach and departure tapers for the toll plaza were studied. Alternatives included:

    - 14:1 approach and departure tapers (Added wetland impacts with 14:1 tapers = 0.18 AC)
    - 14:1 approach and 22:1 departure tapers (Added wetland impacts with 14:1/22:1 tapers = 0.39 AC).
    - 10:1 approach and departure tapers (As proposed)

Larger tapers are often preferred to promote better vehicle driver response time and for more effective transition of traffic approaching and departing the tolling plaza. The larger taper transitions result in extending the project limits, extension of culverts to accommodate the extended fill and cut limits and a lengthened box culvert at Sta. 381+35 resulting in more stream impacts. The 10:1 approach and departure tapers meets the FHWA minimum design standard rather than the preferred standard. The selection of the 10:1 tapers was determined to be an acceptable approach in this section of the highway due to the geometry (horizontal and vertical alignment) to meet the both the toll plaza performance requirements and avoid/minimize natural resource alterations.

2. The project has a design waiver for superelevation. A request for design exception was submitted for this project to allow the proposed improvements on I-95 northbound and southbound to retain the existing normal crown cross section (no superelevation) along the horizontal curvature at mile 7.3, rather than provide a superelevation per Maine DOT and AASHTO design standards. The raise in highway elevation due to superelevation would increase

the wetland impacts at mile 7.3. As a result of the waiver, the normal crown was applied at mile 7.3 to minimization wetland impacts to the project.

3. Highway signage to provide information to vehicular traffic along the corridor. The signage must meet specific guidelines for signing highways including locations. The project approach incorporated sign locations to avoid impacts to wetlands.
4. The extension of culverts in some locations or installation of new culverts will be needed to match the sideslope extensions. The impacts from these extensions are limited to amount needed to extend the culverts to the sideslope and install riprap scour protection for energy dissipation of exiting drainage from the culverts.

5. In addition, the MTA has acquired a 32.79 acre parcel of land (Morrison parcel) adjacent to the project area. This parcel provides the land area for the construction of a service access road from Chases Pond Road to the Administration Support Building and tunnel system accessing the tolling plaza. The service road alignment and design was selected to avoid all direct wetland impacts and minimize buffer infringement into the nearby vernal pools.

   As shown on the design plans, no wetland impacts will be required for the service road and the administration building and parking area will be located outside of the 250' significant vernal pool terrestrial habitat identified in the MDEP legislation except for a small amount of upland impact within the terrestrial habitat of wetlands 54 and 56. This approach allowed for avoidance and minimization of resource impacts to the maximum extent practicable. During the design and preliminary planning process an initial alignment of the access road resulted in a higher level of impacts to the significant vernal pool terrestrial habitat (VP 54-2, VP 54-3 and VP 56-1). The habitat impacts where over 100,000 square feet. This was a result of the cuts/fill and stormwater management planning to meet the MaineDEP general standards for stormwater treatment. During the July 14, 2016 agency coordination meeting, the US ACOE requested that we look at alternatives to minimize these impacts as practicable. Subsequent to the meeting, the design team determined the terrestrial habitat impacts could be reduced through a re-alignment of the access road. The result was a reduction of habitat impacts from over 100,000 square to 50,646 square feet. While this alternative reduced the impacts, the amount of ledge cut/fill did increase requiring a re-evaluation of the stormwater management. The end result is a solution that provides a practical alternative that reduced the habitat impacts with some additional earthwork and stormwater management requirements.

13.4 Winter Maintenance Program and Minimization of Sand/Salt Applications:

The new York Tolling Plaza will be located along an existing maintained portion of the Maine Turnpike. As part of the normal maintenance program, the MTA provides winter treatment of pavements for safety of the traveling public during storm and precipitation events. The Maine Turnpike utilizes a proactive approach to address snow and ice accumulation throughout the highway. Timing is the single most important part of an effective winter maintenance program for both safety of the traveling public and minimization of impacts on the environment from sand/salt applications.

This is accomplished by deploying plows early during snow and ice events to prevent snow and ice from bonding to the pavement. This proactive approach allows the roadway to be properly maintained with minimal use of manpower, equipment, and material. The primary tool for snow and ice control is plowing operations. Plows, wings, and underbody scrapers are utilized to clear the pavement so that traffic flow can be maintained. However, cold region climates such as Maine experience subfreezing conditions including frozen ground conditions and require additional treatment to mitigate ice and snow build-up. The additional treatment material used by the Maine Turnpike is solid rock salt (sodium chloride). This rock salt is commonly pre-wet with salt brine or a magnesium chloride blend. Pre-wetting of the rock salt allows it to stick to the road and not bounce and scatter off the roadway thereby reducing the overall volume of required salt. Materials are applied with computerized spreader controls that are calibrated and adjusted to truck speed. This allows precise application of material minimizing any over application. Application rates are set based upon type of storm, temperature, traffic conditions, and location. The MTA strives to use only the amount of material required for the conditions. Sand is used at very low temperatures as a traction aid.

Additionally, the MTA Toll Plaza will be located below (down gradient) of the high value vernal pools and wetlands located on the Morrison Parcel. . It is also noted that the project area is currently a six lane highway and is part of the existing highway system that already receives winter time maintenance, including salt applications. The project also incorporates low impact stormwater treatment areas (soils filters) that currently don't exist and are expected to provide treatment for not only the proposed improvements but also a portion of the existing highway. The combination of these physical, maintenance practices and stormwater improvements will minimize the impacts of wintertime salt applications on the environment.

Area Specific Alterations:

The following provides a summary of each wetland alteration location and a general description of the activity associated with the alternation. The avoidance and minimization alternatives utilized for each area incorporate the alternatives discussed in in items 1 through 5 above.

The narratives below are keyed to the Attachment 5 – Design and Wetland Impact Plans.

Figure 1, 2 & 3 - Wetland 25 Alteration (Mile 7.3 Improvements)

This wetland is part of a larger complex of wetlands at the existing toll plaza location and will be impacted in four separate locations to accommodate the extension of a culvert and new highways signs, the alterations at all three locations will total 1,218 S.F.

The impacts within this wetland is limited to fringe impacts for the lane modifications as part of the demolition work for the old tolling plaza and lane re-figuration. Impacts are limited to slope extensions as described above and culvert extensions/outlet scour protection.

Figure 4 - Wetland 9 Alteration

This wetland is a fringe wetland associated with the new toll plaza location at mile 8.8 and will have alterations of both cut and fill totally approximately 11,839 S.F.

The wetland alteration is due to the highway widening and transition from the cash toll lanes. Design parameters incorporated the minimum allowable tapers (10:1) as opposed to the preferable tapers which are larger and would result in a widened roadway section and therefore additional impacts to natural resources. As a result, the wetland alternation has been minimized to the maximum extent practicable through the use of minimum highway lane tapers instead of a preferable lane tapers.

Figure 5 - Wetland 18 Alteration

This wetland alteration will be fill in the area adjacent to the existing right of way to accommodate the widening associated with the new toll plaza which will total 9,773 S.F. of alteration.

The wetland alteration is due to the highway widening and transition to the cash toll lanes. Design parameters incorporated the minimum allowable tapers (10:1) as opposed to the preferable tapers which are larger and would result in a widened roadway section and therefore additional impacts to natural resources. As a result, the wetland alternation has been minimized to the maximum extent practicable through the use of minimum highway lane tapers instead of a preferable lane tapers. There is additional wetland alteration for the installation and maintenance for the temporary siltation fence during construction.

Figure 6 - Wetland 10 Alteration

This wetland is an isolated pocketed wetland associated with the new location at mile 8.8 that will be filled, with a total alteration area of 8,497 S.F.

The wetland alteration is due to the highway widening for the toll plaza facility and the new administration building. The wetland is entirely located within the project are with no practicable alternatives for minimization or avoidance.

Figure 7 - Wetland 17 Alteration

This wetland is associated with a non-significant/productive vernal pool and will be filled with a total alteration area of 19,287 S.F. of area.

The wetland alteration is due to the highway widening for the new toll plaza facility.

Figure 8 - Wetland 16 Alteration

This is a fringe wetland associated with the new location at mile 8.8 that will have 5,592 S.F. of fill alteration.

The wetland alteration is due to the highway widening and transition from the cash toll lanes (toll plaza). Design parameters incorporated the minimum allowable tapers (10:1) as opposed to the preferable tapers which are larger and would result in a widened roadway section and therefore additional impacts to natural resources. As a result, the wetland alternation has been minimized to the maximum extent practicable through the use of minimum highway lane tapers instead of a preferable lane tapers. There is additional wetland alteration for the installation and maintenance for the temporary siltation fence during construction.

Figure 9 - Wetland 12 Alteration

This wetland is associated with a spotted turtle habitat and will have alterations consisting of both cut and fill totaling 1,296 S.F.

The wetland alteration is due to the highway widening and transition to the cash toll lanes (toll plaza). Design parameters incorporated the minimum allowable tapers (10:1) as opposed to the preferable tapers which are larger and would result in a widened roadway section and therefore additional impacts to natural resources. As a result, the wetland alternation has been minimized to the maximum extent practicable through the use of minimum highway lane tapers instead of a preferable lane tapers. There is additional wetland alteration for the installation and maintenance for the temporary siltation fence during construction.

Figure 10 - Wetland 15 Alteration

This wetland is associated with wetland 12 and 13 as part of the spotted turtle habitat and will have minimal cut and fill alterations as well as alterations associated with a culvert extension that will total to 880 S.F. of wetland alteration.

The wetland alteration is due to the highway widening and transition from the cash toll lanes (toll plaza).

Design parameters incorporated the minimum allowable tapers (10:1) as opposed to the preferable tapers which are larger and would result in a widened roadway section and therefore additional impacts to natural resources. As a result, the wetland alternation has been minimized to the maximum extent practicable through the use of minimum highway lane tapers instead of a preferable lane tapers. There is additional wetland alteration for the installation and maintenance for the temporary siltation fence during construction.

Figure 11 - Wetland 13 Alteration

This wetland is associated with wetlands 12 and 15 as spotted turtle habitat. This wetland contains a stream segment that will have 20 L.F. of alteration. The wetland alterations will total 3,490 S.F. to accommodate cut and fill, as well as a culvert extension from wetland 13 to wetland 15.

The wetland alteration is due to the highway widening and transition to the cash toll lanes (toll plaza). Design parameters incorporated the minimum allowable tapers (10:1) as opposed to the preferable tapers which are larger and would result in a widened roadway section and therefore additional impacts to natural resources. As a result, the wetland alternations have been minimized to the maximum extent practicable through the use of minimum highway lane tapers instead of a preferable lane tapers. There is additional wetland alteration for the installation and maintenance for the temporary siltation fence during construction.

Figure 12 - Wetland 42 Alteration

This wetland will be altered to accommodate the new culvert and improvements to the existing culvert. There will be 4L.F. of stream alteration in this wetland as well. The wetland alteration will be 283 S.F.

There is wetland alteration for the installation and maintenance for the temporary siltation fence during construction. The stream impacts are associated with installation of riprap for scour protection at the culvert outfall.

Figure 13 - Wetland 30 Alteration

This wetland will be altered in order to enhance an existing culvert and adding a second culvert, these culverts are connected to wetland 42 on the other side of the existing turnpike. This alteration will total 1,504 S.F. The wetland alteration is also necessary due to the highway widening to the new toll plaza and a new overhead sign structure at Sta. 382+50 for the new toll plaza and open road tolling. There is additional wetland alteration for the installation and maintenance for the temporary siltation fence during construction.

Figure 14 – Vernal Pool Habitat (VP 54-4) Alteration

This vernal pool habitat is a fringe impact associated with the new toll plaza location at mile 8.8 and will have alterations of both cut and fill and total 53,268 S.F.

The alteration is due to the highway widening and transition from the cash toll lanes. Design parameters incorporated the minimum allowable tapers (10:1) as opposed to the preferable tapers which are larger and would result in a widened roadway section and therefore additional impacts to natural resources. As a result, the habitat alternation has been minimized to the maximum extent practicable through the use of minimum highway lane tapers instead of a preferable lane tapers.

Figure 15 – Vernal Pool Habitat (VP 54-2 & 56-1) Alteration

This vernal pool habitat is a fringe impact associated with the new access road from Chases Pond Road to the administration building. The impact to the habitat is minimal and will be cut and fill and total 8,927 S.F.

The alteration was minimized through a complete redesign of the access road for the specific purpose of reducing the habitat impacts.

Figure 16 – Vernal Pool Habitat (VP 13-1) Alteration

This vernal pool habitat is a fringe impact associated with the new toll plaza location at mile 8.8 and will have alterations of both cut and fill and total 20,287 S.F.

Design parameters incorporated the minimum allowable tapers (10:1) as opposed to the preferable tapers which are larger and would result in a widened roadway section and therefore additional impacts to natural resources. As a result, the habitat alternation has been minimized to the maximum extent practicable through the use of minimum highway lane tapers instead of a preferable lane tapers.

13.5 Resource Impacts & Compensation:

The York Toll Plaza project at mile 8.8 will require 63,752 S.F. of wetland alteration and 82,482 S.F. of vernal pool terrestrial habitat impacts. Impacts at mile 7.3 toll plaza demolition and lane reconstruction will require 1,311 S.F. of impacts.

Impacted Resource Function and Values:

The principal functions and values of the impacted wetlands are sediment/toxicant retention, nutrient removal, wildlife habitat, and some ground water recharge/discharge. The "Highway Methodology" utilized to describe wetland functions and values does not distinguish between low, moderate or high value wetlands. While all wetlands provide some level of functions and values, the wetlands that will be impacted by the MTA York Toll Plaza project are predominately isolated or fringe forested wetlands located along an existing highway corridor. Because of their proximity to an existing major highway and fragmented nature, the overall function and value of the impacted wetlands is limited.

The wetlands do provide some stormwater floodflow and retention benefit but is not appreciable given their relative size. The MTA project will include a comprehensive stormwater management and erosion control plan for the Toll Plaza. This plan is intended to provide water quality treatment and implement a site specific erosion and sedimentation control plan incorporating "Best Management Practices" (BMP's) consistent with the MDEP erosion and sedimentation control requirements replicating the floodwater and treatment values of the wetlands.

The functions and values for each wetland are more specifically defined in Attachment 12.

Proposed Mitigation:

As part of the early agency coordination, Maine Inland Fisheries and Wildlife (IF&W) identified a spotted turtle egg located within the vicinity of Wetlands 12, 13 and 15 during a site walk of the project area. This prompted the analysis of including a turtle crossing as part of the mitigation for the toll plaza project at the mile 8.8 location. It was determined to be impracticable to construct one on site due to construction costs and constraints that would have limited the functionality of the turtle crossing for the spotted turtles.

The MTA was then approached by Maine IF&W with a request that the MTA contribute to the Maine Endangered and Nongame Wildlife Fund for the construction of a wildlife passage and associated barrier fencing along an area of Route 236 in Elliot Maine to replicate the lost functions and values for the wetland impacts associated with the IF&W spotted turtle habitat (Wetlands 12, 13 and 15). The amount that MTA will contribute for the IF&W project was estimated to be $170,000.00 by the Maine Department of Transportation who will administer the mitigation project as part of a larger State improvement project. This location has had the highest turtle mortality in the state for several years as documented by the IF&W and is a high priority project that is in need of funding in order to be implemented. As stated in the MOA between Maine IF&W and the MaineDOT, the MTA will finance this project up to $170,000 as part of the mitigation package for the York Toll Plaza Replacement and the construction will be carried out by the MaineDOT. Maine IF&W will monitor the site to ensure the functionality and to document any reduction in future turtle deaths. As part of this MOA the MTA will place the remaining portion of the "Morrison" parcel into conservation once the right-of-way boundary and buffer area is determined. This will be accomplished through a third party deed restriction/conservation easement and will ensure the future protection of the significant vernal pools located on the property by removing the threat of development.

In addition to the offsite compensation for impacts to spotted turtle habitat, the MTA will include exclusionary fencing onsite in order to mitigate for future impacts to turtle populations that could result

from the project operation at mile 8.8. The exclusionary fencing will be incorporated into the right of way fencing associated with the turnpike and intends to prevent future turtle deaths on site as a result of the toll plaza traffic. The onsite exclusionary fencing would have been required by the Maine Department of Environmental Protection regardless of whether mitigation was required for this project, because it is a tool used to prevent future deaths as opposed to a tool used to mitigate for the impacts resulting from the construction of the toll plaza.

Proposed Wetland Impacts:

- **Wetland 4** is a seasonally saturated, broad-leaved deciduous forested wetland (PFO1E) that is part of a larger wetland complex. The soils in these wetlands are classified as Scantic silt loam and Chocorua peat. These soils contain either deep organic soils or fine-textured mineral soil and can keep water perched for much of the growing season, especially after large rain events. The primary functions served by this wetland are *groundwater discharge*, *floodflow alteration, sediment/ toxicant retention, nutrient removal and wildlife habitat.*

- **Wetland 9** is a forested wetland that is adjacent to the turnpike on the western side. A portion of this wetland will be impacted for the construction of the York Toll Plaza. Of the total impact, just over 4,000 square feet falls within the 250 foot habitat area of the significant vernal pool 54-4. Because of this the wetland alteration for this portion must be calculated with a resource multiplier of two. The remaining area of impact was calculated with a resource multiplier of one and the values were added together for the total compensation for wetland 9. It should be noted that vernal pool 54-4 was designated significant in 2008 after a survey identified 60 fairy shrimp and one spotted salamander egg mass in the pool. In the surveys completed in 2015 and 2016 by Sebago Technics, Inc. there have been no indicator species identified and it is our opinion that this pool is no longer a viable habitat. However, without the benefit of three years of monitoring we have depicted this wetlands as significant vernal pool due to the 2008 assessment. MTA intends to complete a third year of monitoring in 2017 to confirm whether or not this wetland is a vernal pool.

- **Wetland 10** is an isolated wetland on the western side of the turnpike that will be filled for the construction of the York Toll Plaza. The compensation fee for this wetland was calculated using a resource multiplier of one. It is approximately 8,500 square feet in size. The primary functions served by this wetland are *sediment/toxicant retention* and *nutrient removal.* There is no outlet to this wetland; it is possible that this did not exist prior to the turnpike construction. The fill from the turnpike may have "dammed" up this area not allowing it to drain.

- **Wetland 16** is a forested wetland on the eastern side of the turnpike that will be impacted by the project construction. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, and potential wildlife habitat.* This wetland accepts stormwater runoff from the turnpike and could contain amphibian breeding habitat. There is a portion of this wetland which is proposed to be filled in for the project. The wetland is not within proximity to any significant vernal pools nor does it qualify for a resource multiplier

other than one for any other reason. The compensation fee for this wetland was calculated using a resource multiplier of one.

- **Wetland 17** is a forested wetland on the eastern edge of the turnpike that will be impacted by the project. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal*, and *wildlife habitat*. The majority of this wetland is proposed to be filled in for the project. This wetland contains one non-significant vernal pool and does not fall within the protected zone of any significant vernal pool nor does it require a resource multiplier above one for any other reason. The compensation fee for this wetland was calculated using a resource multiplier of one.

- **Wetland 18** is a forested wetland that is considered a wetland of special significance because it falls within a 100 year flood zone according to the FEMA flood plain mapping. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, and wildlife habitat.* A small area of wetland adjacent to the turnpike is proposed to be filled in for the project. This wetland contains three non-significant vernal pools. The compensation fee for this wetland was calculated using a resource multiplier of one.

- **Wetland 25** is a seasonally saturated, broad-leaved deciduous forested wetland (PFO1E) that is part of a larger wetland complex. There is a 100-year floodplain around the Little River adjacent to this wetland. The soils in these wetlands are classified as Scantic silt loam and Chocorua peat. These soils contain either deep organic soils or fine-textured mineral soil and can keep water perched for much of the growing season, especially after large rain events. The primary functions served by this wetland are *groundwater discharge*, *floodflow alteration, sediment/ toxicant retention, nutrient removal and wildlife habitat.*

- **Wetland 30** is a forested wetland that will have approximately 1,500 square feet of impact from the project. The primary functions which are served by this wetland are *sediment/toxicant retention and nutrient removal.* This wetland contains slow moving water and little to no channel which may be due to the constricted outlet at the turnpike. This allows the sediments and nutrients from the turnpike to get "trapped" in the wetland prior to entering the Cape Neddick River. The compensation fee for this wetland was calculated using a resource multiplier of one.

- **Wetland 42** is a forested wetland that contains a stream running into the road ditch next to the turnpike. There will be 15 linear feet of impact to this stream. The primary functions which are served by this wetland are *sediment/toxicant retention, nutrient removal, wildlife habitat and possible fish habitat.* The Cape Neddick River contains fish habitat which is part of this wetland; it is not believed that the stream near the turnpike contains fish habitat.

- **Wetland 54** is a forested wetland in proximity to the project. No direct wetland impacts will result from this project, but there are three significant vernal pools in wetland 54 that require

compensation. There are three vernal pools in this wetland that have been designated as significant vernal pools, the pools are identified as VP 54-2, VP 54-3, and VP 54-4. The data provided by the 2015 and 2016 vernal pool survey of the area resulted in significant egg mass counts for both vernal pool 54-2 and 54-3. Vernal Pool 54-4 however, has not had a significant number of indicator species in the las 8 years of survey, but the observation of 60 fairy shrimp in 2008 is why the vernal pool is being considered "significant" for the permitting of this project. There are no direct impacts to these vernal pools in the project design.

Proposed Compensation:

Considering the relative functions and values of the impacted natural resources, the MTA is proposing to participate in the Maine DEP In-Lieu Fee (ILF) Compensatory Mitigation program to offset the natural resource impacts for the mile 8.8 York Toll Plaza project. The in-lieu fee program is a means to compensate for the adverse impacts to natural resources under the Natural Resource Protection Act (NRPA {38 M.R.S.A. §480 A – BB}). The in-lieu fee is applied to the resource impacts that cannot be avoided or further minimized. This fee encourages entities to find the most practicable least damaging alternative for construction. The Maine Turnpike Authority has completed extensive technical and planning studies in order to determine the most practicable site for the relocation of the York Toll Plaza and has found such a site at mile 8.8 in York, ME.

In order to accurately calculate the fees applicable to the construction of this project a summary table (see attached) was created to break down exactly what the value of impact is for the construction of the toll plaza. The first column of the table contains wetland identification for the wetlands that will be impacted by the project as delineated by Sebago Technics, Inc. The table is then divided into two sub categories, MDEP Significant Vernal Pool Habitat Wetland and Upland Alteration In-Lieu Fee and Wetland Alteration Outside of VP Habitat In-Lieu Fee. This separation is to identify the different equations applicable to each resource. The Wetland Alteration applies to the direct impacts to wetlands that do not qualify for a resource multiplier of two. The values are used to calculate the total wetland impact fee are specific to York County, Maine and have been determined by the Maine Department of Environmental Protection (MDEP).

The USACE regulation of vernal pools requires that impacts to the terrestrial habitat be compensated for in the case that both the existing impacts and the proposed impacts exceed 25% of the terrestrial habitat extending out 750 feet from the vernal pool itself. In order to address this the terrestrial habitat for the vernal pools in the project area was assessed for existing habitat impacts and project impacts to calculate the percent of the total impacted areas. The existing turnpike was identified as a natural barrier through correspondence with USACE. The impacts from Chases Pond Road were included in the impact calculations as the 750 foot terrestrial habitat encompassed the road in some places and it is not considered impassable like the turnpike. After assessing the existing impacts in addition to the proposed impacts resulting from the project, it was determined that the overall impacts will not exceed 25% of the vernal pool terrestrial habitat (within a 750 foot circumference from the vernal pool) only reaching 20.33%, so the USACE will not require mitigation for the impacts to the terrestrial habitat of the significant vernal pools within the project area.

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In-Lieu Fee Summary Table

MDEP Significant Vernal Pool Habitat Wetland and Upland Alteration In Lieu fee									Wetland Alteration Outside VP Habitat In Lieu Fee						Total Overall Compensation Fee
Wetland ID	VP ID	Resource	S.F.	E & R [2]	ALV [2]	Resource Multiplier [3]	Resource Totals	Total VP Habitat fee	Wetland ID	Wetland Alteration Area (SF)	E & R [1]	ALV [1]	Resource Multiplier [3]	Total Wetland Impact fee	
Weltand 4				$3.61	$0.47			$ -	Wetland 4	93	$ 3.61	$ 0.47	1	$ 379.44	$ 379.44
Wetland 9	VP 54-4	Wetland	4,064	$3.61	$0.47	2	$ 33,162.24	$33,162.24	Wetland 9	7,775	$ 3.61	$ 0.47	1	$ 31,722.00	$ 64,884.24
		Upland	0		$0.47		$ -								
Wetland 10			0	$3.61	$0.47	2	$ -	$ -	Wetland 10	8,497	$ 3.61	$ 0.47	1	$ 34,667.76	$ 34,667.76
Wetland 12	Compensated for separately						$ -	$ -	Wetland 12	Compensated for separately				$ -	$ -
Wetland 13							$ -	$ -	Wetland 13					$ -	$ -
Wetland 15							$ -	$ -	Wetland 15					$ -	$ -
Wetland 16			0	$3.61	$0.47		$ -	$ -	Wetland 16	5,592	$ 3.61	$ 0.47	1	$ 22,815.36	$ 22,815.36
Wetland 17			0	$3.61	$0.47		$ -	$ -	Wetland 17	19,287	$ 3.61	$ 0.47	1	$ 78,690.96	$ 78,690.96
Wetland 18			0	$3.61	$0.47		$ -	$ -	Wetland 18	9,773	$ 3.61	$ 0.47	1	$ 39,873.84	$ 39,873.84
Wetland 25			0	$3.61	$0.47		$ -	$ -	Wetland 25	1,218	$ 3.61	$ 0.47	1	$ 4,969.44	$ 4,969.44
Wetland 30			0	$3.61	$0.47		$ -	$ -	Wetland 30	1,504	$ 3.61	$ 0.47	1	$ 6,136.32	$ 6,136.32
Wetland 42			0	$3.61	$0.47		$ -		Wetland 42	283	$ 3.61	$ 0.47	1	$ 1,154.64	
Wetland 54	VP 54-2 VP 54-3 VP 54-4	Wetland	0	$3.61	$0.47	2	$ -	$25,252.63	Wetland 54	0	$ 3.61	$ 0.47	1	$ -	$ 25,252.63
		Upland	53,729		$0.47		$ 25,252.63								
Wetland 56	VP 56-1	Wetland	0	$3.61	$0.47	2	$ -	$ 3,979.02	Wetland 56	0	$ 3.61	$ 0.47	1	$ -	$ 3,979.02
		Upland	8,466		$0.47		$ 3,979.02								
Subtotal		Wetland	4,064			Wetland	$ 33,162.24	$62,393.89	Wetland Alteration outside VP habitat	54,022				$220,409.76	
		Upland	62,195			Upland	$ 29,231.65		Wetland Alteration in VP habitat	4,064			Impact Fee subtotals	$ 62,393.89	$ 281,649.01
									Total Wetland Alteration	58,086	Total Upland	62,195			

*The MTA will be funding a turtle crossing on Route 236 in Elliot, Maine as mitigation for the impacts to wetlands 12, 13, and 15 as per the MOA between the MTA, Maine IF&W and Maine DOT.

York County In-Lieu Fees

(E&R)Enhancement and Restoration = $3.61 per sqft
(ALV)Assessed Land Value = $0.47 per sqft

Compensation Formulas:

Wetland Alteration	**1**	((direct wetland impact SF)*(enhancement & restoration cost + assessed land valuation))*(1)
Significant Vernal Pool	**2**	((direct wetland impacts within SVP habitat SF)*(enhancement & restoratin cost + assessed land valuation))*(2) +(direct non-wetland impacts within the SVP habitat SF * assessed land valuation)

(3) MDEP resource multiplier of 2 shall be used for:

a. Direct impacts to wetland areas containing at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, except for artificial ponds or impoundments and areas of wetland routinely altered by anthropogenic activities such as road ditches etc;
b. Direct impacts to peatlands dominated by shrubs, sedges and sphagnum moss;
c. Direct impacts to coastal wetlands;
d. Direct impacts to freshwater wetland areas contained within an inland wading bird & waterfowl habitat (IWWH);
e. Direct & indirect impacts to a shorebird habitat and associated buffers;
f. Direct impacts to great ponds; and
g. Direct impacts to freshwater wetland areas contained within a significant vernal pool habitat.
A resource multiplier of 1 will be used for impacts not specified above.

Total In-Lieu Fee	**$ 281,649.01**
Cost of Turtle Crossing at Route 236*	**$ 170,000.00**
Total Combined Compensation	**$451,649.01**

APPENDIX 1A

USACE APPROVED PROJECT PURPOSE LETTER

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DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

Regulatory Division
CENAE-R-51

July 24, 2015

Sara Zografos
Maine Turnpike Authority
2360 Congress Street
Portland, Maine 04102

Dear Ms. Zografos:

This is in reference to the Authority's continued interest in replacing the southern barrier toll plaza on the Maine Turnpike at York, Maine.

In 2007 the Corps identified a basic project purpose for the project. Based on continued coordination with your office and interested parties since then, we have determined that a revision to the project purpose is now appropriate. The purpose of the project is to replace the existing barrier toll plaza on the Maine Turnpike at York, Maine with highway speed electronic tolling lanes and cash (non-EZ pass) lanes to address safety deficiencies, settling/subsidence, facility deficiencies including substandard tolling equipment, existing and projected traffic volumes, and traveler impacts and expectations. We will use this revised basic project purpose to review future alternatives analyses to avoid and minimize adverse impacts to waters and wetlands and to comply with the Section 404(b)(1) Guidelines.

If you have any questions concerning this matter, please contact Jay Clement at 207-623-8367 at our Manchester, Maine Project Office.

Sincerely,

Jay L. Clement for
Frank J. Del Giudice
Chief, Permits & Enforcement Section
Regulatory Division

Copies Furnished:
Mark Kern – EPA
Thomas Davidowicz – USFWS
Cassandra Chase – FHWA
Robert Green – Maine DEP

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APPENDIX 1B

MTA RESPONSES TO YORK QUESTIONS 6/9/08

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Maine Turnpike Authority

430 RIVERSIDE STREET
PORTLAND, MAINE 04103

GERARD P. CONLEY, SR., PORTLAND, CHAIRMAN
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PAUL E. VIOLETTE
EXECUTIVE DIRECTOR
NEIL R. LIBBY
DEPUTY EXECUTIVE DIRECTOR
CHIEF FINANCIAL OFFICER
PETER S. MERFELD, P.E.
CHIEF OPERATIONS OFFICER

June 9, 2008

Dear Interested Citizen:

On April 3, 2008, the Maine Turnpike Authority held a public meeting at the York Middle School to update residents and receive comments and questions on the ongoing study regarding the replacement of the York Toll Plaza. At that meeting, we made a commitment to record the relevant questions posed and provide written responses to everyone who signed the meeting attendance sheets. Those responses are enclosed.

We had hoped to send these responses to you much earlier, but as you may know, the process and schedule of the study has been adjusted significantly since April 3. We felt it was important to re-examine all of the questions in the context of these changes and update our responses accordingly, which required additional time.

The most notable change in the study process and schedule was the decision of the Turnpike Authority -- at the request of the York Board of Selectman and in response to concerns expressed by local citizens -- to direct its chief consulting engineer to conduct a more in-depth study of the feasibility of rebuilding the toll plaza at the existing location. We expect that this additional component of the study will be presented to our Board later this summer and we look forward to sharing this information with local officials and interested citizens.

I hope that you find the enclosed information to be useful. Please understand that it is not intended to serve as the conclusive response to the many local concerns expressed about this project, but rather another step in the process to enhance the dialogue on this important issue.

Sincerely,

Daniel J. Paradee
Public Affairs Manager

MAINE TURNPIKE

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THE GOLD STAR MEMORIAL HIGHWA

Responses to Questions
MTA public meeting on the replacement of the York Toll Plaza
York Middle School
April 3, 2008

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5. Feasibility Study & Proposed Facility
6. What Would it Take to Build at the Existing Location?
7. Site Identification & Screening Process
8. Environmental Considerations
9. Right-of-Way Considerations

1) Introduction

On April 3, 2008, the Maine Turnpike Authority staff held a well attended public meeting at the York Middle School in York Maine to update residents and receive comments and questions regarding an ongoing study about the replacement of the York Toll Plaza. Recognizing that such a large forum does not always provide an opportunity to answer all questions adequately, MTA staff recorded questions with the intent of providing written answers. This document contains those answers.

It is important to note that the Turnpike Authority, at the urging of the York Board of Selectman and in response to concerns raised by local citizens, has significantly adjusted the process and schedule of this study since the April 3, meeting. Most notably, the Turnpike Authority has agreed to commission a more in-depth study of the feasibility of reconstructing the toll plaza at the existing location. These adjustments in process and schedule had to be accurately reflected in the answers contained in this document and thus prolonged its completion.

This is not intended to be the conclusive response to all local questions and concerns, but is rather just another step in the process to enhance the dialogue on this important and challenging issue.

2) Purpose of MTA & Accountability

1. Why does the Turnpike Authority still exist and collect tolls?

   Response: The Maine Turnpike Authority was established by the Maine Legislature in 1941 to function as an independent agency of government with the power to issue revenue bonds and collect tolls for the purpose of building, maintaining and operating an express highway. As an independent agency, the Turnpike was created to carry its own debt and credit rating, completely separate from the state's debt and credit rating.

   At the time, it was generally understood that once the debt for the construction of the Turnpike was paid off, the tolls would be removed and the cost of maintaining the Turnpike would be paid for, like other state highways, through the gas tax and various other taxes. However, when the issue came before the Legislature in the early 1980's, legislators were confronted with several financial realities.

   - *In order to maintain and operate the Turnpike, the Legislature would have had to significantly raise the gas tax or redirect funding from other transportation projects around the state.*
   - *In 1982, The Turnpike was nearly 35 years old and experiencing significant traffic growth. The Legislature recognized that substantial investments to rehabilitate the original infrastructure would be required in the foreseeable future.*
   - *The Legislature foresaw the need for major capital improvements on the Turnpike including the construction of new interchanges and the eventual widening of the southern section of the Turnpike. They understood that these projects would require substantial investments that might not be possible without continued toll revenue.*
   - *The Legislature understood that eliminating tolls and relying instead on the gas tax to maintain the Turnpike, would significantly increase the cost burden on Maine residents, while decreasing the burden on out-of-state users. Out of state drivers contributed only 20% of the gas revenues collected in the state, but they contributed up to 50% of the tolls collected.*

   For these and various other reasons the Maine Legislature voted in 1982 to continue the Maine Turnpike Authority and the collection of tolls. The tolls are used to fund operations and maintenance as well as to pay debt service on the existing bonds.

2. To whom is the Maine Turnpike accountable?

   Response: The Turnpike Authority was created by an act of the Maine Legislature. Its annual operating budget and any adjustments to the borrowing cap must be approved by the Maine Legislature.

   Six members of the Maine Turnpike Authority Board of Directors are appointed by the Governor and confirmed by the Maine Senate. The seventh member is ex-

officio and is the Commissioner of Transportation or his/her designee. The Governor's appointees must be selected to provide representation from the counties along the Turnpike corridor, including York, Cumberland, Androscoggin and Kennebec.

The Turnpike Authority is also accountable to its bondholders. Bondholders are represented by bond counsel to assure that the Maine Turnpike is properly maintained and managed. The Maine Turnpike is one of only six toll agencies in the country that has earned AA credit ratings from all three of rating agencies: Standard & Poors, Fitch and Moody's. The Maine Turnpike is also required to comply with applicable Maine Department of Environmental Protection and United States Army Corps of Engineers environmental permits.

3) Purpose of Toll Collection and York Plaza

1. Why doesn't the MTA spend more money on encouraging E-ZPass vs. cash?
   Response: The Maine Turnpike Authority conducts E-ZPass promotional campaigns, employing television advertising, newspaper advertising and direct mail. The most recent effort, which took place in November of 2007 consisted of an extensive 42,000 piece mailing to all residents of 13 towns in southern York County that were not identified as E-ZPass customers. The direct mail effort was supported by a three week large space display advertising campaign in newspapers serving the southern York County area. The total cost of the promotional program was $41,534.00. The MTA will continue to pursue creative, targeted and cost-effective marketing strategies

2. Why are tolls collected from school buses?
   Response – The MTA is required by its bond resolution to collect tolls from all vehicles in an equitable manner to pay for the maintenance and operation of the roadway.

3. Why does the MTA want to build a new toll plaza?
   Response – The new toll plaza project is being contemplated because of the identification of deficiencies and safety concerns with the existing plaza as documented in the LD534 Response Report. The current plaza has outlived its life expectancy through a series of retrofits, not the least of which was expanding the plaza from 11 lanes to 17 lanes. Current data supports the construction of a new facility as the most prudent expenditure of funds.

4. Why doesn't the MTA remove the York Toll?
   Response: The ideal way to distribute tolls fairly and equitably to the patrons traveling on toll highways, such as the Maine Turnpike, is with strategically placed toll plazas. Well placed toll plazas work to maximize equity and balance toll rates in all types of toll systems. The critical element is that the toll plazas bookend the toll road itself. All major toll roads of significant distance in this region of the United States have a mainline toll plaza located at both ends. This includes the Maine Turnpike, Massachusetts Turnpike, New Jersey Turnpike, Garden State Parkway, and Pennsylvania Turnpike.

Removal of the York Toll plaza without other significant toll system changes will exacerbate toll rates and toll equity. For example, out-of- state patrons entering from the south will be able to travel to Gray without paying a toll. In order to make up this lost revenue, toll rates at the remaining mainline and interchange toll plazas will have to go up significantly, or other toll system infrastructure will need to be added (see response below). Significant toll rate increases at interchange and northern mainline toll plazas will primarily affect Maine residents and will likely result in diversion to local roads as patrons choose not to utilize the Maine Turnpike for short to moderate distance trips.
In conclusion, the York Toll Plaza plays a big part in allowing the Maine Turnpike Authority to effectively and equitably distribute tolls to all patrons, including the large amount of patrons that come from out-of-state.

5. Why doesn't the MTA remove York Toll and collect the toll revenue at all other toll locations?

   Response: Without a southern mainline plaza, the only way to collect cash tolls from vehicles entering the Turnpike from the south would be to reconstruct exiting toll booths at every plaza from Wells to Gray. This would roll back the significant operational gains made ten years ago when the Turnpike Authority converted to a faster, more efficient and cost-effective system of toll collection.
   In 1997, the Maine Turnpike converted from a toll ticket system to a new system of fixed fares and electronic toll collection. The changes were driven by a pressing need to handle ever-increasing traffic volumes more efficiently and to reduce the rising operational cost of collecting tolls.

   Under the fixed fare system, all cash paying customers of the same vehicle class pay the same amount when entering the Turnpike and exit the Turnpike at most interchanges without stopping to pay a toll. By collecting the same fixed fare cash amount from every customer upon entry, the system eliminated time consuming fare calculations and dramatically sped up toll collection. More importantly, the system eliminated the need for customers to stop and pay a toll when exiting at Turnpike interchanges. Because exiting toll booths were no longer necessary, many were converted to additional entering lanes, increasing the thru-put capacity at each plaza and preventing the need for costly and environmentally impactful toll plaza expansions. In its first year of operation, the new system eliminated more than 25 million vehicle stops, which in turn reduced congestion, gas consumption, air pollution and turnpike operating costs. The reintroduction of exiting tolls to collect revenue lost by the elimination of the York toll plaza would result in millions of unnecessary vehicle stops and would increase congestion, air pollution and gas consumption.

6. Why doesn't the MTA remove the York Toll, keep the toll free exits, and simply replace the lost revenue by increasing entry tolls at every other location?

   Response: If the southern toll plaza is eliminated and exit tolls are not reintroduced, we estimate that entry tolls at all locations would have to be increased by $0.90 to make up for the lost revenue. This would result in extreme

toll inequity for Turnpike users. For example, under such a system motorist entering the Turnpike in York could travel more than 50 miles to Gray without paying a toll. A motorist traveling 31miles from Wells to Gray would pay $1.50 ($0.90 + 0.60). A motorists traveling just 1 mile from Exit 47 to Exit 48 in Portland would also pay a toll of $1.50. The toll rates for the New Gloucester and West Gardiner mainline toll plazas would also need to increase to $1.75. This proposal would create extreme toll rate inequities and would significantly shift toll burden currently paid by out-of-state users onto Maine resident users.

7. Why can't we remove the York Toll and make up the lost revenues by increasing tolls incrementally from south to north? For example, charge 60 cents at Wells, 75 cents at Kennebunk, $1.00 at Biddeford and so on.
Response: This proposal would create even greater toll rate inequities by allowing motorists who enter from Exit 7 or further south to travel for free up to Exit 63, while charging excessively high tolls for motorists making short trips between exits in the Biddeford - Saco area and the greater Portland area. This would also shift more of the toll burden from out-of-state users to Maine resident users.

8. Can One-Way Tolling be applied at the York Toll Plaza?
Response – One-way tolling is a method of toll collection that involves charging twice the fare in one direction, while allowing toll free travel in the other direction. The Maine Turnpike Authority conducted a feasibility study of one-way tolling in 2005. The feasibility study took place at the same time and benefited from the experience of a two-year, one-way tolling demonstration project at the Hampton Toll Plaza on the New Hampshire Turnpike.
Based on the findings of the feasibility study and the experience of Hampton Toll Plaza demonstration project, the Maine Turnpike Authority determined that one-way-tolling was not a viable tolling strategy for Maine. The Authority's decision was largely due to concerns about the number of vehicles that would divert onto local roadways to avoid the double-tolled direction. The study estimated that an average of 11.7% of the vehicles would divert around the toll plaza to avoid the doubled toll. Note that one-way tolling was not resumed at the Hampton Toll Plaza following the demonstration project for the same reason.
A closer look at one-way tolling suggests that it is only successful on bridges, tunnels and in rare instances on highways, where there is little opportunity to divert around the facility to avoid the toll. The only successful examples of one-way tolling in our region of the country are on bridges and tunnels in urban areas, such as the Tobin Bridge in Boston, Tapanzee Bridge in New York and the Benjamin Franklin Bridge in Philadelphia. It is successful on these facilities because it is virtually impossible to divert around them and reach your destination in a reasonable amount of time. This is not the case on the Maine Turnpike and other more rural toll highways, where the opportunity for diversion exists. A doubled toll in one direction at the York Toll Plaza would likely result in an unacceptable level of diversion onto Rt. 1 and other alternative routes.

9. Why doesn't the Maine Turnpike adopt cashless tolling?
Response: Cashless tolling may become a universally viable technology someday in the future, but not the identifiable future, particularly on a highway like the Maine Turnpike, which serves such a diverse mix of users.
The most common application of cashless tolling is a system in which a very high percentage of a highway's users have an electronic toll collection device (E-ZPass) in their vehicle and pay their tolls accordingly. Tolls are collected from the small percentage of motorists who do not have electronic toll collection by capturing a video image of their vehicle's license plate and sending the registered owner a bill.

Successful examples of cashless tolling involve highways in urban areas that serve primarily as commuter routes and have a very high rate of electronic toll collection usage, generally exceeding 80%. In addition, the vast majority of their users typically reside within the same jurisdiction or use the same electronic toll system operator, making it possible to conduct a billing and enforcement program for motorists without electronic toll collection.

The Maine Turnpike shares none of the characteristics that are essential for a successful cashless tolling program. The Maine Turnpike is primarily a rural highway. It is not a commuter-oriented highway. Most Maine Turnpike drivers are occasional users and a high percentage of them are from out-of-state. Nearly 50% of the users of the York Toll Plaza are from out-of-state.

While E-ZPass usage on the Maine Turnpike is nearing 50% and continues to grow, there is no expectation, given the highway's diverse user base, that the rate will reach the 80% -90% range in the near future. That means that the Authority would be required to collect a significant portion of its revenue by capturing video images of license plates and sending a bill to the vehicle's owner. Because the Maine Turnpike serves so many occasional users, the cost of processing and sending a bill could exceed the toll amount to be collected. There is no universal, reliable system in place that would allow the Authority to access the names and addresses of out-of-state drivers for billing purposes, and certainly no system to enforce penalties for unpaid video tolls.

10 Will the Turnpike's E-ZPass technology soon become obsolete?
Response: Like any technology, electronic toll collection is always evolving, but there is no indication that the current system will become obsolete in the foreseeable future. The Maine Turnpike Authority is an active, voting member of the E-ZPass Interagency Group (IAG), which is comprised of 24 agencies, operating in 13 states that provide compatible E-ZPass technology to their customers. Together, the IAG agencies have issued more than 17 million active E-ZPass tags. Given the significant commitment by the Maine Turnpike and all other IAG member agencies to create and maintain a system that is compatible

from state to state, it is highly unlikely that any sudden technology changes would be adopted by the IAG that would render the systems of member agencies obsolete.

4) York Plaza Conditions and Concerns (Deficiencies)

1. What are the traffic delays at York Toll Plaza? What impact has E-ZPass had on the delays?

   Response: E-ZPass has had a positive influence on delays and backups at the York Toll Plaza. One of the more notable factors in this has been the shift in cash paying customers to the E-ZPass system. For the existing arrangement and number of lanes, on average, dedicated E-ZPass lanes can process approximately three times as many vehicles as a cash lane. Following is some of the more recent delay and backup data.

   - In 2005 northbound backups averaged 1157' with 173 seconds of delay for cash customers. By comparison E-ZPass customers averaged 120 seconds of delay.

   - In 2005 southbound backups averaged 4335' with 442 seconds of delay for cash customers. By comparison E-ZPass customers averaged 375 seconds of delay.

   Experience indicates that, as cash-payers shift into the E-ZPass program, toll plaza backups and delays diminish. However, given the mix of users that include cash-paying patrons and E-ZPass patrons, we will continue to encounter situations in which cash backups block access to the dedicated E-ZPass lanes exacerbating backups and delays significantly. This diminishes the potential benefit of the growth in E-ZPass usage. The solution to this circumstance is the safe separation of the cash paying patrons from the E-Z Pass patrons.

2. If the York Toll Plaza has safety problems, how can the MTA still operate it?

   Response: All highways and toll plazas have safety challenges. It is the responsibility of the operator to minimize those safety challenges. Over the years the MTA has invested a significant amount of money to upgrade and repair the existing plaza to minimize crashes and traffic flow problems that often result in crashes. But these upgrades and repairs are not able to address the plaza's more fundamental safety problems of being located near an interchange, on a curve and at the bottom of a hill. These fundamental problems will only cause the plaza to become more unsafe as traffic volumes increase. The toll plaza study is being conducted to ensure the future, long-term safe operation of the plaza.

3. Why is the speed limit for the E-ZPass lane 35 mph at the Hampton Toll Plaza in New Hampshire, and 10mph at York?

   Response: The approach to both York and the Hampton Plazas is signed at 35mph. The speed limit immediately before and after both plazas is 10mph for E-ZPass customers.

4. Why are the E-ZPass lanes on the right side?
   Response: When the MTA introduced electronic toll collection (ETC) in 1997, the dedicated ETC lanes were located on the left of the plaza for approaching traffic. This configuration seemed to make sense because it allowed ETC users to travel straight through the plaza. The MTA, however, received complaints from residents of nearby communities saying that the ETC lanes were often blocked by tourists who seem to congregate near the middle of the plaza. The middle lane also made it difficult to access the interchange. The MTA held focus groups with local residents, which concluded that the ETC lanes should be placed on the far right side, allowing users to go around the backups in the middle of the plaza and access the York interchange easier. The MTA responded by moving ETC lanes to the far right. In 2005, the MTA added back ETC lanes on the left side of the plaza, so now there are dedicated ETC lanes on both the left and right side of the plaza. It should also be noted that all toll lanes will accept E-ZPass.

5) Feasibility Study & Proposed Facility

1. How will the plaza be plowed and kept safe during a snowstorm?
   Response: The MTA maintenance crews will plow this plaza much the same way the mainline is plowed and maintained. With the presence of median barriers and barriers separating cash from E-ZPass patrons, the plowing will consist of a number of one-way loops with typical snow removal procedures in certain areas.

2. How will the toll plaza be designed so that it will be visually pleasing?
   Response: The conceptual design for a new plaza is in the very preliminary stages with only a few initial thoughts; the toll plaza should be in keeping with southern Maine and be a subtle but welcoming 'gateway' to Maine. The new plaza will replace the existing substandard, rusted, antiquated, and bumpy plaza that more than 17 million people experience each year as they enter and depart Maine.

3. Why is the proposed toll plaza being designed to accommodate large volumes of traffic when bottlenecks occur downstream at the Hampton Toll Plaza in NH?
   Response: The MTA has a responsibility to its customers and to the State of Maine to operate as safely and efficiently as possible. While it is important for agencies in neighboring states to communicate and cooperate, MTA standards of safety and operation should not be determined by the standards of other highways or facilities.

4. Why is the plaza currently designed with a total of 21 lanes? If Highway Speed Tolling efficiently and quickly processes vehicles, why are there more lanes than the existing 17 lane plaza?
   Response: The MTA is still in the early stage of design development. Initial designs called for 21 lanes consisting of seven northbound and eight southbound cash lanes with three highway speed tolling lanes in each direction. This is a reasonable preliminary estimate of the number of lanes required based on current

traffic projections, E-ZPass usage, toll collection processing rates and acceptable vehicle backups. As part of the MTA's ongoing avoidance and minimization (of impacts) process, traffic modeling parameters are being refined and updated to reduce the number of lanes while providing a safe plaza and reasonable level of service.

5. What factors into the width and length of the proposed toll plaza?
   Response: The width of the plaza footprint is a function of the number of lanes and necessary support buildings. See the question above for discussion on the number of lanes. The length of plaza footprint is based on a design that allows for: 1.) E-ZPass and cash paying vehicles to safely diverge and merge, 2.) cash paying vehicles to slow down and choose a cash lane, 3.) an appropriate distance for vehicles to queue, and 4.) for the cash paying vehicles to accelerate and merge into one lane before merging with the E-ZPass vehicles.

6. How can traffic safely merge at 65 mph after paying tolls?
   Response: Cash customers will exit and enter the mainline using an off-ramp and on-ramp that meet all of the standard guidelines of a typical interstate interchange at 65 mph posted speed.

7. How does the crash rate on the Maine Turnpike compare to National rate? If the Turnpike is much lower, why is there a need to lower the crash rate?
   Response: The standard of comparing crash rate statistics in Maine is not against National values but instead against statewide values. Crash rate data was requested of the MaineDOT for the three year periods of 2003-2005 and 2004-2006. This data shows that the roadway immediately south of the York Toll plaza for both the Northbound approach and the Southbound departure are high crash locations; in fact the Northbound approach has the #11th highest crash rate out of 1,054 high crash locations within the State of Maine.

8. Can the accident data for the High Crash Locations be provided?
   Response: Yes. Data for High Crash Locations as well as all crash data for the Turnpike is available from the MaineDOT for any interested party. The MTA has also provided this information to the Town of York. In summary, both the northbound and southbound lanes on the south side of the York Toll Plaza are rated to be High Crash Locations by the MaineDOT. The northbound lanes on the southside of the plaza are ranked as the 11th highest crash location of 1,054 high crash locations in the state.

9. What consideration has there been for access to the plaza for fire and police?
   Response: Access for emergency vehicles has been discussed in general terms with town officials. This type of access is always a part of the design process for all plazas and service buildings. From these early discussions, we have the required level of information necessary for conceptual planning and will work with local fire, police and emergency management to acquire more detailed information as the project moves into preliminary and final design

10. If funding is so critical for the Turnpike, is constructing a new toll plaza more imperative than repairing bridges and other infrastructure?

Response: The roadways, bridges, interchanges, toll plazas, service areas and maintenance areas are subjected to increasing stress due to age, growing levels of traffic and the demands of the harsh northern New England climate. To ensure the sound condition and effective operation of the Turnpike, the Authority's 20 year plan funds and implements proactive Operation and Maintenance, Reserve Maintenance and Capital Improvement programs. The vigilance of the Authority through these programs has resulted in a well-maintained and efficiently-operated Turnpike. As the Authority looks to future initiatives, such as the reconstruction of the mainline toll plaza in York, it will continue to assure that turnpike facilities meet current safety standards as well as projected demands. Given that the York Toll Plaza handles more than 16 million vehicles per year and generates 40% of the revenue necessary to maintain the MTA's overall infrastructure, its safe and efficient operation is no less important than any bridge or section of roadway.

6) <u>What Would it Take to Build at the Existing Location?</u>

1. Can the York plaza be reconstructed at the existing site?

Response: At the urging of the York Selectman, the Turnpike Authority has directed its consulting engineer to conduct a more in-depth study about the possibility of constructing a new plaza at the existing location. Prior to this the MTA commissioned feasibility study that considered three different alternatives at the existing site in addition to the no-build alternative. The study concluded that each of the alternatives failed to achieve the basic safety and efficiency objectives originally intended by the toll plaza improvement project, and failed to meet the basic design guidelines established by the Federal Highway Administration for safe toll plaza design and operation. The study also indicated that the cost of building at the existing site would be similar to the cost of building at a new site that would achieve the project objectives and meet federal guidelines for toll plaza safety.

The following are operational issues identified as unresolved at the existing location alternative that affect both capacity and the safety of patrons and staff:

A. Safety concerns remain due to proximity of Chases Pond Road interchange. Confusing traffic patterns will result with access to the on and off ramps occurring within the cash lanes of toll plaza area.
B. The plaza will remain at the low point of a hill which is not recommended. This creates a safety concern due to the potential of heavy vehicles losing their brakes and striking the plaza or stopped traffic. In addition the hill leads to heavy engine braking noise southbound and heavy acceleration noise northbound as commercial vehicles approach and depart the plaza.

C. *Sight distance will not improve, in fact from both north and south approaches it will get worse due to cash lanes being moved further from the center of the mainline. Sight distance is compromised by the close location of Chases Pond Road Bridge and horizontal curve of the mainline approach. Improper sight distance, leads to inefficient decisions and unsafe last second lane changes.*

D. Wetland and other environmental impacts will be significant and obtaining permits will be more difficult. The mitigation of these impacts, even if allowed, would add $3-10 million to the 'similar' project costs resulting in a project cost exceeding a new location.

2. What is the value of the wetlands around the existing plaza? When comparing sites, is the quality of the wetland considered?
   Response: Wetland type, area, quality and function are considered when screening sites. Wetlands adjacent to the existing toll plaza are substantive and associated with the Little River. While some of those nearby wetlands have experienced impacts attributable to nearby facilities (such as the toll plaza), the effects are limited to the immediate proximity. The wetland is extensive, diverse, and one of the larger contiguous wetlands in the study area. Similarly, wetlands adjacent to other development or roadways may also have experienced degradation or changes to the functions, which is also considered.

3. How much has the ground at the toll plaza settled?
   Response: From available information, pavement in the immediate plaza area has settled as much as 4.5 feet.

4. With proper engineering, can the settlement of the existing site be remedied?
   Response: Yes, the existing site could be engineered to minimize the effects of differential settlement, though at a substantial cost. Soil settlement is only one of the operational and safety concerns at the plaza.

7) Site Identification and Screening Process

1. Why does the MTA consider the York Plaza project in the early stages of the project development process when the LD534 Report was delivered as Final to the legislature's Transportation Committee?
   Response: There has been much confusion about the relationship between a study report which was completed to meet the specific requirements of a law passed by the Maine Legislature (LD 534) and the Turnpike Authority's broader study regarding the reconstruction and possible relocation of the southern toll plaza, which is still ongoing.
   In LD 534, the Legislature required the Turnpike Authority to document the need for the replacement of the southern toll plaza as well as the reasons why the existing location may not be suitable for this replacement project. The parameters of this study and report were clearly defined by the Legislature and did not

include any discussion of alternative sites. The MTA completed the report and presented it to the Legislature's Joint Standing Committee on Transportation, as required by the law. The MTA has since received correspondence from the House and Senate Chairmen of the Transportation Committee confirming that the MTA has completed and complied with the requirements of LD 534.

The MTA's study regarding the replacement and possible relocation of the southern toll plaza is a separate and much more extensive undertaking including items reported in the LD 534 Response Report. The purpose of the study is to inform the Turnpike Authority Board of the deficiencies of the existing plaza and to recommend strategies to address those deficiencies and to make operational improvements that will allow the facility to function safely and efficiently in the future. It will present the Board with a range of options from rehabilitating the plaza, to modifying the plaza in conjunction with adjacent mainline reconstruction (to meet current design criteria), to building a new plaza at an alternate site. Benefits, impacts and costs will be included in the report for comparison purposes. This study was and is still in the early stages. The MTA Board: 1) has not received the study report, 2) has not made any decisions about the feasibility of replacing the plaza in the current location, 3) has not yet considered any alternative locations, and 4) has not filed for any environmental permits.

- *Once the Turnpike Board makes a decision, the regulatory agencies such as the Maine Department of Environmental Protection and the U.S. Army Corps of Engineers will review all the data and will make their own determination if permits for a project are feasible.*

2. Was the public involved in LD534?

   Response: LD534 required that the MTA should "hold informational sessions with interested parties." The MTA staff sought guidance on this requirement from the Chairs of the Legislature's Transportation Committee. They confirmed that a public meeting with selectmen from York, Ogunquit and Wells televised on local access cable would satisfy the intent of the law. (The MTA also held a number of other meetings as contained in the following response) The MTA arranged and participated in that meeting on January 23, 2008. The MTA reported back to the Legislature's Transportation Committee at a public meeting on April 3, 2008. Again, it is important to note that LD534 was specifically focused on the technical information regarding the deficiencies of the York Toll Plaza. It did not include any discussion of alternate sites, environmental impacts, community impacts or other issues that have since generated public interest.

3. What public meetings have been held to date?

   Response: It is important to understand that while the subject of replacing the York toll plaza has been discussed with local officials and at public meetings for several years, specific information about potential alternate sites and their potential community and environmental impacts was not available until recently. The MTA has provided information as it has become available during the course

of the study. The following meetings have occurred to present information and gather input:

A. Municipal Meetings

1. *Town staff input and information sharing – throughout*
   a) *Annual Town Visit meetings December 16, 2004*
   b) *Annual Town Visit meetings November 28, 2005*
2. *Town Managers' meetings*
   a) *1st meeting Sept. 26, 2006*
   b) *2nd meeting including Plaza site tour November 29, 2007*
   c) *3rd meeting January 22, 2008*
   d) *4th meeting February 15, 2008*
3. *Joint Select Board meeting – October 25, 2006*
4. *Joint Select Board presentation – January 23,2008*

B. Permitting Agency Meetings

1. *State/Federal Interagency meeting – October 10, 2006*

C. Legislative Meetings

1. *Legislative hearing on LD 534 – April 13, 2007*
2. *Legislative Tour & Briefing – August 9, 2007*
3. *Legislative Tour & Briefing – August 10, 2007*
4. *Legislative Tour & Briefing – September 21, 2007*
5. *Legislative Tour & Briefing – December 10, 2007*
6. *LD534 presented to Transportation Committee – April 3, 2008*

D. Public Meetings

1. *Public Informational meeting – February 27, 2008*
2. *Public Informational meeting – April 3, 2008*
3. *Meeting of York Selectman and MTA Board – April 29 , 2008*
4. *Meeting of York Citizens and MTA staff – May 15, 2008*

4. Why weren't the LD534 Options compared to the Site Identification and Screening Alternatives?

   Response: The LD534 Response Report details the investigation and findings related to possibilities of addressing specific deficiencies and safety issues at the existing plaza. A range of the upgrade and modification options were developed for the existing toll plaza that address some of these deficiencies. (It became apparent that looking at a generic relocation alternative may also be necessary.) The Site Identification and Screening Report details the investigation and location of possible sites along the Maine Turnpike corridor that hold potential for meeting basic design guidelines for the construction of a mainline toll plaza as well as addressing the identified deficiencies and safety issues. The options dealing with the existing site can not fairly be compared to the alternative locations for the simple fact that the existing site options do not meet the basic engineering design guidelines for mainline toll plazas currently in use today. Even though the existing site options are shown with associated costs, these numbers do not tell the whole story, e.g. simply replacing the toll booths, canopy and tunnel does not address traveler safety, congestion, or staff safety.

5. Why aren't the results of the LD534 and Site Identification and Screening Reports combined?

   Response: The LD report was prepared at the request of the Legislature to address specific questions of the Legislature. The Site Identification and Screening report is being prepared for submission to the Army Corps of Engineers for the purpose of obtaining a LEDPA (Least Environmentally Damaging Practicable Alternative). The report documents the entire site location process, which is consistent with good transportation planning practices as well as federal and state environmental laws. Elements of the LD report, such as documenting project purpose and need and evaluating the existing facility location, are also elements required by federal and state environmental laws. In summary, the Maine Department of Environmental Protection and the Army Corps of Engineers will review both the feasibility of the existing location as well as alternate locations.

6. The Site Identification and Screening Report began with 16 sites and narrowed the candidates to four. What criteria were considered to eliminate the 12 sites?

   Response: The 12 sites were not carried forward due to their high levels of impacts including one or more of the following reasons: residential impacts or proximity to higher density development, wetland or natural resource impacts, impacts to tidal wetlands, and/or refined engineering screening.

7. How can a design be shown if a site is not yet selected?

   Response: Conceptual site designs were developed to compare multiple locations and to assess relative impacts between alternatives. This is a standard planning/engineering method. Additional site refinement, design and consideration of public input will need to be applied to the four alternative sites to develop even more site-specific information for use when screening the sites.

8. When comparing the four alternative sites, how is the criteria weighted in the comparison matrix? What consideration is given to homes?

   Response: The environmental permitting agencies do not provide a specified weight or factor for comparing dissimilar resources (homes, wetlands, etc.). Resources and potential impacts are quantified and compared or ranked within each resource and compared on whole. Generally, residences and wetlands are the most prevalent consideration in screening sites.

9. How are people represented in the comparison matrix of the four alternative sites?

   Response: People are represented in the homes/residences categories including densities of homes, proximity of homes, land-use type and the inclusion of proposed developments.

10. What is the cost comparison of reconstructing the existing plaza vs. a new site?

    Response: It is important to note here that a comparison of cost alone does not tell a complete story. First and foremost is that an alternative that does not meet basic goals, purpose and/or design guidelines can not fairly be compared to an

alternative that does meet all of these criteria. As well, at the current stage of development there are a number of items that are not accounted for either completely or partially, e.g. wetland impacts and the mitigation ratio they must be replaced at, soil engineering and the extent to which advanced construction methods might need to be applied. With that said, reconstruction of the existing plaza, while not addressing all safety or operational issues, and not meeting the basic engineering design criteria could cost $37 million dollars plus an additional $10 million dollars worth of wetland mitigation costs (estimated 26 acres impacted) plus upwards to $15 million dollars for advance soil construction. Still, the estimate for the existing site alternatives does not include potential costs of reconfiguring the Chases Pond Road interchange or its complete relocation to meet some of the basic design guidelines; which could also add millions to the cost, pushing the total cost to over $70 million dollars. A new plaza alternative in a new location could cost $36-38 million with an additional $0.5 to $4 million in wetland mitigation costs (estimated 1-11 acres impacted). A new plaza would be located such that other unknown costs are minimized and/ or avoided, e.g. soils, interchanges, roadways, etc. Based on location selection criteria a new location would meet all the basic design criteria as well as address deficiencies and issues currently plaguing the existing plaza. Therefore a new plaza in a new location may cost up to $40 million dollars. To reiterate, costs of reconstructing at the existing site vs. building a new plaza at an alternative site are not the only factors for comparing options. Reconstructing the existing plaza leaves many deficiencies unresolved including safety concerns that are a leading factor in the Plaza being identified as a High Crash Location.

11. When selecting a site, are cemeteries considered? There is at least one near MM11.3.
    Response: Yes, cemeteries are considered a significant constraint.

12. When selecting a site, are vernal pools considered? There are many surrounding all of the alternative sites.
    Response: Yes, vernal pools are considered in the evaluation. An initial site inspection was conducted to identify vernal pools and significant wildlife habitat within potential project footprints and within a 500 foot buffer area from the footprint.

13. How are wetland impacts estimated?
    Response: Wetland areas were identified for all candidate sites in the same manner using aerial photographs, Natural Resources Conservation Service Soil Survey mapping of hydric soils, National Wetland Inventory mapping of wetlands, and USGS topographic maps. The wetland information for alternative sites is equivalent and only used to make comparisons between initial alternatives (Phase 1) for screening. Subsequent information will be added to refine wetland boundaries to compare the Phase 2 alternatives. Once the preferred site is selected, formal wetland delineations will be conducted to determine exact wetland boundaries, locations surveyed, and permit applications will be prepared

using refined site design and field-delineated wetlands. Other information such as functional assessments and ecological resources will be included.

14. Are wildlife sanctuaries reviewed and considered?
    Response: Yes. If land in the Wildlife Sanctuary was identified as a special wildlife habitat or critical habitat area, then that area would be considered in the screening analyses. If the Wildlife Sanctuary is not designated as special or critical habitat, no special consideration is made

15. Will any roads be relocated? Who would pay for this?
    Response: At this stage of planning, the MTA does not anticipate the relocation of any local road. As the project enters into design, there may be a need to address some existing roadside ditches and grading. The MTA would incur the costs for such work to any public road if the work is necessitated by MTA construction.

16. Will security for the York Water District Treatment Plant be compromised if the selected site puts the plaza in close proximity?
    Response: The treatment plant and Chases Pond are not currently fenced from nearby properties, but the Turnpike right-of-way is fenced. A fence will be installed along the right-of-way between the toll plaza and all abutters. Sites at Mile Markers 8.7 and 9.9 are the closest to the treatment plant, and based upon the conceptual design, it is unlikely that any additional tree clearing between the Turnpike and the treatment plant will be needed.

17. If the water line is required to be relocated, who will pay for it?
    Response: This is a legal question that would depend in part on the nature of the York Water District's property rights in the property through which the line runs. The MTA would work with the York Water District to determine these rights and responsibilities accordingly.

18. How much on-site investigation has there been?
    Response: To date, staff, engineers, planners, surveyors and scientists have conducted various preliminary field investigations to collect and/or verify publicly available data to be able to develop the conceptual plans. As the project progresses there will be a need for more detailed information gathering in all of these areas. Most recently in April and May 2008, environmental scientists have been onsite to verify wetlands and locate vernal pools.

19. Is the MTA's mapping accurate?
    Response: Mapping resources used to date for site identification and screening is of the accepted scale, quality and resolution to meet expectations of all review and permitting agencies. As the project progresses, refined mapping and information will be gathered and used.

20. How will all of the public input be reviewed and used before selecting the preferred site to rebuild the York Toll Plaza?

Response: The Turnpike Authority is reviewing the information and confirming that all data is considered and there are no substantive data gaps for making a site selection. Any new information will be included in the site screening and permitting processes.

21. Has the public said anything that would affect the MTA's decision of rebuilding the York Toll Plaza at an alternative site?
    Response: The MTA received a lot of information from the April 3, 2008 meeting. Examples of information that the MTA will pursue further includes environmental impacts, land use, public infrastructure, possibility of a cemetery and the additional meetings with a smaller core group of York residents and officials to spend more time learning various items about the project and the area.

22. Is it possible that all four sites could be rejected?
    Response: Any and all of the sites are subject to elimination during the course of the study.

8) Environmental Considerations

1. How is air quality going to be addressed; for example ozone non-attainment area; exhaust blowing to the beaches?
   Response: The Federal and State Permit process will dictate the procedures for analyzing air quality. Since this area is a non-attainment area for ozone, Maine is required to prepare State Implementation Plans (SIP) that show how the state will improve the air quality to attain the National Ambient Air Quality Standards. Both new and improvement highway projects must be contained in the area's Transportation Improvement Program (TIP). The modeling procedures for ozone and NO2 require long term meteorological data and detailed area wide emission rates for all existing and potential sources. This modeling is performed by the Maine Department of Transportation (MaineDOT) in conjunction with Metropolitan Planning Organizations (MPOs) for the region to show that regional emissions plus projects in the TIP are in conformance with the SIP and the Clean Air Act (CAA) amendments. The Portland Area Comprehensive Transportation Committee (PACTS) and the Kittery Area Comprehensive Transportation Study (KACTS) are the two MPOs responsible for this analysis. Once the MaineDOT and MPOs have completed their analysis, it is forwarded to the FHWA for final ruling on the TIP's conformance with the SIP and the CAA and its amendments. Conformance with the SIP means that the area will be on schedule with complying with the CAA and its amendments throughout the state.

2. How is lighting going to be addressed?
   Response: Lighting will be developed for the selected site during the preliminary and final design stages. Lighting technology has improved over the years with the benefits being better ability to control the 'night sky' effect as well as better control of surface illumination and its reflectivity. The design will incorporate

fixtures that direct light downward and are consistent with safety practices for highway lighting.

3. How is noise going to be addressed?
   Response: The noise levels along the project will be addressed according to the Maine Turnpike Authority's Highway Traffic Noise Policy. This policy parallels the Maine Department of Transportation's Noise Policy, with both policies following the criteria set forth in 23 CFR 772 which is the FHWA's highway traffic noise policy. Future noise levels will be modeled according to FHWA procedures, impacts and potential mitigation measures will based on the Highway Traffic Noise Policy.
   The noise heard at a highway speed toll plaza is similar to what is heard along the mainline today and is less than what is heard at the existing plaza today. A good portion of this is attributed to the design guidelines for locating a toll plaza and the implementation of highway speed tolling. Noise will be addressed during the preliminary and final design stages.

4. How will the groundwater supply be protected?
   Response: The toll plaza facility will be designed and constructed to meet current building and safety codes. Storm water management systems will meet current Maine Department of Environmental Protection standards to protect groundwater and surface waters.

5. How will adjacent streams and other waterways (that eventually lead into the ocean) be protected from stormwater pollution?
   Response: For a project such as the proposed toll plaza, the Turnpike is required by law to construct stormwater management systems that meet the State of Maine requirements. Compared with older design and construction methods, new construction methods are vastly improved.

6. How are the Priority Coastal Rivers (Cape Neddick and Josias) being evaluated, treated, prevented, avoided etc?
   Response: These rivers are known resources and are identified in the site selection and screening process. See responses to storm water and groundwater above. The Cape Neddick and Josias Rivers are not listed as Non-point Source Priority Watersheds, Coastal Waters or Rivers and Streams by the Department of Environmental Protection.

7. How will pollution of water supply be prevented?
   Response: The York Public Water Supply is derived from surface water taken from Chases Pond. The Turnpike and toll plaza alternatives are not in the watershed of Chases Pond. The water inlet to the public system is uphill of the Turnpike and the distance from the nearest proposed work area for a toll plaza to the inlet is 1,050 feet for Site 8.7 and 900 feet for Site 9.9. Drainage from a toll plaza or the roadway cannot physically enter Chases Pond. The main water line crosses beneath the Turnpike similar to many other public utilities beneath roads

and highways. Measures will be taken to protect the pipe during construction. Crossing or relocating a water main is a routine utility protection/relocation occurrence and should not pose any pollution threat to the water supply.

9) Right-of-Way Considerations

1. How will access to the toll plaza be decided?
   Response: Site access from an identified local road for MTA employees and other associated parties is noted in the comparison matrix of the four alternate sites in the Site Identification and Screening Report and will be further analyzed for the preferred site.

2. What is the MTA doing to consider the "human factor" when proposing a project at the scale of a new mainline plaza?
   Response: The MTA is required by the regulatory permitting agencies to consider both human resource and natural resource impacts in the development of this project.

3. How are homes values in a poor housing market going to be fairly established?
   Response: It is one of the goals of the MTA not to displace anyone. However, in these situations, home values, are established using generally accepted appraisal practices such as the use of comparable sales in the same or similar markets. Because all the homes in a region are under the same market conditions, the "market value" is a relative value that rises and falls affecting all homes equally.

4. How much money has been set aside for purchase of land?
   Response: Money has not been specifically set aside for the purchase of land. However, the MTA is committed to setting aside the amount of money necessary to assure that landowners receive fair and appropriate compensation for any land acquired.

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APPENDIX 1C

LETTER FROM THE YORK SELECTMENT TO THE MTA BOARD OF DIRECTORS

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Town of York

186 York Street
York, Maine 03909-1314

Town Manager/
Selectmen
(207)363-1000

Town Clerk/
Tax Collector
(207)363-1003

Finance/
Treasurer
(207)363-1004

Code Enforcement
(207)363-1002

Planning
(207)363-1007

Assessor
(207)363-1005

Police Department
(207)363-1031

Dispatch
(207)363-2557

York Beach Fire
Department
(207)363-1014

York Village Fire
Department
(207)363-1015

Public Works
(207)363-1011

Harbor Master
(207)363-1000

Senior Center/
General Assistance
(207)363-1036

Parks and
Recreation
(207)363-1040

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www.yorkmaine.org

Maine Turnpike Authority
Board of Directors:
2360 Congress Street
Portland, ME 04120

May 20, 2014

Dear Board of Directors:

The citizens of York, organized under the aegis of Think Again, are once again preparing to engage the MTA on the siting of new toll facilities.

The York Board of Selectmen thereby reaffirms their policy position on the toll collection system at the York Toll Plaza as follows:

1) The York BOS recognizes that all electronic tolling (AET) is and should be the ultimate policy goal for an integrated interstate toll collection system. However, we recognize that certain technical and political impediments make adoption of this AET system unfeasible at present.

2) The York BOS recognizes that 34% of MTA toll revenues consist of cash payments, indicating that Open Road Tolling is the next most desirable collection format.

3) The York BOS remains steadfast in its belief that the current toll booth location is suitable for the location of an ORT system.

A) The current toll booth location is dimensionally capable of accommodating an ORT system.

B) The issue of land subsidence at the current toll booth location is susceptible to technical analysis and remediation and should not be considered an impediment to a retrofit. In fact, a technical resolution of this subsidence issue will be mandatory for the continuing viability of the roadway itself regardless of the toll booth siting.

C) The benefits of constructing an ORT system at the current toll booth location are myriad: the avoided cost of new land acquisition; the avoidance of new environmental impacts in the invaluable Mt. Agamenticus region of Town; and the avoided impact of quality of life diminishment and the impact of land taking in a community unified in opposition to such action.

Therefore, the York BOS encourages the MTA Board of Directors to pursue the engineering studies necessary to prove the viability of an ORT plaza at the current location of the York Toll Plaza. All other options will be strenuously opposed by the Town of York.

Respectfully,
Town of York, Board of Selectmen

Mary Andrews, Chair

Robert E. Palmer Jr., Vice Chair

Torbert Macdonald, Selectmen

Jonathan O. Speers, Selectmen

Ronald Nowell, Selectmen

Cc: Robert G. Yandow, Town of York Town Manager
Peter Mills, MTA Executive Director
MTA Board of Directors:
- Chair Daniel E. Wathen
- Vice-Chair James F. Cloutier
- Freeman R. Goodrich
- Gerard P. Conley Sr.
- Robert D. Stone
- John E. Dority
- Bruce Van Note

Mary E. Costigan, Town of York – Town Attorney

APPENDIX 1D

STAFF REPORT ON THE PRESENT STATUS OF TOLLING ON THE MAINE TURNPIKE

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Staff Report on the Present Status of Tolling on the Maine Turnpike

Early History

For its first 50 years, the Maine Turnpike collected tolls by issuing a ticket to each motorist at the beginning of a trip and charging a cash toll at departure based on distance traveled. At midnight on September 16, 1997, this ticket system was replaced by charging tolls only at plazas on the mainline or at entrance ramps.

At the same time, the Turnpike introduced the option either to pay cash or to pay electronically using Transpass, a system that required a participating motorist to lease a transponder that sent and received signals to and from an overhead antenna and allowed for tolls to be calculated. The account holder was required to maintain funds on deposit from which tolls were withdrawn.

In the ensuing years, a competitor called "E-ZPass" became the dominant electronic toll system in the northeast after adoption by authorities in New York, New Jersey, and Pennsylvania. As Transpass became obsolete, the Maine Turnpike responded in 2005 by switching from Transpass to E-ZPass and joining the E-ZPass Interagency Group (IAG) as a voting member.

The IAG presently includes 25 tolling authorities in 15 states, from Maine west to Illinois and south to North Carolina. It is the largest interoperable toll network in the world, has 25 million transponders in use, and processes 2.4 billion transactions per year. All 25 members reciprocate in promptly crediting tolls for one another each day. The system accounts for 70% of all tolls collected in the United States.

Toll System Obsolescence

Electronic components installed in 2005 to support Maine's E-ZPass toll plazas are now obsolete. The computer and software systems are no longer supported and the vehicle sensors are expensive to maintain. New electronics are needed to improve operations in cash as well as E-ZPass lanes.

In 2011, the Turnpike began replacing its outmoded components with a system called "Infinity" made by UTS/Transcore. The New Gloucester barrier toll was converted to the new system on April 1, 2013. Seven side ramps are presently being converted; and several more are in design.

The Infinity system produces many tangible improvements for both cash and E-ZPass collections:

- The system offers full violation and video audit capability in all lanes. When fully installed, it will enable the Turnpike to reduce uncollectible tolls by about 500,000 transactions per year equal in value to $2.4 million.
- For vehicle classification, the old system uses pressure sensitive treadles and in-lane laser light curtains that are vulnerable to physical damage. Repairs to them cost the Turnpike approximately $390,000 in 2012. The new system replaces them with components that are less susceptible to damage and cheaper to repair.
- The new system employs video auditing that will greatly enhance toll collector audit functions and eliminate external contracts for services that currently cost approximately $90,000 per year.
- The annual cost of contracts to maintain the new system will be reduced by about $124,000.

Annual savings and enhanced revenue from the new components recently installed are already offsetting the amortized capital costs of their purchase.

At most of the Turnpike's 19 toll sites, it is possible to install the new system as a retrofit to an existing plaza without changing locations. However, at three of the barrier tolls --York, Exit 44/I-295, and West Gardiner/I-295 -- there is need to consider new plazas at different or modified sites. Any alternative site must be chosen in a permitting process guided by federal and state agencies.

The new vehicle sensory systems function to a degree of reliability approaching 100% -- even at highway speeds -- as has recently been proven in New Gloucester where electronic tolls are collected at 65 mph. New Gloucester employs Open Road Tolling (ORT) in which motorists with transponders travel at highway speed under an overhead gantry of antennas that record the toll electronically. Motorists who need to pay cash, move right to a separated lane to stop and pay an attendant.

Conditions at York

Among the sites in need of upgrade is the 17-lane toll plaza at York, where the Turnpike collects 38% of its revenue. York was constructed in 1969 near mile 7, the first point on the Maine Interstate where tolling is permitted. Because federal funds were used to build or widen the highway south of mile 7, federal law prohibits tolls on this part even though the state requires the Turnpike to maintain it.

The York plaza was designed to last until 1982, when bonds were to be repaid, tolls were to cease, and the Turnpike was to be turned over to Maine DOT for perpetual maintenance. However, the oil shocks of 1973 and 1978 caused such a significant decline in gas tax revenue that the Legislature had inadequate funds in 1982 with which to support the general highway budget -- let alone the Turnpike. The Legislature directed the Turnpike to continue collecting tolls not only to maintain itself but also to contribute substantial sums to Maine DOT, a practice that continues to this day in reduced form under different statutory directives.

The York toll plaza, now 45 years old, is beyond its useful life and suffers from numerous operational and structural deficiencies. The highway in this location is built on deep compressible clays. The plaza itself rests on piles, but the approach and departure pads have been sinking by nearly 1 inch per year.

A sensitive component of the new Infinity system is an antenna loop that is carefully set in concrete within the approach to each lane. These loops are necessary to classify vehicles. They help to distinguish between cars that owe a $3 toll from trucks that may owe as much as $13.50 at York, depending on vehicle size and the number of axles. To work effectively over time, the loops must be set within a rigid pad on stable ground, a condition difficult to maintain at the present York plaza

In addition, the curves, elevation changes, and close proximity of ramps at mile 7 make it highly undesirable for Open Road Tolling, which, for safety reasons, requires straight lines of sight along clear approach and departure zones.

York's Procedural History

Cognizant of the need to replace the deteriorating York plaza and to provide the public with high speed tolling, the Maine Turnpike Authority voted eight years ago (2006) to install Open Road Tolling in York at a location to be selected north of the existing plaza. It was then anticipated that the project would be complete by 2010, ahead of a similar facility being planned for Hampton, New Hampshire.

After a lengthy evaluation, the Turnpike filed a Phase I Report in November of 2009 with the Army Corps of Engineers (ACOE) to initiate a process for obtaining environmental and wetland permits for a new toll plaza location.

Many citizens of York who opposed a new physical facility raised the following question:

> Is it feasible to collect tolls at the York plaza by means of All Electronic Tolling (AET) and avoid the need to build or maintain any physical facilities for the collection of cash?

Under AET, cash collection is abandoned and all motorists proceed down the highway under the antenna that registers tolls for electronic customers. For a customer without a transponder, collection is

attempted by taking high resolution photos of the license plate, looking up the registered owner's address through a back office inquiry, and mailing a bill to the owner's residence.

Although AET had been ruled out in the Phase I report, the ACOE replied to the report on May 5, 2010, by seeking clarification on a number of further points about the AET option.

As answers to these questions were being prepared, new Turnpike management took over in March of 2011. With support from the Board, three measures relevant to the York toll issue were initiated:

1. Expansion of E-ZPass. The first initiative was to embark on an aggressive program to expand electronic toll collection (ETC) on the Maine Turnpike. AET is generally implemented only on those toll roads where ETC has reached high percentages of traffic penetration. Conditions for AET are most favorable on toll roads where daily commuters are the dominant revenue source. The Maine Turnpike has fewer commuters than most toll roads, especially at York. Nevertheless, expansion of E-ZPass in Maine would help to improve the Turnpike's financial condition regardless of future choices. And if the decision were made to continue cash collection capacity at York, it might be done with a smaller plaza if more vehicles paid by E-ZPass.

2. Cash lane survey. In 2012, the Turnpike initiated a license plate survey to document where vehicles in the cash lanes come from. To collect tolls by mail under AET depends on the feasibility and cost of obtaining addresses from jurisdictions in which vehicles are registered. This information is important for modeling AET losses and costs and for pursuing violators under any system.

3. Another Opinion on AET. The Turnpike decided to obtain a fresh opinion on the feasibility of AET at York. The study was later expanded to include West Gardiner/I-295 as well. After a request for proposals was issued to five prominent toll consultants, the Turnpike chose Wilbur Smith (now CDM Smith) to perform a financial risk analysis based on conditions specific to Maine.

E-ZPass Expansion

As part of a legislative reform bill in the spring of 2011, the Turnpike obtained authority to form reciprocity contracts with other jurisdictions to collect tolls. By August of 2011, Maine, New Hampshire, and Massachusetts became the first three states in the union to enforce collection against each other's citizens by suspending or holding vehicle registrations. While collections under the program have been modest, it is assumed that many motorists from the tri-state area who once avoided tolls are now paying. 23% of traffic in Maine's cash lanes comes from these two neighboring states.

In 2012, the IAG switched to a new E-ZPass transponder that costs only $10 rather than $25. The Maine Turnpike, which sells its transponders at cost, dropped its prices accordingly on February 1, 2012, and used the price drop to promote the opening of many new electronic accounts.

Later in the spring of 2012, the Legislature gave the Turnpike permission to eliminate a cumbersome commuter discount program that had been mandated by law since 1982. It was designed for the paper ticket system. So long as the Turnpike was required to administer this outmoded program, it was nearly impossible to sell E-ZPass over the Internet. On November 1, 2012, the Turnpike did away with the old program, adopted a new volume discount, and began selling transponders on-line. The effort was extraordinarily successful. The Internet now accounts for more than half of all E-ZPass sales.

Also in 2012, state law was changed to permit the Turnpike to send notices of liability by ordinary mail rather than by certified mail, which cost $5.79 more. This has saved the Turnpike over $50,000 per year within its present violation enforcement system. The added cost of certified mail might alone have been fatal to any high volume toll-by-mail system like AET.

On November 1, 2012, the Turnpike passed a 20% toll increase that greatly favors Maine E-ZPass account holders in two respects: (1) Rates for cash were generally raised higher than rates for E-ZPass,

and (2) a new volume discount program was offered to Maine E-ZPass customers. Under the new discount, the Turnpike is returning $6.5 million per year to Maine motorists in contrast to $2 million per year under the former commuter program.

As the Turnpike created these incentives to adopt E-ZPass, it launched a series of successful sales campaigns, with a focus on drive-time radio, to promote electronic tolling.

In addition to efforts here in Maine, both New Hampshire and Massachusetts have promoted E-ZPass. New Hampshire, for example, offers a 30% toll discount for its version of E-ZPass, and Massachusetts gives away its transponders. Because these two states are the most prominent contributors to out of state traffic on Maine highways, their efforts have helped to raise the percentage of E-ZPass revenue in Maine; and Maine's efforts have helped them as well.

In 2006, the electronic toll percentage on the Maine Turnpike was 40%. By 2010, it was 59%. As a product of recent initiatives, it has risen to 66% and will likely continue rising, but more slowly as the level reaches or exceeds 70%. For a state like Maine with fewer commuters, it is difficult to raise the electronic penetration rate into ranges much beyond 75% or 80%. This is partly because so many travelers, even from Maine, use the Turnpike infrequently, for only one or two round trips per month.

Cash Survey

From August of 2012 through June of 2013, the Turnpike sampled license plate data from 407,332 motorists who passed through cash lanes at five locations: York, Exit 44, New Gloucester, West Gardiner/I-295, and the southbound on-ramp in Gray. The survey revealed that license plates came from states and provinces in the following percentages at the plazas listed:

	Maine	Massachusetts	New Hampshire	Canada	All other states
All five toll plazas	55.4%	15.5%	7.5%	5.2%	16.4%
York	37.0%	24.7%	10.5%	4.8%	22.7%
W. Gardiner/I-295	75.0%	5.7%	2.6%	6.9%	10.1%

This information helped to determine where to focus further E-ZPass sales efforts and it formed an important component of the model prepared by CDM Smith for the AET evaluation.

The CDM Smith Risk Analysis of AET

A principal purpose of the CDM Smith study is to assist the Turnpike in determining whether to install either Open Road Tolling (ORT) or All Electronic Tolling (AET) at the York plaza. Because the Turnpike is concerned about the future of its tolling system, not just for York but for the entire road, CDM Smith was also asked to evaluate AET for the I-295 plaza in West Gardiner, which has a $1 toll that is more representative of other plazas on the road.

Under ORT, the capacity to collect cash at each plaza is preserved. Under AET, collection from a former cash customer is attempted by finding the owner's address and sending a bill by mail. Experience with AET from other states reveals that at least 40% of former cash tolls are likely to be lost for a variety of reasons including: traffic diversion, plates obscured by snow or dirt, unwillingness of states or provinces to supply an address, invalid addresses, customers' failure to respond to small invoices, and lack of enforcement reciprocity with other jurisdictions.

Conversion to ORT preserves cash collection at a lower operating cost, creates less risk to the Turnpike, and requires no change to present toll rates. AET presents a greater risk, requires a substantial surcharge

to preserve revenue, and imposes heavy traffic diversion on other roads. Bondholder approval for AET would require a revenue certificate based on conservative financial assumptions.

On November 1, 2012, the Turnpike raised tolls by 20% after eight months of intense public hearings, studies, and deliberations. The cash toll at York was raised from $2 to $3. The Turnpike foresees that no further increase will be necessary for many years if the present toll regime is kept.

A transition to ORT may be accomplished without changing current toll rates because ORT preserves cash collection in its present form. In fact, with new electronics, maintenance costs are reduced by replacing old and inefficient equipment, and revenue in the cash lanes is enhanced by installing detection equipment to capture "run through" violators.

The primary financial impediment to ORT at York or West Gardiner is the cost of building a new plaza. In other toll plazas where existing cash lanes are kept in use, ORT can be installed at relatively modest expense. For example, the mainline toll in New Gloucester, the Turnpike's second largest revenue source, was converted to ORT for $8.5 million. Seven side tolls are presently being converted to the same electronic system for an aggregate cost of $4.4 million.

At York, however, an ORT plaza will likely need nine new cash lanes in a different location. While the estimate for a new ORT plaza is $36 million, an AET facility may be built for as little as $4.8 million. AET also eliminates the cost of toll collectors and field cash management. However, AET leaves at least 40% of the former cash tolls uncollected and adds to operating costs for back office support, license plate lookup fees, postage, mail preparation, accounting follow through, and penalty administration.

In terms of financial risk, introducing AET at York without a toll surcharge would reduce revenue by $4.55 million in the first year and increase maintenance and operation costs by $2 million for a net loss of $6.55 million. Because ORT would produce a net revenue gain of $.95 million, the first year's difference in net impact between AET and ORT would be $7.5 million. If the difference in capital cost is about $31 million, the added investment for ORT could be recovered in just over four years.

To recover losses under AET, it is necessary to increase existing tolls with a surcharge. Doubling the toll to $6 for unregistered passenger vehicles (or to $24 for 5-axle trucks) and increasing it by 50% for those willing to register their plates with the Turnpike would raise first year's net revenue to just above the break even point when compared with present conditions. However, it would still fall $.6 million behind an ORT system with no surcharge.

A chief consequence of adding a $3 surcharge to the AET toll is to divert between 3,400 and 5,500 vehicles per day onto adjoining roads like Route 1, with higher levels at peak times. These diversions amount to between 30% and almost 50% of current cash traffic. Summer traffic on Route 1 in York already averages 14,000 cars per day. At Ogunquit, it averages 21,000.

Because of conflicts in business protocols between AET and cash collection, it would likely be necessary to adopt AET for the entire Turnpike rather than to use it in only one location and attempt to run two parallel systems with different collection and violation rules.

Therefore, to better understand the consequences of adopting AET for the entire road, the Turnpike engaged CDM Smith to perform an additional risk analysis for the plaza at West Gardiner/I-295. Of all locations on the highway, this toll appears at first blush to be the most favorable place to implement AET as a pilot. The West Gardiner plaza is on a separate spur of the Turnpike. It can be isolated financially from the rest of the toll system and accounts for only 7% of total Turnpike revenue. An AET toll system could be tried there with only modest risk.

75% of cash toll payers at West Gardiner/I-295 are from Maine -- twice what the percentage is for York. Addresses of Maine vehicle owners can be freely obtained from InforME, the state's data repository. For Maine motorists who don't pay, the Turnpike can suspend vehicle registrations. Administration of a pay-by-mail system would seem easier for West Gardiner/I-295 than for York.

However, the cash toll at West Gardiner is only $1, hardly worth the cost of mailing a letter. Even when several tolls can be aggregated into a single statement, the back office cost of producing a bill, applying postage, and following up for collection and enforcement exceeds the value of what may be recovered.

6.9% of the traffic through West Gardiner is from Canada. Tolls based on plates from New Brunswick and Nova Scotia would be written off immediately for lack of an address to mail a bill to.

The aggregate value of all cash tolls presently collected at West Gardiner/I-295 is $3.677 million per year. Under AET without a surcharge, gross toll revenue becomes $3.692 million ($2.311 million in reduced tolls plus $1.381 million in collected late fees). However, the cost to capture that revenue would grow from $2.68 million in the present system to $4.127 million under AET, resulting in a significant net loss.

With a surcharge of 75¢, net revenue would turn positive, but at that level an estimated 9% of present cash traffic would divert to other roads.

Policy Considerations

Studies of the York and West Gardiner plazas raise the following policy issues:

Fairness and equity. Under AET, substantial leakage is inevitable. Because many trips will not be paid for, a key issue is how to make up for the lost tolls. A common solution is to impose a surcharge on the basic toll so that the burden of paying the loss falls on those who formerly paid cash. Unfortunately, a surcharge at York would cause substantial diversion of traffic onto other roads and further aggravate the revenue loss.

Alternatively, if the loss is allocated to those who pay by E-ZPass, it will discourage people from using E-ZPass and motorists will question why it is fair to charge the Turnpike's best customers to subsidize those who pay nothing. At hearings prior to the 2012 toll increase, many members of the public, including the Legislature's Transportation Committee, insisted that equity in tolling be a primary policy goal. Equity is not achieved when many ride free at the expense of those who dutifully pay.

Diversion onto state roads. ORT creates no diversion and may even attract motorists back onto the toll road because of improved convenience. Under AET, diversion depends on the level of surcharge. If a surcharge is imposed at York sufficient to balance losses, it would create a 30% diversion of former cash traffic onto adjacent roads, where capacity is already strained. In the absence of a surcharge, the resulting revenue losses would need to be absorbed inequitably by those who pay by E-ZPass.

Customer service. Customers using the Hampton Toll in New Hampshire and the New Gloucester Toll in Maine have come to appreciate the value of high speed electronic tolling. In addition to convenience, it saves on fuel and cuts emissions. One company that uses the New Gloucester toll many times a day estimates that it saves a quarter of a gallon of diesel fuel (worth a dollar) every time one of its trucks passes through the toll at 65 miles per hour rather than slowing and accelerating again.

While this convenience is available to E-ZPass customers under either ORT or AET, there is a difference in other aspects of service. For those who pay cash, there is the difference between paying on site at the moment of use or paying later by mail, phone, or credit card. From a customer service perspective, the opportunity to pay on site seems preferable even if it requires the patron to stop.

Safety. AET is clearly the safest solution and is a reason often given by other agencies for considering AET. Because ORT separates cash traffic to lanes behind a protective barrier, it is far safer than conventional slow speed tolling but less safe than AET because ORT divides traffic into two streams and then integrates them again after the toll is paid similar to an interchange.

Landowner impacts. An AET gantry makes use of no land outside of the existing right of way except to bring power and communications to the site. While most of an ORT facility at York can be constructed within the right of way, it also requires a support building with associated utilities and parking for staff. A small strip of adjacent land would be necessary at York, but there would be no need to take homes or structures.

Environmental impact. An AET gantry can be erected with negligible environmental impacts. A new ORT plaza in York would require widening of the highway in the vicinity of the plaza, some changes in road elevation and the filling of any small areas of wetland that are immediately adjacent to the road. Impacts to streams and other environmental features would depend on the site chosen.

Consistency with existing toll plazas. If York were converted to AET but the remaining plazas up the road retained their capacity to collect cash, it would set up two conflicting business protocols for non-E-ZPass tolls. When a vehicle passes through a conventional toll point without paying, the motorist becomes a violator. If the vehicle owner is identified, a notice goes out and enforcement starts.

If the same vehicle passes under an AET gantry, on the other hand, then the motorist is a presumptive customer. If the owner can be identified, then a bill is mailed with a surcharge. Remedies for violation and enforcement are deferred until time has passed without payment or response.

It is possible under this scenario to be both a customer and a violator in the same trip. For example, if only the York plaza were configured for AET, the northbound motorist would be a customer at York but a violator at New Gloucester and West Gardiner. A southbound motorist who pays cash to enter in South Portland would incur a bill by mail when passing through York -- without knowing it and with no apparent choice in the matter.

While these conflicting protocols do not rule out the possibility for using both systems on one road, they do create an ambiguous context in which to provide acceptable customer service. Confusion and frustration are likely.

Privacy. A significant number of motorists refuse to set up an E-ZPass account because of privacy concerns or because they have no relationship to a banking institution and do not want to deposit cash in an E-ZPass account. So long as participation in electronic tolling is voluntary, E-ZPass will never be universal. There will continue to be an upper limit on the extent to which E-ZPass is accepted and used by travelers, even in a region like ours with only one dominant toll regime. Retaining cash lanes deals with the issue without the privacy concerns generated by either electronic or video tolling under AET.

Staffing and employment. Adoption of AET at York would permit the Turnpike to reduce fare collection staff by about 23 full time equivalent employees (FTEs) but would require about 32 new employees with slightly higher salaries to support back office operations.

At West Gardiner/I-295 the reduction in fare collection FTEs would be about 9. The required increase in back office staff would be almost as large as for York because the percentage of motorists without E-ZPass is much higher at West Gardiner and diversion would be less than at York.

If AET were adopted for the whole road, the entire fare collection team of 117 full time employees and 145 part timers would be let go or transferred. On the basis of present data, it is difficult to project how many back office employees would be needed to manage AET for the entire road.

Credit. Under the Turnpike's bond resolutions, a change to the toll structure requires an investment grade study by an independent consultant to certify that a new schedule will produce the revenue needed to keep promises to bond holders. The bond resolutions also require that "no free vehicular passage will be permitted over the turnpike, or any portion thereof, . . ." with narrow exceptions.

A proposal to convert to AET would not be approved by the bond trustee without certification that tolls are sufficient to overcome leakage losses, pay for added collection costs, and compensate for the uncertainties of an AET toll environment. A conversion to ORT, on the other hand, introduces few changes or uncertainties except for the capital cost of construction that can be amortized over the facility's service life.

Flexibility. The center of an ORT plaza is the functional equivalent of AET. The essential difference between the two systems is that ORT preserves the opportunity to collect cash on side lanes at the moment of passage. It also imposes immediate liability on those who fail to pay. If advances in technology or changes in federal law bring us closer to universal collection by electronic means, then an ORT plaza can be converted to AET by closing the cash lanes.

Summary of Pros & Cons. The pros and cons of AET may be outlined as follows:

Pros:	Low capital cost	Cons:	Higher operating cost
	Little environmental impact		Uncollectible tolls -- leakage
	Enhanced safety		Toll surcharge & fairness issues
			Traffic diversion caused by surcharges
			Unsuitability to Maine's traffic mix

AET is more viable for toll roads where high volumes of daily commuters pay electronically, where the motorists are predominantly from within the same state for ease of enforcement, where the toll is high enough to justify the cost of postage and back office processing, where land constraints make it difficult to build cash facilities next to the road, or where the capital expense of building new cash plazas outweighs future leakage and collection costs.

Conclusion

Because critical electronic components within its 19 toll plazas are becoming obsolete, the Maine Turnpike must move swiftly to complete necessary upgrades in cash and E-ZPass lanes.

In the past two years, the Turnpike has converted several side tolls to the new system and has installed the system as an ORT plaza for the mainline toll in New Gloucester. These conversions have yielded improved levels of service in a fashion that is both cost effective and free of substantial risk.

The York plaza presents a special challenge because it is difficult to retrofit modern electronics and vehicle sensor systems into a deteriorating structure at a poor site unsuitable for high speed tolling.

Over several years, the Turnpike has made substantial strides in expanding E-ZPass. One purpose for this effort was to enhance the possibility of considering AET for York or West Gardiner/I-295.

After careful study of the relative costs, financial risks, toll equities, and traffic impacts, Turnpike staff do not regard it as presently feasible to abandon cash collection for AET at either location.

Public Hearing

The board of the Turnpike Authority has yet to decide how to proceed at York or West Gardiner/I-295. The board will hold a public hearing on the AET issue at Turnpike Headquarters (Exit 46) on Thursday, June 19, 2014, at 6:00 PM. Turnpike staff and authors of the CDM Smith study will be present.

APPENDIX 1E

MTA REPONSES TO YORK QUESTIONS 11/16/15

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Memorandum

To: MTA Board Members

From: MTA Staff

Re: Responses to comments to the MTA Board on September 3, 2015

Date: November 16, 2015

MTA will work with the Town of York and nearby residents in a fair and respectful manner toward the goal of replacing the York barrier toll plaza with a modern Open Road Tolling (ORT) plaza. A properly placed new plaza will be safer and affordable for travelers while less disruptive to abutters, toll collectors, and the environment.

Summarized below (*in italics)* are comments made by those who spoke to the MTA Board at its September 3, 2015, meeting followed by MTA staff responses.

The question presently before the Board is: **For the purpose of further permitting and design analysis, <u>what is MTA's preferred site for a replacement ORT plaza in York?</u>**

Background

The MTA has been studying how best to deliver the York toll plaza project to its customers and the people of Maine for over 10 years. In the earlier years, analysis by HNTB supported a conclusion to replace the current deteriorating and substandard barrier plaza with a new Open Road Tolling plaza at any of several locations to the north of the current plaza, including Mile 8.7. (ORT allows for highway speed electronic toll collection and retains cash collection for those that want or need it.) At that time, many York residents opposed those conclusions, arguing that All Electronic Tolling (AET) was a better alternative. (AET eliminates point-of-service cash collection and replaces it with license plate photo enforcement, back office administration, and after-service collection activity.)

In 2011, MTA took a fresh look at critical project issues such as toll collection systems (ORT vs. AET), plaza sizing, and locations. Regarding the ORT vs. AET question, the MTA retained CDM Smith, another national toll consultant, to help MTA determine whether AET was feasible. A detailed survey of cash paying customers at York and other plazas was conducted to determine their home state or country and assess collection risk. MTA adopted several initiatives to boost E-ZPass use, which is a necessary predicate to any AET system. MTA also obtained statutory changes and negotiated with New Hampshire and Massachusetts to improve reciprocity for out-of-state collections.

On July 24, 2014, after nearly three years of additional study, the Board accepted the recommendation of staff and determined that AET is not feasible on the Maine Turnpike and

would not be in the best interests of the MTA or Turnpike users for the foreseeable future. Among other reasons, it would require non E-ZPass toll rates at York to double from $3 to $6 to compensate for lost revenue and would cause traffic diversion estimated at an additional 3,400 to 5,500 vehicles per day onto adjoining roads like Route 1 which is already congested.

In August 2014, the MTA retained Jacobs, another experienced engineering consultant, to obtain more detailed environmental information, reexamine ORT plaza sizing, take a fresh look at options near the current plaza at Mile 7.3, and analyze other locations. In June 2015, after a detailed look at the current plaza site, Jacobs recommended further evaluation of the Mile 8.8 site because it would be safer, would cost about $20 million less, would have much less impact on wetland and streams, and would be less disruptive to travelers, toll collectors, and abutters.

Although work to date is extensive and reliable for the purpose of alternatives analysis, it is important to note that the replacement plaza has not yet been fully designed; nor is it customary to do so at this early stage. Work to date has been aimed at considering and narrowing a proper range of practicable alternatives in light of the project purpose. In an attempt to answer as many questions as possible, the MTA has performed more analysis than is common for the current pre-permitting stage. Field mapping of wetlands, initial design of the plaza, determination of wetland, stream and vernal pool impacts, creature habitat reviews, and cost estimates have all been done in order to help the Turnpike Board and the public to make a well informed decision. But for all projects like this, true final design comes later. Once a preferred site is selected, environmental permits have been obtained, mitigations have been negotiated, and MTA proceeds to final design, more refined answers will emerge.

As with all MTA projects, we will continue to follow the process, respectfully engage concerned citizens, and base our actions on the rules, the facts, and the best expert advice. Since the York plaza project was first proposed over 10 years ago, MTA staff has met with York officials and residents dozens of times, including about 14 times over the last year. Since Jacobs was retained, York Town officials and residents have been given unparalleled access to project information, sometimes receiving it at the same time as MTA Board members. Special workshops with MTA staff, Jacobs, and a designated team of 2 or 3 people from York were held to review environmental studies, plaza sizing, and engineering information. MTA has maintained a detailed project website with project reports, maps, and analyses. This has been an expensive and time consuming process, but one that the MTA willingly undertook to assure that sufficient information exists for the Board to make a sound decision, and to give concerned citizens ample opportunity to be heard and review the facts.

MTA has a legal and fiduciary obligation to all 1.3 million Mainers and to the 62 million travelers who use and pay for the Turnpike every year, to look for the <u>best site</u> – a site that is safer, affordable, and less disruptive to travelers, abutters, toll collectors, and the environment. We look forward to working with interested persons toward that goal.

Sept. 3rd Comments
and MTA Staff Responses

1. Randy Small, Chases Pond Road, York

Substance of Comment

Mr. Small urged the MTA to "simply be honest." He stated that engineers working on his property unannounced had frightened his daughter and said that he wanted to be informed before people came onto his property.

MTA Staff Response

We agree that simple honesty is the foundation for work on public projects.

Regarding notice, it is MTA protocol to notify abutters when we conduct non-emergency environmental or survey work on their property. We do this even though there is no legal requirement in Maine for public highway officials, or even for private individuals, to give notice to enter un-posted open lands.

Because Mr. Small's property is a mile north of the area recommended for a toll plaza, we did not anticipate that the consultants would enter the Small property on the day in question. We now understand that they did need to map vernal pools and a wetland area near the Turnpike in this vicinity. The people who did the survey work do not recall encountering any people or animals. If Mr. Small's daughter was alarmed, then we apologize for that discomfort.

2. Don Rose, Whippoorwill Homeowner's Association, York

Substance of Comment

Mr. Rose stated that there was $40 million of assessed value in the Whippoorwill subdivision, with a market value of $50 million. He said that according to a broker a toll booth built in the vicinity might decrease property values by as much as 10%, and he wondered how that would be considered.

MTA Staff Response

The two Whippoorwill homes closest to the Turnpike are over 900 feet from the road and a quarter mile from the recommended plaza site. Most of the other homes are between 1/3 and 2/3 of a mile. The subdivision as a whole is closer to Route 1 than to the Turnpike.

Between the Turnpike and the subdivision is rolling and densely wooded terrain. Sound pressure levels from an ORT plaza a quarter mile away is not perceptibly greater than any sound that is presently perceived from distant highway traffic.

The same is true for lighting that should have no impact on this distant subdivision.

Without evidence of any physical or tangible impact, property values are not at issue.

As MTA moves to design of a selected site, we will work with abutters and nearby residents to address any of their legitimate concerns.

3. Emily Rose

Substance of Comment

Ms. Rose questioned the conclusion that Mile 8.8 would be a safer location than mile 7.3, given that the number of accidents in the two locations was comparable (she cited 41 crashes at mile 8.8 and 49 crashes at the current location).

MTA Staff Response

The crash data presented in the Jacob's Draft Technical Memorandum was based upon summaries provided by MaineDOT. These are difficult to interpret. The MaineDOT system can associate crashes that are anywhere from several hundred feet to well over a mile from any specific point.

Rather than to rely on the MaineDOT system, Jacobs further analyzed the crash data and associated individual crash reports within a ½ mile on either side of both Mile 7.3 and 8.8. This further analysis shows that for the three years from 2012 through 2014, there were 42 crashes associated with Mile 7.3 (within a ½ mile) and only 13 crashes associated with Mile 8.8 (within a ½ mile). Stated another way, there were 4 times more crashes near the existing plaza. While this data by itself is not a predictor of future crashes, it does better establish the relative history which is a factor in site selection.

For a discussion of the significance of this data in the broader engineering and safety comparison of sites, please see the response to Mr. Lessard's comments under #18 below.

4. James O'Neil, Whippoorwill Neighborhood, York

Substance of Comment

Mr. O'Neil asked if the MTA could guarantee that his neighborhood would not experience an increase in noise or atmospheric pollution if the toll booth were built at mile 8.8.

MTA Staff Response

Given the distance between the subdivision and the proposed plaza at Mile 8.8, and the woods and topography between them, there is no reason to believe that members of Whippoorwill will

see a change from what they experience today. If responsible observers can suggest any adverse impacts, we invite them to come forward so that they may be discussed and possibly mitigated during final design.

It is important to consider the net impacts to all York residents including those who live near the present plaza. The shift to ORT at a flatter location will significantly reduce sound, air quality and environmental impacts as a whole.

5. David Loane, 275 Chases Pond Road, York

Substance of Comment

Mr. Loane questioned Jacobs Engineering's use of a 1% growth rate when projecting future traffic. He stated that in 2004 there were 15.5 million vehicles using York Toll while in 2014 the number had only been 13.9 million.

MTA Staff Response

Figures for transactions recorded at the York Toll are significantly less than for actual traffic. Northbound transactions for Maine E-ZPass holders are counted at the point where the patron leaves the Turnpike and not at the point of entrance. Thus, transaction counts at York are always lower than the level of traffic. The rate of growth in transactions is also lower than the growth in traffic because the number of Maine accounts for electronic tolling has steadily risen since its introduction in 1997.

Jacobs has run their model at between 1% and 2% rates of growth because this is a likely range.

Annual figures between 2008 and 2013 are low relative to historic data because of the recession. Traffic growth in the past two years has been robust. Volume so far in 2015 is the highest ever, about 4% higher than for 2014. Traffic for 2014 was up 3.4% over 2013. Jacobs has run their most recent model using a 1.4% annual growth rate, which is a conservative estimate.

No one concerned with this project would be well served if MTA had to return to York in just a few years for another major capital project to add high speed lanes to a relatively new plaza.

Please see responses to the comments by Ms. Loane in #11 below and the second comment by Mr. Lessard in #18 below.

6. Vicki Carr, 3 Woods Run, York

Substance of Comment

Ms. Carr lives in the vicinity of the property purchased by the MTA from the Morrison family. She said that the MTA should consider the fact that the town's selectmen had twice voted in

favor of not relocating the current toll plaza and that citizens of the town had voted the same way in a referendum. She believes that Jacob's Evaluation Matrix should have included a category for public opinion.

MTA Staff Response

The latest written communication from the Town to the MTA regarding this project is a letter of May 20, 2014, from the Town Selectmen recognizing that "certain technical and political impediments make adoption of this AET system unfeasible at this time." It continued that the York Board "remains steadfast in its belief that the current toll booth location is suitable for the location of an ORT system" and "encourage[d] the MTA Board of Directors to pursue engineering studies necessary to prove the viability of an ORT plaza at the current location".

The MTA did exactly that by hiring Jacobs in August of 2014. After a detailed look at the current toll location and other sites, Jacobs recommended in June of 2015 that MTA focus on the Mile 8.8 alternative because it would be safer, would have much less wetland and stream impact, would be less disruptive to travelers, toll collectors, and abutters, and would cost about $20 million less.

All governing bodies, like the MTA and the York Selectmen, are often called upon to make decisions in the best interests of all of the people they are charged to serve, even when public opinion is divided.

The primary purpose of the matrix is to assist the MTA Board and the regulatory agencies to select a proper location for the ORT plaza based on objective evidence. Because of the statewide and interstate nature of this project, MTA and the regulatory agencies must take a broad view of the public interest and abide by environmental laws.

Within the town of York are people who live close to the old plaza who are looking forward to having it closed. Public opinion even at the local level is divided on whether the plaza should be moved.

Opinion outside of York appears favorable to moving the plaza. For example, on July 21, 2015, the Portland Press Herald published an editorial entitled "*The time to move the York toll plaza is here*". It read, in part, as follows.

> "It's time to build an open-road tolling facility at a new location in York. This is the inescapable conclusion of studies that stretch back almost a decade, including exhaustive attempts to work with neighbors who want to keep the tollbooth where it is. . . . The current toll plaza, at the bottom of a hill in the center of a curve and sinking into a wetland is the wrong place for the facility. . . . The Maine Turnpike Authority is right to consider the neighbor's concerns, but ultimately this is an issue of statewide importance.

Although we decline to add a column on public opinion to the matrix, we are confident that the MTA Board and the regulatory agencies will be aware of the positions of all interested parties.

7. Joanne Rutherford, 191 Chases Pond Road, York

Substance of Comment - Ms. Rutherford asked if MTA had considered the loss in property value experienced by people who bought property next to the Morrison's property on Chase's Pond Road before the Morrisons sold the property to the MTA.

MTA Staff Response

The Morrison property consists of 32.8 acres of wooded and undisturbed land, including many acres of wetlands. It is hard to understand why ownership by the Turnpike is more detrimental than ownership by those with plans to develop an eight lot subdivision with associated driveways and a road.

8. Michael Walek, 271 Chases Pond Road, York

Substance of Comment

Mr. Walek asked the MTA to consider low impact lighting if and when a new toll booth was built. He said that the current toll booth location, in an area zoned industrial by the town, was a more appropriate location than mile 8.8, which was in a residential zone.

MTA Staff Response

Construction of a new plaza presents opportunities for lighting improvement as options are considered during final design. The current York toll plaza uses non-cut-off fixtures and high pressure sodium which emits a glow. Modern LED lighting provides a clean, focused light using fixtures that are fully "cut off", i.e. directed downward to minimize light escaping into the sky. They also use significantly less energy.

Where the lights will be located, how many and how high are matters to be determined in final design after a preferred site is adopted.

It appears from the zoning map of York that the basic zoning along each side of the Turnpike is the same at both Mile 8.8 and Mile 7.3. We see no industrial zones.

9. Patricia Benson, York

Substance of Comment

Ms. Benson stated that she assumed there were fewer crashes on the Tobin Bridge since that facility went to AET and asked if the MTA had considered the safety benefits of AET vs. ORT.

MTA Staff Response

We do not have crash data for the Tobin Bridge. ORT has significantly greater potential to reduce crashes than barrier plazas, and AET has potential to reduce crashes slightly more than ORT. New Hampshire has reported an 85% drop in crashes after the ORT plaza was constructed in Hampton.

As part of the MTA's analyses over the last 10 years, the relative safety benefits of AET and ORT were considered. The MTA Board determined on July 24, 2014, that AET is not feasible for the foreseeable future. If and when it does become feasible, the conceptual plaza design by Jacobs – with 3 ORT lanes in each direction – will allow a seamless transition to AET with few impacts to travelers or abutters.

10. Rep. Patty Hymanson (D-York)

Substance of Comment

Rep. Hymanson represents District 4. She thanked the MTA for providing this forum for public comment and urged the MTA to continue the process as an open and transparent one. She listed several issues she wanted the MTA to consider:

- *Light Pollution*
- *Property Values*
- *Noise Pollution*
- *Air Pollution*
- *Impact of Eminent Domain*
- *Neighborhood Character*
- *Ensuring that Construction allowed for Simple Transition to AET in the Future*

MTA Staff Response

Responses to each of her bulleted comments are set forth below.

- Light Impacts – This issue is premature for a site selection phase as the impacts are similar for all plaza locations. Construction of a new plaza presents opportunities to improve highway lighting with modern technology. For further information, please see the response to the comment by Mr. Walek in #8 above.

- Property Values – Please see the response to the comment by Mr. Don Rose in #2 above.

- Noise Impacts – As noted in the response to Mr. James O'Neil in #4 above, given the distance between the Turnpike and the proposed plaza, and the woods and topography between them, we expect conditions to be similar to what is experienced today.

- Air Emissions – This issue is premature as the impacts are similar for all plaza locations. However, an ORT plaza will greatly reduce air emissions because most vehicles will be free to pass through at highway speeds.

- Property Acquisition - The Mile 8.8 concept design shows the need for a slope on land owned by one abutter on the east side of the highway and for movement of a water line owned by York Water District on the east side. To what extent these will be necessary depends on further refinements to the final design if Mile 8.8 is the selected site.

- Neighborhood Character – If neighborhood character is reflected by local zoning, the zoning map of York indicates that zoning along each side of the Turnpike is similar at both the Mile 8.8 and Mile 7.3 sites. We see no industrial zones.

  If the type of land use is the concern, we note that on the Chases's Pond Road, uses are largely residential, although the York Public Works garage is located to the south, and a contractor and the York Water District are located to the north.

  If traffic through neighborhoods is the concern, we expect no additional traffic – during construction or thereafter – on either side of the Turnpike. With respect to the Chase's Pond Road, we expect traffic entering or leaving a potential employee driveway will be similar to the traffic that would have resulted from a fully developed 8 lot subdivision that was approved for the Morrison property.

  We expect no significant changes in sound, light or air quality affecting homes because the nearest homes are so far from the Mile 8.8 site.

- Ensuring that Construction allowed for Simple Transition to AET in the Future – If and when AET becomes feasible, it will be a simple matter to convert to AET under Jacob's conceptual plaza design.

The net impacts on all town residents and on all Maine citizens and Turnpike users are substantially more beneficial if an ORT plaza is built at Mile 8.8.

11. Kathleen Loane, 275 Chases Pond Road, York

Substance of Comment

Ms. Loane asked about the basis for three ORT lanes in each direction. She stated that HNTB had done a study on toll booth sizing for the Falmouth and New Gloucester ORT plazas and asked if a similar study had been done for York. She said that the Hampton Toll Plaza had 40% more traffic than York but only two lanes in each direction.

MTA Staff Response

At the regular MTA Board meeting on December 18, 2014, Jacobs presented its study on plaza sizing and justified the need for 6 ORT lanes (3 in each direction), 4 cash lanes northbound, and 5 cash lanes southbound, for a total of 15 lanes. Jacobs has prepared a Technical Memorandum documenting this analysis, which reflects the latest traffic data. It is available online.

The ORT plaza in Hampton, NH was a retrofit of an existing plaza in good condition, as opposed to a completely new plaza replacing one that is deteriorating and substandard. From a design perspective, the projects are quite different.

National design guidelines advise that new plazas (as opposed to retrofits) should have the same number of ORT lanes as the number of mainline approach lanes to minimize merging and weaving. This plaza size is also justified by operational needs for redundancy if a lane has to be taken out of service due to weather, accident, or repairs.

It would not be good planning to count on returning to York for another major construction project to add high speed lanes in a few years to a relatively new ORT plaza.

Plaza sizing is a function of multiple variables including projected traffic growth and the mix of payment methods between E-ZPass and cash. Other considerations include design guidelines for new plazas, desired customer service levels, frequency of tolerated backups, and needed redundancy for lanes out of service.

Jacobs has run their model at between 1% and 2% rates of growth because this is a likely range. Annual figures between 2008 and 2013 are low relative to historic data because of the recession. Traffic growth in the past two years has been robust. Volume so far in 2015 is the highest ever, about 4% higher than for 2014. Traffic for 2014 was up 3.4% over 2013.

Jacobs has run their most recent model using a 1.4% annual growth rate. At an even more conservative 1% rate, the Jacobs model predicted that the conceptual plaza design size should include 6 ORT lanes (3 in each direction) by 2031, just 12 years after the new plaza would be completed if construction commences in 2017. The plaza design also includes 9 cash lanes (4 northbound and 5 southbound), for a total of 15 lanes.

At a 1.4% growth rate, the Jacobs model predicts that 6 ORT lanes will be needed even earlier, by the year 2024, just 5 years after project completion. For more discussion on growth rates, please see the responses to the comment of Mr. Loane, #5 above, and the second comment from Mr. Lessard, #18 below.

Regarding E-ZPass usage, the current E-ZPass market share at York is approaching 70%. As E-ZPass rates increase, the need for ORT lanes increases. Despite aggressive E-ZPass promotion efforts, the growth in this market share is slowing, and the volume of cash transactions continues at substantial levels for 2015. The Jacobs model has run scenarios at 75%, 80%, and 85% E-ZPass rates. Six ORT lanes are justified in all of these scenarios.

12. Mary Collier, 195 Chases Pond Road, York

Substance of Comment

Ms. Collier questioned the premise that construction at the mile 8.8 site would be $20 million less than construction at mile 7.3. She said that she believed the cost of the Morrison property purchase and other items had not been included and asked the board to compile a more complete estimate before making a decision.

MTA Staff Response

Ms. Collier is correct that the $925,000 cost of the Morrison property was not part of the estimate for the site at Mile 8.8; nor were costs of acquisition considered in any of the site evaluations. Such costs are often not known at the point of site evaluation and it is important to conduct an "apples-to-apples" comparison for purposes of site selection.

13. Dick Bilden, 9 Lock Lane, York

Substance of Comment

Mr. Bilden said that he believed Jacobs Engineering was to approach this study with a "clean slate" but had instead seemingly based much of their work on possibly flawed studies previously done by HNTB and CDM Smith.

MTA Staff Response

Jacobs did approach this project with the instruction to go wherever the facts, standards, and environmental rules led them. They specifically were not required to follow the previous recommendations of HNTB. The fact that two expert engineering consulting firms end up with similar recommendations does not mean either study is flawed. In fact, one recommendation would be more often viewed as confirming the other.

As noted above, Mr. Bilden was a member of a designated team from York that was created to give York on-going access to Jacobs information. Special workshops with MTA staff, Jacobs, and this York team were held to review environmental and engineering information. They often got information at the same time as the Board. During this process, we have asked for any existing or anticipated analyses or reports that contradict those of our expert consultants. To date, we have received none. No significant concerns regarding Jacobs's work were raised until after Jacobs recommended further evaluation of the Mile 8.8 site in June of 2015.

Jacobs's work, as confirmed by others. is reliable for the purpose of selecting a preferred site.

14. Rev. Kari Pritchard, Chase's Pond Road, York

Substance of Comment

Reverend Pritchard said that CDM Smith had concluded that AET was not feasible in York "for the foreseeable future" but had not defined what "foreseeable future" meant.

MTA Staff Response

CDM Smith was retained by the MTA to analyze the impacts if AET were to be implemented. Their report shows a forecast out to the year 2030. Upon checking with CDM Smith to prepare this response, we understand that additional analyses to the year 2035 were also performed, and the projected impacts were not significantly different from those for 2030. Surcharges and diversion of traffic would still be challenges.

Regarding the AET question in general, MTA cannot convert the York plaza alone to AET without introducing a conflict in business rules and tolling protocols. We would need to convert all 19 toll plazas on the Turnpike.

In its letter of May 20, 2014, the Town of York acknowledged that the adoption of AET was not feasible. The MTA Board, which has the legal and fiduciary duty to make this judgment, also determined AET was not feasible on July 24, 2014. Thus the Town and the MTA were essentially aligned on this question.

Despite MTA's extensive study of this issue, some in York continue to argue that AET should be adopted due to advancements in toll technology. However, it is the nature of the York plaza, the Turnpike customer base, the collection challenges, and other factors – not technology -- that are the primary reasons why ORT is the right choice for this location. Those issues are not predicted to change significantly in the foreseeable future.

Recent developments support this determination in favor of ORT. Cash volume at York has leveled off and persists at levels greater than one-third of total traffic volume; New Hampshire has determined that ORT is the proper solution at several locations in their state; and the AET experiment in Massachusetts is experiencing challenges including public pushback on toll penalties on the Tobin Bridge leading to their suspension.

15. Don Lawton, Whippoorwill Neighborhood, York

Substance of Comment

He said that in the worksheet compiled by Jacobs Engineering the category "Abutter Impacts" was "green" for mile 8.8, meaning minimal impacts, he presumed. Mr. Lawton stated that he believed this category should be "red" for the mile 8.8 due to impact on abutters' property values.

MTA Staff Response

See the response to Mr. Rose, #2 above.

15. Suzie Lawton, Whippoorwill Neighborhood, York

Substance of Comment

Mrs. Lawton asked if there had been any studies done on the sound, light or air pollution that would result from construction of the plaza at mile 8.8.

MTA Staff Response

Please see our responses to the comments made by Mr. O'Neil, #4 above, Mr. Walek, #8 above, and Rep. Hymanson, #10 above.

16. Dave Linney, York

Substance of Comment

Mr. Linney asked if relocation of the York Water District's water line at mile 8.8 had been included in the preliminary construction estimates for that site. He asked if the cost of ledge removal had been included and said he felt that the amount of ledge that would have to be removed at that site was considerable. Mr. Linney said that he could see the light from the existing toll booth at his house now, even though it was a mile away. He asked if new information concerning AET that might have become available in the year since CDM Smith's report had been or would be considered.

MTA Staff Response

The cost of the relocation of the water line does not have a specific line item in the cost estimate for Mile 8.8, but it is well within the contingency amount provided. All sites at this phase have cost elements that are determined during final design after site selection.

The cost of ledge removal has been included based upon conceptual quantities. Test borings will further refine the estimate.

Discussion of lighting is premature for a site selection phase because the impacts are similar for all plaza locations. Measures to avoid and minimize impacts will be considered as part of the final design process after a preferred site is selected. Please see our response to the comments made by Mr. Walek, #8 above.

Regarding new information concerning AET, please see our response to the comment from Rev. Pritchard, #14 above.

17. Sen. Dawn Hill (D-York)

Substance of Comment

Senator Hill said that there was a big people factor involved. She was very proud of her constituents, who she described as taxpayer, tollpayers, and Mainers who have every right to be listened to. She urged the board to continue to work with them, and said this process should be looked at as a partnership rather than as a confrontation. She asked how the board intended to document the comments received.

MTA Staff Response

We agree with Senator Hill that her constituents deserve to be listened to. The history of this project demonstrates that we have done so.

We also agree with Senator Hill's sentiment to work collaboratively moving forward. As we move to permitting and final design at a preferred site, we will continue to work to mitigate the concerns of nearby residents.

This memorandum documents the comments received and MTA's response.

18. Dean Lessard, York Public Works Director, York Resident

Substance of Comments

Mr. Lessard asked that the MTA delay its decision on moving forward until further studies could be done. In particular, he said that the MTA should consider the crash reports individually, to get a sense of the type of accidents currently occurring, and said that he believed many of the accidents recorded at the present site would also occur at another location where a toll booth was present. He also asked what design year the MTA was using for the new toll plaza and what kind of study had been done to determine projected future volumes. Mr. Lessard proposed that the matrix developed by Jacobs be reconfigured, with "weighted" categories, with safety as the top tier, environmental and abutter impacts the second tier, and engineering considerations at the bottom.

MTA Staff Response

Given that Mr. Lessard was the only Town official to comment on September 3, and given that he asked for a delay to allow for more study, a reiteration of some process information may be helpful before responding to his three comments. Mr. Lessard was a member of a designated team from York that was created to give York on-going access to Jacobs information. Special workshops with MTA staff, Jacobs, and this York team were held to review environmental, plaza sizing, and engineering information. They often got information at the same time as the Board. During this process, we have asked for any existing or anticipated analyses or reports prepared for or on the behalf of the Town of York that contradict those of our expert consultants. To date, we have received none.

We understand that on October 19, 2015, the Town Selectmen decided to take the lead role in representing the local position, to ask a consultant working for the Town to complete his work, and to accept $13,000 in privately raised funds from Think Again to hire a lawyer.

For reasons explained in our response to the comment from Rev. Pritchard, #14 above, revisiting the AET question is unwarranted.

We again renew our request for any new written technical information that contradicts the site alternatives analysis work by Jacobs. The MTA has provided the Town with virtually real time access to Jacobs's information. It is only fair to share any conflicting technical information. We continue to seek a fact-based collaboration, as opposed to a legal confrontation.

Responses to each of Mr. Lessard's three comments are set forth below.

First, regarding the historical crash data, the individual crash records were examined as part of the crash analysis. As set forth in our response to the comment by Emily Rose, #3 above, this examination showed that there were 4 times more crashes near the existing plaza than near Mile 8.8. We acknowledge that there is no definitive means to determine the number of crashes that are attributable to the toll plaza or to the nearby interchange. The safety and weaving issues at the existing plaza are a multi-faceted problem that is a function of several characteristics including its close proximity to the interchange at Exit 7, the overpass, and geometrics.

To be sure, some of the crashes associated with the Mile 7.3 site are likely attributable to the existence of the barrier plaza, which can cause rear-end crashes. Some of those crashes would "move" to any new toll plaza location. However, the number of plaza-related crashes will drop significantly at a new ORT plaza because toll booths are removed for E-ZPass customers and cash paying customers are safely separated to the right. The mainline plaza in New Gloucester had been a high crash location. After ORT was installed, the number of toll plaza related crashes dropped from 6 in 2011 to 1 in 2014. New Hampshire reported an 85% drop in crashes after the ORT plaza was constructed at Hampton, N.H. Although we agree that some of the crashes will "move" to any new plaza, the number will be greatly reduced.

More importantly with respect to site selection, there is little doubt that some of the crashes associated with the Mile 7.3 site were the result of weaving caused by the close proximity of the interchange at Exit 7, the closeness of an overpass, and other geometric deficiencies. That is why design standards contain special provisions for proximity to interchanges and overpasses, and for horizontal and vertical geometry. Although historical crash data alone cannot be a predictor of future crashes, it is relevant as a factor in the selection of a suitable site.

Even if one ignored the "Historical Crash Data" column (#5) on the Jacobs Evaluation Matrix, the Mile 8.8 site is superior to the Mile 7.3 site, as can be seen from the following chart.

From Jacobs matrix

York Toll Plaza Replacement Project
Comparison of MM 8.8 and MM 7.3 Sites

Evaluation Factor	Jacobs Matrix Col. #	MM 8.8*	MM 7.3	Comments
Engineering / Safety				
Horizontal Alignment	1	On-straight	On curve	MM 8.8 is superior to MM 7.3 from an engineering/safety perspective.
Vertical Align. - Cash Plaza on Crest	2	Good	Average	
Vertical Align. - Approach Grades	2	Average	Poor	
Sight Distance	3	Good	Average	
Separation from Interchange (> 1 mile)	4	Yes	No	
Historical Crash Data	5	Non HCL	HCL	
Geotechnical (soils)	6	Ledge	Clay	
Environmental				
Total Wetland Impact (acres)	7	1.0	5.5	MM 7.3 would impact over 5 times more wetlands.
Wetland Relative Function and Value	9	Average	High	Wetlands at MM 7.3 are higher value.
Stream Impacts (feet)	10	80	360	
Vernal Pool Impact - #	11	2	1	
Vernal Pools of DEP Significance - #	12	1	0	
FEMA Floodplain Impacts (acres)	13	0.3	3.0	
# Potential E/T Species Habitat Impacts	15	3	1	Long-eared bat potentially at all sites.
Abutter Impacts				
Potential R/W Impacts (acres)	16	0.3	0.1	Either option requires minimal land acquisition.
Houses Within 1000 ft	18	4	47	No houses displaced by either option.
Logistics During Construction				
Constructability	19	Conventional	Difficult	MM 8.8 would take significantly less time to build.
Safety of Toll Collectors	20	No Impacts	Caution	Extra precautions required to assure safety.
Traveler Impacts	21	Minor	Intermediate	Substantial disruption to travelers at MM 7.3.
Cost / Financial				
Initial Capital Cost	22	$40.8	$60.4	MM 8.8 would cost almost $20M less.
Revenue Loss During Construction	23	Minimal	Significant	Diversion due to traveler disruption.
Life Cycle Cost / Operations	24	Typical	Not Typical	Settlement not eliminated, more frequent paving.

*Recommended for further design and analysis.

The Mile 7.3 site is inferior to the Mile 8.8 site based upon almost all criteria and is inferior to all the other sites analyzed.

Regarding the design year and traffic volumes, we are using a 25 year design life for the plaza, given the project purpose and the fact that this is a completely new plaza replacing an aging, substandard plaza – not a retrofit of an existing one. Regarding traffic growth and plaza sizing, please see our responses to the comments by Mr. Loane, #5 above, and by Ms. Loane, #11 above.

Regarding Mr. Lessard's suggestion for a tiered or weighted matrix, established federal and state environmental processes for alternative site analyses do not support this suggestion. The regulatory agencies require non-weighted and non-factored data for their consideration when determining practicable alternatives for permits.

We agree with Mr. Lessard that public safety is a primary concern. However, we reject his assertion that engineering considerations should be a lower tier criteria. Engineering standards and guidelines promote public safety and efficient operations, and they are inextricably intertwined with the safety of the estimated 30 million people who will pass through the York toll plaza every year. Although we understand that smaller projects with only local impacts can sometimes be tailored to meet local needs and desires, this project calls for building a new interstate highway toll plaza of statewide and national significance. Accordingly, it needs to meet national engineering standards and guidelines to the greatest extent practicable, consistent

with environmental rules. These engineering standards and guidelines can be met at the Mile 8.8 site. They cannot be met at Mile 7.3.

Regarding engineering and safety considerations as a whole, the bottom line is this: Professional Civil Engineers having substantial experience with toll facilities would agree that an ORT plaza located on a straight section of highway at the crest of hill away from interchanges and overpasses will be safer than an ORT plaza located on a curve, at the bottom of a hill, near an interchange and overpass -- all other factors being equal. This conclusion also aligns with common sense. More study will not change this safety calculus.

In this case, we do not have a conflict between safety, the environment, and other factors. The Mile 8.8 site is not only one of the safest, it also has low environmental impacts and it costs less. The net local impact on York residents will be reduced as well, as noted in our response to Mr. O'Neil, #4 above.

More study is not necessary to select a preferred site.

19. Marshall Jarvis, York Harbor

Substance of Comment

Mr. Jarvis stated that the vicinity of the current toll booth on the southbound side had not been classified as a high crash location in the last ten years.

MTA Staff Response

Please see the responses to the comments of Emily Rose, #3 above, and the first comment of Dean Lessard, #18 above.

20. Todd Bezold, Chases Pond Road, York

Substance of Comment

Mr. Bezold said that he had been told noise and light pollution studies had not been done for the Mile 8.8 option. He said that a new toll booth would add ozone in an area where ozone was already too high. He stated that southbound traffic already backs up to Mile 9.2 on some Sundays and that putting the toll booth further north would cause the backup to stretch further north. He asked how the snow from snow plowing activities would be disposed of or stored. He asked about how the access road would be constructed, considering the vernal pools on the Morrison property. He asked if the MTA had considered the impact that a septic system for employees would have.

MTA Staff Response

Regarding light, noise and air impacts, please see our responses to the comments made by Mr. O'Neil, #4 above, Mr. Walek, #8 above, and Rep. Hymanson, #10 above.

Regarding traffic backups, volumes during busy summer travel days can back up traffic. However, the new ORT plaza proposed by Jacobs will be much more efficient than the existing barrier plaza. Backups will be significantly less. The new plaza will not eliminate traffic delays caused by constraints south of the plaza including the Piscataqua River Bridge and interchanges in New Hampshire.

Regarding snow and ice control, those maintenance activities will be performed in a manner similar to what is done along the entire Turnpike. No special technical challenges are anticipated. Any such issues will be fully considered as necessary during final design.

Regarding the potential access road, it will avoid all wetlands and vernal pools and incorporate appropriate Best Management Practices (BMPs) to manage stormwater. No special technical challenges are anticipated.

The septic system will be considered in final design. Any system will comply with the Maine Subsurface Wastewater Disposal Rules and all applicable inspection requirements. No special technical challenges are anticipated.

21. Joan Jarvis, York Harbor

Substance of Comment

Mrs. Jarvis urged the board to delay any further decisions until it had more information and the questions raised today during this public comment period had been answered.

MTA Staff Response

This memorandum documents the comments received and MTA's response.

The last 10 years of study have generated more information to select a preferred alternative than decision makers normally have at this phase of a project. That information has been consistent over time and between different expert consultants. We do not know how more study or information would help in the selection of a preferred site.

Summary of Comments at the September 3 MTA Board Meeting
By Joan Jarvis, York Beach, Maine
(Received By MTA Board Secretary, 9/8/15)

1. *Realtors are required to provide full disclosure on a property to prospective buyers. You did not disclose your option to purchase the Morrison property, and at least one young couple*

made a major financial decision to buy a home adjacent to the Morrison property without the knowledge of potential impacts.

Regarding property values, please see our responses to Numbers 2, 4 and 7 above (all # references refer to the number of the MTA summary of comments above, not the numbers in the Jarvis summary).

Years ago, the Morrisons approached MTA about purchasing their property. Within a few weeks of entering into an option with them, a memorandum providing notice of it was recorded in the York County Registry of Deeds as a matter of public record. The sale, three years later, was also a matter of record and public discussion.

The Morrison property consists of 32.8 acres of wooded and undisturbed land, including many acres of wetlands. It is hard to understand why ownership by the Turnpike is more detrimental than ownership by those with plans to develop an eight lot subdivision with associated driveways and a road.

2. *We believe that the Jacobs decision matrix fails to prioritize some of the most important subjects. First should be safety, second should be abutter impacts and third should be engineering considerations.*

   MTA Response – Please see our response to the third comment from Mr. Lessard, #18 above. We note that environmental considerations are also important to regulators.

3. *The Whippoorwill subdivision homes are assessed on the tax records at over $40 million. If moving the plaza to MM 8.8 reduces their values by a minimum of 10%, abutters face a $4 to $5 million property loss.*

   MTA Response – Please see our response to the comment by Mr. Rose, #2 above.

4. *At the August 3rd Workshop we were told that no pollution studies have been conducted for air, noise and light pollution at MM8.8. Before taking a vote to move the plaza, air, noise and light pollution studies should be done.*

   MTA Response – Please see the Background section above, and our responses to the comments by Mr. O'Neil, #4 above, Mr. Walek, #8 above, Rep. Hymanson, #10 above, Mr. Linney, #16 above, and Mr. Bezold, #20 above.

5. *Before the Board makes a final decision, a study should be commissioned to show the Toll Plaza Sizing Analysis for the potential new York Plaza. This Traffic Volume and Lane Analysis should reflect a realistic evaluation of the actual traffic growth and a realistic number of lanes to handle the traffic.*

MTA Response – Please see our responses to the comments by Mr. Loane, #5 above and Ms. Loane, #11 above.

6. *At the August 3rd Workshop we were told that no pollution studies have been conducted for air, noise and light pollution at MM 8.8.*

   Currently York County in 2015 has slipped from a "D" to and "F" rating for ozone level, according to the American Lung Association 2015 report. York County 70 ppbv for ozone, borderline out of compliance. Ozone affects the quality of health for the elderly and even healthy people working outside, making it difficult to breath. There is a direct affect upon child development with families living two kilometers from a highway. Ozone levels are reduced with less traffic congestion. With the introduction of EZ-pass ozone levels drop dramatically. Open road tolling still creates highway obstructions and congestion. All electronic tolling would remove congestion and reduce ozone pollution. Today the traffic backs up from the tollbooth to mile 9.2. Placing the tollbooth at 8.8 will extend this line of traffic further up the highway, exposing more areas to increased air pollution. The sound of the highway is deafening throughout the day at mile 9.2 as trucks throttle in order to move up hill. Down shift throttling to pass through the new toll booth will not reduce the current noise. During the winter the current practice for snow removal is to dump the salt and dehydrate laden snow off the roadside and into the wetland surrounding the toll booth.

   MTA Response – An ORT plaza – including the 6 ORT lanes and 9 cash lanes – will reduce backups. Please see our responses to the comments by Mr. O'Neil, #4 above, Mr. Walek, #8 above, Rep. Hymanson, #10 above, and Mr. Bezold, #20 above.

   Will this also be a common practice in a new watershed that is not contaminated by road salts? Will there be studies on the affects of road salt pollution with the new access roads built across the Morison property, where there are vernal pools present?

   MTA Response – Please see our response to the comment by Mr. Bezold, #20 above.

   Will the MTA abide by the septic zoning laws set forth by the town of York? These laws are much stricter for the Cape Neddick River watershed.

   MTA Response – Please see our response to the comment by Mr. Bezold, #20 above.

   In addition to the affects of noise and particulate pollution on health, light pollution has a negative impact of the amphibian physical and hormonal development and maturation, as well as foraging activity. Vernal pools adjacent to mile 8.8 where there are no lights could show a reduction in local fauna.

   MTA Response – All relevant site-specific environmental issues will be considered after a site is selected during the permitting and final design phase.

7. *At the August 3rd, and previous workshops it was felt that numerous Jacobs conclusions were based on previous HNTB and CDM Smith summaries, which contained significant errors and flawed premises.*

   MTA Response – Please see our response to the comment by Mr. Bilden, #13 above.

8. *Jacobs Engineering, which recommends MM 8.8, indicates on its Matrix, that there would be no abutter impact if the Plaza is built at MM 8.8. Local real estate agents have told the Whippoorwill Homeowners Association they could face a 10% drop in their values. Jacobs has this as green on their Matrix…This should be changed to red.*

   MTA Response – Please see our responses to the comments by Mr. Rose, #2 above, and Mr. Lawton, # 15 above.

9. *You have stated that MM 8.8 will cost $20 million less than MM 7.3 to construct a new toll plaza. But, we learned that such items as the Morrison property purchase were not included and that other items will be further studied before costs will be known. No vote should be taken to proceed at MM 8.8 without a clear understanding of the total costs.*

   MTA Response – Please see our response to the comment by Ms. Rutherford, #7 above.

10. *We learned, after the August 3rd Workshop, that the MTA was unaware that York's water supply runs parallel to the turnpike at MM 8.8 and will have to be relocated. It makes better sense to meet with the York Water District to identify the problems and costs before proceeding to vote on relocating to MM 8.8.*

    MTA Response – Please see our response to the comment by Mr. Linney, #16 above. The water line relocation does not pose any special technical challenges. Discussions with the Water District will occur if the Mile 8.8 site is selected.

11. *Have you investigated using environmentally friendly low impact lighting? In 1998 Lisbon, built the then largest bridge in Europe over the Tagus River. A group of fishermen were going to be impacted by the bridge and its overhang. As we know, aquatic and land life are affected by artificial lighting. The lighting on the Vasco da Gama was tilted on the bridge reducing the affects of artificial light on the foraging and spawning activity of the fish. Once again are you planning to incorporate a design similar to this; so as to not impact the surrounding environment.*

    MTA Response – Please see our response to the comment by Mr. Walek, #8 above.

York residences voted 90% against moving the toll to prevent impact on an undeveloped rural area of their town.

MTA Response – Please see our responses to the comments by Ms. Carr, #6 above, Mr. Walek, #8 above, and Rep. Hymanson, #10 above.

12. *In looking at the traffic volume data that you provided, in 2004 the total volume was 15,560,000 vehicles. In 2014 the total volume had dropped to 13,860,000 vehicles. The drop in volume over 10 years of 1,700,000 vehicles, or 11%.*

Your study began in 1998 – during those 16 years the traffic has increased from 13,490,000 to 13,859,000 or 1/5 of 1% per year, thru 2 economic downturns. In the material that you gave us – you use 1% as the annual growth rate, 5 times the actual growth.

Please see our response to the comment by Mr. Loane, #5 above.

13. *According to the MDOT data that you provided, there were 41 crashes at MM 8.8 and 49 crashes at MM 7.3. Given that a barrier is at MM 7.3 that site may be safer that MM 8.8.*

MTA Response – Please see our responses to the comments by Ms. Rose, #3 above, and Mr. Lessard, #18 above.

14. *It was stated at the August 3rd Workshop that public input was not included on the decision matrix because it cannot be measured quantitatively. The York Board of Selectmen has twice voted 5 to 0 to rebuild the plaza at its current location and the May 2008 York citizens referendum vote of over 90% to not relocate the York Toll Plaza. That should be included in the Matrix as a "red" area.*

MTA Response – Please see our response to the comment by Ms. Carr, #6 above.

15. *The CDM Smith report states that AET is not feasible in the foreseeable future. Without being able to define the "foreseeable future", you should not be making a decision on the toll Plaza.*

MTA Response – On July 24, 2014, the MTA Board determined that AET is not feasible on the Maine Turnpike or in the best interest of the MTA or Turnpike users for the foreseeable future. Please see the Background section above, and our response to the comment by Rev. Pritchard, #14 above.

16. *Based upon the questions that have been asked today, are you as a Board convinced that you have sufficient, accurate information to make a decision to proceed with Relocation of the York Toll Plaza to MM 8.8, and are you willing to vote on only design concepts?*

MTA Response – The work to date is extensive and reliable for the purpose of selecting a preferred site. Final design comes after site selection on all such projects. The question of whether the Board needs additional information or time to select a preferred location is ultimately a question for the Board. Please see the Background section above, and our response to the comment by Ms. Jarvis, #21 above.

17. *Senator Dawn Hill said, "Certainly there are engineering reports, but there's a big people factor here, too. The people here today are taxpayers, are toll payers but you know what? They are Mainers. They have every right to speak and they have every right to be listened to."*

Please see the Background section above, our response to the comment by Sen. Hill, #17 above.

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APPENDIX 1F

RECOMMENDED ALTERNATIVE MEMO, JACOBS, 6/22/15

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JACOBS®

343 Congress Street
Boston, MA 02210 USA
617.242.9222 Fax 617.242.9824

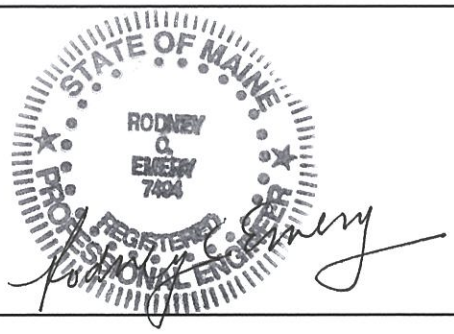
Memorandum

Date: June 22, 2015

To: Maine Turnpike Authority

From: Rodney Emery, PE, PTOE, FITE

Subject: York Toll Plaza Replacement Project
Recommended Alternative



Jacobs Engineering Group was retained by the Maine Turnpike Authority (MTA) to review locations for a replacement of the existing toll plaza currently located at approximately mile 7.3 on the Turnpike. An extensive review of the corridor yielded a series of alternative sites between mile 8.1 and 13.2 including a site near the existing toll plaza location in York that warranted further evaluation. A significant effort was expended to gather updated environmental data in the form of on the ground surveys of wetlands, vernal pools and streams as well as update information on floodplains, cultural/historical resource impacts and potential threatened/endangered species habitats. A series of evaluation criteria was developed, in collaboration with staff at the Turnpike, that consisted of Engineering/Safety, Environmental, Abutter Impacts, Logistics during Construction and Costs/Financials categories. A rating system was developed for each category of impact which was used to compare the alternatives. The alternative sites north of the existing toll plaza were selected based on engineering and environmental criteria and are located at approximately mile 8.1, mile 8.8, mile 10.0 and mile 13.2. Based on the work to date, this evaluation matrix supports the following recommendation.

Each of the alternatives had some categories of impacts that had similar results as the recommended alternative but overall we believe that the net positive attributes of alternative mile 8.8 make it the desirable choice for further study and evaluation. Clearly, the alternative that locates the new plaza at approximately mile 8.8 has superior Engineering and Safety benefits while minimizing environmental and abutter impacts compared to a reconstruction of the toll plaza in the vicinity of mile 7.3. The reconstructed toll plaza at mile 7.3 site would still have less than ideal geometric and safety characteristics because of the horizontal and vertical curves leading to the toll plaza and the poor safety record that has classified the approaches and departure zones as a high crash location according to Maine DOT historic records. Based on our teams' field investigation and research efforts, the wetland and stream impacts for the existing mile 7.3 alternative compared to the recommended location, range from 3 to 5 times higher. Additional benefits of the recommended alternative consist of less disruption to the travelling public, reduced construction time, and significant cost savings in the range of $20 million.

Recommendation

Jacobs recommends continuation of the development and refinement of alternative for Mile 8.8 to continue pre-permitting activities and design refinement of this alternative.

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APPENDIX 1G

MTA STAFF RECOMMENDATION FOR THE PREFERED SITE

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Memorandum

To: Maine Turnpike Authority: Daniel Wathen, Chair, James Cloutier, Vice Chair, Gerard Conley, John Dority, Robert Stone, Freeman Goodrich, Karen Doyle, MaineDOT

From: MTA Staff: Peter Mills, Executive Director, Doug Davidson, Chief Financial Officer, Peter Merfeld, P.E., Chief Operating Officer, Bruce Van Note, PLS, Esq., Dir, Policy and Planning, Ralph Norwood, P.E., Project Manager, Sara Zografos, Planning and Permitting

Re: Staff Recommendation for the Preferred Site for the New Toll Plaza in York

Date: November 16, 2015

Before the Board is the question of choosing a preferred alternative for permitting and final design of a replacement toll plaza at York. Jacobs Engineering has recommended the site near Mile 8.8, a recommendation that is consistent with the previous analysis by HNTB, the MTA's General Engineering Consultant.

MTA staff recommends that the Board select the Mile 8.8 site as its preferred alternative. It is one of the safest sites; it meets all applicable design standards and guidelines; it has low environmental impacts. It has limited effect on very few abutters, except for those who will benefit from closing the existing plaza at Mile 7.3. It will be straightforward to construct and will impose few challenges for travelers or toll collectors. It will cost less to build and will minimize revenue losses during construction.

Background

The York Toll Plaza, the gateway to Maine, is one of the most important elements of transportation infrastructure in the State. It generates about $56 million in tolls per year (about 45% of all MTA revenue) and is a central reason why two-thirds of all MTA tolls are paid by out-of-staters.

The existing plaza is old and must be replaced. Originally designed in the 1960's as a temporary barrier plaza for all vehicles to stop, take tickets and pay tolls, its approaches are sinking into clay soils. It has a leaking tunnel full of electrical components. Its present suite of outdated toll equipment is held together with used parts. The plaza is located on a curve at the bottom of a hill near an interchange and an overpass. This raises safety concerns and contributes to an environment of unnecessary noise. It is located on poor soils, surrounded by wetlands. It does not provide highway speed electronic tolling that travelers and freight haulers now expect and deserve. The MTA has been seeking to deliver this project for over ten years.

In the early phase of MTA's studies, extensive expert analysis by HNTB supported replacing the current barrier plaza with a new open road toll at any of several locations north of the current plaza, including one at Mile 8.7.

In 2011, MTA decided to take a fresh look at critical project issues such as toll collection systems (ORT vs. AET), plaza sizing, and plaza locations. MTA retained CDM Smith, a nationally known toll consultant, to analyze the impact and consequences of implementing AET.

On July 24, 2014, after three years of study, the Board accepted the recommendation of staff that AET is not feasible on the Maine Turnpike. Nor would it be in the best interests of Turnpike users. Among other things, it would require non E-ZPass toll rates at York initially to double from $3 to $6 to compensate for lost revenue from toll violations and from diversion, estimated at 3,400 to 5,500 vehicles per day. This would further snarl already congested roads like Route 1.

In August 2014, MTA retained Jacobs, another experienced engineering consultant, to obtain more detailed environmental information, reconsider ORT plaza sizing, take a fresh look at options near the current plaza at Mile 7.3, and analyze other plaza locations. In June 2015, after a detailed look at the current plaza site, Jacobs recommended focusing on Mile 8.8 for further evaluation.

Throughout the years, MTA staff has fully engaged the Town of York and its residents. Since the project was first proposed over 10 years ago, MTA staff has met with York officials and residents dozens of times, including about 14 times since Jacobs was retained. On September 3, 2015, 21 York residents expressed concerns at the Board's regular meeting. In a separate Memorandum to the MTA Board, MTA staff has responded to each comment. MTA will continue to listen to concerns arising in York, including those who will benefit from closure of the old plaza at Mile 7.3.

Although local opinions are important, MTA's legal and fiduciary obligations extend to all 1.3 million residents of Maine and to Turnpike customers who make 62 million Turnpike trips each year. It is the Turnpike's obligation to seek a site that is safe, affordable, and least disruptive to travelers, abutters, toll collectors, and the environment.

Mile 8.8 is that site. MTA staff concur with previous expert analyses and recommendations by Jacobs and HNTB, and recommend that the Board do so as well.

Reasons for Recommending the Mile 8.8 Site

Voluminous technical memos, reports, maps, and charts support the selection of the Mile 8.8 site as a preferred alternative. Perhaps the most useful document is the final Evaluation Matrix and its supporting Technical Memorandum dated October 13, 2015, prepared by Jacobs.

MTA staff recommends the Mile 8.8 site because it will be safe and will have low environmental impact with negligible effect on abutters. It will be more straightforward to construct, will reduce impacts on travelers and toll collectors, and will cost less than other sites.

1. Overview of All Sites. The Evaluation Matrix and supporting Technical Memorandum describe commonly accepted criteria for such an alternatives analysis. The matrix identifies 25 evaluation criteria grouped in five categories: (a) Engineering/Safety, (b) Environmental, (c) Abutter Impacts, (d) Logistics During Construction, and (e) Cost/Financial. Each factor is defined. To provide a convenient comparison, relative ratings are color coded. Although not

determinative, a summary of these site suitability rankings for each of the five sites analyzed by Jacobs is illustrative.

York Toll Plaza Replacement Project
Summary of Site Suitability Rankings
From Jacobs matrix

Approximate Location	# Green Ratings	# Yellow Ratings	# Red Ratings	Comment
MM 7.3	4	13	8	Near existing plaza
MM 8.1	11	13	1	
MM 8.8	15	10	0	Recommended for further evaluation
MM 10.0	11	11	3	
MM 13.2	15	7	3	

Two observations are apparent from this chart. First, the Mile 8.8 site has the highest number of green ratings (tied with one other site) and has no red ratings. Second, the Mile 7.3 site – with 4 green and 8 red ratings – is inferior to any of the other four.

2. Engineering/Safety. Mile 8.8 is one of the safest sites for a new ORT plaza. It meets national engineering standards and guidelines and is consistent with the Turnpike's obligations under environmental rules. There will be less braking, weaving, and confusion at Mile 8.8, and thus fewer accidents and less noise. All lanes will be used more fully, thus easing congestion. Regarding engineering and safety considerations as a whole, the bottom line is this: Professional Civil Engineers having substantial experience with such facilities would all agree that an ORT plaza located on a straight section of highway at the crest of a hill away from interchanges and overpasses will be safer than an ORT plaza located on a curve, at the bottom of a hill, near an interchange and overpass, if all other factors are equal. Other sites also have favorable engineering or safety ratings, but they have other less desirable impacts - such as the displacement of a home.

3. Environmental. The Mile 8.8 site has low environmental impact. Applying the conceptual plaza design to field mapping of wetlands and other environmental features yields anticipated impacts to only one acre of wetland, two vernal pools, and 80 feet of stream. These are low for a project of this significance, and will likely be less after mitigation during final design. Environmental rules require regulators to select the least environmentally damaging practicable alternative (LEDPA). MTA staff firmly believe that Mile 8.8 is that site.

4. Abutter Impacts. Although questions from people who live near any site are to be expected, the reality is that impacts to abutters and nearby residents at the Mile 8.8 site are the lowest of

all the five sites examined. The site will not displace any homes. There are only four houses within 1,000 feet of the project limit lines and two of these are at the outer edge of this perimeter. There is one house to the east in the Whippoorwhill subdivision and three houses to the west on the Chase's Pond side.

Although questions from nearby residents are expected, it is important to consider net local impacts. Moving the plaza to Mile 8.8 will lead to demolition of the existing plaza at Mile 7.3. Vehicles will no longer need to brake for a plaza there, nor accelerate as they depart. An ORT plaza, by design, produces less noise and fewer emissions. The result will be fewer impacts overall and fewer residents affected.

5. Logistics During Construction. The project at Mile 8.8 will be straightforward to build and take less time. Like most of the sites considered – other than Mile 7.3 and possibly Mile 8.1 – construction phasing is easier and disruption to travelers and toll collectors will be less because the existing 3 lanes of highway will essentially become the ORT lanes. Soils are more favorable. Traffic from the existing toll booth will not interfere with construction.

6. Costs / Financial. Jacobs's current estimate of the capital cost for Mile 8.8 is $40.8 million, the second lowest of the five sites considered. That estimate includes the cost of demolishing the existing plaza and of narrowing the highway near Mile 7.3. But it does not include the cost of property acquisition to allow "apples-to-apples" comparisons among all sites. (The cost of acquiring the Morrison property was $925,000.) Although the Turnpike must develop all capital projects with a sensitivity to cost, cost alone is not a primary consideration in recommending the site at Mile 8.8. Even if the cost were significantly higher, its safety, environmental, logistical, and other benefits make it far superior to other choices.

   Mile 8.8 and all sites considered – other than Mile 7.3 - will cause minimal loss of toll revenue during construction. Mile 8.8 and all the alternative sites considered – other than Mile 7.3 – are estimated to have similar life cycle and operational costs going forward.

7. Mile 8.8 vs. Mile 7.3 Comparison. Despite the weight and depth of the information outlined above, certain York citizens continue to advocate for building at Mile 7.3 and argue that the MTA Board must evaluate how the two sites compare with each other. By any objective comparison Mile 7.3 is inferior to the Mile 8.8 site and to any of the other sites. More study will not alter that conclusion.

From Jacobs matrix

York Toll Plaza Replacement Project
Comparison of MM 8.8 and MM 7.3 Sites

Evaluation Factor	Jacobs Matrix Col. #	MM 8.8*	MM 7.3	Comments
Engineering / Safety				
Horizontal Alignment	1	On-straight	On curve	MM 8.8 is superior to MM 7.3 from an engineering/safety perspective.
Vertical Align. - Cash Plaza on Crest	2	Good	Average	
Vertical Align. - Approach Grades	2	Average	Poor	
Sight Distance	3	Good	Average	
Separation from Interchange (> 1 mile)	4	Yes	No	
Historical Crash Data	5	Non HCL	HCL	
Geotechnical (soils)	6	Ledge	Clay	
Environmental				
Total Wetland Impact (acres)	7	1.0	5.5	MM 7.3 would impact over 5 times more wetlands.
Wetland Relative Function and Value	9	Average	High	Wetlands at MM 7.3 are higher value.
Stream Impacts (feet)	10	80	360	
Vernal Pool Impact - #	11	2	1	
Vernal Pools of DEP Significance - #	12	1	0	
FEMA Floodplain Impacts (acres)	13	0.3	3.0	
# Potential E/T Species Habitat Impacts	15	3	1	Long-eared bat potentially at all sites.
Abutter Impacts				
Potential R/W Impacts (acres)	16	0.3	0.1	Either option requires minimal land acquisition.
Houses Within 1000 ft	18	4	47	No houses displaced by either option.
Logistics During Construction				
Constructability	19	Conventional	Difficult	MM 8.8 would take significantly less time to build.
Safety of Toll Collectors	20	No Impacts	Caution	Extra precautions required to assure safety.
Traveler Impacts	21	Minor	Intermediate	Substantial disruption to travelers at MM 7.3.
Cost / Financial				
Initial Capital Cost	22	$40.8	$60.4	MM 8.8 would cost almost $20M less.
Revenue Loss During Construction	23	Minimal	Significant	Diversion due to traveler disruption.
Life Cycle Cost / Operations	24	Typical	Not Typical	Settlement not eliminated, more frequent paving.

*Recommended for further design and analysis.

The Mile 7.3 site is inferior in every category.

a) Engineering/Safety. Mile 7.3 is located at the bottom of a hill, on a curve, near an interchange and an overpass on poor soils surrounded by wetland. It was built in the 1960's as a temporary barrier plaza at which all vehicles stopped to take tickets and pay tolls in cash. At that time, high speed tolling, current design standards, and today's environmental rules did not exist. If they had, it would not have been built where it is today.

   The new site selected should meet today's national engineering standards and guidelines, consistent with MTA's obligations under environmental rules. The Mile 7.3 site does not do so. The Mile 8.8 site will.

b) Environmental. Mile 7.3 would impact about 5 times more wetlands and streams. The wetlands at Mile 7.3 have higher function and value than those at Mile 8.8. Environmental rules require the selection of the least environmentally damaging practicable alternative (LEDPA).

c) Abutter Impacts. There are 47 houses within 1,000 feet of the project limit of the plaza at Mile 7.3. There are far fewer houses near other sites. There are only four houses within 1000' of the Mile 8.8 project limits and two of these are at the outer fringe of that perimeter.

d) Logistics During Construction. Construction phasing, maintaining toll collection, and shoring of potentially unstable soils at the Mile 7.3 site would make construction significantly more complicated there. It will take longer and cause more disruption of traffic and the surrounding terrain.

e) Costs/Financial. The estimated capital cost of construction at Mile 7.3 is $60.4 million, as much as 50% more than other alternatives. Mile 7.3 is projected to cause toll revenue losses due to diversion estimated at one to two million dollars per year. The long term cost of maintaining an ORT plaza at Mile 7.3 will be higher than other sites because some continued settlement is anticipated despite soil stabilization. This would likely require more frequent re-paving cycles.

8. All Factors Point Toward Mile 8.8. The site alternatives analysis does not present a significant conflict among the factor categories as sometimes happens with other projects. Mile 8.8 is one of the safest alternatives and has relatively low environmental impact. It is estimated to cost less and it compares well on other factors.

For these reasons, MTA staff recommends that the Board select the Mile 8.8 site for the replacement ORT plaza in York for the purpose of applying for permits and moving to final design.

Turnpike staff remain committed to working with all interested parties, including York officials and nearby residents, in a fair, open and respectful manner toward the goal of replacing the current deteriorating and outdated barrier toll with a modern ORT plaza that is safer, affordable, and less disruptive to travelers, abutters, toll collectors, and the environment.

APPENDIX 1H

PORTLAND PRESS HERALD: ***THE TIME TO MOVE THE YORK TOLL PLAZA IS NOW***

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EDITORIALS Posted July 21, 2015 | Updated October 6, 2015 INCREASE FONT SIZE

Our View: The time to move the York toll plaza is here

Another study confirms what previous studies have found: The plaza is in the wrong place.

BY THE EDITORIAL BOARD

Share 10 Comments

It's been a long trip, but we have finally ended up where we started. It's time to build an open-road toll facility on the Maine Turnpike at a new location in York.

This is the inescapable conclusion of studies that stretch back almost a decade, including exhaustive attempts to work with neighbors who want to keep the tollbooth where it is. The latest consultant to review it, Jacobs Engineering, has come to findings that should now sound familiar.

The current toll plaza, at the bottom of a hill in the center of a curve and sinking into a wetland is the wrong place for the facility. Jacobs determined that a new plaza could be built there, but at a heavy price.

A new toll plaza a mile and a half north of the current facility could be built for $40 million. Building near the current location would cost $60 million. A 50 percent premium might be worth the investment if the result would be a better facility, but it would not. The better site is also the least expensive option, which is good news for the people who pay tolls and the people who drive the turnpike or the bridges that cross it – even if it's not necessarily good news for all the people who live near the highway.

The Maine Turnpike Authority is right to consider the neighbors' concerns, but ultimately this is an issue of statewide importance.

The Maine Turnpike's York toll plaza is one of the most important pieces of transportation infrastructure in the state. It collects $54 million in revenue each year, more than 40 percent of the gross revenue of the entire highway. It is the primary entry point for millions of tourists who come into the state each year.

The facility was built in 1969, when it served 5 million vehicles a year. Now it handles 16 million, and the turnpike authority cannot take advantage of the new technology to keep the traffic moving while still collecting revenue.

If you want to see how that would work, you would only need to take a short drive south of Maine's border with New Hampshire to the open-road toll facility in Hampton. There, vehicles that pay cash for tolls are diverted to the right side, where there are manned tollbooths. But drivers with E-ZPass accounts stay on the highway without slowing down. For those drivers – who include the majority of Mainers who use the turnpike – it's like having no tollbooth at all.

That's the kind of system the Maine Turnpike needs.

Studies of the York toll plaza began in 2005. The Maine Turnpike Authority trustees should look at all that's been learned and finally approve a plan to move the toll plaza.

READ OR POST COMMENTS

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APPENDIX 1I

YORK MEETING LIST 2006-2016

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Date	Reason for meeting	Where	Attendees
2006-09-26	Town Mangers meeting	York Maintenance	Towns of York, Ogunquit, Wells, MTA Staff
2006-10-25	Joint Select Board Meeting	Ogunquit Town Hall	Towns of York, Ogunquit, Wells, MTA Staff
2007-03-21	Presentation to York County Delegation		York County Legislators, MTA Staff
2007-08-09	Legislative Tour and Briefing	York Toll Plaza	Legislators, MTA Staff
2007-08-10	Legislative Tour and Briefing	York Toll Plaza	Legislators, MTA Staff
2007-09-21	Legislative Tour and Briefing	York Toll Plaza	Legislators, MTA Staff
2007-11-29	Town Mangers meeting	Tour of York Toll	Towns of York, Ogunquit, Wells, MTA Staff
2007-12-10	Legislative Tour and Briefing	York Toll Plaza	Legislators, MTA Staff
2008-01-22	Town Mangers meeting		Towns of York, Ogunquit, Wells, MTA Staff
2008-01-23	Joint Select Board Presenation	Ogunquit Town Hall	Towns of York, Ogunquit, Wells, MTA Staff
2008-02-15	Town Mangers meeting		Towns of York, Ogunquit, Wells, MTA Staff
2008-02-27	Public Meeting	York Middle School	Members of the public (about 40 signed in) MTA and HNTB Staff
2008-04-03	Public Meeting	York Middle School	Members of the public (over 350 signed in), Think Again, Town of York, MTA and HNTB Staff

2008-04-29	MTA/York Meeting	MTA	MTA Staff, MTA Board, York Selectmen
2008-05-15	Authority and York Selectmen meeting	York Beach Fire Station	MTA Staff, Think Again, HNTB, York Selectmen, Town of York
2009-06-19	Presentation of the York Toll Existing Site Feasibility Study	MTA	MTA Board members and Staff, York selectmen
2009-09-03	Letter to Joan Jarvis from Conrad Welzel with answers to questions they submittted on the Existing Site Evaluation		
2009-09-09	Letter from Chairman Conley to York regarding the Resolution to accept the Recommendations from HNTB		
2009-10-26	Second set of answers sent to Think Again		
2009-11-05	Authority and York Selectmen meeting	MTA	Members of the public (about 50 signed in) Think Again, MTA Board and Staff
2009-12-16	Abutters meeting	York Middle School	Abutters, MTA and HNTB Staff
2010-01-21	Public Meeting	York Middle School	Members of the public, Think Again, Dawn Hill, Town of York, MTA and HNTB Staff
2010-02-10	York Water District meeting		YWD, HNTB, MTA Staff
2012-03-08	York Water District meeting	YWD	YWD, HNTB, MTA Staff
2014-05-14	Think Again Meeting	Norma's	Sara Zografos, Peter Mills, Think Again
2014-09-15	Think Again Meeting	Norma's	Erin Courtney, Sara Zografos, Think Again

2014-10-14	Workshop on wetland mapping	MTA	Dean Lessard, Dick Bilden, MTA Staff
2014-10-16	MTA Board Meeting-wetland mapping presentation	MTA	MTA Board and Staff, Think Again
2014-10-20	Think Again Meeting	Norma's	Erin Courtney, Sara Zografos, Think Again
2014-12-18	MTA Board Meeting- plaza sizing presentation	MTA	MTA Board and Staff, Think Again
2014-12-18	Workshop on plaza sizing	MTA	Dean Lessard, Dick Bilden, David Linney, MTA Staff & Jacobs
2015-03-23	Pre Board Meeting Workshop on exisitng plaza location	MTA	Dean Lessard, Dick Bilden, MTA Staff
2015-03-26	MTA Board Meeting-existing site presentation	MTA	MTA Board and Staff, Think Again
2015-05-28	MTA Board Meeeting	MTA	MTA Board and Staff
2015-06-25	MTA Board Meeting- alternative site matrix	MTA	MTA Staff, Think Again
2015-06-25	Workshop on alternative site matrix	MTA	Dean Lessard, Dick Bilden, David Loane, MTA Staff
2015-07-23	MTA Board Meeting	MTA	MTA Board and Staff
2015-07-27	York Selectmen's Meeting	York	Peter Mills, Bruce Van Note, York
2015-08-03	Workshop-answer questions on the evaluation matrix	MTA	MTA Staff, Think Again, York
2015-09-03	MTA Board Meeting-public comment on the alternative sites matrix	MTA	MTA Staff and Board, Think Again, York

2015-11-19	MTA Board Meeting	MTA	MTA Staff and Board
2016-05-26	MTA Board Meeting Executive Session	MTA	MTA Staff and Board
2016-06-23	MTA Board Meeting Executive Session	MTA	MTA Staff and Board
2016-10-05	Public Meeting	York Maintenance	MTA Staff and Board, Think Again, York

APPENDIX 1J

MTA INVESTMENT AND EVALUATION MATRIX

The Maine Turnpike Authority began evaluating the York Toll Plaza over ten years ago, commissioning several consultants over the years to provide information on the condition of the Plaza. After several evaluations, reports, and data collected from HNTB, CDM Smith, Jacobs Engineering Group, and Sebago Technics, the MTA was able to come to a decision on how best to move forward on the replacement of the York Toll Plaza. The MTA has invested over 4 million dollars in the screening and scoping of this project in order to provide the highest quality, lowest impact, and most practicable structure possible. The site selection was an arduous task completed with the input of many individuals with various skill sets and an objective view of the project. The following table is a depiction of the time and money spent in order to bring this project to fruition.

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Report Title	Author	Date	Topic	Board Activity	Cost	Basis
York Toll Plaza Replacement Study	HNTB	April-02		Initial evaluation of feasible sites for relocated York Toll Plaza	$710,000.00	
One-Way Tolling	HNTB	July-05		July 2005, the MTA Board voted to cease consideration of one way tolling at the York Toll Plaza unless circumstances change to warrant the consideration	$100,000.00	$50,000 was budgeted under 09009-XW-975-024, assumed $50,000 under 005-011
Maine Turnpike Southern Toll Plaza Dedicated Electronic Toll Collection Lane Design Recommendations	HNTB	July-06		July 2006, the MTA Board voted to adopt the recommendations of the HNTB report ad authorized staff to proceed with the planning of the replacement of the York Toll Plaza in a manner which includes highway speed tolling	$100,000.00	
York Toll Plaza Replacement Technical Report in Response to Maine LD 534	HNTB	February-08			$275,000.00	Per Bos_Me_Tpke data
Maine Turnpike Southern Toll Plaza Initial All-Electronic Tolling Feasibility Review	HNTB	February-09			$400,000.00	
Existing Site Evaluation	HNTB	June-09		Joint MTA Board/York Selectmen presentation on the Existing Site Evaluation Report (ESE) (June 2009). September 2009, MTA Board voted to accept the recommendations in the ESE Report.	$250,000.00	
Phase I Report	HNTB	November-09		February 2010, the MTA Board voted to accept the recommendations of the MTA staff and the GEC to finalize the Phase I Report and send the USACE for their review	$1,490,000.00	
Re-evaluation of the Southern Toll Plaza	HNTB	July-14			$215,000.00	per job # 57576-DS-425
Maine Turnpike ORT/AET Impact Analysis	CDMSMITH	March-14			$325,000.00	$190K for York Evaluation- $135K for West Gardiner Evaluation
MTA Board presentation on Environmental Mapping	Jacobs/Sebago	October-15		Presentation to the MTA Board on the initial environmental mapping		
MTA board presentation on Plaza Sizing	Jacobs	December-15		Jacobs presented traffic data which determines the recommended size of the proposed plaza		
Alternative Site Selection Memo	Jacobs					
MTA Board presentation on Conceptual Design and Estimate for 7.3	Jacobs	March-15		Jacobs presented the conceptual design and cost estimate for location 7.3		
MTA Board presentation on Evaluation matrix for alternative sites	Jacobs	June-15		Jacob presented the Evaluation Matrix for the 4 alternative sites. 8.8 to be advanced to a 10% design	$594,000.00	as of June 2015
					$4,459,000.00	

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APPENDIX 2A

LETTER FROM TOWN LAWYER TO USACE 6/16/16

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Verrill Dana LLP
Attorneys at Law

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June 16, 2016

Via Federal Express

Mr. Jay Clement
Senior Project Manger
U.S. Army Corps of Engineers
Maine Project Office
675 Western Avenue, #3
Manchester, ME 04351

Re: Maine Turnpike Southern Toll Plaza
York, Maine

Dear Jay:

I am writing to you on behalf of the Town of York with regard to the Maine Turnpike Authority's proposal to relocate the southern toll plaza in York, Maine, and to replace the existing plaza with a combined EZ Pass/cash lane ("ORT") installation. For the following reasons, a practicable alternative to the anticipated proposed project is an All Electronic Tolling ("AET") facility. An AET facility is not only feasible and meets the MTA's project purpose, but it is the least environmentally damaging practicable alternative.

PRIOR MTA SUBMISSIONS ON AET

As noted in your November 12, 2015 letter to the MTA, in March of 2010, the MTA submitted a draft Phase I screening of alternatives to the Corps to avoid and minimize adverse impacts to wetlands and waters.[1] The Corps responded on May 5th of that year that the short list of alternatives was inadequate, and the Corps requested that the MTA submit additional information to respond to questions and concerns raised by this office and residents of York regarding AET. For reasons unrelated to the Corps permitting process, the MTA then tabled the tollbooth replacement project for several years.

On September 1, 2015, the MTA finally responded to the Corps May, 2010, information request. In this response, the MTA noted that it had retained a "highly credentialed toll

[1] The Corps' November 12, 2015, letter is attached at Exhibit "A."

consultant," CDM Smith, to review the AET question."[2] Allegedly based on CDM Smith's analysis and conclusions, the MTA determined that an "AET system is not practicable and would not meet the project purpose" of the York tollbooth replacement project.[3]

This conclusion is not, however, supported by the 2014 CDM Smith report. In fact, CDM Smith concluded that, over a ten year period, the MTA would generate more revenue with an AET facility due to reduced construction and O&M costs, even taking into consideration the costs associated with "back room" operations to collect tolls by drivers without EZ Passes. Regardless of which proposed design the MTA ultimately elects to pursue, there is no question that AET is a practicable alternative that meets the MTA's project purpose. In order to avoid consideration of the AET option, the MTA has unlawfully narrowed its stated project purpose and it has misrepresented CDM Smith's conclusions. As discussed below, the Corps should continue to require the MTA to include AET in its alternatives analysis.

CDM SMITH REPORT

CDM Smith "was asked to assume that AET would be implemented and to prepare mathematical models tailor-made for the MTA to show exactly what consequences would flow from adopting AET under a range of different protocols."[4] To assist CDM Smith, the MTA conducted a "plate survey" of cash lane traffic "to provide CDM Smith with an enriched body of data from which to build a model for evaluating AET."

CDM Smith evaluated two different facility designs for replacement of the existing York tollbooth: an ORT facility ("Open Road Tolling") and an AET facility.[5] An ORT facility is similar to an AET facility in that it includes high speed lanes, but an ORT facility also includes several "cash" lanes for drivers without EZ Pass transponders. CDM Smith evaluated numerous factors that impact revenue collection and net collection of revenue from these two types of tollbooth designs. The "study compared traffic, toll rates, operating costs, net revenue over a 10-year period, and capital costs" of both an ORT and AET facility.[6] As noted by CDM Smith,

> The toll industry is moving toward automating the toll collection process, using either ORT or AET. ORT would allow for high-speed, non-stop, collection of tolls from vehicles equipped with E-ZPass transponders, while retaining a limited number of cash collection lanes in each direction. AET would feature the elimination of cash collection altogether, and require only the construction of high-speed gantries across the mainline roadway, significantly reducing capital cost but requiring new methods and costs to handle vehicles without electronic transponders.[7]

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[2] MTA's September 1, 2015, letter is attached at Exhibit "B."
[3] MTA Sept. 1, 2015 Letter p. 4.
[4] MTA Sept. 1, 2015 Letter p. 2.
[5] The April 14, 2014 CDM Smith report was Attachment 4 to the MTA's September 1, 2015 submittal, and is attached at Exhibit "C" for the convenience of the Corps.
[6] CDM Smith Report p. ES-4
[7] *Id.* p. ES-1.

As such, ORT facilities require greater up-front capital expenditures as the cash-lanes require infrastructure, and greater ongoing O&M for such structures. AET facilities require some additional costs for collection activities for non-transponder users, and there is some lost revenue—or "leakage"—due to drivers ignoring mailed invoices. Put simply, there are financial advantages and disadvantages to each alternative, and CDM Smith reviewed all of these factors as part of its work.

CDM Smith noted that construction of an AET facility would cost only $4.8 million, while an ORT facility would cost $36 million.[8] CDM Smith also conducted a "sensitivity test" to evaluate the amount of surcharge appropriate for non-transponder drivers, and concluded that a $3.00 surcharge fee for non-transponder drivers would minimize the loss of revenue associated with "leakage."[9] After considering all these factors, including the loss of toll revenues due to "leakage," CDM Smith determined that "[w]hen the capital cost impacts are taken into consideration along with the 10-year net present value of the estimated AET toll revenue impacts, a net positive $18.7 million is generated."[10] In other words, the MTA's own consultant has concluded that the **MTA will net out an additional $18.7 million** over a ten year period if it constructed an AET facility instead of the ORT facility it has proposed.

This is directly contrary to Mr. Mills' statement that AET is not "practicable" or feasible.

The financial benefits of AET are likely even greater, as CDM Smith noted that the "leakage" due to implementation of AET decreases over time, "primarily due to an increasing market share of E-ZPass vehicles, decreasing the number of video transactions" and a reduction in the corresponding cost of collecting those revenues by mail.[11] Over time, AET revenue will actually exceed ORT revenue, with this shift predicted by CDM Smith in 2019.[12] This is because over time more drivers will install E-ZPass transponders, both for convenience and to avoid the $3.00 surcharge.

CDM Smith also noted that "AET also has the benefit of virtually eliminating accident risk at toll plaza locations; toll plazas typically represent high accident locations on toll roads across the country."[13] Thus, an AET facility not only results in more net revenue for the MTA, it is safer, and because of its dramatically reduced footprint, it is by far the least environmentally damaging practicable alternative. These are the conclusions of the MTA's own consultant.[14]

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[8] CDM Smith Report p. 46-47.
[9] *Id.* p. 18-19.
[10] *Id.* p. ES-3.
[11] *Id.* p. 20.
[12] *Id.* p. 22.
[13] *Id.* p. 3.
[14] The Town of York retained The eTrans Group to evaluate AET and the MTA' September, 2015 submission to the Corps (report attached at Exhibit "D"). The eTrans Group identified numerous problems with the CDM Smith Report, which problems overstated the challenges associated with AET and downplayed the benefits. Regardless, The eTrans Group noted that CDM Smith found that AET would generate more revenue by avoiding construction costs and would result in a safer and more environmentally sound site. *See* Table of Impacts, eTrans Group Report, Section 4.0.

Finally, the MTA's stated concerns regarding AET are unsupported by any analysis or facts. The MTA appears to suggest that the $3.00 surcharge is inappropriate or problematic, when CDM Smith determined that it struck the proper balance between encouraging acquisition of transponders and covering the expense of toll collection by mail. Further, although CDM Smith suggests that some drivers without transponders would divert to Route 1 to avoid the $3.00 surcharge, neither CDM Smith nor the MTA has submitted any analysis or authority to support the diversion figures proposed. Nor has the MTA assessed the more likely scenario that drivers will acquire a transponder to avoid either the $3.00 surcharge or the additional time (especially during high volume summer months) fighting traffic on Route 1.[15]

Regardless of the ultimate disposition of these issues, there is no question that AET is a practicable alternative that will increase revenue, improve customer convenience, enhance safety, reduce congestion, reduce carbon emissions and minimize environmental impacts. Although further assessment may be appropriate, at this time it would be unlawful for the MTA to remove AET from the alternatives analysis.

AET is a Practicable Alternative that Meets the MTA's Project Purpose

In April 2007, following several monthly interagency meetings between federal and state officials, the Corps reached a conclusion on how to define the Basic Project Purpose for the York Toll Plaza project. The Basic Project Purpose was defined in the following manner:

> To replace/rehabilitate the existing barrier toll plaza on the Maine Turnpike at York, Maine, incorporating High Speed Tolling (HST) and addressing settling/subsidence and facilities deficiencies, safety deficiencies, and existing and projected traffic volumes.

Based on misinformation from the MTA, on July 24, 2015 the Corps revised the project purpose as follows:

> ...to replace the existing barrier toll plaza on the Maine Turnpike at York, Maine with highway speed electronic tolling lanes *and cash (non-EZ pass) lanes* to address safety deficiencies, settling/subsistence, facility deficiencies including substandard

[15] The MTA has suggested that AET is appropriate only "where the traffic is local and where the rate of electronic toll participation has been pushed as close to 100% as possible." The MTA Sept. 1, 2015 Letter p. 2. Contradicting this assertion is an attached 2015 Massachusetts Department of Transportation presentation on the full implementation of AET for the Massachusetts Turnpike (attached at Exhibit "E"), which the State of Massachusetts intends to implement state-wide this Fall. Not only does the MTA fail to support any authority for its claim, but the Mass DOT report notes that transponder usage rates on the MassPike run from 73-81%, which is not significantly different than the 70% usage rate on the Maine Turnpike. Further, the MassPike does not only serve "local" traffic. While the entire State of Massachusetts highway system is converting to AET (with all the same concerns about "leakage" and diversion) the MTA continues to assert that AET is not practical.

> tolling equipment, existing and projected traffic volumes, and traveler impacts and expectations.[16]

Where the original Basic Project Purpose had left design of the project largely undefined—a determination that would be made following the results of the alternatives analysis process—the new Basic Project Purpose presupposes a design. The new Basic Project Purpose states that the toll plaza must include cash lanes. Respectfully, the Town of York contends that the project purpose should omit the italicized language above. The purpose of the MTA's proposed tollbooth replacement project is not to construct any specific type of toll facility. Instead, it is simply to resolve the problems stated above with a new facility. The exact nature of the facility is not, however, part of the project purpose.

As AET does not involve cash lanes, the MTA's requested change to the project purpose is intended to exclude AET from the alternatives analysis, even though the MTA's own expert consultant concluded that AET would be safer and would generate higher income for the MTA. As the project applicant, the MTA may not use a narrowly defined basic project purpose as a tool to artificially exclude what would otherwise be practicable alternatives. *See*, e.g., *Old Cutler Bay Permit 404(q) Elevation* (June 4, 1990) (rejecting applicant's proposed project purpose as overly narrow thereby making alternatives analysis meaningless); *Sylvester v. U.S. Army Corps of Engineers*, 882 F.2d 407, 409 (9th Cir. 1989) ("[o]bviously, an applicant cannot define a project in order to preclude the existence of any alternative sites and thus make what is practicable appear impracticable."); *Florida Clean Water Network, Inc. v. Grosskruger*, 587 F. Supp. 2d 1236, 1243-44 (M.D. Fla. 2008) *citing Sylvester* (Corps may not allow a project purpose to be defined so narrowly that it "make[s] what is [a] practicable [alternative] appear impracticable.")

The Highway Methodology Workbook provides that the Corps will define both the basic and overall "project purpose broadly to insure that a reasonable range of alternatives will be examined." U.S. ARMY CORPS OF ENGINEERS, NEW ENGLAND DISTRICT, INTEGRATING CORPS SECTION 404 PERMIT REQUIREMENTS WITH HIGHWAY PLANNING AND ENGINEERING AND THE NEPA EIS PROCESS (1993), p. 5. A project applicant may approach the Corps with a particular object to be included in the basic project purpose, however, the Corps must "in all cases, exercise independent judgment in defining the purpose and need for the project from both the applicant's and the public's perspective." 33 C.F.R. Part 325, App. B(9)(b)(4). For projects that are not water dependent, the project applicant bears the burden of demonstrating that alternatives that do not impact wetlands are not practicable. 40 C.F.R. § 230.10(a)(3). The failure to define the project purpose in sufficiently broad terms to permit a full review of alternatives is grounds for denying a permit under Section 404. *See, e.g., Schmidt v. U.S. Army Corps of Engineers*, 2009 WL 579412, at *14 (W.D. Mich. Mar. 5, 2009) (denial of permit because applicant's basic project purpose excluded all practicable alternatives in an effort to ensure home was located in spot with optimal water view); *Shoreline Associates v. Marsh*, 555 F. Supp. 169, 179 (D. Md. 1983) *aff'd*, 725 F.2d 677 (4th Cir. 1984) (denial of permit because applicant's basic project purpose excluded highland locations in lieu of shore-side location to ensure townhouse community included boat storage and launch ramps).

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[16] July 24, 2015 Letter from USACOE to the MTA (emphasis added) (attached at Exhibit "F").

Like *Schmidt* and *Shoreline*, cash lanes at the York Toll Plaza are incidental to the overall purpose of the project and thus, should be excluded from the Basic Project Purpose. The Corps will eventually select the final design of the York Toll Plaza, however, this selection must come as the result of careful analysis of Phase I and Phase II Alternatives, not through a revision to the Basic Project Purpose to preclude the existence of alternatives by making what is practicable appear impractical.[17]

THE CORPS SHOULD REQUIRE AN INDIVIDUAL PERMIT

The Corps is authorized to issue a general permit when proposed activities are "similar in nature" and will have only minimal individual and cumulative adverse effects on the environment. 33 U.S.C. § 1344(e)(1). In contrast, the Corps should require an individual permit when the permitted activities may "have an adverse impact on the environment." 33 U.S.C. § 1344(e)(2). Under either scenario, the Corps conducts a "public interest review" to appropriately characterize the level of damage to the navigable water by weighing such factors as the relative need for the proposed project, the practicability of using reasonable alternative locations and methods to accomplish the objective of the project, and the value of the impacted wetlands. 33 C.F.R. §§ 320.4(a)-(b).

Given the significant public interest and the MTA's continued refusal to conduct an appropriate alternatives analysis, the Corps should require the MTA to submit an application for an individual permit. Depending upon the location that is chosen for the new toll plaza, impacts to environmental features such as streams, mapped wetlands, hydric soils and vernal pools are likely to be significant in nature and exceed the thresholds prescribed by federal regulation for general permits. 40 C.F.R. § 230.7(b)(2). Filling of such features also has the potential to sever habitats that serve as a cohesive ecological unit resulting in an adverse cumulative impact to the environment further necessitating an individual permit. *Id; see also Sierra Club v. U.S. Army Corps of Engineers*, 508 F.3d 1332, 1336 (11th Cir. 2007) (court warning that "[l]eft unchecked, expanding the use of Section 404(e) general permits beyond their statutory scope would gut the individual permitting process and allow the Corps to circumvent the notice and public hearing requirements of Section 404(a)").

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[17] The MTA's overly narrow definition of project purpose also violates NEPA. Similar to permitting under § 404 of the CWA, a properly-drafted NEPA document must include a "brief discussion [] of the need for the proposal." 40 C.F.R. § 1508.9(b). In discussing the need and subsequent purpose of the project, an agency may not "define [a] project so narrowly that it foreclose[s] a reasonable consideration of alternatives." *Davis v. Mineta*, 302 F.3d 1104, 1119 (10th Cir. 2002); *citing Simmons v. U.S. Army Corps of Eng's*, 120 F.3d 664, 666 (7th Cir. 1997). In defining the project as requested by the MTA, the Corps has effectively foreclosed the reasonable consideration of an alternative, which will allow an artificially narrowed project purpose to "slip past the strictures of NEPA." *See Simmons*, 120 F.3d at 666-67 (Corps project to supply two communities with water from newly constructed reservoir violated NEPA by confining analysis to a single-source solution); *see also* (*Davis*, 302 F.3d at 1119) (EA for highway project found inadequate because defined scope of project included river crossing foreclosing possibility that design avoiding an additional river crossing was possible).

AET offers the option of meeting the MTA's true project purpose without any wetland impacts. This alternative should be included in the MTA's application and should be subject to the more comprehensive review of an individual permit.

CONCLUSION

For the reasons stated above, the Town of York maintains that, based on misinformation from the MTA, the Corps has improperly narrowed the potential scope of the Basic Project Purpose for the York Toll Plaza. As a result, practicable alternatives such as AET have been intentionally eliminated from the alternatives analysis process. The Town respectfully requests that the Corps return to the original project purpose developed for this project and require the MTA to include AET in its scope of alternatives.

Very truly yours,

Scott D. Anderson

Enclosures

cc: Stephen H. Burns, Town Manager, Town of York
Peter Mills, Executive Director, MTA
Mark Bergeron, Maine Department of Environmental Protection
(all via Federal Express, with enclosures)

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APPENDIX 2B

PETER MILLS LETTER TO USACE 9/29/16

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Maine Turnpike Authority

2360 Congress Street
Portland, Maine 04102

Daniel E. Wathen, Augusta, Chairman
Robert D. Stone, Auburn, Vice Chairman
Bryan P. Cutchen, West Gardiner
John E. Dority, Augusta
Freeman R. Goodrich, Wells
Michael J. Cianchette, Cumberland
Karen S. Doyle, Chief Financial Officer MaineDOT, Ex-Officio

Peter Mills, Executive Director
Douglas Davidson, Chief Financial Officer & Treasurer
Peter S. Merfeld, P.E., Chief Operations Officer
Jonathan Arey, Secretary & General Counsel

September 29, 2016

Jay L. Clement, Senior Project Manager, Maine Project Office
Department of the Army, New England District, Corps of Engineers
675 Western Avenue #3
Manchester, Maine 04351

Re: Southern Toll Plaza for Maine Turnpike Authority
USACE No: NAE-2007-01211

Dear Mr. Clement:

On behalf of the Town of York, Verrill and Dana submitted a letter on June 16 arguing that All Electronic Tolling ("AET") should still be considered a practicable alternative to the Maine Turnpike Authority's ORT plaza, regardless of all evidence to the contrary.

This letter is our response. Among the important components of this letter are its first two enclosures.

- Enclosure 1 is a letter from Gary Quinlan of CDM Smith responding to adverse criticisms leveled by the Town's hired AET consultant. We selected CDM Smith over five years ago because new management at the Turnpike viewed the AET question as an opportunity to review the highway's fundamental business model. If cash collections were to be eliminated at York, or anywhere else on the road, we needed, above all else, a thorough analysis from a knowledgeable source with unimpeachable objectivity. The attached letter from Mr. Quinlan confirms the wisdom of their selection.

- Enclosure 2 is a study from traffic engineer Elizabeth Roberts to determine the impact on local roads if--as the Town proposes—AET were imposed and the toll were doubled for the 4.5 million annual users who pay cash at York. If a high speed, six lane interstate like the Turnpike diverts even a small percentage of its intense traffic onto low capacity streets and roads, it creates widespread (and environmentally damaging) impacts.

We first address some responses to the Town's letter itself.

1. The Legal Standard for Project Purpose

The legal standard for establishing the Basic Project Purpose is set by *Sylvester v. U.S. Army Corps of Engineers, 882 F.2d 407 (9th Cir. 1989),* as noted on page five of the Verrill and Dana letter. The only legal point in relation to AET is that the project purpose cannot be defined so narrowly as to make the alternatives analysis meaningless. All the cases cited support that general, and uncontroversial, position.

Sylvester, which involved a golf course being constructed on 11 acres of wetlands, does not stand for the proposition asserted in the Verrill and Dana letter. In *Sylvester,* the Corps' decision to defer to an applicant's economically driven project purpose was questioned but upheld. The quote that Verrill & Dana relies on is a statement by the court that simply tempers its holding in support of the Corps' decision to defer to the applicant's economic priorities. The quote in context is as follows:

> In evaluating whether a given alternative site is practicable, the Corps may legitimately consider such facts as cost to the applicant and logistics. *See Friends of the Earth v. Hintz,* 800 F.2d 822, 833–34 (9th Cir.1986). In addition, the Corps has a duty to consider the applicant's purpose. As the Fifth Circuit observed: "[T]he Corps has a duty to take into account the objectives of the applicant's project. Indeed, it would be bizarre if the Corps were to ignore the purpose for which the applicant seeks a permit and to substitute a purpose it deems more suitable." *Louisiana Wildlife Fed'n, Inc. v. York,* 761 F.2d 1044, 1048 (5th Cir.1985) (per curiam) (footnote omitted).
>
> Obviously, an applicant cannot define a project in order to preclude the existence of any alternative sites and thus make what is practicable appear impracticable. This court in *Hintz* quite properly suggested that the applicant's purpose must be "legitimate." *Id.* at 833. Yet, in determining whether an alternate site is practicable, the Corps is not entitled to reject Perini's genuine and legitimate conclusion that the type of golf course it wishes to construct is economically advantageous to its resort development.
>
> By contrast, an alternative site does not have to accommodate components of a project that are merely incidental to the applicant's *basic* purpose. For example, in *Shoreline Assocs. v. Marsh,* 555 F.Supp. 169, 179 (D.Md.1983), *aff'd,* 725 F.2d 677 (4th Cir.1984), the Corps refused to issue a permit to a developer for building a number of waterfront town houses together with a boat storage and launching facility. The developer argued that the Corps' proposed alternative site for the town houses could not accommodate the boat storage and launch area. The court upheld the Corps' denial of the permit, observing that the boat facilities were merely "incidental" to the town house development. *Id.*
> *882 F.2d at 409.*

The *Sylvester* case means that economic concerns are important and that the Corps should not reject the applicant's "genuine and legitimate conclusion that the type of golf course it wishes to construct is economically advantageous."

From all of this, Verrill and Dana somehow asserts that it would be "unlawful" to remove AET from the alternatives analysis because collecting $15.5 million in cash at York is merely "incidental to the overall purpose of the project and thus, should be excluded from the Basic Project Purpose."

Turnpike bondholders would be shocked to hear that retaining and securing the annual collection of $15.5 million in cash is merely "incidental" to the function of the Turnpike.

The Maine Turnpike Authority has a road to run and $380 million in outstanding bonds to repay from its toll revenue. Following a ten-year review process including studies by some of the nation's leading experts, the Authority has reached a thoughtful and legitimate conclusion that ORT is the only practicable way to collect tolls at highway speeds, a conclusion that is consistent with good practice and experience elsewhere. Based on successive studies, the Army Corps of Engineers has reasonably and appropriately accepted this conclusion.

2. The Range of Alternatives

To suggest that other theoretical possibilities exist does not make them practicable or worthy to consider.

For example, it is possible for the state to dissolve the Turnpike, raise the gas tax for support and radically alter how Maine's busiest interstate highway is funded. Regardless of whether this is "possible" or "feasible," no one would suggest that this is an alternative that must be presented in a permit application.

An intervener might also suggest that the York toll be abandoned by shifting the toll burden to other portions of the highway. Although technically feasible, this suggestion is patently unfair and unsuitable. No one would regard it as "practicable."

Yet, the Town of York's present effort to tell the Turnpike how to shift costs and run its business is just as impracticable. Consider the converse: Should York selectmen be forced to spend money to prove to an outside citizens' group why the town office should not be closed in order that taxes, dog license fees, and car registrations be collected only on line?

3. Reasons for the Lapse of Time from 2010 to 2014

On page one, the attorney notes the lapse of time from 2010 until 2014 by stating: "For reasons unrelated to the Corps permitting process, the MTA then tabled the tollbooth replacement project for several years."

In fact, the delay was highly related to the permit process. When former DOT Commissioner Roger Mallar and I began managing the Turnpike in March of 2011, we immediately obtained approval from the Turnpike board to take a fresh look at AET, not just for York but for the highway as a whole. Among other initiatives, we:

- issued an RFP to search for the best consultant we could find to conduct a thorough and independent review;
- chose CDM Smith, a firm that has worked on toll issues with most of the agencies in North America and has helped many of them to implement AET at appropriate sites;
- broadened the scope to study not only York but also the toll at West Gardiner/I-295 to enable us to evaluate AET at a site more representative for the rest of the road; and
- did not ask the consultant to tell us what the Turnpike should or should not do but to explain thoroughly how AET could be implemented at either location and what the consequences would be.

As that work progressed, we commissioned an all season survey from August of 2012 through June of 2013 to better understand where cash payers come from at different locations and at different times of year. These findings were integrated into the consultant's work.

To expand the E-ZPass penetration rate, we:

- eliminated from Maine law a toll protocol that had prevented the Turnpike from selling transponders on line;
- dropped the price of transponders from $25 to $10;
- restructured tolls to favor E-ZPass;
- created a volume discount for Maine E-ZPass customers; and
- conducted sales campaigns to promote electronic tolling.

These efforts raised electronic receipts from $62.5 million in 2011 to $90.7 million in 2015. But over that same period, cash tolls at York still rose from $13.5 million to $15.5 million. A reduction in transactions was more than offset by the 2012 toll increase. CDM Smith concluded that to replace the cash revenue at York with collections by mail would require doubling the cash toll, a premise that is accepted by the Town's consultant.

4. The Town's Report by Mr. Darryl Fleming is Fundamentally Flawed

Diversion by motorists away from a doubled toll will cause periodic congestion on secondary roads of such consequence that the AET option can be ruled out for traffic reasons alone—quite aside from financial losses to the Turnpike.

Verrill and Dana suggests on page four that traffic diversion should simply be ignored because "neither CDM Smith nor the MTA has submitted <u>any</u> analysis or authority to support the diversion figures proposed." [Emphasis in the original.]

The authority for diversion comes directly from CDM Smith, one of the nation's leading traffic analysts. On page six of their 2014 report, they state: "While estimates of traffic diversion under AET were calculated using well tested diversion techniques, the proportions of traffic that would actually be billable and collectable were based on reasonable assumptions based on experience at other AET facilities across the nation." For such reasons, diversion to Route 1 "is an important factor to be taken into consideration."

While it seems obvious that more traffic is bad for already congested roads, the Turnpike has recently commissioned a traffic analysis attached as Enclosure 2 to this letter. The purpose of the analysis was to determine just where this diverted traffic would go in response to a doubled toll for former cash payers and what effect it would have. As expected, roads through many municipalities will be significantly impacted, including State Routes 1, 4, 9, 109, and 236 as they pass through Ogunquit, South Berwick, Berwick, North Berwick, Kittery, Eliot, Wells, Sanford, Kennebunk, and York.

If a developer were to propose a shopping center imposing traffic burdens of such magnitude, the impact fees and remote intersection improvements would likely kill the project; and the increased local congestion would diminish air quality wherever it occurs.

The Turnpike's plan to adopt high speed Open Road Tolling (ORT) does the opposite. By improving the convenience of using the Turnpike, by giving motorists the choice of paying electronically at high speed or by paying cash at the current rate, it encourages even more motorists to stay on the interstate where through traffic belongs—for a host of good reasons including environmental impacts as well as equity in the imposition of tolls.

Mr. Fleming is certainly a vigorous advocate for All Electronic Tolling. But enthusiasm clouds his objectivity. Attached as Enclosures 1 and 3 are more detailed responses to his 20 page report.*

5. The Town Proposes an Unfair Cost Shift

On page three, the attorney suggests that a doubling of the toll will "minimize" loss of revenue and should even be regarded as a profit opportunity for the Turnpike.

The doubled toll surcharge doesn't "minimize" anything. It imposes a penalty on every cash motorist who travels north of York who is either willing to pay by mail or unlucky enough to be caught by a registration suspension. The new cash toll would be $6 for a car and $24 for a five axle truck. The burden of paying the double toll—or, indeed, the present toll—falls on people north of York and those who travel to do business north of mile 7.

Because so few residents of York are impacted by this unfair shift in costs, it is too easy for Think Again and York officials to say, "Go ahead and double it."

While it is true that building only an electronic gantry array for AET is less expensive as a capital cost, there is nothing cheap about employing scores of back office clerks and their computer systems necessary to operate a toll-by-mail "boiler room" with associated violation supports.

The Turnpike does not contend that AET is impossible. In fact, the consultant we hired was tasked specifically to tell us how to do it. A fair evaluation of the consequences has led both Maine and New Hampshire independently to conclude that the only practicable way for our states to implement high speed tolling is to continue collecting cash in lanes that are safely off to the side of mainline traffic.

Massachusetts does not have that option. On the Tobin Bridge, for example, there is simply no room to continue collecting cash on their 65-year-old congested bridge. The same is true at a number of their other tolls located within or adjacent to densely developed metropolitan sites. Maine and New Hampshire have no such constraints. To impose them would unfairly shift costs to that portion of the population who might still pay under AET.

6. Need for High Penetration of Electronic Tolling

* As reflected in Enclosures 7 and 8, Mr. Fleming has a checkered career as a toll consultant; our purpose here is not to address his other failures but whether his current criticisms have merit.

The Verrill and Dana letter in footnote 15 argues against the assertion that a high electronic penetration rate is necessary to make AET succeed. They point out that Massachusetts plans to implement AET with current penetration rates of between 73 and 81%.

For reasons cited above, Massachusetts has little choice but to incur the inevitable losses. Because the Massachusetts Turnpike went insolvent and dissolved long ago while attempting to complete the "Big Dig," it is now owned by the state and has no independent bond rating to place at risk. The losses they are already incurring are further discussed in Enclosures 1 and 5.

In New York, the Metropolitan Transportation Authority owns seven bridges and two tunnels that cross the East River. Until recently, all nine were supported by electronic and cash tolls enforced by gates that can be raised only by the cash attendant or by a "fare paid" signal from an E-ZPass transponder.

When the Authority replaced the Henry Hudson Bridge in 2012, they omitted the cash tolls because traffic on the bridge was almost entirely from commuters and the electronic penetration rate was 94%. Even at that rate, they incurred substantial losses from the AET conversion as reported in the attached news account (Enclosure 6).

Such losses from AET are inevitable. Whether to incur them is a question of scale, financial tolerance and physical constraints specific to each site. For reasons that have now been studied thoroughly, an AET solution is not a practicable option for a state like Maine.

Conclusion

As the law requires, this project is being sited and designed to minimize its effect on wetlands. While AET could eliminate the few remaining wetland impacts, it would cause financial disruption to the Turnpike, produce unacceptable toll distortions for travelers, and increase congestion within adjoining communities.

The reasons why AET fails to meet the purpose and need of this project are summarized as follows in Enclosure 4 to this letter:

> Maine Turnpike has 19 years of experience in using license plate photos to collect tolls from violators who pass through without paying. There is nothing new or novel about this process. Collecting from former cash customers by "All Electronic Tolling" or AET is not really so much "electronic" as it is an intense manual system for tolling by plate. It requires a large staff of back office clerks to confirm plate numbers, find addresses, prepare invoices, and track payments and penalties.
>
> Experience with AET from other states reveals that at least 40% of former cash tolls will be lost for a variety of reasons including: traffic diversion, plates obscured by snow or dirt, unwillingness of states or provinces to supply an address, invalid addresses, customers' failure to respond to small invoices, and lack of enforcement reciprocity with other jurisdictions. When cash is collected, these impediments disappear.
>
> Providing cash lanes on site is the only affordable, effective and reliable way for Maine to collect from its high volume of cash paying travelers, many of whom are from out of state. The capital cost of continuing to collect cash on site is a prudent and necessary investment:

- to preserve a significant portion of Turnpike revenue;
- to maintain the Turnpike's bond rating;
- to avoid doubling the toll and gouging cash paying motorists who travel north of York; and
- to prevent unwanted traffic diversions onto a number of secondary roads.

It is doubtful that any turnpike authority in the United States has spent quite so much time and effort as has the Maine Turnpike in evaluating and finally rejecting AET as a proposed business model for our region. The Town's letter of June 16 creates no legal, technical or practical reason to alter the project purpose or to change the ORT alternatives analysis.

The Corps has correctly concluded that AET is not a practicable alternative.

Peter Mills
Executive Director, Maine Turnpike Authority

Enclosures:
1. CDM Smith's response to the Fleming Report
2. Report on traffic diversion caused by doubling the toll under AET
3. Maine Turnpike's brief response to the Fleming Report
4. Maine Turnpike circular summarizing ORT versus AET issues
5. Article from masslive.com of August 10, 2016, on Massachusetts Turnpike losses
6. Article from USA Today of March 14, 2015, on losses at the Henry Hudson Bridge
7. Notice of Default by eTrans from Kentucky
8. Insider Louisville article on eTrans default

cc: Paul Mercer, Commissioner Maine DEP
Melanie Loyzim, Deputy Commissioner Maine DEP
Mark Bergeron, Maine DEP
Attorney Scott D. Anderson of Verrill & Dana
Stephen H. Burns, York Town Manager
Robert Green, Maine DEP
(All with enclosures)

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APPENDIX 2C

INITIAL ALL ELECTRONIC TOLLING FEASIBILITY REVIEW BY HNTB 2/20/09

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Maine Turnpike
Southern Toll Plaza
Initial All-Electronic Tolling
Feasibility Review

Prepared for

Maine Turnpike Authority



Prepared by:

HNTB

February 20, 2009

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EXECUTIVE SUMMARY

The York Toll Plaza was constructed in 1969 and was expected to be removed with the defeasance of the bonds in 1981. Since its construction it has undergone two expansions and has experienced four toll collection systems. The York toll Plaza processes 15.7 million vehicle transactions per year. A total of $33 million or 41 % of the Turnpike's revenue was collected at York in 2008. Of the 15.7 million vehicles processed at York in 2008, roughly 12% were trucks, approximately half were from out of state and over 57% used E-ZPass.

In 2006, the Maine Turnpike Authority voted and approved the concept that the replacement York Toll Plaza would be built incorporating highway speed tolling for E-ZPass customers at the new plaza. Highway speed tolling (HST) would allow E-ZPass users to pay their tolls electronically while traveling at normal highway speed (55-65 mph). Cash paying customers would exit the mainline to pay their tolls. This decision was made after consideration of the potential benefits of HST such as: improved safety, congestion relief, customer service, and capital cost savings, all weighed against some of the business costs associated with probable revenue leakage.

As part of the alternatives analysis related to the York Toll Plaza project, HNTB was commissioned to review the potential for All-Electronic Tolling (AET), also known as cashless or full open road tolling. AET would eliminate all cash toll payments potentially using two methods. First, E-ZPass users would pay their toll as they would under HST as well as any former cash customers who would convert to E-ZPass as a result of the implementation of AET. Tolls would be collected from non-E-ZPass users through video tolling.

Since 2006, a few agencies in the US have either begun implementing or have set policy that future replacement facilities will be AET. A handful of agencies have begun conversion or have set policies that future installations will incorporate AET. A few more agencies have initiated extensive formal studies to evaluate the applicability of AET. Many agencies are mainly waiting to see the results of these agencies activities before conducting extensive assessments. It should be noted that although some agencies have committed to convert to AET, at the time of this review, no existing cash based agency has completed a total conversion to AET. Furthermore, there is very little standardization of reporting of the business impacts of AET and much reluctance on the part of those agencies involved in AET to release documented and audited results of the business impacts.

While the potential benefits of AET can be documented, the significant risk associated with the uncertainty behind the business costs of AET make the option of AET for the York Toll Plaza replacement not feasible. The following points elaborate on this risk:

- The ability to recover toll revenue from as much as 26 percent of the total traffic at York due to the lack of legislation that would compel payment from out of state patrons weighs significantly in this risk. This inability has perplexed toll agencies for over 10 years and we believe that this issue will not be cured in the next 20 years.
- The traffic mix of the Maine Turnpike is such that a significant number of patrons are non E-ZPass users and from out of state. The extent to which these customers would not migrate to E-ZPass and pre-paid video products is uncertain and these factors greatly influence business costs such as operating costs and revenue losses.
- The resulting toll and fee structure for an AET system could result in actual or perceived unfair distribution of payments between Maine and out of state customers. This results when out of state violators do not pay because there is no significant enforcement capability and the structure is set up or perceived to be set up to offset these losses by paying in-state patrons further compelled to pay because of threat of registration hold.
- Difficulties attributed to the duplicate license plate numbering system and the ability of video systems to recognize the myriad of different plate types present minor operational challenges.
- The current lack of industry data for similar roadways already implementing AET limits the ability to compare potential MTA outcomes makes forecasting difficult to calibrate.
- The uncertainty relative to how customers will respond to the changes in payment methods and the uncertainty relative to revenue recovery potential for violations pose too broad a range of potential outcomes. These include potentially significant risks to net revenue required to operate the roadway.
- The MTA may be limited in its ability to allow for certain types of post payment options typical for AET systems. For example, post payments of video tolls by customers are considered an extension of credit and any restrictions on how the MTA operates under these situations would need to be considered.

Greater certainty around the potential impacts to toll operating costs and revenue impacts resulting from AET would be necessary to determine if the range of risks can potentially be mitigated to an acceptable level or if the risks are insurmountable. Based on the cost analyses conducted, the range of risk to the MTA resulting from uncertainties related to AET over 20 years could be as high as $400 million. Therefore, given the revenue risk associated with the stated uncertainties, HNTB does not recommend AET for the York Toll Plaza at this point in time, nor do we anticipate, given the significant concerns described herein, that AET would be prudent for York Toll within the next 20 years.

INTRODUCTION

In 2006, the Maine Turnpike Authority voted and approved the concept that the replacement York Toll Plaza would incorporate highway speed tolling for E-ZPass customers at the new plaza. Highway speed tolling (HST) would allow E-ZPass users to pay their tolls electronically while traveling at normal highway speed (55-65 mph) by simply passing beneath sensors on the mainline of the highway. Cash paying customers would briefly exit the mainline of the highway to pay their tolls at a more traditional plaza. This decision was made after consideration of the potential benefits such as improved safety, congestion relief, customer service, and capital cost savings, all weighed against potential business costs associated with probable revenue leakage.

As part of the alternatives analysis related to the project, HNTB was commissioned to review the potential for All-Electronic Tolling (AET), also known as cashless or full open road tolling, as an alternative to the currently planned highway speed and cash collection plaza. An AET option would eliminate all cash toll payments at the toll plaza. Turnpike customers originally with E-ZPass would continue to pay as they would under HST as well as any former cash customers who would convert to E-ZPass as a result of the implementation of AET. Tolls would be collected from non-E-ZPass users by capturing an image of their license plate, using their license plate number to either match pre-paid license plate accounts or identify the registered owner's address to send them a bill.

Since 2006, a few agencies in the US have either begun implementing or have set policy that future replacement facilities will be AET. Some of these agencies are start-up or "greenfield" toll roads while others are existing "brownfield facilities with established toll roads and customers. A handful of agencies have begun conversion or have set policies that future installations will incorporate AET. A few more agencies have initiated extensive formal studies to evaluate the applicability of AET. Many agencies are mainly waiting to see the results of these agencies activities before conducting extensive assessments. It should be noted that although some agencies have committed to convert to AET, at the time of this review, no existing cash based agency has completed a total conversion to AET and therefore there is little to no available information to assist other agencies with forecasting the applicability of AET for their own roadways. Furthermore, there is very little standardization of reporting of the business impacts of AET and much reluctance on the part of those agencies involved in AET to release documented and audited results of the business impacts. Considering the lack of information plus the broad range of local factors and the unique characteristics of each facility, a decision regarding AET cannot be based solely on what other agencies may be doing, but must consider the individual agency case in order to appropriately determine feasibility.

TOLL TECHNOLOGY BACKGROUND

Electronic toll collection (ETC) technology has been in use on major toll roads since 1988 and has grown significantly due to its convenience for the consumer/customer. Nearly every toll agency that has implemented ETC has shown positive impacts on vehicular throughput and customer service for toll collection. The development and public acceptance of ETC technologies have allowed toll agencies to rely less on cash collection and more on non-stop electronic toll collection. Initially in the 1990's there were some predictions of an eventual national interoperability standard that would unite ETC systems across the country by the turn of the century. In practice, there are several regional groups within the United States that have adopted interoperability requirements so that a single transponder can be used on any of the facilities that are part of that group but there is no national interoperability at this stage. The Federal Highway Administration along with several other coalitions and industry groups continue to pursue the development of a national standard that would tie into an overall vehicle to vehicle and vehicle to infrastructure communication system, but this schedule continues to be uncertain. Instead, regional interoperability has grown and the result has encouraged ETC use to continue to grow steadily while cash payments have declined.

The Maine Turnpike has used electronic toll collection since 1997, when Transpass, the first system in New England, was put into operation. In 2005, the Authority converted their electronic toll collection system to ***E-ZPass***, allowing Maine and any customer of the 11 state Inter-Agency Group (IAG) to pay tolls electronically on the Maine Turnpike. This system provides the Maine Turnpike with a far-reaching ***E-ZPass*** user base and provides interoperability and a regional transponder distribution network that extends throughout the Northeast. The IAG has issued over 17.5 million active ***E-ZPass*** transponders throughout the northeast.

In addition to transponder based electronic toll collection, several agencies (such as agencies in Texas, Florida and North Carolina) have or are planning to implement some form of "video tolling" as an additional payment option for patrons. Video tolling represents the option for a customer to pay for the toll based on the capture of their license plate by a roadside camera at the toll plaza rather than purchasing a transponder. Video toll accounts are typically designed for less frequent customers who cannot justify the cost of a transponder based on the frequency of their trips to benefit from the lower cost per toll for ETC.

The variety of video toll accounts types typically fall into two categories, "pre-paid" and "post-paid". In the "pre-paid" account option, the customer would sign up for an account, much like an E-ZPass account, but instead of a transponder assigned, the customer provides a license plate number for the account. Pre-paid accounts could include the same options as the current ETC accounts, including debit or commuter plans, but they

can also include features such as period passes that allow unlimited travel within a window of time. However the account is set up, the cost of tolls (or fees associated with the toll) for pre-paid video accounts is typically higher than ETC rates to first cover the cost to review the images and any other appropriated operational costs (such as a percentage of unreadable image costs). Second, some agencies consider pricing the video toll transaction to encourage ETC participation to improve operating efficiencies, weighing frequency of travel with operating costs. "Post-paid" accounts can take on different forms also, including those similar to the pre-paid options, only handled after the travel occurs. For example, the customer could contact the MTA post-travel to pay the toll, set up a debit and/or commuter account, or purchase a period pass covering the timeframe. The primary consideration is "when" the post payment occurs. Options for post payment within a time window (such as 72 hours or one week) after travel via a phone call or website would present one option. The next would be post-payment upon receipt of an invoice for travel. Toll rates or associated fees are typically set to cover costs for each scenario, similar to the pre-paid cost structures.

Most toll plazas designed and constructed within the last 10 years in the United States have incorporated dedicated ETC lanes as part of the toll plazas. These lanes are dedicated solely to ETC patrons and are designed as either slow speed or highway-speed dedicated electronic toll collection. A detailed description of slow speed and highway speed dedicated ETC technology is presented in the HNTB report entitled, "*Maine Turnpike Southern Toll Plaza Dedicated Electronic Toll Collection Lane Design Recommendations*" dated July 27, 2006. As noted, the MTA is currently planning to incorporate highway speed tolling at the replacement York plaza. This decision was in part based on the referenced report.

All-Electronic Tolling (AET)

It is possible that All-Electronic-Toll collection (AET) will be employed on a number of toll highways in the future. The concept of AET, also termed "Full Open Road Tolling", "Full ORT" or "cashless" tolling has been incorporated in the long range plans of a number of toll agencies. AET is a concept where 100% of all tolls are collected electronically without the need for a conventional toll plaza. While the technology to implement cashless, AET toll collection currently exists, the conversion from a cash or cash/ETC-based toll collection system to AET requires the resolution of many difficult issues, most of which are non-technical.

Since the 2006 report, the number of toll agencies studying AET and in the process of opening, planning to open or converting existing systems to AET has increased. The common characteristics among the majority of these installations remains that the facilities are:

- Primarily commuter roadways

- Primarily in-state user based
- Primarily ETC driven or ETC will be required of all users
- Heavily congested toll plazas

In addition to the above characteristics, another important factor is whether or not the project is part of an existing toll road ("brownfield" project), or part of a completely new toll road ("greenfield" project). For example, the conversion of existing toll roads in Texas and Florida to AET are all considered brownfield projects. New toll roads such as projects in North Carolina and Virginia are greenfield projects. Brownfield projects are faced with the additional challenges such as established cash payment options, driver expectations, and existing labor agreements and employees. Greenfield projects have the benefit of being designed from the beginning to incorporate AET based on understanding of the customer market, planning for operations and infrastructure, and setting local expectations early. For example, if the Maine Turnpike were considering a new roadway as part of their network and this roadway met the appropriate characteristics, this would likely represent a better candidate for AET than a brownfield portion of the existing system.

The Maine Turnpike currently does not share any of the characteristics common to agencies considering AET . By comparison, the Maine Turnpike is not a commuter roadway and approximately 50% of the vehicles entering the York Toll plaza and the Turnpike are from out of state. ETC penetration on the Maine Turnpike is only 50%. While this value is expected to grow towards the 80% range in the next 20 years full AET applications are expected to be higher still. Congestion levels are not significant with the exception of peak summer weekends in York and isolated ramp plaza locations during certain commuter hours.

The reason behind these common characteristics is risk. AET presents far greater risk in the collection of revenue. This is due to the fact that AET presents no restriction regarding who may use the roadway. As a result, the system is reliant upon video capture of sufficient information to assess the toll. The risks of this system include: correct video capture, availability of information regarding the vehicle and the legal ability to assess the toll and penalties in the instances of non payment. Three of the common characteristics listed above serve to significantly reduce this risk because of the consistent and /or known identity of the users. Even in the instance of the facility being a high commuter roadway with high ETC tag penetration the system can fail. The 407 ETR in Canada was the first full AET roadway. The 407 ETR meets the first two conditions listed with the roadway being the commuter roadway into Toronto and having in excess of 80% toll tag (ETC) utilization and 98.5% of the users being in province with no duplicate plate numbers between plate types. 407 ETR requires "heavy vehicles" (large commercial trucks) to use a transponder while passenger cars and light commercial vehicles have the option to pay by video tolling. Video represents about 20% of the transactions on 407 ETR. Currently,

there is a significant issue regarding toll collection of non toll tag users such that there is a severe revenue shortfall.

With regards to agency efforts to increase ETC percentages, a number of approaches have been tested or implemented by other agencies. In some cases, agencies (by direct action or through required construction) have limited the available cash payment lanes, resulting in delays to cash customers to encourage ETC participation. This approach must be carefully calculated as the resulting backups must be considered for potential safety conflicts with other traffic patterns, such as blocking through traffic on ramps or ramp access onto a facility. These methods of increasing ETC participation have not shown success.

The following page summarizes the toll agencies that have or will likely be utilizing AET. Note that the information available produces mainly high level characterizations of these facilities. In practice, the details behind certain types of data, such as net violations and recovery, are not readily available. Where applicable, HNTB is able to apply some experience with other agencies but only indirectly as an industry observation.

		Open Road Deployments										
		Existing Full ORT Facilities					Proposed Full ORT Facilities				ORT/Managed Lane Configuration	
	Facility	407 ETR	Westpark Tollway	Crosstown Expressway Elevated Reversible	Central Texas Turnpike SH 183A & SH 130	NTTA DNT, PGBT, AATT, MCLB	Miami Dade Expressway SRs 924, 878, 874, 836, & 112	E470 NWP, CTE, E-470	Inter County Connector	North Carolina Turnpike Authority	SR-91	SANDAG I-15
	Location	Toronto, Canada	Houston, TX	Tampa, FL	Austin, TX	Dallas, TX	Miami, FL	Denver, CO	Montgomery County, MD		Orange County, CA	San Diego, CA
Item	Characteristic											
1	**Roadway**											
	Competing Routes	Rt 401 & QEW	US 59, Beltway, SH 6	I-4 and FL 60	I-35	Local commuter routes	Local commuter routes	I-25, I-70	MD 198 MD 28	Multiple projects	SR-91 GP Lanes	I-5
	Type (urban rural et)	Urban 4 lane	Urban 4 lane	Urban 3 lane reversible	Urban 4 lane	Urban 6 lane	Urban 3-5 lane	Urban	Urban 6 lane		Urban 4 lanes	Urban 4 lane
	Open-Closed System	Closed	Open	Closed	Open	Open	Open	Open - Mixed	TBD	Open - Mixed	Closed	Open - mixed
	Toll Movements (all - partial)	All	Partial	All	Partial	Partial (have tolled and untolled ramps onto and off of tolled main lanes)	Partial	All	TBD	Partial or All	All	Reversible section (all) and variable access (partial)
	Infrastructure	Double Gantry at every Entrance and Exit		Double Gantry at Toll Zone		Double (old) and Single Gantry (new)	Single Gantry		Under Construction TBD	TBD	One Double Toll Gantry (6 lanes at toll point)	Single Gantry
2	**Traffic**											
	Total Transactions (Revenue)			$550K/mo	$9M (5 months May 07)	383,453,978 ($223,894,096.65)			T&R Study in Progress			
	ETC %			100%	85%	79		Approx 70%		Projected 80%	100%	100% on reversible section
	Video Toll %			1%	15%	11				Projected 20%		
	Violation Rates		16% initially, then 2% (reported 2005)	unavailable (FTE)								Approx 14%
3	**Patrons**											
	Commuter - casual	Mostly commuter & Light Truck	Commuter	Commuter	Primarily Commuter	Commuter primarily	Commuter and tourist	Commuter and Tourist	Primarily Commuter	Depends on project - mostly commuter	Primarily Commuter	Primarily Commuter
	Instate - Out of state	Both, incl light, heavy single truck and heavy multiple trailer		Instate	Instate	Instate	Instate	Instate	Yes - Metro DC Area and Tourist	Depends on project - mostly in-state	Instate	Instate
4	**Products**											
	Type of Transponders	MK IV - TDMA (ASTM v6)	TransCore eGo, ATA Transponders; TxTag, TollTag, EZ Tag	TransCore SunPass Transponder Allegro, ATA, eGo+	TransCore eGo, ATA Transponders; TxTag, TollTag, EZ Tag	TransCore eGo, ATA Transponders; TxTag, TollTag, EZ Tag	TransCore SunPass Transponder Allegro, ATA, eGo+	CA Title 21, TC and SIRIT	IAG	TBD	CA Title 21, TC and SIRIT	CA Title 21, TC and SIRIT
	Rental Cars - Accounts etc	Fleet MGT Capability - specifically silent on Rental Car Accounts	Unk	(future)	Unk	Have agreement with Rent A Toll; working with Enterprise directly; working through statewide Interoperability for future PlatePass.	FTE SunPass accounts by some rental cars in place)	Unk	TBD	TBD	Unk	Unk
	LPN Lists	Yes	Yes	Yes	Yes	Yes	Yes	Yes	TBD	Yes		
	Rate structures	Light, Heavy single, Heavy multiple	Axle Based 2-6 axles	Axle Based 2-10 axles	2 Axle only	Axle Based 2 to 6+ axles	Axle Based 2 to 9 axles	Axle Based 2 to 9 axles	TBD		2-axle, HOV 3+, dynamic	2 axle, HOV 2+
	Discount Plans	ETR Program provides Free Toll mileage and Gas Discounts; Heavy Vehicle Savings Program		none		Video toll have premiums above the transponder toll rate		Express Toll Reward Program - provides discounts and deals from local companies	TBD			
5	**Enforcement**											
	Equipment	Video with ALPR		Video		Video with ALPR and manual review			TBD		Manual CHP and Video ALPR	Manual CHP and Video ALPR
	Out of State Pursured?	Yes including in US		yes		Some					Yes	
	Revenue Recovered	Yes - % or Amount Unk		unavailable (FTE)							Yes - % or Amount Unk	
	Fee/Fines Recovered	Yes - % or Amount Unk		unavailable (FTE)							Yes - % or Amount Unk	
	Instate Pursued?	Yes				Yes, once meet business rules					Yes	
	Revenue Recovered	Yes - % or Amount Unk		unavailable (FTE)							Yes - % or Amount Unk	
	Fee/Fines Recovered	Yes - % or Amount Unk		unavailable (FTE)							Yes - % or Amount Unk	
	Legal Restrictions etc					2 years from txn date to pursue through citation in JP courts, no limit on collection process						
6	**What Led to ORT Decision?**											
	(capital cost, O&M costs, customer service, congestion relief)	Congestion relief in city center	Improve mobility in region	Relieve congestion (during peak periods - directional)	Improve mobility and Congestion relief	Improve mobility and Congestion relief; reduce operation and capital costs	Eliminate Cash Operations and reduce congestion	Improve mobility and Congestion relief	Improved mobility and Congestion relief	Overall and capital cost savings	SR 91 congestion relief between Orange County and Riverside County	Congestion relief in region
7	**Master Plan and/or Decision paper available?**											
				Available		Conversion plan to be completed in June/July 2008	Available					

The toll lane level technology involved for AET is very similar if not the same as toll technology used for highway speed dedicated ETC lanes already approved for the replacement York Toll Plaza. The system would include overhead structures to support the placement of antennas and cameras to identify vehicles passing through the toll point. Other sensors would detect and classify vehicles to assign the appropriate toll point and these could be a combination of overhead mounted and pavement surface sensors.

While the benefits and cost considerations for AET are very similar to the decision to incorporate the option of HST, one fundamental difference exists. HST maintains an option for non-ETC customers preferring to use a stop condition form of payment, such as cash. AET is entirely electronic and eliminates the option to stop and pay by cash at the plaza. This distinction provides both benefits and costs worthy of careful consideration:

In conjunction with a decision to incorporate AET at future toll plazas, the Maine Turnpike Authority must also consider the following negative impacts:

1. AET will measurably increase operational costs for back office and the customer service center due to initial and ongoing customer education, additional post processing of transactions and increased violation image and notice processing.

2. Non-payment events at an AET plaza will likely increase due to patron confusion, technology limitations and increased scofflaws. Other toll agencies who have installed highway speed lanes or AET have typically experienced increases after conversion that lessens over time as a result of familiarization and enforcement. The issue of revenue collection has been discussed previously regarding scofflaws. The issue of collecting from patrons who infrequently use the roadway must also be considered as the cost to collect for one or two trips must be weighed against the available tolls and fees that could be charged.

3. Current limitations or lack of interstate agreements to enforce out of state toll violators limit the options for penalizing these violators. Without these agreements or laws, the Turnpike has few options to try to compel these violators to pay.

4. Improperly structured AET programs could result in a real or perceived subsidization of revenue by certain customers (for example, in-state patrons paying for out of state violators who do not pay). An AET program would need to be structured to minimize subsidization of tolls by certain groups of paying patrons at different points in the payment stream. For example, rates/fees/penalties associated with violations would need to be appropriately assigned to cover losses in that category due to lost revenue rather than having ETC or video rates set to offset a portion of losses due to violations. Global inefficiencies such as unreadable images would need to be distributed given an appropriate traffic assumptions.

5. Privacy concerns may emerge given that AET reduces the anonymous options for driver payments. Currently cash is exchanged with no record of the driver. An AET system may require anonymous account options to satisfy a portion of this concern. However, patrons who do not prepay with an account would be subject to identification via license plate lookup. The actual level of this concern is unknown and would need to be the subject of further understanding of patrons.

6. Regardless of the result of capital, operating maintenance and revenue impact costs and savings comparisons, consideration must be given for the potential equity or ethical concerns that could arise from the initial or sustained increases in non-payments expected under AET. The business case of cost savings would have to be weighed against the policy decision to accept that the potential that fewer patrons will ultimately pay the toll. More specifically, a system that allows higher revenue leakage but results in a net positive revenue over previous tolling regimes could still be viewed as inequitable or unethical since a larger portion of patrons are not actually paying the toll.

7. The capacity of local judicial processes is a potential concern if the judicial system is not set up to handle the additional cases resulting from AET. Advanced planning and coordination with the appropriate agencies would be necessary to determine costs and considerations needed as part of AET planning and implementation.

8. Unbanked customers (those without bank or credit card accounts) that prefer to pay cash at the point of tolling will find the cash option of pre or post paying with cash offsite as a burden.

9. AET may result in revenue decreases from increased diversion to local roads (some of which are already congested) as some patrons who perceive a lack of options to pay the toll that suits their preferences, seek alternate routes.

10. AET will require additional costs to increase transponder use, develop, market and implement new tolling products, as well as implement a significant public relations campaign to inform the public of the changes initially and ongoing education of future customers. The introduction of video tolling products and the removal of cash payment on the roadway will require significant public communication. Other products may include anonymous accounts to satisfy privacy concerns by some patrons.

11. Weather impacts to equipment are magnified with increasing reliance on video technologies. Significant snow or similar conditions may reduce the quality of images resulting in higher volumes of image rejections resulting in direct revenue losses.

12. AET may violate restrictions associated with existing bond covenants, trust indentures or similar agreements associated with the financing of the Maine Turnpike. For example, where bonds require toll revenues to meet certain thresholds, a higher amount of revenue loss under AET may require higher toll rates either initially or over a sustained period.

13. Consideration for labor agreements and the impact regarding AET implementation.

14. In some cases, the location for the construction of an AET plaza may not be conducive for the construction of a cash plus highway speed toll plaza given the different site requirements. If for some reason the plaza needed to be converted to add cash collection in the future, some AET plaza sites may restrict this option.

15. The conversion of only one location on the Maine Turnpike to AET while maintaining cash options at others may present confusion among patrons with regards to where payments options are available. Since cash lanes on the Maine Turnpike do not have enforcement cameras, if patrons assuming AET payment options pass through these lanes without stopping to pay, the Maine Turnpike would not realize this revenue.

16. Without fare collection staff at toll plazas, the Maine Turnpike will need to consider alternatives to handling wide load permits, which are currently a function served by fare collection staff.

With the challenges understood, the following beneficial impacts associated with AET include:

1. An AET toll plaza has the potential for greater safety due to the removal of any decisions required of the patron at the toll point. The goal of AET is a transparent roadway that reduces or eliminates any change to the driver's environment than what is typically encountered on other parts of the facility.

2. Under AET, all customers of the facility benefit from the convenience of not having to stop to pay the toll. Customers can either sign up for a transponder or opt

for other products such as pre-paid or post-paid video tolling options that could be offered by the agency.

3. AET toll plaza configurations minimize plaza construction capital cost by eliminating the need for toll booths that may require wider right of way and additional infrastructure. .

4. AET toll plazas typically require less long term maintenance, since an AET plaza includes significantly less infrastructure.

5. AET eliminates the cost of fare collection staffing and support at the toll plaza.

6. Additional environmental benefits are possible with an AET plaza. By increasing the average speed of vehicles passing through the plaza, the average fuel economy of vehicles will increase. This quantifiable reduction in the use of fuel will not only provide financial benefits to the patrons, but reduce the consumption of non-renewable resources.

An AET plaza would require patrons to either sign up for an E-ZPass account or pay via a pre-paid or post-paid video toll account. The MTA would need to consider pricing of such options would be matched to the frequency of the trip by the customer and cover administrative costs for each product. Pricing considerations can also go further to influence patrons to utilize more cost efficient products. Infrequent users who cannot justify the cost of a transponder would have the option to pay a video toll at a higher rate than the transponder rate but less than the cost of a transponder. Depending on the magnitude of the rate adjustment, larger portions of infrequent users would find the transponder option more financially practical. It may be expected that this adjustment may be as high three or more times the existing transponder rate in cases where patrons delay payment until an invoice or notice is received. While having the positive impact of driving patrons towards more cost efficient pre-payment options, this would likely have significant negative public acceptance issues.

DETAILED COST FACTOR DISCUSSION FOR ALL-ELECTRONIC TOLLING

As noted, the current direction of both industry technology and agency decision-making is to allow for the possibility of migration to AET under the right conditions. Some agencies are implementing AET on current projects or as in the case of the Maine Turnpike, considering this a future possibility in strategic planning activities. In addition to planning for the York Toll Plaza, other barrier toll plaza projects are under consideration in long range planning that will also consider HST and AET options. Each agency is faced with unique user and traffic features which will impact the consideration and viability of AET. The following discussion presents the benefits and costs in the context of the decision process for planning for AET.

Capital Cost Considerations

Plazas that incorporate staffed and/or cash collection along with considerations for ETC customers either through dedicated or highway speed lanes require greater infrastructure than those plazas that do not. The plazas require a larger right of way for pavement to support the widening for toll booths and traffic splits, as well as utilities, access and buildings to support the plaza staff. By comparison, an AET facility requires basically the same infrastructure as the highway speed tolling lanes of an HST toll plaza. At the center of the proposed HST plaza would contain a set of toll gantries over a section of roadway continuous with the mainline alignment. These gantries and equipment would be very similar to an AET toll point. The overhead structures, pavement footprint and toll equipment are basically the same. The state of the practice in the industry is to construct the highway speed lanes to match the approaching mainline configuration, allowing simpler transition to AET in the future although this may be modified dependent upon ETC utilization.

Based on the condition of the existing plaza, a capital cost estimate has also been performed to determine the amount of investment needed to refurbish the existing toll plaza. The following provides an initial estimate and comparison of the capital costs for each option. Both represent an average estimated cost for a new plaza location.

Capital Construction Cost Estimates for Plaza Options

	Existing	Highway Speed	AET
Existing Plaza Demo	n/a	$ 2,500,000	$ 2,500,000
New Construction	$ 14,300,000	$ 28,900,000	$ 4,400,000
	$ 14,300,000	$ 31,400,000	$ 6,900,000

While the toll equipment and system for transponder users is essentially the same between the AET and highway speed systems, the development of and related system upgrades in order to support any new products such as pre-paid or post-paid video tolling

would be an additional cost to the AET system for the back office. These additional costs are not captured here.

Maintenance Cost Considerations

Because the highway speed plaza involves cash collection lanes as well as the dedicated ETC lanes, the annual maintenance costs will likely be higher. The life cycle costs require significant review as over time part of the cash collection infrastructure may morph into part of the ETC system. Annual maintenance includes additional building, plaza and roadway maintenance. Building maintenance would include items such as custodial, lighting, HVAC and other regular maintenances. Roadway maintenance would include snow and ice control for the additional plaza area as well as annual routine maintenance of pavements, plaza structures and plaza grounds.

In addition to routine maintenance, the non-routine (also known as reserve maintenance or renewal and replacement costs) items such as pavement rehabilitation, plaza area concrete maintenance and booth maintenance require budgeting in the later years of the facility. By contrast, the AET plaza does not require these additional costs because it does not include the cash plaza infrastructure. Both options require maintenance of the toll equipment. The highway speed option contains a larger amount of toll equipment because of the additional cash equipment, where as the AET system would require more maintenance of the backhouse operation, potentially involving more technical staff or expansion of contracted maintenance services.

The following estimates the maintenance requirements for both options. The cost of toll equipment maintenance for AET assumes a highest cost option, which would involve a separate vendor with full time on-site support. In practice, the use of the same vendor as the rest of the system or limited on-site availability could yield lower costs.

Estimated Annual Routine Maintenance Costs for York Plaza Options

	Current Plaza	Highway Speed	AET
Cash Plaza Maintenance	$ 345,000	$ 345,000	$ -
Toll Equipment Maintenance	$ 204,000	$ 180,000	$ 187,000
	$ 549,000	$ 525,000	$ 187,000

Non-routine Maintenance Cost for Plazas with Cash Collection Infrastructure

Activity	Cost	Frequency
Concrete islands, slab and other surface sealing	$106,000	Every 5 years
Approach pavement crack sealing	$12,300	Every 8 years
Canopy roof sealing	$53,000	Every 15 years
Complete approach pavement overlay	$2.8 million	Every 15 years
Tunnel and slab rehabilitation	$740,000	Every 20 years

Operations Cost Considerations

The cost to operate toll plazas for the purposes of this report includes the cost to staff the plaza and the cost of customer service and violations processing related to the plaza. Since the highway speed plaza sizing and staffing has not been finalized and ultimate impacts to overall MTA staff costs will be an MTA policy decision, this study starts by assuming a percentage reduction in staffing costs based on the most recent reduced number of cash lanes in the highway speed plaza compared to the current plaza. Since the AET plaza requires no on-site cash collection, the AET option is assumed have no on-site fare collection staffing costs. Depending on the capacity of current MTA back office staff, additional technical staff associated with the new toll system may be required offsite. It must be noted that the functions of toll collection are primarily transferred to the customer service and violations processing centers.

Both highway speed tolling and an AET option will increase the load on the customer service and violations processing costs to the MTA. Highway speed tolling is projected to have far less of an effect since a cash option will remain. The challenge with estimating the impact under the AET scenario is projecting the migration of the cash customers. Without any similar industry examples to compare to and without quantifiable information about the attitudes and willingness of MTA cash customers to migrate to certain products, the projection of operating costs carries the potential for significant variation and therefore risk. The risk in the case of the MTA is much higher since the characteristics of the roadways are so different. The other agencies share the benefits of high commuter usage, high ETC penetration rates and high instate constituency. The largest agency contemplating this change is the Port Authority of New York and New Jersey (PANYNJ). The risk for this agency is likely smaller than may be contemplated. The facilities of PANYNJ fit the common characteristics previously discussed with one other benefit. For example, the PANYNJ enjoys up to 80% market share (peak), and over 85% of plates are within jurisdiction. Being a duel state agency, PANYNJ has jurisdiction in both New York and New Jersey. This means they can assess fines for the largest amount of their users, all of the two states mentioned.

In order to estimate the range of this risk for the MTA given the limited information, two scenarios were considered. The first involves using limited MTA traffic pattern information (origin and destination studies or O&D) to estimate how cash patrons might migrate to certain products based on their frequency of use. This first "optimistic" scenario assumes that a significant portion of the transactions (but not patrons) will be handled as E-ZPass or video transactions under an all AET configuration. The second scenario presents a significantly more negative scenario in which all of the cash customers at the plaza migrate to the violation category. In other words, under this "pessimistic" scenario, none of the cash customers at the York plaza choose to sign up for E-ZPass or video tolling (pre-paid or post-payment before invoicing). This presents somewhat of a worst case and places a high end on the risk assessment.

The following represents the four categories of customers likely under AET:

1. E-ZPass customer (lowest risk of not collecting)
2. Registered video account (mild risk)
3. Unregistered video (more risk)
4. Violation (maximum risk)

Under the "optimistic" scenario, cash customer migration to ETC or video is based on trip frequency estimated from O&D study information. Current cash customers who use the Turnpike with greater frequency are assumed to migrate to one of these products for cost benefit reasons. The result of an evaluation of O&D data and estimates of patron trip frequency suggests that approximately 600,000-700,000 unique patrons use the Maine Turnpike. Based on trip frequencies of different patrons and based on payment type, it is estimated that approximately 225,000 unique patrons pay using E-ZPass, 350,000 pay with cash, and depending on the frequency of violations, 20,000-80,000 unique patrons violate. The cash users are further broken down in two groups, frequent and infrequent users. Based on the O&D data, it is estimated that roughly two out of three unique patrons travel less than once per week but at most six times per year. Because of their infrequent use, these individuals would represent approximately 10% of the cash transactions on the Turnpike. So for the purposes of estimating the increased volume of violation transactions to be processed by the violations processing center, this study conservatively assumes that 10% of the cash transactions at York (or 2 out of 3 current cash customers, not transactions, but unique customers of the Turnpike, based on estimated frequency of travel) will become violations. So the "optimistic" scenario assumes that 2 out of 3 unique cash customers on the Turnpike would choose to not pay the toll before receiving a violation notice. This would represent an approximate 150% increase in total non-payments at the toll plaza and an overall gross violation rate of 6.4%. This translates into additional staff required for the violations processing center to handle the additional volume of images from the system and process notices.

It is assumed that the majority of the rest of patrons (diversions are addressed later in the report), based on their estimated trip frequencies, will join E-ZPass, prepaid video tolling or post paid video tolling either via paying by phone or website within a certain window of time after traveling or by paying an invoice. These would include the one out of three unique cash patrons noted in the O&D observations above. These represent 90% of the cash transactions at York. Based on estimated trips per account, this additional volume would require additional customer service staff to manage the higher volume of E-ZPass or video accounts.

Under the "pessimistic" scenario, all cash customers (and their corresponding transactions) are assumed to migrate to the violation category. This results in a more straightforward calculation of the operating and revenue cost impacts, because the larger volume is simply applied to the current cost and recovery rates for the Maine Turnpike violations processing center. What is not assessed is the potential for increased violations due to the "their not paying why so I" scenario.

The following summarizes the additional staff estimated for each option to cover the additional costs of ETC, video tolling and violation processing followed by the additional costs for these increases in staffing.

Estimated Additional CSC/VPC Staff

	Highway Speed	AET Optimistic	AET Pessimistic
Customer Service Reps	1	12	2
Image Reviewers	1	3	25
Notice Processors	1	4	48
Clerical Staff	1	2	24
Total Additional Staff	4	21	99

The following summarizes the estimated total annual operating costs for the York plaza under each configuration. This includes the additional staff costs as well as direct costs. Direct costs include costs such as rent, utilities, postage, printing and credit card fees.

York Plaza Annual Operating Costs by Plaza Type

	Current	Highway Speed Option	AET "Optimistic"	AET "Pessimistic"
Fare Collection	$ 3,750,000	$ 3,150,000	$ -	$ -
Base CSC Cost	$ 507,000	$ 507,000	$ 507,000	$ 507,000
Additional CSC Costs	$ -	$ 84,000	$ 1,210,000	$ 165,000

Base VPC Costs	$ 137,000	$ 137,000	$ 137,000	$ 137,000
Additional VPC Costs	$ -	$ 255,000	$ 762,000	$ 8,378,000
Total Annual Costs	$ 4,394,000	$ 4,133,000	$ 2,616,000	$ 9,187,000

Revenue Impacts

In order to estimate the revenue impacts of AET at the York plaza, an analysis of the current system-wide and York plaza leakage was developed. The current estimate was then used as a baseline for estimating the revenue impacts of highway speed tolling at York and AET (optimistic and pessimistic) at York. Since the analysis is based on the system-wide observations to develop the York portion, an estimate of the total system leakage for a system-wide AET deployment also results.

With the E-ZPass system-wide conversion in 2005 and with recent augmentations to the VPC process, the MTA has a robustly capable enforcement system with revenue recovery methods for the ETC lanes at the York Toll Plaza, in addition to the rest of the ETC and coin lanes throughout the MTA system for both in-state and out of state violators. Additionally, roughly half of the images captured are used to collect revenue from E-ZPass customers who, for a variety of reasons that are mostly due to patron behavior, are not captured via valid transponder transaction. The MTA is also currently pursuing in and out of state violations that meet MTA policy and thresholds.

Revenue leakage is defined for this effort by the transactions that ultimately do not result in a collected toll. A variety of factors can be attributed to revenue leakage and this effort focuses on where the leakage is occurring in the system and what impact the new toll collection methods will have.

Potential sources of revenue leakage on the Maine Turnpike

Lane Type	Leakage	Notes
ETC lane	Unreadable image – system	Cannot pursue vehicles that cannot be identified due to equipment error
	Unreadable image – patron	Cannot pursue vehicles that cannot be identified due to patron action
	Rejected image	Some images are rejected based on non-revenue vehicles such as state police cars
	Non-pursued transactions	The MTA does not pursue certain transactions based on cost effectiveness thresholds or policies.
	In-state suspended or waived violation	In-state violators who do not pay violation notices are moved to suspension and are not

		collected from. In practice, most of this category is recaptured but due to data limitations, this category is conservative included as loss.
	Out of state suspended or waived violation	Out of state violators who do not pay violation notices are moved to suspension and are not collected from. This means the driver's right to operate in Maine is suspended however, this is not enforceable in other states and therefore provides minimal leverage.
	Select out of state and out of country violators	Due to limitations in some direct DMV access, the MTA has limited options to cost effectively pursue some violators. In some of these cases, MTA utilizes access to data via State Police for these violators. For the purposes of this analysis, these are considered losses due to the lack of data history. In practice, the MTA is actively seeking the majority of this revenue with some initial returns.
Manual Lane	Non-payments	Revenue not realized in manual lanes.

The current system leakage is estimated at the following based on MTA data and applied average toll rates. Note these are only approximate initial estimates based on average toll rates. Some variation could be expected due to higher volumes of trucks in one category or another, but this does provide an order of magnitude estimate at a minimum.

Current Estimated System-wide and York Plaza Revenue Leakage

	System-wide		York Plaza
Total net leakage as % of transactions	**1.7%**	**$1,500,000**	**$560,000**
Manual lane non-payments	1.1%	$1,000,000	$328,000
Non-pursued transactions	0.4%	$330,000	$138,000
Unreadable or reject images	0.1%	$110,000	$89,000
New Hampshire	<0.01%	<$10,000	<$5,000
Pennsylvania	<0.01%	<$1000	<$1000
New Brunswick	<0.01%	<$5,000	<$1000
In-state suspended or waived	<0.01%	<$1000	<$1000
Out of state suspended or waived	<0.01%	<$1000	<$1000

As the patrons shift as discussed in the Operations costs section, this also impacts the revenue leakage estimates. The following presents revenue leakage for the highway speed and AET options. Note that system-wide highway speed is not applicable at this stage

given not all locations would facilitate highway speed tolling and therefore the leakage factors would not apply to all locations.

Highway Speed York Plaza Revenue Leakage for York Plaza

	York Plaza
Total net leakage	**$850,000**
Manual lane non-payments	$312,000
Non-pursued transactions	$429,000
Unreadable or reject images	$89,000
New Hampshire	<$10,000
Pennsylvania	<$1000
New Brunswick	<$5,000
In-state suspended or waived	<$1000
Out of state suspended or waived	<$5000

Estimated System-wide and York Plaza Revenue Leakage Under "Optimistic" AET Scenario

	System-wide		York Plaza
Total net leakage as % of transactions	**4.2%**	**$3,300,000**	**$1,500,000**
Manual lane non-payments	0%	$0	$0
Non-pursued transactions	3.5%	$2,700,000	$1,000,000
Unreadable or reject images	0.6%	$500,000	$400,000
New Hampshire	0.04%	$46,000	$25,000
Pennsylvania	<0.01%	<$5000	<$5000
New Brunswick	<0.02%	$18,000	$10,000
In-state suspended or waived	<0.01%	<$5000	<$5000
Out of state suspended or waived	0.05%	$55,000	$23,000

Estimated System-wide and York Plaza Revenue Leakage Under "Pessimistic" AET Scenario

	System-wide		York Plaza
Total net leakage as % of transactions	**45.6%**	**$36,000,000**	**$17,100,000**
Manual lane non-payments	0%	$0	$0
Non-pursued transactions	38.8%	$30,200,000	$13,000,000
Unreadable or reject images	5.6%	$4,300,000	$3,400,000
New Hampshire	0.4%	$520,000	$277,000
Pennsylvania	0.04%	$43,000	$21,000
New Brunswick	0.17%	$202,000	$105,000
In-state suspended or waived	0.1%	$61,000	$19,000
Out of state suspended or waived	0. 5%	$620,000	$254,000

Comparison of York Plaza Total Revenue Leakage under Each Scenario

	Current	Highway Speed	AET "Optimistic"	AET "Pessimistic"
Total Leakage	**$560,000**	**$850,000**	**$1,500,000**	**$17,100,000**

In addition to the revenue impacts due to leakage, the estimates should also recognize a level of diversion from the toll plaza under the AET scenario. There were no significant estimates of diversion for this scenario, but as a point of reference, if 2.5% of the current cash customers at the York plaza choose to divert under AET, this would represent about $400,000 in lost revenue. In addition, privacy concerns, technology aversion, and preference to pay cash are factors that must be considered as they will impact the outcome of diversion.

While leakage and diversion negatively impact revenue, the collection of tolls, fees and penalties under the violation process are also recognized. The following estimates the revenue recovery by the violations processing center.

York Plaza Total Annual VPC Revenue Recovery

	Current	Highway Speed	AET "Optimistic"	AET "Pessimistic"
Annual Recovery	**$12,000**	**$38,000**	**$200,000**	**$2,300,000**

An AET plaza would require these patrons to either sign up for an E-ZPass account or pay via a pre-paid or post-paid video toll account. From an operating cost recovery perspective, the MTA would need to consider pricing of such options would be matched to the frequency of the trip by the customer and cover operating costs for each product. Pricing considerations can also go further to influence patrons to utilize more cost efficient products. So infrequent users who cannot justify the cost of a transponder would have the option to pay a video toll at a higher rate than the transponder rate but less than the cost of a transponder based on the infrequency of use. Depending on the magnitude of the rate adjustment, larger portions of infrequent users would find the transponder option more financially practical.

Note that specific toll revenue projections or revised rate structures are not part of the scope of this report. This report does assume, as a starting point of reference, that there will be some balance of cost recovery with the increased cost to process the customer options above. In other words (and subject to further discussion), pre and post paid video billing is assumed (for initial estimates) to be structured such that the net operating cost to the MTA is the same as processing ETC customers. So for the one in three cash customers identified as "frequent" users, the net cost to handle them will require the same staffing and direct costs as handling current ETC accounts. This introduces further discussions that will be needed relative to overall pricing of toll products, how each recovers costs to operate and how the pricing structure might be set to direct customers towards more cost efficient products (namely transponder based accounts).

The following summarizes the entire cost analysis for the options at the York plaza.

Total 20-Year Cost Summary for York Plaza ($2008)*

Current	$ 132 million
Highway Speed	$ 152 million
AET "Optimistic"	$ 94 million
AET "Pessimistic"	$ 494 million

*Capital costs assume 20-year bonds at 4.75%. O&M costs factored in on annual or scheduled as needed basis. No cost inflation, changes in traffic volume, ETC penetration, violation rates assumed as this stage.

Other Considerations

In addition to the business costs, the Authority will also need to consider the other less tangible impacts that would result from the implementation of AET:

1. Regardless of business case, consideration may be needed for the potential equity or ethical concerns that could arise from the initial or sustained increases in non-payments anticipated under AET. For example, the current toll plaza does not collect approximately $0.6 million due to revenue leakage. Under the "optimistic" AET scenario, this would potentially increase to $1.5 million in uncollected tolls. The Maine Turnpike would be accepting an additional loss of approximately $1 million annually to realize the one time savings of at least $20 million in capital costs and maintenance and operating cost savings of up to $2.1 million annually. Under the "pessimistic" AET scenario a substantial amount of the MTA revenue would be at risk. The business case of cost savings would have to be weighed against the policy decision to accept that fewer patrons will initially and ultimately pay the toll regardless of recovery efforts.
2. Consideration for any restrictions associated with existing bond covenants, trust indentures or similar agreements associated with the financing of the Maine Turnpike.
3. Consideration for current labor agreements and the impact to the timing of an AET implementation
4. Possible environmental credits for reducing emissions at toll plazas.
5. Safety benefits due to reduce conflict potential on the roadway.

CONCLUSION AND RECOMMENDATIONS

The reality of the circumstance is that it is very unlikely that the optimistic or the pessimistic scenario will occur. It is more likely that revenue leakage will be somewhere in the middle. This value however is significant and poses a grave threat to the Maine Turnpike.

While there may be theoretical benefits of converting a cash & ETC facility to AET, the significant uncertainty behind the business costs associated with AET coupled with the unique and quantified characteristics of the Maine Turnpike make the consideration of AET for the York Toll Plaza replacement not a feasible option at this point in time or in the 20 year planning horizon. The lack of industry data for similar roadways, the uncertainty relative to how customers will respond to the changes in payment methods and the uncertainty relative to revenue recovery potential for violations pose too broad a range of potential outcomes. These include significant risks to net revenue required to operate the roadway. Greater certainty around the potential impacts to toll operating costs and revenue impacts would be necessary to reduce the range of risks to an acceptable level for the further consideration of AET. Therefore, given the lack of comparable industry information to date and the revenue risk associated with uncertainties with patron behavior, HNTB does not recommend AET for the York Toll Plaza at this time, nor do we anticipate, given the significant risk described herein, that AET would not be prudent for York Toll within the next 20 years.

APPENDIX 2D

USACE LETTER TO MTA 11/15/15

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DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

Regulatory Division
CENAE-R-51
Corps File No. NAE-2007-01211

November 12, 2015

Sara Zografos
Maine Turnpike Authority
2360 Congress Street
Portland, Maine 04102

Dear Ms. Zografos:

This concerns your proposal to replace the existing turnpike toll plaza at York, Maine. This letter updates the status of the project according to the Corps Highway Methodology.

In March of 2010 the Authority submitted a draft Phase I screening of alternatives to avoid and minimize adverse impacts to waters and wetlands. On May 5, 2010 the Corps responded that we could not concur with your recommended short list of alternatives and requested additional information to assist in our analysis. Our information request also reflected a review of local concerns submitted from the Town of York, the Whippoorwill Homeowners Association ("WHOA"), and Verrill-Dana (on behalf of Think Again).

Attached to a cover letter dated September 1, 2015, the Authority provided a detailed response to our 2010 request. We compliment you on the thoroughness of your response, particularly concerning the subject of All Electronic Tolling ("AET"). Combined with your previous submittal, the document constitutes one of the more detailed Phase 1 submittals we have received in many years. But as previously noted and as we've discussed numerous times, this level of detail is appropriate in light of the above referenced and continued interest in the project from York residents.

This letter serves to document and confirm the completion of Phase I of the methodology and the Corps determination on which alternatives will be carried into Phase II and/or the application stage and studied in more detail. The Corps has determined that the following alternative sites will be carried forward for further analysis in order for the Corps to determine the least environmentally damaging practicable alternative ("LEDPA"): Locations 8.7 and 9.1. And although we clearly understand their deficiencies relative to the overall project purpose and the Section 404(b)(1) Guidelines, NEPA requires that the Corps carry the no build and upgrade of the existing plaza alternatives into our final analysis of alternatives as well. This may simply be by reference to the Phase I submittal or other documentation. AET does not presently appear to be economically practicable based on the additional information you've provided.

Please note however, that we are in no way pre-judging a LEDPA. No such determination will be made until after we conduct a public interest review and coordinate with federal and state resource agencies and the Maine DEP (it is our understanding that these entities

were not copied in your most recent response). We fully expect those that have expressed interest in this project to date to raise additional questions concerning the Authority's most recent findings. If their concerns are substantive or if additional information comes to light regarding any of the alternatives already considered by the Authority and its consultants, we may have to revisit your analyses. Toward that end, I wish to encourage you and your consultants to continue working with state and federal regulatory/resource agencies as well as the general public to avoid and minimize impacts to waterways and wetlands and address other important public interest issues.

Any future Corps permit decision will require the submission of a final complete permit application, evaluation of additional site specific measures to further avoid and minimize impacts to aquatic and other environmental resources, a public interest review, and the development of a detailed mitigation plan intended to compensate for any unavoidable impacts to wetlands and other aquatic resources. Maine Turnpike Authority will also be required to obtain a permit and water quality certification from the Maine DEP.

As with any highway project that involves unavoidable direct *and* indirect impacts to aquatic resources, adequate compensatory mitigation will be a major factor in any future permit decision. We encourage the Authority to continue early planning and coordination in this area. Ideally preliminary information on mitigation opportunities should be included in the final permit application. Although you and your consultants are aware of it, let me remind you that mitigation must be planned in accordance with the most current mitigation guidance from the Corps. This is available at our New England District web site at www.nae.usace.army.mil/regulatory. Identifying potential mitigation sites and assembling site analysis data, such as monitoring hydrology levels, should continue to be closely coordinated with the Corps, our federal and state resource agency partners, and the Maine DEP. Alternatively, you are well aware of the In Lieu Fee option, the Maine Natural Resources Conservation Program.

If you have any questions, please contact me at our Manchester, Maine Project Office at 207-623-8367.

Sincerely,

Jay L. Clement

Jay L. Clement
Senior Project Manager
Maine Project Office

Copies Furnished
Mark Kern – US EPA
Thomas Davidowicz – USFWS
Robert Green – Maine DEP

APPENDIX 2E

FINANCIAL IMPACTS OF AET, MTA CFO

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Financial Impacts of AET

By
Douglass D. Davidson
Chief Financial Officer & Treasurer
Maine Turnpike Authority

I. Introduction

As is more fully set forth elsewhere, the July 24, 2014 decision by the Maine Turnpike Authority (MTA) Board of Directors to pursue Open Road Tolling (ORT)[1] after determining that All Electronic Tolling (AET)[2] is not feasible was made after many years of detailed project-specific analyses by multiple experts, extensive public input, and careful consideration. This decision is consistent with two previous votes by two other MTA Boards in 2006 and 2010. In accordance with those votes, ORT is under development throughout the existing Turnpike.

As the Chief Financial Officer of the MTA, I am required to monitor the financial condition of the MTA and externally disclose issues that have a significant potential impact on MTA finances.[3] Any requirement that would force the MTA to implement AET at York would clearly qualify as such an impact. Thankfully, no such disclosure has been required as the Army Corps of Engineers (ACOE) has indicated to date that the MTA has thoroughly considered AET and properly determined that it is not a practicable alternative.[4]

The purpose of this Appendix is to outline the legal and financial structure that governs MTA financial decision making, and to set forth the immediate and broader financial impacts of requiring the MTA to implement AET as part of this project.

As will be seen below, imposing AET would cause substantial near-term financial impacts at York including reduced revenue or toll increases, and high rates of uncollectable transactions

[1] ORT has highway speed center lanes, and preserves the option to pay cash for those that want or need it at staffed toll booths to the right. Nearby completed examples include I-95 in Hampton, New Hampshire and New Gloucester, Maine. Other MTA ORT plazas are under construction in West Gardiner, Maine and on the Falmouth spur, and are in design in York and in Scarborough off Exit 44 on the southerly end of I-295.

[2] AET eliminates cash collection at the point of service and replaces it with a toll increases on non-E-ZPass customers to cover uncollectable transactions and diversion, photos of the license plates, looking up the registered owner's address through data bases (if available), mailing a bill to the vehicle owner's residence, and if necessary, significant administrative add-on fees and the possible suspension of motor vehicle registrations depending the state where the vehicle is registered.

[3] The Turnpike is subject to multiple layers of financial oversight including reviews by the MTA Board and staff, the General Engineering Consultant, the Bond Trustee, bond rating agencies, auditors, and the Maine Legislature. See Exhibit A to this white paper for more information on financial oversight.

[4] The ACOE approved a project purpose statement that called for an ORT plaza, complimented the MTA on the "thoroughness" of the MTA's response to ACOE questions, "particularly concerning the subject of All Electronic Tolling (AET)", and preliminarily concluded that "AET does not presently appear to be economically practicable". See section 2.1.3 of Attachment 2.

especially by out-of-staters. More broadly, these near-term impacts would undermine confidence in the MTA's toll collection system, jeopardize bond ratings, increase borrowing costs, and increase tolls throughout the Turnpike. Moreover, the imposition of AET by the ACOE or any other environmental permitting agency would threaten the MTA's independent legal ability to design and set tolls and would send a shock wave to toll agencies, bond ratings firms, and bond investors nationally.

The Town of York is asking environmental agencies to ignore the MTA's legitimate and genuine business decision to collect tolls using ORT plazas, and require the MTA to adopt AET or require more analysis and process.[5] This is despite the fact that in 2014, the Town of York recognized that AET is "unfeasible"[6] The Town later reversed course and now has argues that AET is practicable after it became apparent during the required site alternatives analysis that the Mile 8.8 ORT site will be safer, complies with engineering guidelines, has less environmental impact, has less abutter impact, and is more cost effective.

As is more fully set forth in elsewhere in these permit documents, these Town arguments do not raise any significant new substantive concerns or additional information that should impact the ACOE's conclusion that AET is not practicable alternative in this case. However, to further document full consideration of AET, the MTA is submitting this Appendix and other information related to the ORT vs. AET question.

II. The Legal and Financial Structure That Governs MTA Finances

A. Statutory Framework

The MTA is an independent toll agency created by Maine statute[7] that is solely funded from the revenue it generates. Unlike some other toll agencies - like those in New Hampshire and Massachusetts[8] - the MTA is not part of state government and receives no state or federal funding. About 95% of MTA revenue is derived from tolls, with the remainder being from concessions at its service plazas, investment income, etc.

The Maine statute that governs the MTA has always made clear that tolling setting and bonding decisions are to be made by the MTA. For example, 23 MRSA §1965(1)(H) and (M) provides

[5] See letter from Scott D. Anderson, Esq. to Jay Clement, ACOE, dated June 16, 2016.

[6] By letter of May 20, 2014, copy attached as Appendix 2-_, the York Board of Selectman, after asserting that AET "should be the ultimate policy goal for an integrated interstate toll collection system", recognized that "certain technical and political impediments make adoption of this AET system unfeasible at present". (Emphasis added.) The letter continued: "The York BOS encourages the MTA Board of Directors to pursue the engineering studies necessary to prove the viability of an ORT plaza at the current location of the York Toll Plaza," warning that "[a]ll other options will be strenuously opposed by the Town of York."

[7] See 23 MRSA §§1961, et. seq.

[8] The New Hampshire Bureau of Turnpikes and E-ZPass MA, the Massachusetts toll collection program, are both part of the their state departments of transportation.

that the MTA has the power to "charge and collect fees, fares and tolls for the use of the turnpike and other services made available in connection with the turnpike … subject to and in accordance with such agreement with bondholders" and to "issue … bonds and other evidences of indebtedness or obligations of the authority … and secure the payment … by pledge of … operating revenues of the turnpike."

The powers of the MTA to assure revenue and issue its own bonds are fundamental and existential, and distinguishes the MTA from toll agencies that rely on state funding and pledges. Unlike State general obligation bonds that are backed by the full faith and credit of the State, MTA bonds are backed solely by a pledge of MTA revenue. In case of default, MTA bond holders have no right to petition the State of Maine or any other government, and have no claim against Turnpike assets. That is, they cannot "foreclose" and take possession of Turnpike assets. Their only collateral is MTA revenue.

B. Bond Requirements

Accordingly, the contractual terms that protect MTA investors and by which the bonds are issued, known as the Bond Resolution[9], are designed to assure bond holders that the MTA revenue stream is secure, which in turn makes MTA bonds credit worthy and govern borrowing costs. Currently, the MTA has about $386 million in outstanding bond indebtedness, most of them issued with 30 year terms. Complying with these investor obligations is a fundamental, long-term requirement for the MTA.

There are several sections of the Bond Resolution that would govern any requirement that the MTA adopt AET in York.

- Bond Resolution Section 501 A, "The pledges effected by this resolution". This section pledges all revenues and cash of the Authority to the payment of the principal and interest to the bond holders.
- Bond Resolution Section 706, "No impairment of bond holder rights under the resolution". This section requires that the MTA can only use its revenues in accordance with the resolution and may not take actions that might impair bond holders' rights.
- Bond Resolution Section 802 a provides that "no free vehicular passage will be permitted over the turnpike, or any portion thereof, . . ." with narrow exceptions.
- Bond Resolution Section 802A thru F, "Toll schedules and revisions". This section spells out the steps that the MTA must follow when changing toll rates, schedules, classifications, and methodologies. The MTA must have a traffic consultant perform a study and present a report that shows that the authority will meet the "net revenue requirement" in the fiscal year of the requested toll change and in the subsequent five

[9] See General Turnpike Revenue Bond Resolution dated April 18, 1991, consisting thirteen Articles, about 100 Sections, over 91 single spaced pages. Although the terms in the Bond Resolution have been amended slightly over the years, its fundamental requirements have remained unchanged.

years. Approvals by the General Engineer Consultant and Bond Trustee are required. This section also covers ramifications if toll revenues and/or fee revenues are insufficient to meet the requirements.

III. Financial Consequences of AET

A. Near-term Impacts from AET at York

As is more fully set forth elsewhere, the MTA with a new Executive Director and Board members took a fresh look at AET from 2011-2014 with new expert engineering and tolling consultants. A resulting report by CDM Smith[10] identified numerous financial impacts of AET at York. The root cause of most of them is the percentage of formerly cash transactions that will become uncollectable.

- Overall, 42% of all non E-ZPass transactions will be uncollectable.
- The uncollectable rate for Maine vehicles is lowest at 29%.
- The uncollectable rate for NH and MA vehicles is 39%, due to reciprocity agreements.
- The uncollectable rates for all other states / countries is 64%.[11]
- Even when one considers E-ZPass customers too, the percentage of uncollectable transactions is very substantial: being almost 10%.[12] That is, 1 in 10 of all transactions in York will be uncollectable.

These uncollectable rates have potentially huge policy implications including the eventual erosion of public trust in the MTA's toll system.

As the CDM Smith Report outlines, AET would cost the MTA an estimated $6.5 million in Year 1 and $43 M over 10 years if no surcharge was levied.[13] The $6.5 M loss in Year 1 would represent about 17% of revenue at York and 4% of all Turnpike revenue.

By comparison, ORT would produce a net revenue gain of almost $ 1 million in Year 1.[14] Thus the net impact between AET and ORT would be $7.5 million in Year 1.

As the CDM Smith report sets forth, to avoid such losses the MTA would need to raise tolls including a surcharge on non E-ZPass customers at York. To mitigate most of the financial hit from AET, the MTA would initially need to DOUBLE the non E-ZPass rate at York from $3 to

[10] "Maine Turnpike ORT / AET Impact Analysis" by CDM Smith released March 18, 2014 and FINAL on April 14, 2014, copy attached as Appendix 2_.
[11] Ibid, Table 1 at 14.
[12] Ibid.
[13] Ibid, Table 4 at 17.
[14] Ibid, Table 6 at 23.

$6. Even with this increase, the revenue is estimated to decrease about $1.0 million in Year 1.[15] This toll hike would impact more than MTA finances, as it would cause diversion and significant traffic impacts in up to ten southern Maine towns.[16]

B. Broader Financial Consequences

As set forth in Section II above, the MTA cannot simply accept annual losses. Turnpike revenue is pledged, and the AET losses would trigger a disclosure, the need to redesign the toll system, traffic and revenue analysis, a downgrade of Turnpike bond rating, higher future borrowing cost, higher tolls, and depending upon the result of the new toll structure, a scaling back of capital projects in the MTA's 30-year plan.

More specifically, these broader financial consequences include the following.

- AET would require an extensive and expensive traffic and revenue analysis. All investment grade analyses cost over $100,000 even when there is no change in the toll rates or structure. Analyses that include changes to toll rates often cost in the $250,000 range. An analysis that includes a dramatic change to toll methodology - like AET, which would need to be implemented throughout the existing Turnpike (not just at York) and which has inherently higher risk – would likely be in the $500,000 range.
- AET carries inherently higher risk which would likely trigger a downgrade of the ratings on MTA bonds. A downgrade of two levels could be reasonably expected.
- This downgrade would increase borrowing costs. An increase in 125 basis points, or 1.25%, could be reasonably expected.
- The MTA's 30-year plan currently calls for $ 410 million in proposed borrowing. The increase in interest rates estimated above could cost the MTA an estimated $ 85 to 125 million in additional costs over the life of those proposed bonds.
- These additional costs would need to be covered. Under the Bond Resolution, the MTA cannot simply stop maintaining its facilities as doing impacts revenue. Therefore, AET would drive future toll increases on all MTA customers, not just those in York. The MTA 30-year financial plan does not currently call for any toll increases until 2031. This would likely move that timetable up by several years, perhaps as early as 2022.
- This would increase transportation costs for Maine businesses and citizens, which would have negatively impact Maine's overall economy.

[15] Ibid, Table 5 at 21.

[16] The CDM Smith reports estimates diversion to be between 3,400 and 5,500 vehicles per day. Ibid at 47. This would cause significant traffic impacts in 10 southern Maine municipalities: Ogunquit, York, Kittery, Eliot, Wells, South Berwick, Berwick, North Berwick, Sanford, and Kennebunk. See "*Analysis of Traffic Impacts from AET in York*" by Elizabeth Roberts, P.E. of HNTB dated July _, 2016 and attached as Appendix 2_.

- Moreover, the precedent that environmental permitting agencies can require toll agencies to adopt toll collection methodologies advocated by project opponents as part of a project permitting process, and thus essentially dictate how toll agencies collect tolls and at what rates, would be fundamental new risk and send a shock wave to toll agencies, bond rating firms, and bond investors nationally. This would likely trigger interest by policymakers.

IV. Conclusions

The MTA's decision to pursue Open Road Tolling (ORT) was a prudent business decision made by the entity that has the authority, responsibility, and expertise to make it after many years of detailed project-specific analyses by multiple experts, extensive public input, and careful consideration.

Near-term financial impacts of imposing AET at York include:

- 42% of all non E-ZPass transactions at York will be uncollectable, with out-of-sate uncollectable rates being up to 64%. Even when one considers E-ZPass customers, 1 in 10 of all transactions in York will be uncollectable.
- AET at York would cost the MTA an estimated $6.5 million in Year 1 and $43 M over 10 years if no surcharge was levied.
- To mitigate such AET losses, the non E-ZPass rate at York would need to DOUBLE the from $3 to $6.

Broader financial consequences of imposing AET include:

- A traffic and revenue study costing up to $500,000 would be necessary to attempt to adopt AET throughout the entire existing Turnpike.
- Potential reductions of the MTA's capital plan.
- Downgrading of MTA bonds and higher borrowing costs, which could cost the MTA $85 to 125 million over the terms of bonds currently contemplated.
- Higher tolls for all Turnpike customers, not just at York.
- A precedent that environmental permitting agencies can overrule decisions of toll agencies on how to design and set tolls, which would send a huge shock wave to toll agencies, bond ratings agencies, and bond investors nationally.

Exhibit A

Financial Oversight and Accountability at the MTA

There are multiple layers of oversight and disclosure to assure financial accountability at the Maine Turnpike Authority (MTA). Some of them are described below.

1. The MTA Board

The seven member MTA Board members meet monthly throughout the year and receive detailed financial reports. Further, the Board formed three subcommittees to allow for more detailed discussions: Finance & Audit, Personnel, and Long Range Planning. By statute, six of the seven Board members are appointed by the Governor and confirmed by the Senate; the seventh member is ex-officio and is the MaineDOT Commissioner or his/her designee. The current Board Chair is a past Chief Justice of the Maine Supreme Judicial Court. Other members include a banker, lawyer, businessman, engineer, and a public chief financial officer. These are accomplished and serious people.

2. MTA Executive Director

The MTA staff is led by an Executive Director who is appointed by the MTA Board and is also confirmed by the Senate. (Senate confirmation was part of the 2011 legislative Turnpike reforms.) Peter Mills became the Executive Director in 2011. He is a lawyer, former legislator, member of countless public boards, and is generally considered one of the best policy minds in Maine. Just as important, he has a well-earned reputation for integrity, openness, fairness, and good government.

3. Chief Financial Officer

The Chief Financial Officer (CFO) at the MTA is responsible for financial oversight and personally executes many certified disclosures to auditors, bond rating agencies, the Trustee, the Internal Revenue Service, the Securities and Exchange commission, and insurers. He takes execution of those duties very seriously. Also, as part of the 2011 changes, the CFO has a direct line of communication to the MTA Board concerning matters of financial integrity.

4. Other MTA Staff

Working under the supervision of the Executive Director, CFO and the Chief Operating Officer, the MTA has established and implemented numerous administrative checks and balances to assure that all expenditures are properly accounted for. Although the events of 2011 were not caused by them, the MTA staff know that they need to do things better than ever to regain the trust they deserve.

5. General Consulting Engineer (GEC)

Obligations to investors contained in contractual bond terms call for an outside General Engineering Consultant (GEC) to, among other things, inspect the Turnpike assets, recommend

capital spending levels that assure that the Turnpike is maintained properly, and review and recommend bid awards.

6. Bondholder's Trustee

Obligations to bond investors also establish a Trustee to oversee the finances of the MTA to protect bondholders. The Trustee is not like your home mortgage banker who is satisfied as long as periodic payments are made. Because these 30-year bonds are repaid only through future MTA revenue streams (and not by a claim against any physical asset), this Trustee asks for updates and information on an on-going basis regarding anything that could affect revenue over the long-term. Ultimately, the Trustee has the power to assume operational control of the Turnpike if it deems it necessary to protect bondholders. Trustee questions can include changes in traffic, accidents, and news articles on tolling nationally, Legislative bills and debates, project costs, and other matters. Again, this is because the Trustee has a duty to assure that MTA finances will allow bond repayment over the long term.

7. Audits

Pursuant to state law and contractual bond terms, the MTA performs quarterly and annual audits and reports. Reports are sent to the Office of Program Evaluation and Review (OPEGA) and the Transportation Committee. Outside audits are performed every year and presented to the Board.

8. Bond Rating Agencies

As anyone who involved in bonding knows, Wall Street bond rating agencies require extensive disclosures and process. Further, level of review by rating agencies has been higher since the economic collapse of 2008 and the subsequent reviews and critiques of Wall Street processes.

9. Insurer Disclosures

The MTA is required to have a full complement of insurances including commercial, auto, general liability, comprehensive crime, public officials and employee liability, fiduciary responsibility, privacy and network liability and excess cyber liability. These insurers require periodic disclosures as well.

10. Legislative Review of Operating Budget

Further, state law requires that the MTA Operating Budget be presented annually for legislative review and approval. 23 MRSA §1961(6). Although such review is very rare for toll agencies that have no state funding and that have independent bonding capacity, the MTA welcomes the opportunity to show the Transportation Committee what it does, how it does it, and why it is good for Turnpike travelers, our transportation system, and the Maine economy.

APPENDIX 2F

MAINE TURNPIKE ORT/AET IMPACT ANALYSIS BY CDM SMITH 4/14/14

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Executive Summary

Maine Turnpike ORT/AET Impact Analysis

This report summarizes the results of CDM Smith's independent impact assessment for possible conversion to Open Road Tolling (ORT) or All Electronic Tolling (AET) at two toll plazas on the Maine Turnpike. The Turnpike is faced with a number of challenges in the future regarding many of its existing toll collection facilities. Perhaps most urgent among these is the need for possible reconstruction of the York Toll Plaza, the southernmost barrier on the Maine Turnpike. That facility is decades old, and was constructed in a location in which subsurface conditions may preclude reconstruction. Consideration is being given to reconstruction of the plaza at an alternative location, but at a significant additional capital cost.

The Turnpike also anticipates the need to replace its northernmost toll plaza, at the I-295 connection in Gardiner. That facility, which was constructed immediately below the roadway overpass, which is no longer in use, must be slightly relocated and reconstructed in the future.

The toll industry is moving toward automating the toll collection process, using either ORT or AET. ORT would allow for high-speed, non-stop, collection of tolls from vehicles equipped with E-ZPass transponders, while retaining a limited number of cash collection lanes in each direction. AET would feature the elimination of cash collection altogether, and require only the construction of high-speed gantries across the mainline roadway, significantly reducing capital cost but requiring new methods and costs to handle vehicles without electronic transponders. Under AET, a license plate image is taken of customers without E-ZPass; those video transactions are sent to the customer by mail. This introduces considerable collection risk due to some video transactions being unbillable and others uncollectable.

Model Overview

CDM Smith developed a model to analyze the potential net revenue impacts of both AET and ORT. The model takes into account diversion to alternative routes (due to video toll surcharges or for those not comfortable with the technological aspects of AET), unreadable video images, lack of Department of Motor Vehicle (DMV) address information, and out of date DVM information. All of these result in unbillable video transactions. The model also takes into account payment billing collection rates and assumed uncollectable transactions. Both unbillable and uncollectable transactions result in toll revenue leakage.

A key component of the analysis was to track potential toll revenue leakage under both AET and ORT. ORT operates most similarly to the existing condition in that both E-ZPass and cash are still accepted. Under this scenario there is relatively little opportunity for revenue leakage compared to how the system currently operates. Experience on other facilities that have converted to ORT has confirmed that there is very little impact on net revenue collection. Under AET, however, all non-E-ZPass transactions must be invoiced. The need to invoice video transactions is where both the increased risk of revenue leakage and the higher costs of toll collection occur.

In addition, the model also takes into account the maintenance and operating (M&O) costs associated with collecting tolls under both AET and ORT scenarios. Thus, costs associated with video image

review, DMV look up, invoice mailing, and fare collection/administration are all tracked in the model. In the end, M&O costs are subtracted from gross toll revenue impacts to develop the net toll revenue associated with AET and ORT. These are then compared to estimated existing condition net toll revenue at York and Gardiner. Annual net toll revenue impacts were developed over the forecast period from 2015 through 2030.

A final component of the analysis incorporated the capital costs of converting York and Gardiner to either AET or ORT. All capital cost estimates were provided by HNTB Corporation. A final measure of comparison was developed by taking into account both the 10-year net present value of the net toll revenue impacts and the estimated capital cost impacts associated with AET and ORT.

The following summarizes CDM Smith's net revenue impact analysis of converting the York and Gardiner toll facilities to either AET or ORT.

York Toll Plaza

E-ZPass currently accounts for about 64 percent of York transactions. Of the remaining 36 percent of cash paying customers, only about 37 percent are Maine residents. Under AET, the majority of cash customers become video customers. As a result of this cash/E-ZPass mix and the relatively low percent of in-state cash paying customers, estimates of potential toll revenue leakage amount to almost 10 percent of total toll transactions at York. This amounts to about 42 percent of the potential video transaction component. This toll revenue leakage necessitated the need for revenue enhancements in the form of video toll surcharges (even after taking into account the estimated AET impacts on M&O costs) in order to maintain net revenue neutrality with the existing condition.

A range of AET unregistered video surcharges was tested ranging from $0.00 to $4.00 for a passenger car. Both 5 and 10-year cumulative net revenue impacts were developed for each surcharge level tested. The model assumed that video customers could choose between two video options: registered and unregistered. Registered video customers would pre-register their plates and set up an account with a minimum balance required. Tolls would be automatically deducted from their account once successfully identified in the image review process. Due to the lower costs associated with this type of transaction, their surcharge level was assumed to be half that for unregistered video customers. Experience on other AET facilities shows that, when offered, registered video participation is very low, generally ranging between 0 and 5 percent. For purposes of this study, CDM Smith assumed 5 percent of video transactions would be registered.

The analysis indicated that an unregistered video surcharge of about $3.00 (passenger car) would be required to maintain net revenue neutrality under AET at York over a 10-year time horizon. This is in addition to the current $3.00 cash toll at this location. The most recent toll increase at York took place on November 1, 2012 (from $2.00 to $3.00) and the Authority foresees that, under the existing condition, no further increases would be needed for 15-20 years. The imposition of the $3.00 video surcharge is also estimated to result in diversion to US Route 1 ranging from 3,400 to 5,500 per day.

Because ORT operations are very similar to current operations, no net revenue leakage is estimated to occur at the York Toll Plaza. Under this scenario, therefore, the current cash and E-ZPass rates would be maintained (i.e., no cash surcharge would be required).

A 10-year net present value comparison was conducted for both AET and ORT. HNTB estimates the capital costs to maintain the existing York Toll Plaza to be about $22.1 million. Costs for ORT conversion amount to $36.0 million, or about $13.9 million greater than the existing condition costs.

AET capital costs are estimated at about $4.8 million or about $17.3 million less than the existing condition.

When the capital cost impacts are taken into consideration along with the 10-year net present value of the estimated AET toll revenue impacts, a net positive $18.7 million is generated. However, it must be remembered that this is assuming a $3.00 unregistered video surcharge and the accompanying toll diversion to US Route 1. Under ORT, the resulting combination of capital cost impacts and 10-year net present toll revenue impact is negative $5.3 million.

Gardiner Toll Plaza

E-ZPass currently accounts for about 55 percent of Gardiner transactions. Of the remaining 45 percent of cash paying customers, about 75 percent are Maine residents. Under AET, the majority of cash customers become video customers. As a result of this cash/E-ZPass mix and the mix of in-state/out-of-state cash paying customers, estimates of potential toll revenue leakage amount to about 12 percent of total toll transactions at Gardiner. This amounts to about 36 percent of the potential video transaction component. This toll revenue leakage necessitated the need for revenue enhancements in the form of video toll surcharges (even after taking into account the estimated AET impacts on M&O costs) in order to maintain net revenue neutrality with the existing condition.

A range of AET unregistered video surcharges was tested ranging from $0.00 to $1.00 for a passenger car. Both 5 and 10-year cumulative net revenue impacts were developed for each surcharge level tested. Just as for the York analysis, the model assumed that video customers could choose between two video options: registered and unregistered. For purposes of this study, CDM Smith assumed 5 percent of video transactions would be registered at Gardiner.

The analysis indicated that an unregistered video surcharge of about $0.75 would be required to maintain net revenue neutrality under AET at Gardiner over a 10-year time horizon. This is in addition to the current $1.00 cash toll at this location. The Authority foresees that, under the existing condition, no further increases would be needed for 15-20 years. The imposition of the $0.75 video surcharge is also estimated to result in diversion to alternative routes ranging from 800 to 1,400 per day.

As with York Toll Plaza, because ORT operations are very similar to current operations, no net revenue leakage is estimated to occur at the Gardiner Toll Plaza. Under this scenario, therefore, the current cash and E-ZPass rates would be maintained (i.e., no cash surcharge would be required).

A 10-year net present value comparison was conducted for both AET and ORT. HNTB estimates the capital costs to maintain the existing Gardiner Toll Plaza to be about $7.0 million. Costs for ORT conversion amount to $14.4 million, or about $7.4 million greater than the existing condition costs. AET capital costs are estimated at about $3.8 million or about $3.2 million less than the existing condition.

When the capital cost impacts are taken into consideration along with the 10-year net present value of the estimated AET toll revenue impacts, a net positive $6.7 million is generated. However, it must be remembered that this is assuming a $0.75 unregistered video surcharge and the accompanying toll diversion to local roads. Under ORT, the resulting combination of capital cost impacts and 10-year net present toll revenue impact is negative $4.5 million.

Summary

Various impacts and implications of implementing either ORT or AET at the York and Gardiner Toll Plazas have been presented in this report. The study compared traffic, toll rates, operating costs, net revenue over a 10-year period, and capital costs to a hypothetical continuation of the current cash collection of tolls. The analysis was conducted over a 10-year interval for each condition.

Both AET and ORT can be financially feasible options at York and Gardiner. AET offers free flow travel for all motorists with lower overall capital costs, but requires substantial video surcharges and results in traffic diversion to alternative routes. Because AET requires license plate image capture and mailed invoices for non-E-ZPass motorists, it also involves substantially more risk associated with being able to bill and collect on a substantial portion of transactions.

Conversion to ORT preserves cash collection at a lower operating cost, creates less risk to the Turnpike and requires no change to present toll rates. Cash paying motorists, however, would still be required to stop and pay their toll. And while the 10-year net toll revenue impact is positive, ORT capital costs are substantially higher than those for either the existing condition or for AET.

Technical Memorandum

Maine Turnpike ORT/AET Impact Analysis

This report summarizes the results of CDM Smith's independent impact assessment for possible conversion to Open Road Tolling (ORT) or All Electronic Tolling (AET) at one or more toll plazas on the Maine Turnpike. The Turnpike is faced with a number of challenges in the future regarding many of its existing toll collection facilities. Perhaps most urgent among these is the need for possible reconstruction of the York Toll Plaza, the southernmost barrier on the Maine Turnpike. That facility is decades old, and was constructed in a location in which subsurface conditions may preclude reconstruction. Consideration is being given to reconstruction of the plaza at an alternative location, but at a significant additional capital cost.

The Turnpike also anticipates the need to replace its northernmost toll plaza, at the I-295 connection in Gardiner. That facility, which was constructed immediately below the roadway overpass which is no longer in use, must be slightly relocated and reconstructed in the future.

The toll industry is moving toward automating the toll collection process, using either ORT or AET. While described in more detailed below, ORT would allow for high-speed, non-stop collection of tolls from vehicles equipped with E-ZPass transponders, while retaining a limited number of cash collection lanes in each direction. All electronic tolls would feature the elimination of cash collection altogether, and require only the construction of high-speed gantries across the mainline roadway, significantly reducing capital cost but requiring new methods and costs to handle vehicles without electronic transponders. In order to account for estimated toll revenue leakage resulting from AET implementation, some level of toll surcharge on non-E-ZPass transactions would also be required. With ORT, such surcharges would not be needed for current cash customers.

As the Turnpike Authority finalizes plans for replacement of these two critical plazas, it engaged the services of CDM Smith to provide an independent assessment of potential traffic, revenue and operating cost impacts associated with the ORT and/or AET options at each location. Our firm was initially contracted to perform the assessment at the York Plaza only; the Gardiner Plaza was added to the study subsequently. The Maine Turnpike Authority may ultimately consider all electronic tolling on the full system in the future, but this analysis only addressed the potential pilot implementation of AET or ORT at the York and/or Gardiner facilities.

Project Background

Preliminary estimates of capital cost to replace the York Toll Plaza range from $26-$45 million, for an open road tolling configuration, as compared to about $5 million for all electronic tolling. However, the York Toll Plaza accounts for over 38 percent of Turnpike revenue; and a sizable portion of non-ETC traffic at that location is from out of state. All electronic tolling generally relies on video identification of vehicle license plates and a "pay by mail" system. Not only does this significantly increase collection complexity for previous cash-paying vehicles; it also increases collection risk, especially from out-of-state motorists.

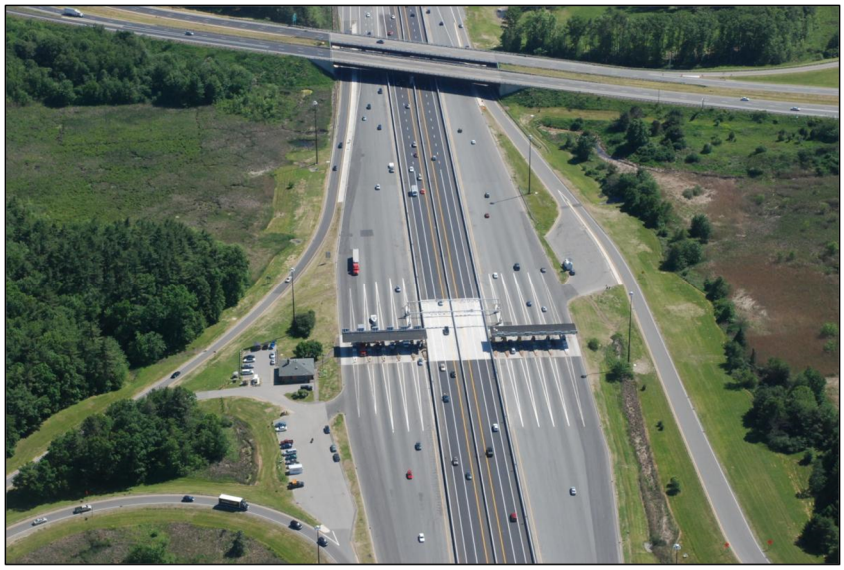
In essence, AET offers the promise of significant capital cost savings, as compared to plaza reconstruction in an ORT configuration, but at the likely cost of increased tolls for non-E-Zpass customers. In addition, AET also presents considerable additional uncertainty regarding future operating costs and collection risk for motorists without electronic tolls. Clearly a detailed evaluation of the revenue and cost implications needs to be considered, in addition to the significant capital cost differential when making final decisions on how to proceed with a new toll collection solution at two critical toll plazas.

Open Road Tolling

Open road tolling involves the provision of high-speed, non-stop toll collection for vehicles equipped with electronic toll transponders, while retaining cash booths for collection from non-ETC traffic. An example of this is shown in Figure 1, an overhead photo depicting the relatively new ORT plaza at the Hampton tolling point on the New Hampshire Turnpike. In this case, two high-speed lanes are provided for ETC vehicles in each travel direction while six cash lanes are retained to the outside. Because electronic toll traffic continues to operate at full highway speeds, the cash and ETC express lanes are physically barrier separated, with the roadways rejoining north and south of the toll plaza.

From a collection standpoint, conversion to open road tolling is relatively low risk, and has been in successful operation for several years at dozens of mainline plazas throughout the U.S. The primary risk associated with the use of ORT express lanes is typically a small increase in violations through the ETC lanes; some intentional and some unintentional by motorists who may enter the express lanes in error. Even at high speeds, today's video imaging technology provides a reliable violation enforcement system and, in general, a relatively high percentage of revenue is retained. As importantly, motorists without ETC may continue to pay tolls by using cash as they do today, regardless of state of vehicle registration. It should be noted that no increase in violations has been observed at the New Gloucester toll plaza since ORT operation began April 1, 2013. To the contrary, implementation of violations enforcement systems (VES) on the cash lanes is bringing enforcement to "run-through" violations.

Figure 1
Typical ORT Mainline Plaza
Hampton Plaza, New Hampshire Turnpike



All Electronic Tolling

Examples of all electronic toll collection system gantries are shown in Figure 2. In this case, single (or in some cases twin) consecutive gantries are constructed across the roadway. The gantries are mounted with antennas and readers for identifying vehicles equipped with E-ZPass. Motorists not so equipped are charged a toll by high resolution cameras which capture images of license plates.

Figure 2
Typical AET Toll Zones

SH 121 Tollway (Dallas) and Melbourne Citylink (Australia)





Cash is no longer collected at AET plazas, and therefore the plaza reconstruction cost is greatly reduced. As importantly, there is essentially no additional right-of-way typically required, since the gantries are constructed across existing roadways only. AET also has the benefit of virtually eliminating accident risk at toll plaza locations; toll plazas typically represent high accident locations on toll roads across the country.

The biggest challenge, of course, with conversion to AET, is how vehicles without transponders are handled. Video tolling, while not new, contains inherent risks associated with various steps in the toll collection process. For example, it is possible that some plates may not be properly read, or vehicle owner address information with DMV records is incomplete. There are some limitations on the ability to obtain vehicle owner information from some states, and particular uncertainties regarding the ability to obtain address information from vehicles registered in Canada, who represent a notable proportion of traffic on the Maine Turnpike.

Under a pay-by-mail system, there is also an inherent collection risk itself; motorists who simply don't "pay the bill". There is a fairly complex process of multiple statements, and fees for non-payment which may be included. However, overall, the video tolling approach typically results in raw uncollectable tolls to the range of 10-20 percent or more.

Typically, agencies converting to all electronic tolling establish a "surcharge" for video users. This increase in the toll charge has three objectives:

- To encourage motorists to enroll in the ETC program which results in lower costs and higher collection to the toll agency;

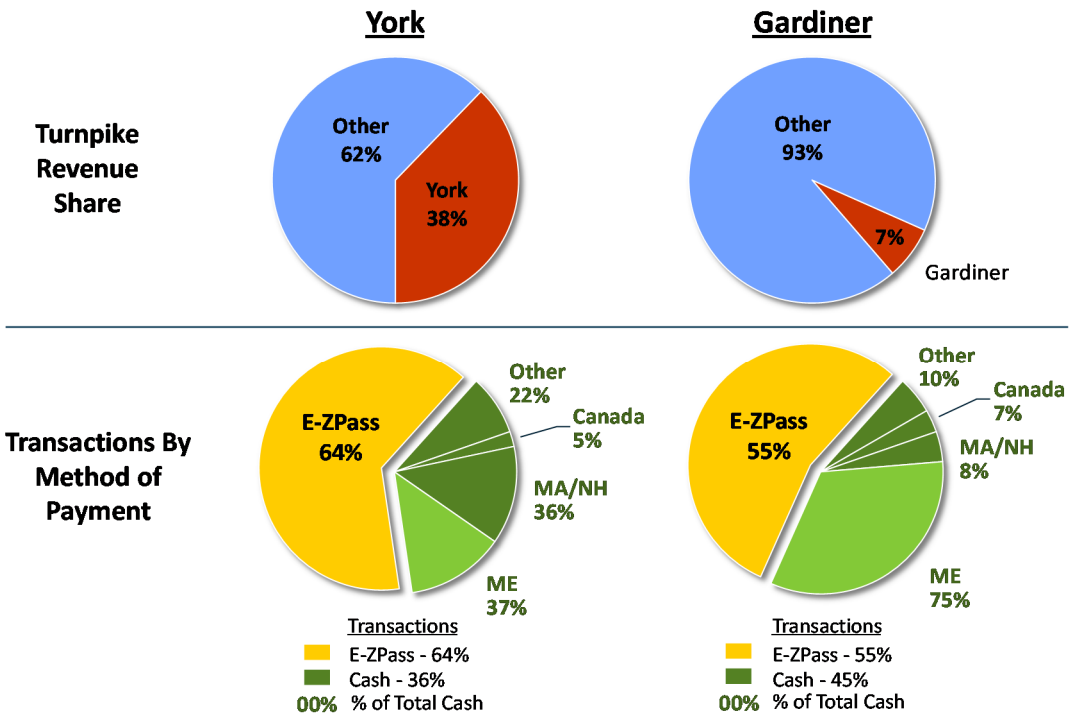
- To cover the additional operating cost associated with collection (as compared with ETC) for image recognition, mailing and follow-ups; and
- To cover the inherent "leakage" (from uncollected tolls) from the prior cash population.

Our study tested a number of alternative surcharge levels at both toll plazas evaluated. Any surcharge represents an increase in cost to the driving public, and therefore has the potential to result in traffic diversions off the Turnpike to alternative routes.

Plazas Evaluated

As noted above, this analysis was undertaken with respect to both the York Toll Plaza and the Gardiner Toll Plaza, generally at opposite ends of the Maine Turnpike. Both locations are in need of plaza replacement, but each location represents a significantly different traffic profile and level of risk. Existing conditions at the two toll plazas are summarized in Figure 3. The York Plaza accounts for 38 percent of total Turnpike revenue, while the Gardiner toll Plaza accounts for just 7 percent of Turnpike revenue, even though it covers traffic on the northern end of I-295. By contrast, the York Plaza currently has 64 percent of its traffic using one form or another of the E-ZPass electronic toll system. This component of traffic represents a very low risk under ORT or AET. E-ZPass at the Gardiner Plaza represents only 55 percent of transactions. On the other hand, at Gardiner, 75 percent of the cash traffic is typically represented by vehicles registered in the state of Maine. These represent the lowest collection risk for video tolling. At the York Plaza, which is near the New Hampshire state line, Maine-registered vehicles represent just 37 percent of current cash traffic.

Figure 3
Current York and Gardiner Characteristics



The states of Maine, New Hampshire and Massachusetts are the only three states in the U.S. to enter into reciprocity agreements for electronic toll enforcement. Under this program, subject to certain limitations, any of the states may deny registration renewal if a minimum threshold of violations (or presumably valid video toll transactions) remain unpaid in any of the three states. This is considerably important in terms of reducing collection risk. Hence, as noted later in this report, current cash vehicles with registrations in Massachusetts and New Hampshire are treated separately from all other states and Canada. Massachusetts/New Hampshire cash traffic represents 36 percent total at York but just 8 percent at Gardiner.

Study Objectives

The primary objectives of this study are to estimate the net revenue impact associated with converting to either open road tolling or all electronic tolling at the York and/or Gardiner Toll Plazas. This impact assessment was conducted in comparison to the base current system configurations at each location. The net revenue impact was determined by estimating:

- Impacts on toll revenue collections;
- Impacts on operating cost; and
- Potential revenue from administrative fees associated with possible non-payments under AET.

The net revenue impacts were evaluated at each location, under various scenarios, over a 10-year forecast period, generally extending from 2015-2024. The net present value of the 10-year net revenue potential for each scenario was then related to the hypothetical continuation of current toll operations. The discounted net impacts could then be related to alternative capital costs associated with the ORT vs. AET options at each location by the Authority.

Finally, recognizing the inherent uncertainties associated with the video tolling portion of the AET option, a risk analysis was undertaken. This involved testing a range of assumptions regarding customer payments, image recognition and various other factors, with a goal of establishing a net revenue forecast at 90 and 95 percent confidence levels. While this is most critical with respect to AET, a nominal risk assessment was also undertaken for ORT.

Overview of Study Approach

A detailed assessment of existing conditions at each toll plaza was made at the outset of the study. Historical data regarding the traffic mix at each location was obtained, and seasonal observations were made of the state distribution of cash traffic at each location for various times of year. CDM Smith also evaluated historical trends, such as the increasing share of E-ZPass traffic over time. It was also important to identify the distribution of ETC traffic itself; since a differential mechanism and rates are used for motorists who enroll in E-ZPass through the Maine Turnpike as opposed to other interoperable states.

The CDM Smith team also identified alternative routes for vehicles that might choose to divert off the Turnpike in the event of video surcharges (primarily under the AET option). In addition, data from

the Turnpike and HNTB was used to estimate the proportion of traffic at the York Plaza which entered/exited at each of the next several ramp locations; critical in the traffic diversion assessment.

The potential behavioral options for drivers under each alternative were then established. For example, under ORT, motorists can choose to remain in their current mode of collection, using either E-ZPass or cash. However, the implementation of high-speed, non-stop collection for E-ZPass provides an appealing incentive for some cash motorists to switch to ETC. It was ultimately determined that no ORT cash surcharge would be needed between cash and non-Maine issued E-ZPass vehicles; hence, there was little or no motivation for traffic to leave the Turnpike for alternative routes under the ORT option.

The options under AET were considerably more numerous. The elimination of the ability to pay cash would encourage some current customers to shift to ETC. However, it may also cause a small proportion to simply leave the Turnpike due to a technology aversion or privacy concerns. More importantly, since AET would inevitably require establishment of a video toll surcharge to overcome leakage and increased operating cost, a portion of cash traffic would be expected to shift to alternative routes. This diversion to US Route 1 could be significant if sufficiently high surcharges were required; and is an important factor to be taken into consideration.

Those motorists choosing to continue to use the Turnpike without a transponder would ultimately be billed for their trip. This would trigger a complex set of possibilities regarding the ultimate collection of the toll, as described in more detail below.

While estimates of traffic diversions under AET were calculated using well tested diversion techniques, the proportions of traffic that would actually be billable and collectable were based on reasonable assumptions based on experience at other AET facilities across the nation. While several facilities have converted to AET, there are still limitations on detailed performance information at several of these agencies; agencies are often reluctant to provide detailed data due to security considerations. However, reasonable expectations for collection rates and other factors were used. Since these assumptions are critical to the analysis, the risk analysis tested a wide range of "percentages" to help identify minimum levels of net revenue potential at strategic confidence intervals.

Finally, the study provides a "bottom line" cost-effectiveness assessment for each plaza, comparing performance for ORT and AET, under various scenarios, with the current base condition. The net impacts, over a 10-year horizon, are then related to the net differences in capital investment costs, as provided by HNTB.

ORT Analytical Methodology

The ORT impact assessments were relatively straightforward. No changes were assumed for current E-ZPass traffic, be they Maine-issued E-ZPass or accounts issued in other states. Toll rates were assumed to be the same.

The analysis estimated a small proportion of cash vehicles which would choose to shift to E-ZPass based on the more convenient, uncongested toll collection opportunities provided by the new express lanes. The study also looked at actual experience on other ORT facilities, and estimated an increase in

the violation portion for vehicles passing through the express lanes without transponders. As previously discussed, no increase in violations has been observed at the New Gloucester toll plaza since ORT operation began April 1, 2013. While this provides some indication that the increase in violations may not occur at the York and Gardiner toll plazas under ORT operation, the potential risk remains and the experience at New Gloucester was not factored into the estimated slight increase in ORT lane violations at York and Gardiner. No diversions to alternative routes were estimated under the ORT configuration.

Operating cost impacts were estimated for ORT, based on the reduced number of cash collection facilities which will be required. Increased violation enforcement costs, as well as violation enforcement fees, were also prepared. Ten-year net revenue estimates were developed for each plaza under the ORT configuration, and ultimately formatted for direct comparison of capital cost.

A detailed spreadsheet model was developed for estimating traffic, revenue and operating cost impacts. A simplified version of this was used in the ORT analysis itself. A much more complex version, referred to as the CDM Smith Waterfall model, was used for the AET analysis, as described below.

AET Analytical Methodology

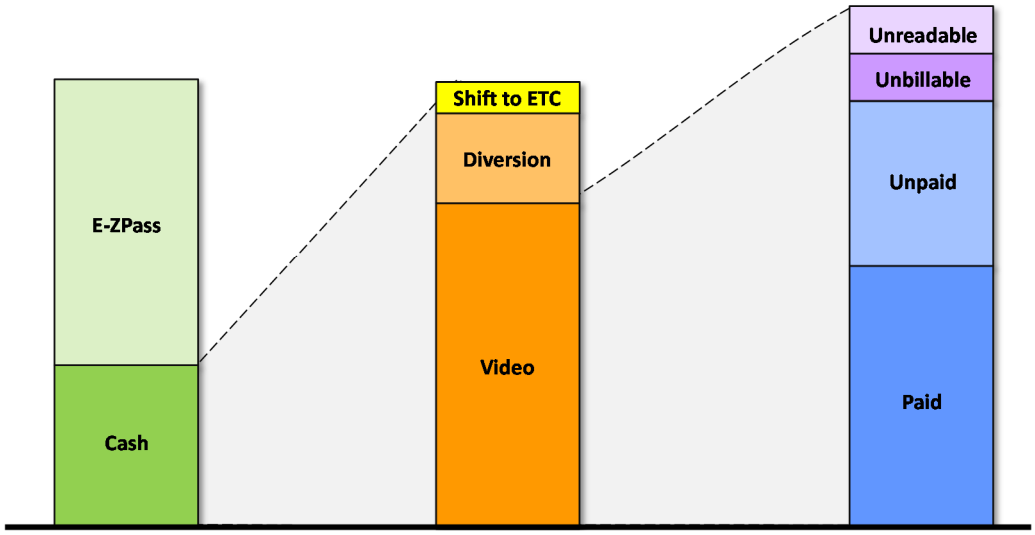
The AET impact assessments were much more complex. This involved assessing the redistribution of current cash traffic, assessing payment cost implications and bringing these together in development of ten-year net revenue estimates. A range of scenarios were tested at each location, including a range of surcharge levels to offset possible revenue leakage and higher cost of collection.

Assessing Redistribution of Current Cash Traffic

Figure 4 graphically summarizes the analysis used in assessing the redistribution of current cash traffic, and potential collection risks. At each location, traffic is currently made up of E-ZPass and cash. The E-ZPass traffic represents 55 percent of the total at Gardiner and 64 percent at York.

Since cash would no longer be available under the AET option, the first step in the process was to estimate the redistribution of current cash vehicles into ETC, video or “off the road”. A relatively small proportion was assumed to shift to ETC, based in part on the magnitude of surcharge applied to video cost transactions. The portion of the traffic estimated to divert to alternative routes is also directly related to the surcharge level, and involves a review of the best alternative routes for most typical movements, travel time differential and distance differences and the net increase in toll associated with the surcharge. Former cash traffic diverted off the Turnpike was no longer available to pay tolls and was all treated as lost revenue. The remaining portion of former cash vehicles, shown in orange in the center bar of Figure 4, was assumed to remain on the Turnpike. Their tolls, under AET, would be collected by means of captured license plate information. This data would then be subjected to a DMV lookup for owner name and address.

Figure 4
Redistribution of Former Cash Traffic Under AET



Of the total vehicles without transponders passing under the toll gantry (the "video" traffic), a certain portion was assumed to be unreadable based upon weather, license plate physical limitations, trailer hitch blockages and more. Another portion of the traffic was assumed to be "unbillable"; primarily cases where information on vehicle owner address could not be obtained or proved to be faulty. Both of these conditions exist under current AET operations throughout the U.S. and Canada. The light blue and dark blue portions of the right bar represent motorists who are actually billed for the trip(s) made within a billing period. A percentage of those are assumed to be paid, while another percentage remains unpaid, sometimes after multiple invoices.

Assessing Payment and Cost Implications

The distribution of video transactions into unreadable, unbillable and billable transactions was handled in this step using the Waterfall model described below. In addition, the proportion of invoices paid on the first invoice, second invoice or later was also an important input into the modeling process. This is somewhat uncertain and was heavily tested in the risk analysis.

Cost implications were also estimated in the detailed model, based on unit costs provided primarily by Maine Turnpike orations staff based, in turn, on the Agency's historical experience with violation processing. In practice, this resulted in a fairly conservative estimate of back office operating costs associated with video collection; since under AET there would be a significant increase in the number of billings and amount of collections, it is not unlikely that certain cost efficiencies could be introduced into the process. However, for purposes of this analysis, the same conservative unit costs for each step of the process was coded into the study model.

The CDM Smith AET Waterfall Model is a spreadsheet-based series of calculations that closely mimics the processes through which AET transactions would be handled. In the absence of a formal MTA AET business rules document, assumptions regarding AET business rules for use in the model were

developed in close cooperation with the MTA. Figure 5 depicts how transactions and revenues flow through the system and end up as either lost revenue or collected toll revenue.

This model begins with existing condition gross transactions and toll revenue and applies a series of parameters and decision points that collectively determine whether revenue is collected for each transaction, the method under which that revenue is collected, and at what rate. The model processes transactions and revenue for passenger vehicles separately from commercial vehicles. The model also distinguishes between vehicles registered in Maine, Massachusetts/New Hampshire, all other states and Canada.

Additionally, a simplified version of the AET Waterfall Model was developed to simulate ORT operation. While ORT utilizes similar toll collection procedures as currently seen on the Maine Turnpike, the Waterfall Model is needed to estimate the traffic and revenue impacts of the implementation of high-speed E-ZPass lanes, a cash toll collection surcharge, and improved violations enforcement within cash lanes.

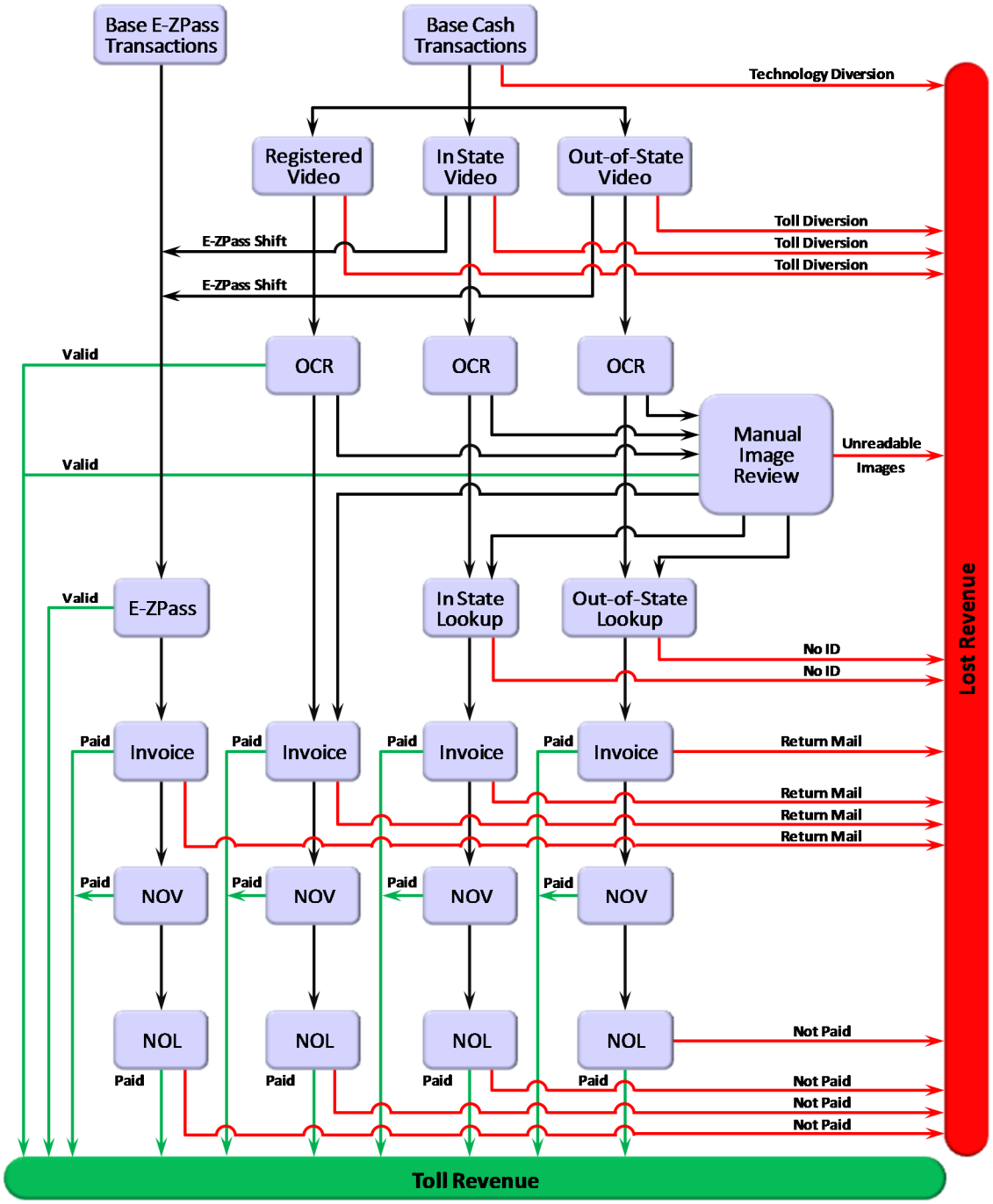
AET Waterfall Model Overview

The following list provides descriptions for key elements and decision points presented in Figure 5:

1. Existing condition transactions are composed of two groups: E-ZPass and cash transactions.
2. E-ZPass users with valid accounts pass through the AET model with no further consideration. Revenue is added directly to the final revenue calculations.
3. E-ZPass users with an invalid account (e.g. expired or declined credit card associated with the account) go through an invoicing/violations process... An assumed payment rate is applied to the initial invoice. Additional payment rates are then applied to the portion of each subsequent attempt at collecting the toll and associated fees assumed to remain unpaid. This process includes a Notice of Violation (NOV) and Notice of Liability (NOL).The portion of violations remaining unpaid after the entire process is considered lost revenue.
4. A technology diversion percent is applied to those existing cash customers unwilling to either join E-ZPass or become a video customer. They choose to not use the facility under AET for various reasons, including the desire not to be tracked, the belief that this technology will be used to catch speeders, they simply do not understand how it works, etc.
5. Following the application of technology diversion, a calculation is applied to account for the portion of current cash customers that will obtain an E-ZPass account due to implementation of AET. These new E-ZPass account holders are then added to the total E-ZPass population.
6. The remaining cash customers (i.e., after toll technology shift and shift to E-Z Pass), become potential video customers. Some small proportion (5 percent in the base case AET model) are assumed to become registered video customers. The remaining become potential unregistered video customers and the model is set up to deal with in-state and out-of-state motorists separately.
7. Once the registered and unregistered video customer mix has been identified, toll diversion is estimated based on the amount of the video surcharge amounts. These are effectively toll increases for these customers. For purposes of this analysis, it was assumed that registered

video toll surcharges would be 50 percent of the unregistered surcharge amount. As shown in Figure 5, all toll diversion revenue flows to the right side of the figure as lost revenue.

Figure 5
AET Waterfall Model Flow



8. The same first steps of OCR and manual image review take place for unregistered video transactions as they do for registered video transactions. As shown in Figure 5, unreadable images represent lost revenue, while readable images then go through the in-state and out-of-state department of motor vehicle look-up process.

9. Registered video transactions would be identified upon being successfully read by an optical character reader (OCR). Their license plate would match that set up by the account holder and the appropriate toll would be deducted from their account. In the event the plate is not successfully read, it would go through a manual image review process. If successfully identified there, the appropriate amount would be deducted from their account. If readable after the manual review process, the toll amount would be considered lost revenue. In the event that license is identified, but the account is found to be invalid (e.g. expired or declined credit card associated with the account), the same invoice/violation process would be followed as for E-ZPass accounts. All DMV lookup success rates are then applied to in-state and out-of-state video transactions. Invoices are then mailed to the addresses returned from the DMV lookup process. Some of these will be undeliverable, resulting in return mail. These are considered lost revenue. Historically, MTA has not been able to obtain plate data from the eastern provinces of Canada. Although recent overtures to Quebec and New Brunswick may yield some plate data recovery, for present purposes no recovery is assumed.

10. Payment rates are then applied to the video toll invoices successfully mailed to patrons. Additional payment rates are then applied to the portion of each subsequent attempt at collecting the toll and associated fees assumed to remain unpaid. Any remaining unpaid notices are considered losses.

11. Any remaining unpaid notices for in-state video transactions are subject to suspension of vehicle registration (notice of suspension or NOS). Only the remaining unpaid notices for out-of-state video transactions are subject to the NOS action, as the model assumes MTA will lack the authority to suspend out-of-state registrations. For purposes of this model, the mailing costs associated with NOS is assumed, but due to the very low assumed collection level at this stage, no toll revenue collection is assumed.

Key Model Variables

The following section presents descriptions of those variables that have the greatest influence on the AET modeling process. The values used for these variables in the Waterfall Model were developed in close cooperation with the MTA. Wherever possible, the values used in the Waterfall Model are based on data provided by MTA based on current Turnpike experience. Where existing MTA data did not provide sufficient basis for model inputs, values were developed based on data collected through interviews with toll agencies that have implemented AET. Facility characteristics such as location, user profile, tolling policy, and enforcement measures were taken into account when considering whether agency interview data was applicable to the Turnpike for the purposes of this study. This section includes only those variables that CDM Smith believes to be critical to the understanding of the AET model and not all variables are presented here.

Technology Diversion

Upon implementation of AET, a certain percentage of Turnpike patrons who currently pay cash will neither enroll in E-ZPass, nor will they participate in video tolling. The only remaining option for these

patrons is to leave the facility entirely. Based on the experience of CDM Smith, having observed several US facilities that have converted to AET, it is expected that only a small percentage of customers would actually divert from the road for this reason. CDM Smith estimates technology diversion at 3.0 percent for both passenger vehicles and commercial vehicles. Technology diversion is not applicable to ORT as customers continue to have the option to pay tolls using cash.

Video/Cash Surcharge

In addition to the technology diversion, diversion will occur due to the de-facto rate increase for video toll users under AET and for cash users under ORT. Under AET or ORT operation customers without an E-ZPass account may pay more than E-ZPass users for the same trip. Surcharge rates being evaluated in this study will cause some current Turnpike cash customers to divert to an alternate route. Surcharges ranging from $0.00 to $5.00 were tested for the York toll Plaza. Surcharges ranging from $0.00 to $2.00 were tested for the Gardiner toll Plaza.

Shift from Cash to E-ZPass

This input represents the assumed percentage of cash customers—remaining following Technology Diversion—that would shift to E-ZPass as a result of AET or ORT implementation. The volume of this potential shift is largely based on the perceived and actual benefits of obtaining an E-ZPass account. The primary benefit of E-ZPass under AET is the cost savings related to not being subject to the video surcharge. As the surcharge increases in relation to the existing toll, the number of patrons willing to obtain an E-ZPass account is also expected to increase. Within the AET and ORT models, the percentage of cash customers estimated to shift to E-ZPass ranged from 3 percent to 23 percent. The standard discount afforded to motorists using a Maine issued E-ZPass was accounted for in the toll differential when calculating the percentage of cash customers who are expected to shift to E-ZPass. Because cash customers are predominantly infrequent users, the Maine E-ZPass frequent-user discount program was assumed to have a minimal impact and was not factored into the toll differential when estimating shift.

Under ORT, it is expected that a smaller percentage of Turnpike customers will shift to E-ZPass based solely on the convenience and perceived time savings of the high-speed E-ZPass lanes.

Registered Video Accounts

Registered video accounts represent an additional option for current Turnpike cash customers to avoid the full AET video surcharge. A Registered Video user is someone who has contacted the Turnpike and has guaranteed payment of the toll, in some manner such as a credit card, pre-paid cash balance, or post-pay agreement. This agreement minimizes the risk of leakage due to non-payment. It has the added benefits of minimizing costs associated with identification and mailing. Increased payment rates and decreased costs associated with registered video accounts allow agencies to reduce video surcharges for registered video users. In turn, the lower video surcharge incentivizes video customers to register. Where offered, participation in registered video discount programs on existing AET facilities has been demonstrated to be low. Thus, in the AET model, 5 percent of potential video transactions are assumed to shift into registered video accounts.

Normal E-ZPass Growth

This is the growth in E-ZPass penetration that would occur independently of AET conversion. It is based on historical growth and has been incorporated into this analysis. The “shift from cash to E-

ZPass" discussed above, would reflect the impact of AET and would be added to the normal E-ZPass growth that would occur over time.

Identifiable License Plate Images

This input represents the assumed percentage of successful license plate images identification, either through the OCR or manual identification process. This is an important metric for AET as unidentifiable images result in unbillable toll transactions. Image review success rates can be influenced by tolling equipment, inclement weather, obscured plates, and vehicle mix among others. For the purposes of this study, successful image identification rates used in the model were assumed to be the same as current MTA violation enforcement experience. Values used in the model for this variable can be seen in Tables 1 and 2.

Successful DMV Lookup

As previously discussed, once the license plate of a non-E-ZPass patron is recorded, it must be matched to a name and address for billing purposes. The rate at which MTA is able to obtain matching billing information is a critically important variable. For every plate that goes unmatched, MTA loses a would-be source of revenue.

The figures used in the model for this input were based on current MTA successful DMV look-up rates for in-state and out-of-state vehicles. DMV look-ups are currently conducted through the Maine DMV for in-state vehicles, the New Hampshire DMV for New Hampshire Vehicles, and through Duncan Solutions for all other out-of-state vehicles. Values used in the model for this variable can be seen in Tables 1 and 2. Since it is currently difficult for MTA to obtain Canadian DMV plate data, all unregistered Canadian video transactions are considered losses from a toll revenue standpoint.

Returned Mail

A portion of invoices mailed to MTA video toll patrons are expected to be returned as invalid addresses. In these cases, MTA has little recourse to correct this, as methods of obtaining a correct address would not be cost effective. The figures used in the model for this input were based on current MTA return mail rates. Values used in the model for this variable can be seen in Tables 1 and 2.

Payment on Video Invoice and Notices

One of the most critical variables in the AET analysis is the proportion of patrons who will pay at the various levels of invoicing. When customers fail to pay the 1st invoice, the cost to mail subsequent notices increases and offsets portions of the toll revenue being collected. It is expected that payment rates decrease with each successive mailing resulting in a percentage of video toll transactions that go unpaid. This results in a negative impact on net revenue as a high collection cost is incurred in conjunction with no toll revenue being collected.

AET Model assumptions relating to video tolling at the York and Gardiner toll plazas are presented in Tables 1 (York) and 2 (Gardiner). Included are percentages for unsuccessful image capture, invalid DMV data, return mail and video billing payments for ME, MA/NH and other out-of-state cash customers. The percentages are applied to each group of cash customers in succession to estimate the percentage of potential video transactions that go unpaid. At the York plaza, cash customers are split fairly evenly between Maine, Massachusetts and New Hampshire, and other out of state roadway users. As shown, the "Other" category, which represents 27.4 percent of all video transactions, has the

highest uncollected rate (64.2 percent). This is largely due to the very low assumed invoice payment rates for these motorists. Under the current assumptions for identification and payment rates, this results in approximately 42 percent of total video transactions being uncollected. This represents about 9.6 percent of total transactions (E-ZPass and video) at York.

Table 1
York Toll Plaza AET Video Toll Payment Assumptions

Item	Maine	MA/NH	Other	Weighted Average
Percent Cash Distribution	37.0%	35.6%	27.4%	100.0%
Percent No Image Capture	1.5%	15.0%	15.0%	10.0%
Percent No DMV Record/Returned Mail	17.2%	5.1%	8.5%	10.9%
Billable Video Transactions				
% Pay 1st Invoice	55.0%	50.0%	25.0%	45.0%
% Pay NOV	55.0%	40.0%	20.0%	40.1%
% Pay NOL	35.0%	20.0%	10.0%	22.8%
Total % Pay Invoice	86.8%	76.0%	46.0%	72.1%
Total % Unpaid Invoice	13.2%	24.0%	54.0%	27.9%
Total Percent Video Uncollected	29.2%	38.7%	64.2%	42.2%
Total Percent Uncollected (ETC + Video)				9.6%

Table 2 shows the same information for Gardiner. In this case, because Maine registered vehicles make up a very large (75 percent) proportion of video transactions, the overall amount of uncollected video transactions amounts to 35.9 percent. But, because video transactions make up a larger share of total transactions at Gardiner, the number of uncollected video transactions represents about 12 percent of total transactions (E-ZPass and video).

Table 2
Gardiner Toll Plaza AET Video Toll Payment Assumptions

Item	Maine	MA/NH	Other	Weighted Average
Percent Cash Distribution	75.0%	8.2%	16.8%	100.0%
Percent No Image Capture	1.5%	15.0%	15.0%	4.9%
Percent No DMV Record/Returned Mail	17.2%	5.1%	8.5%	15.0%
Billable Video Transactions				
% Pay 1st Invoice	55.0%	50.0%	25.0%	49.6%
% Pay NOV	55.0%	40.0%	20.0%	47.9%
% Pay NOL	35.0%	20.0%	10.0%	29.6%
Total % Pay Invoice	86.8%	76.0%	46.0%	79.3%
Total % Unpaid Invoice	13.2%	24.0%	54.0%	20.7%
Total Percent Video Uncollected	29.2%	38.7%	64.2%	35.9%
Total Percent Uncollected (ETC + Video)				12.0%

Cost Assumptions

Operations and maintenance costs are very important to the AET analysis. It is known that a certain percentage of present toll transactions will be lost under AET. As described above, this will be due to technology and surcharge diversion, unreadable license plate images, unsuccessful DMV lookups, returned mail and uncollectable tolls. Generally, the costs of operations and maintenance of an AET system are expected to be less than the costs associated with a conventional cash and ETC system. There will be fewer personnel needed. This will result in a reduction in cost for labor, benefits, insurance and administration. The costs of operating and maintaining the toll plazas will be eliminated. There will be no costs for handling and securing large amounts of cash. On the other side, under AET, there will be increased back office costs, mailing costs, maintenance of expensive camera equipment, costs for image reviews and DMV lookups. Reduced costs of operations and maintenance under AET may offset some of the loss of toll revenue associated with traffic diversion and uncollectable tolls.

The AET model utilizes a series of cost-related components to determine the costs associated with AET operations. These were developed in close cooperation with MTA. The assumptions developed were based upon current toll collection cost data provided by MTA, when available. Assumptions were also influenced by CDM Smith experience in previous projects and staff participation in industry surveys supporting other AET conversions. Table 3 presents some of the key per-unit costs used in the AET and ORT models.

Table 3
Per Unit Cost Summary
2013-2030

Cost Component	2013 AET/ORT Model Value	Annual Rate of Inflation				
		2014	2015	2016	2017	2018-2030
Per Unit Cost						
Base CSC Per Transaction Cost	$0.04	3.5%	2.5%	2.5%	2.5%	2.5%
Cost Per Manual Image Review	$0.16	3.5%	2.5%	2.5%	2.5%	2.5%
Notices Stuffed & Mailed	$0.54	3.5%	2.5%	2.5%	2.5%	2.5%
1st Notice (30 days)	$1.71	3.5%	2.5%	2.5%	2.5%	2.5%
Mailing NOV	$1.71	3.5%	2.5%	2.5%	2.5%	2.5%
Mailing NOL	$2.00	3.5%	2.5%	2.5%	2.5%	2.5%
Mailing NOS	$1.94	3.5%	2.5%	2.5%	2.5%	2.5%
In-State Lookup	$0.13	3.5%	2.5%	2.5%	2.5%	2.5%
Out-of-State DMV lookup	$1.87	3.5%	2.5%	2.5%	2.5%	2.5%

Findings

This section summarizes the study team's use of the AET and ORT models to estimate AET traffic, toll revenue, and M&O costs for a range of surcharge levels over the forecast period from 2015 to 2030. With this information, total net AET and ORT toll revenue is developed and compared to the estimated net revenue values for the existing condition. The result of this comparison is then used to identify the optimum AET video toll and ORT cash toll surcharge levels. The optimal surcharge level is identified

as the lowest surcharge at which a given scenario becomes net revenue neutral. This is the point at which surcharge revenue is sufficient to offset changes in toll collection costs and revenue leakage due to the implementation of AET or ORT. Once the selected surcharge value is determined and the net revenue values estimated, a further analysis is conducted taking into account the estimated capital costs associated with both AET and ORT. As will be discussed in more detail below, toll surcharges were only deemed necessary under AET; ORT implementation was financially feasible without an additional cash toll surcharge.

As described in the AET model description, the existing condition traffic and revenue estimates form the starting point for the AET analysis. All of the assumed AET shifts and diversions shown in Figure 5 are applied to existing condition traffic and revenue estimates.

As it relates to the current study, the most important analysis is the estimated net revenue impact of converting to AET or ORT (compared to the existing condition) and not overall net revenue figures. Thus, if a certain AET or ORT scenario has a net positive impact compared to the existing condition, it will continue to have a similar net positive impact in the event new existing condition forecasts are developed.

Please note that CDM Smith has chosen to report toll revenue and fee revenue separately. The fee revenues should not necessarily be considered in whole as this revenue is not always collected. Very often agencies will wave outstanding fees if the base toll debt is paid or will engage in other programs designed to incentivize patrons to pay past-due balances. Thus, for purposes of this study, it was decided that only 30 percent of total potential fee revenue would be collected.

York Toll Plaza

The following section presents estimated traffic and revenue for the York Toll Plaza under AET and ORT conditions. The results of surcharge sensitivity tests are discussed, including the estimated annual net revenue forecasts associated with various surcharge levels. Estimated annual traffic and toll revenue impacts are presented assuming the optimal surcharge level.

York Toll Plaza Assuming AET

The results of the AET surcharge sensitivity tests are presented in Table 4. These were conducted at estimated2015 levels, the assumed opening year. Surcharge rates were tested at $0.00, $1.00, $2.00, $3.00 and $4.00. These are the assumed passenger-car video toll surcharges that would be assessed to unregistered video transactions in addition to the to the $3.00 cash toll. Registered video transaction surcharges were assessed at 50 percent of the unregistered video surcharge. Data shown in Table 4 includes estimated toll transactions, no contact/uncollectable transactions, gross toll and fee revenue, M&O costs, and net revenue impacts associated with each surcharge levels.

Estimated annual transactions are provided for the existing condition for both cash and E-ZPass (including violations). These existing condition transactions do not change across the various surcharge levels since this assumes no AET. In total, an estimated 13,965,000 transactions are anticipated to occur in 2015 under existing conditions. If AET is implemented, total toll transactions are expected to decrease compared to the existing condition. At $0.00 surcharge, a reduction of 1,756,000 transactions is anticipated, an approximately 12.6 percent reduction compared to the existing condition. The “lost” 1,756,000 transactions are identified in the table under the header No

Table 4
Estimated 2015 York Toll Plaza AET Surcharge Sensitivity Summary (1)
All Values in Thousands

	Unregistered Video Surcharge (2)				
Toll Transactions	**$0.00**	**$1.00**	**$2.00**	**$3.00**	**$4.00**
Existing Condition Toll Transactions: Cash	4,213	4,213	4,213	4,213	4,213
Existing Condition Toll Transactions: E-ZPass	9,752	9,752	9,752	9,752	9,752
Total Existing Condition Toll Transactions+Violations	13,965	13,965	13,965	13,965	13,965
AET Toll Transactions: Video	2,359	2,096	1,785	1,414	995
AET Toll Transactions: E-ZPass	9,850	10,013	10,176	10,341	10,507
Total AET Toll Transactions	12,209	12,109	11,961	11,755	11,501
AET Transaction Impacts	-1,756	-1,856	-2,003	-2,209	-2,463
No Contact/Uncollectable Transactions					
Toll and Technology Diversion	119	410	783	1,259	1,818
Unreadable Plates and DMV No Hits	374	331	279	217	147
Unsuccessful Collection	1,344	1,196	1,022	815	580
Total AET No Contact/Uncollectable	1,837	1,937	2,084	2,290	2,545
Existing Condition Violations	81	81	81	81	81
AET Transaction Loss Impact	1,756	1,856	2,003	2,209	2,463
Gross Toll and Fee Revenue					
Existing Condition Gross Toll Revenue: Cash	$14,776	$14,776	$14,776	$14,776	$14,776
Existing Condition Gross Toll Revenue: E-ZPass	40,710	40,710	40,710	40,710	40,710
Existing Condition Fee Revenue	189	189	189	189	189
Total Existing Condition Gross Toll+Fee Revenue	$55,675	$55,675	$55,675	$55,675	$55,675
AET Gross Toll Revenue: Video	$8,359	$10,074	$10,965	$10,792	$9,413
AET Gross Toll Revenue: E-ZPass	40,970	41,455	41,942	42,432	42,926
AET Collected Fee Revenue (30% of Maximum)	1,794	1,589	1,344	1,051	718
Total AET Gross Toll+Discounted Fee Revenue	$51,123	$53,118	$54,251	$54,275	$53,057
Total AET Gross Toll Revenue Impact	-$4,552	-$2,557	-$1,424	-$1,400	-$2,619
Summary of Existing Condition M&O Costs					
Image Review	$159	$159	$159	$159	$159
DMV Lookup	16	16	16	16	16
Mailing	59	59	59	59	59
Fare Collection/Administration	5,832	5,832	5,832	5,832	5,832
Total Annual Existing Condition M&O Costs	$6,067	$6,067	$6,067	$6,067	$6,067
Summary of AET M&O Costs					
Image Review	$682	$607	$518	$411	$290
DMV Lookup	1,652	1,461	1,233	959	647
Mailing	3,303	2,923	2,472	1,929	1,313
Fare Collection/Administration	2,415	2,428	2,431	2,419	2,394
Total Annual AET M&O Cost	$8,052	$7,420	$6,653	$5,719	$4,644
AET Cost Savings	-$1,985	-$1,352	-$586	$348	$1,423
Net Revenue Impacts (3)					
Total Net Existing Condition Toll+Fee Revenue	$49,608	$49,608	$49,608	$49,608	$49,608
Total Net AET Toll Revenue	43,071	45,698	47,598	48,556	48,412
Total Net AET Toll Revenue Impact	-$6,537	-$3,910	-$2,010	-$1,052	-$1,196
5-yr Cumulative AET Net Revenue Impact	-$27,350	-$15,312	-$6,609	-$2,150	-$2,591
10-yr Cumulative AET Net Revenue Impact	-$42,993	-$21,109	-$5,305	$2,910	$2,521

(1) Per MTA, it is assumed that no billing information can be obtained for vehicles with Canadian license plates.
(2) These are the assumed passenger car video toll surcharge amounts that would be assessed to unregistered video transactions in addition to the $3.00 cash toll. Registered video transaction surcharges were assessed at 50 percent of the unregistered video surcharge.
(3) Net revenue is calculated by subtracting maintenance and operations costs from gross toll+fee revenue.

Contact/Uncollectable Transactions. At the $0.00 level surcharge, it is estimated that a total of 1,837,000 transactions would be lost in 2015 due to:

- 119,000 transactions lost due to diversion (both toll diversion and technology diversion);
- 374,000 transactions lost due to unreadable plates or no DMV match; and
- 1,344,000 transactions lost due to unsuccessful collection.

The estimated leakage of toll transactions increases as the unregistered video surcharge increases from $0.00 to $4.00 (again, registered video rates are increasing at 50 percent of these rates). The increase is primarily due to increasing levels of diversion associated with the increased video toll rate. Negative impacts on the other two categories actually decrease since the pool of video customers decreases (due to diversion and greater assumed shifts to E-ZPass) at increasingly higher video surcharge levels. But, the overall net impact is increasing losses as surcharge levels increase.

Estimates of toll and fee revenue are provided for the existing condition and for the various surcharge levels under AET. The total estimated AET gross toll revenue impact is negative in 2015 at all tested surcharge levels. The impact is smallest at the $3.00 surcharge, totaling a negative impact of $1,400,000 compared to the existing condition. The toll revenue impact includes the video and E-ZPass gross toll revenue and the anticipated fee revenue. Beyond that, the video surcharge levels are so great that the negative effects of toll diversion outweigh the positive impacts of the toll increase.

Maintenance and operation costs, both existing and under AET are shown for the surcharge levels. The existing M&O does not change, and the estimated annual AET M&O costs decrease continuously from the $0.00 to the $4.00 surcharge. The decreasing AET M&O costs are largely due to the diminishing number of video toll transactions thus reducing transaction related processing costs such as image review, DMV lookup and mailings. The total AET cost savings turns positive at the $3.00 surcharge level. At lower surcharge levels, the combination of high license plate look-up costs (especially for out-of-state motorists) and mailing costs more than offset the other personnel and administrative savings afforded by AET.

Total AET M&O costs are greater at the $0.00 through $2.00 surcharge levels compared to those for the existing condition. Beginning at the $3.00 rate, total AET M&O costs are estimated to be lower than those for the existing condition. It is interesting to note, however, that at all surcharge levels, the Fare Collection/Administration cost component under AET is always less than half those for the existing condition. This is largely due to the elimination of toll collector costs. What drives the total AET M&O costs up are the additional costs incurred by the other three cost components: Image Review, DMV Lookup, and Mailing. These three components increase dramatically over the existing condition as cash customers become video customers, each of whom needs to be identified and sent an invoice (or multiple invoices).

The net revenue impacts (gross toll and fee revenue minus M&O costs) are shown for AET compared to the existing condition. In 2015, the net toll revenue impact is always negative for all surcharge levels, although it is minimized at the $3.00 surcharge. At the $4.00 surcharge, gross toll revenue starts to decrease due to the levels of toll diversion and conversion to E-ZPass. In 2015 it is estimated that the net toll revenue impact of AET is negative $1,052,000 at the $3.00 surcharge level. The five-

year cumulative AET net revenue impact with a $3.00 surcharge totals a negative $2,150,000. The ten-year cumulative impact at the $3.00 level turns positive, totaling an estimated $2,910,000 in 2015.

A graphical summary of the estimated annual net toll revenue from 2015 through 2030 at the various unregistered video surcharge levels and for the existing condition (Base Case) is shown in Figure 6. The net revenue curve for the $3.00 and $4.00 curve are so similar at this scale that they appear as one line. All the AET estimated net toll revenues fall short of the Base Case in 2015. The estimated AET toll revenue streams associated with the $2.00, $3.00 and $4.00 video surcharges exceed the Base Case toll revenue in future years while the estimated annual toll revenue associated with the $0.00 and $1.00 surcharge never equals or exceeds the Base Case forecast. The $3.00 and $4.00 surcharges result in annual gross toll revenues that exceed the Base Condition by about 2019. The annual gross toll revenue at the $2.00 surcharge exceeds the Base Condition toll revenue in about 2021.

Figure 6
Estimated York Toll Plaza AET Annual Net Revenue Forecasts

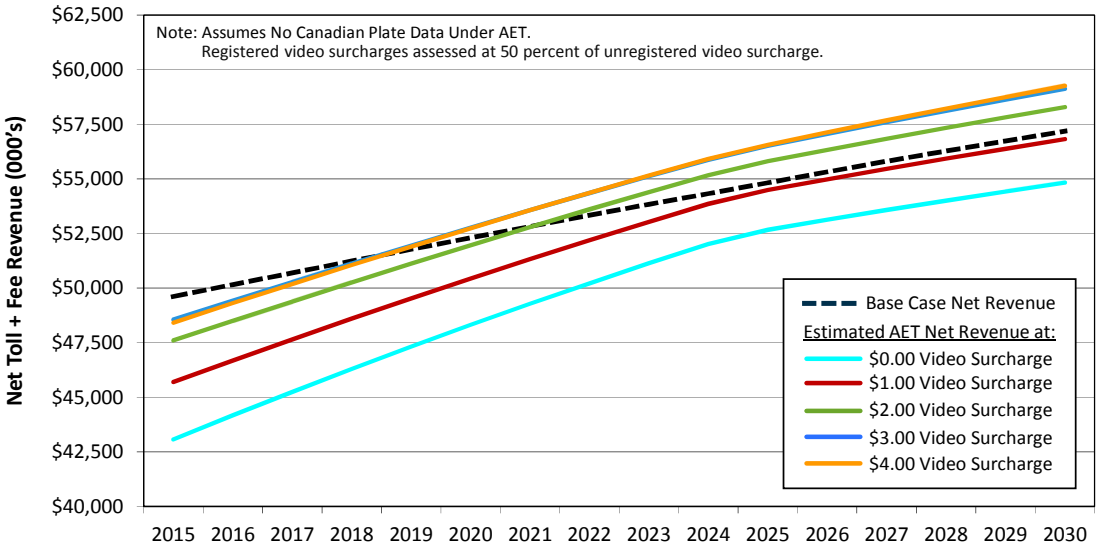


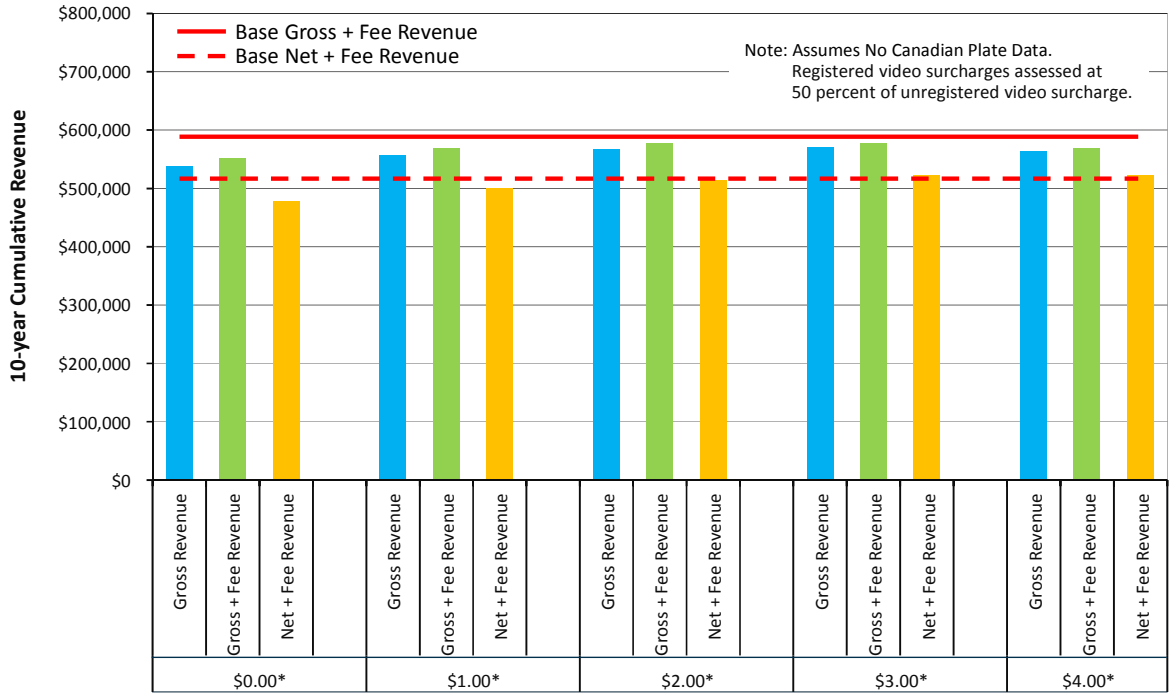
Figure 7 shows the estimated ten-year cumulative toll revenue comparison assuming AET at York Plaza for the tested video surcharge levels. The revenue for each surcharge level is shown for the gross toll revenue, the gross toll revenue plus the fee revenue, and the net toll revenue plus the fee revenue. The gross toll revenue plus fee revenue and the net toll revenue plus fee revenue for the existing condition are shown as horizontal lines. The estimated, cumulative 10-year net toll revenue plus fee revenue meets or exceeds the existing condition net plus fee revenue only at the $3.00 and $4.00 surcharge level.

Detailed traffic and toll revenue estimated impacts are shown in Table 5 for the York Toll Plaza at a $3.00 video surcharge from 2015 through 2030. This table shows the estimated trends over time in toll transactions, leakage (uncollectible transactions), gross toll and fee revenue, and M&O costs for

both the existing condition and the AET condition. Also shown are the impacts between the existing and AET conditions for each year and cumulatively through the forecast period.

The leakage due to implementation of AET decreases from 2015 through 2025 primarily due to an increasing market share of E-ZPass vehicles, decreasing the number of video transactions. The leakage gradually increases from 2026 through 2030. The increase is caused by the saturation of the E-ZPass market and normal growth slowly increases the number of video transactions.

Figure 7
Estimated York Toll Plaza AET Ten Year Cumulative Revenue Comparison



* Video Surcharge

The AET gross toll revenue impact is negative throughout the forecast period, but the size of the decrease in gross toll revenue diminishes over the years. The impact ranges from negative $1,400,000 in 2015 to negative $970,000 in 2030. This decrease is associated with the increasing E-ZPass market share and the decrease in video transaction toll revenue leakage.

Savings in M&O costs are estimated to be positive from 2015 through 2030, ranging from $348,000 to $2,912,000, respectively. While it is anticipated that the existing condition M&O costs continually increase through the forecast period, the M&O costs for the AET scenario are forecast to decrease through 2024 due to the decreasing video transaction market share. As video transaction market share decreases over time, fewer image reviews, DMV lookups and mailings will be required. As a result, fewer staff will be required to perform these processes. Additionally, this will lead to proportionate decreases in direct costs related to out-of-state DMV lookups and mailings. Total AET M&O costs are forecast to start increasing around 2025 due to the saturation of the E-ZPass market. When that saturation point is reached, the number of video transactions and related costs are

Table 5
Estimated Total York Toll Plaza AET Traffic and Toll Revenue Impacts Assuming a $3.00 Video Surcharge (1)(2)
All Values in Thousands

	Year															
Toll Transactions	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Existing Condition Toll Transactions: Cash	4,213	3,935	3,676	3,435	3,212	3,004	2,810	2,631	2,463	2,308	2,256	2,281	2,305	2,330	2,353	2,377
Existing Condition Toll Transactions: E-ZPass	9,752	10,227	10,682	11,117	11,535	11,935	12,318	12,686	13,038	13,376	13,606	13,755	13,903	14,049	14,192	14,334
Total Existing Condition Toll Transactions+Violations	13,965	14,162	14,358	14,553	14,746	14,938	15,129	15,317	15,502	15,684	15,862	16,036	16,208	16,378	16,546	16,711
AET Toll Transactions: Video	1,414	1,308	1,209	1,117	1,031	952	878	809	745	686	666	676	686	695	705	714
AET Toll Transactions: E-ZPass	10,341	10,815	11,269	11,703	12,119	12,518	12,901	13,268	13,619	13,956	14,185	14,334	14,482	14,627	14,770	14,912
Total AET Toll Transactions	11,755	12,123	12,478	12,820	13,150	13,470	13,779	14,077	14,364	14,642	14,851	15,010	15,167	15,322	15,475	15,626
AET Transaction Impacts	-2,209	-2,039	-1,881	-1,733	-1,596	-1,468	-1,350	-1,240	-1,138	-1,042	-1,011	-1,026	-1,041	-1,056	-1,070	-1,085
No Contact/Uncollectable Transactions																
Toll and Technology Diversion	1,259	1,164	1,076	994	918	847	782	721	664	611	594	603	611	620	628	637
Unreadable Plates and DMV No Hits	217	203	190	178	167	157	147	139	130	123	120	122	124	125	127	129
Unsuccessful Collection	815	754	697	645	596	551	509	469	433	399	388	394	400	405	411	416
Total AET No Contact/Uncollectable	2,290	2,121	1,964	1,817	1,681	1,555	1,438	1,329	1,227	1,133	1,102	1,119	1,135	1,151	1,166	1,182
Existing Condition Violations	81	82	83	84	85	87	88	89	90	91	92	93	94	95	96	97
AET Transaction Loss Impact	2,209	2,039	1,881	1,733	1,596	1,468	1,350	1,240	1,138	1,042	1,011	1,026	1,041	1,056	1,070	1,085
Gross Toll and Fee Revenue																
Existing Condition Gross Toll Revenue: Cash	$14,776	$13,967	$13,216	$12,519	$11,872	$11,273	$10,719	$10,204	$9,728	$9,287	$9,156	$9,257	$9,356	$9,454	$9,551	$9,646
Existing Condition Gross Toll Revenue: E-ZPass	40,710	42,242	43,714	45,130	46,493	47,807	49,073	50,290	51,462	52,589	53,407	53,994	54,573	55,145	55,710	56,267
Existing Condition Fee Revenue	189	191	193	196	198	201	203	206	208	210	213	215	217	220	222	224
Total Existing Condition Gross Toll+Fee Revenue	$55,675	$56,400	$57,124	$57,845	$58,564	$59,281	$59,994	$60,700	$61,397	$62,086	$62,776	$63,466	$64,147	$64,819	$65,483	$66,138
AET Gross Toll Revenue: Video	$10,792	$10,127	$9,511	$8,939	$8,409	$7,918	$7,464	$7,043	$6,653	$6,293	$6,189	$6,277	$6,364	$6,449	$6,533	$6,617
AET Gross Toll Revenue: E-ZPass	42,432	43,960	45,428	46,841	48,200	49,510	50,773	51,987	53,156	54,280	55,096	55,682	56,260	56,830	57,393	57,949
AET Collected Fee Revenue (30% of Maximum)	1,051	981	916	856	800	748	700	655	614	575	563	571	579	587	595	602
Total AET Gross Toll+Discounted Fee Revenue	$54,275	$55,068	$55,855	$56,635	$57,409	$58,176	$58,936	$59,685	$60,422	$61,148	$61,849	$62,530	$63,202	$63,866	$64,521	$65,168
Total AET Gross Toll Revenue Impact	-$1,400	-$1,332	-$1,269	-$1,210	-$1,155	-$1,105	-$1,058	-$1,015	-$975	-$938	-$927	-$936	-$944	-$953	-$961	-$970
Summary of Existing Condition M&O Costs																
Image Review	$159	$165	$172	$178	$185	$192	$199	$207	$215	$223	$231	$239	$247	$256	$265	$275
DMV Lookup	16	17	18	18	19	20	21	21	22	23	24	25	26	27	27	28
Mailing	59	62	64	66	69	72	74	77	80	83	86	89	92	95	99	102
Fare Collection/Administration	5,832	6,002	6,173	6,346	6,521	6,698	6,878	7,060	7,244	7,431	7,613	7,792	7,976	8,163	8,355	8,551
Total Annual Existing Condition M&O Costs	$6,067	$6,246	$6,427	$6,610	$6,795	$6,982	$7,172	$7,365	$7,561	$7,759	$7,953	$8,145	$8,341	$8,541	$8,746	$8,956
Summary of AET M&O Costs																
Image Review	$411	$394	$377	$361	$346	$332	$319	$306	$294	$283	$284	$295	$307	$318	$331	$343
DMV Lookup	959	920	883	848	815	784	755	727	702	677	681	708	736	764	793	823
Mailing	1,929	1,849	1,773	1,701	1,632	1,568	1,507	1,450	1,396	1,345	1,352	1,405	1,459	1,516	1,574	1,633
Fare Collection/Administration	2,419	2,484	2,547	2,609	2,671	2,731	2,791	2,850	2,908	2,966	3,016	3,061	3,106	3,152	3,198	3,244
Total Annual AET M&O Cost	$5,719	$5,646	$5,580	$5,519	$5,464	$5,415	$5,372	$5,333	$5,299	$5,270	$5,333	$5,469	$5,608	$5,750	$5,895	$6,044
AET Cost Savings	$348	$600	$847	$1,090	$1,330	$1,567	$1,801	$2,032	$2,262	$2,489	$2,621	$2,676	$2,733	$2,791	$2,851	$2,912
Net Revenue Impacts (3)																
Total Net Existing Condition Toll+Fee Revenue	$49,608	$50,154	$50,697	$51,235	$51,770	$52,299	$52,822	$53,335	$53,836	$54,326	$54,823	$55,321	$55,806	$56,278	$56,737	$57,182
Total Net AET Toll Revenue	48,556	49,422	50,275	51,116	51,944	52,761	53,565	54,352	55,123	55,878	56,516	57,061	57,595	58,116	58,626	59,124
Total Net AET Toll Revenue Impact	-$1,052	-$732	-$422	-$119	$175	$462	$743	$1,017	$1,287	$1,552	$1,694	$1,740	$1,789	$1,838	$1,890	$1,943
Cumulative AET Net Revenue Impact	-$1,052	-$1,784	-$2,205	-$2,325	-$2,150	-$1,688	-$945	$72	$1,359	$2,910	$4,604	$6,345	$8,133	$9,972	$11,861	$13,804

(1) Per MTA, it is assumed that no billing information can be obtained for vehicles with Canadian license plates.
(2) These are the assumed passenger car video toll surcharge amounts that would be assessed to unregistered video transactions in addition to the $3.00 cash toll.
Registered video transaction surcharges were assessed at 50 percent of the unregistered video surcharge.
(3) Net revenue is calculated by subtracting maintenance and operations costs from gross toll+fee revenue.

estimated to increase at a nominal annual growth rate without any further shift to E-ZPass. AET is expected to have a net positive impact on total M&O costs compared to the existing condition throughout the forecast period at the $3.00 surcharge level.

The total impact on net toll revenue at the $3.00 surcharge level is negative from 2015 (-$1,052,000) through 2018 (-$119,000). The net toll revenue impact goes positive in 2019, totaling about $175,000. The net revenue impact reaches $1,943,000 in 2030. Cumulatively, the net toll revenue impact becomes positive in year 2022.

York Toll Plaza ORT

While it is the current MTA policy not to implement a cash surcharge for cash transactions under ORT, CDM Smith initially thought it best to test various surcharge levels (including no surcharge) to see what impact they had on net toll revenue. This decision stemmed from the potential risk to net revenue posed by an anticipated increase in violations in the ORT lanes. Because the $0.00 surcharge had a substantial positive impact on net toll revenue, the forecasts for the greater than $0.00 surcharges were not included in this report.

Detailed traffic and toll revenue impacts are shown in Table 6 for the York Toll Plaza with no cash surcharge from 2015 through 2030. This table shows trends over time in estimated toll transactions, gross toll and fee revenue, and M&O costs for both the existing condition and the ORT condition. Also shown are the net impacts between the existing and ORT conditions for each year and cumulatively through the forecast period.

If ORT is implemented, total toll transactions are estimated to increase by 19,000 compared to the existing condition. The increase in toll transactions is primarily based on the assumption that video enforcement of cash toll violations (run-throughs) will be introduced to the cash lanes upon construction of an ORT plaza (they do not currently exist). By 2030, total annual ORT transactions are expected to exceed existing condition projections by 57,000. Under ORT, no technology diversion is assumed since the cash option still remains.

In 2015 ORT has an estimated positive gross revenue impact of $177,000, representing a 0.3% increase over the existing condition forecast. This positive impact increases proportionately with forecast existing condition gross toll revenue throughout the forecast period.

York Toll Plaza 2015 ORT M&O costs are estimated to be $775,000, or 12.8%, lower than those projected for existing condition. By 2030 ORT M&O cost savings are estimated to increase to $1,472,000. As a percent of total annual existing condition M&O costs, this represents a savings of 16.4%. This savings is due primarily to the replacement of legacy system toll equipment that is costly to maintain, with some parts requiring frequent replacement.

Unlike under the AET alternative, existing condition and ORT costs are relatively similar across all cost categories. The differences that do occur are in the Fare Collection/Administration category. As mentioned above, ORT costs are slightly lower due to the replacement of the legacy toll equipment. All other cost categories are very similar between the existing condition and the ORT alternative.

Net revenue impacts are also shown for ORT compared to the existing condition. In 2015 it is estimated that ORT has a positive net toll revenue impact of $952,000 without a cash surcharge. The

Table 6
Estimated Total York Toll Plaza ORT Traffic and Toll Revenue Impacts Assuming No Cash Surcharge
All Values in Thousands

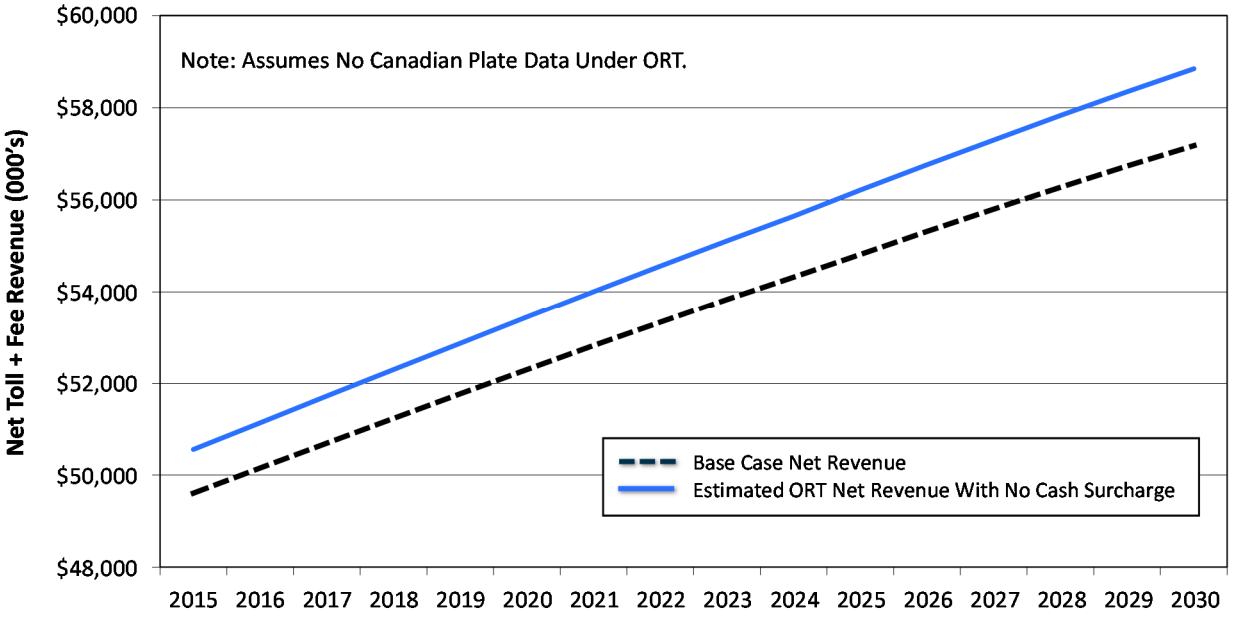
	Year															
Toll Transactions	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Existing Condition Toll Transactions: Cash	4,213	3,935	3,676	3,435	3,212	3,004	2,810	2,631	2,463	2,308	2,256	2,281	2,305	2,330	2,353	2,377
Existing Condition Toll Transactions: E-ZPass	9,752	10,227	10,682	11,117	11,535	11,935	12,318	12,686	13,038	13,376	13,606	13,755	13,903	14,049	14,192	14,334
Total Existing Condition Toll Transactions	13,965	14,162	14,358	14,553	14,746	14,938	15,129	15,317	15,502	15,684	15,862	16,036	16,208	16,378	16,546	16,711
ORT Toll Transactions: Cash	4,149	3,876	3,622	3,386	3,166	2,962	2,773	2,597	2,433	2,281	2,230	2,256	2,281	2,306	2,330	2,354
ORT Toll Transactions: E-ZPass	9,834	10,309	10,764	11,199	11,616	12,015	12,399	12,767	13,119	13,456	13,686	13,835	13,983	14,128	14,272	14,414
Total ORT Toll Transactions	13,983	14,185	14,386	14,585	14,782	14,978	15,172	15,363	15,551	15,737	15,916	16,091	16,264	16,434	16,603	16,769
ORT Transaction Impacts	19	23	28	32	36	40	43	47	50	53	54	55	55	56	57	57
Gross Toll and Fee Revenue																
Existing Condition Gross Toll Revenue: Cash	$14,776	$13,967	$13,216	$12,519	$11,872	$11,273	$10,719	$10,204	$9,728	$9,287	$9,156	$9,257	$9,356	$9,454	$9,551	$9,646
Existing Condition Gross Toll Revenue: E-ZPass	40,710	42,242	43,714	45,130	46,493	47,807	49,073	50,290	51,462	52,589	53,407	53,994	54,573	55,145	55,710	56,267
Existing Condition Fee Revenue	189	191	193	196	198	201	203	206	208	210	213	215	217	220	222	224
Total Existing Condition Gross Toll+Fee Revenue	$55,675	$56,400	$57,124	$57,845	$58,564	$59,281	$59,994	$60,700	$61,397	$62,086	$62,776	$63,466	$64,147	$64,819	$65,483	$66,138
Gross Toll and Fee Revenue																
ORT Gross Toll Revenue: Cash	$14,599	$13,806	$13,069	$12,386	$11,753	$11,167	$10,624	$10,121	$9,655	$9,224	$9,100	$9,203	$9,305	$9,406	$9,505	$9,603
ORT Gross Toll Revenue: E-ZPass	40,948	42,479	43,950	45,366	46,728	48,041	49,306	50,523	51,694	52,821	53,638	54,225	54,804	55,376	55,940	56,497
ORT Collected Fee Revenue (30% of Maximum)	305	292	281	270	260	251	243	235	228	222	221	223	226	228	230	233
Total ORT Gross Toll+Discounted Fee Revenue	$55,852	$56,577	$57,301	$58,022	$58,742	$59,459	$60,173	$60,880	$61,578	$62,267	$62,959	$63,651	$64,335	$65,010	$65,676	$66,333
Total ORT Gross Toll Revenue Impact	$177	$177	$177	$177	$178	$178	$179	$179	$180	$181	$183	$186	$188	$191	$193	$195
Summary of Existing Condition M&O Costs																
Image Review	$159	$165	$172	$178	$185	$192	$199	$207	$215	$223	$231	$239	$247	$256	$265	$275
DMV Lookup	16	17	18	18	19	20	21	21	22	23	24	25	26	27	27	28
Mailing	59	62	64	66	69	72	74	77	80	83	86	89	92	95	99	102
Fare Collection/Administration	5,832	6,002	6,173	6,346	6,521	6,698	6,878	7,060	7,244	7,431	7,613	7,792	7,976	8,163	8,355	8,551
Total Annual Existing Condition M&O Costs	$6,067	$6,246	$6,427	$6,610	$6,795	$6,982	$7,172	$7,365	$7,561	$7,759	$7,953	$8,145	$8,341	$8,541	$8,746	$8,956
Summary of ORT M&O Costs																
Image Review	$173	$180	$187	$194	$202	$209	$217	$225	$234	$243	$231	$239	$247	$256	$265	$275
DMV Lookup	24	24	25	26	27	28	30	31	32	33	34	35	37	38	39	41
Mailing	85	88	91	95	99	102	106	110	114	118	123	127	132	136	141	146
Fare Collection/Administration	5,011	5,143	5,276	5,409	5,542	5,676	5,812	5,948	6,085	6,224	6,356	6,484	6,615	6,749	6,884	7,023
Total Annual ORT M&O Cost	$5,292	$5,436	$5,579	$5,724	$5,870	$6,017	$6,165	$6,314	$6,465	$6,618	$6,743	$6,886	$7,031	$7,179	$7,330	$7,484
ORT Cost Savings	$775	$810	$847	$886	$925	$966	$1,008	$1,051	$1,096	$1,142	$1,210	$1,259	$1,310	$1,362	$1,416	$1,472
Net Revenue Impacts (1)																
Total Net Existing Condition Toll+Fee Revenue	$49,608	$50,154	$50,697	$51,235	$51,770	$52,299	$52,822	$53,335	$53,836	$54,326	$54,823	$55,321	$55,806	$56,278	$56,737	$57,182
Total Net ORT Toll Revenue	50,560	51,142	51,721	52,298	52,872	53,442	54,008	54,565	55,112	55,649	56,215	56,765	57,304	57,830	58,346	58,849
Total Net ORT Toll Revenue Impact	$952	$987	$1,024	$1,063	$1,103	$1,144	$1,186	$1,230	$1,276	$1,323	$1,393	$1,444	$1,498	$1,553	$1,609	$1,667
Cumulative ORT Net Revenue Impact	$952	$1,939	$2,964	$4,027	$5,129	$6,273	$7,459	$8,689	$9,965	$11,288	$12,681	$14,126	$15,623	$17,176	$18,785	$20,452

(1) Net revenue is calculated by subtracting maintenance and operations costs from gross toll+fee revenue.

five-year cumulative ORT net revenue impact at the $0.00 surcharge totals a $5,129,000. The ten-year cumulative impact totals an estimated $11,288,000.

A graphical summary of the estimated annual net toll revenue from 2015 through 2030 is shown for $0.00 cash surcharge and for the existing condition in Figure 8.

Figure 8
Estimated York Toll Plaza ORT Annual Net Revenue Forecasts



Gardiner Toll Plaza

The following section presents estimated traffic and revenue for the Gardiner Toll Plaza under AET and ORT conditions. The results of surcharge sensitivity tests include the estimated annual net revenue forecasts associated with various surcharge levels. Estimated annual traffic and toll revenue impacts are presented assuming the optimal surcharge level.

Gardiner Toll Plaza AET

The results of the Gardiner AET surcharge sensitivity tests are presented in Table 7. These were also conducted at 2015 levels, the assumed opening year. Passenger-car unregistered video surcharge rates were tested at $0.00, $0.25, $0.50, $0.75 and $1.00. These would be in addition to the existing $1.00 cash toll. Registered video transaction surcharges were assessed at 50 percent of the unregistered video surcharge. Table 7 includes estimated toll transactions, no contact/uncollectable transactions, gross toll and fee revenue, M&O costs, and net revenue impacts associated with each of the video surcharge levels.

Estimated annual transactions are provided for the existing condition for both cash and E-ZPass (including violations). The number of uncollectible transactions due to AET is estimated to total

Table 7
Estimated 2015 Gardiner Toll Plaza AET Surcharge Sensitivity Summary (1)
All Values in Thousands

	Unregistered Video Surcharge (2)				
Toll Transactions	**$0.00**	**$0.25**	**$0.50**	**$0.75**	**$1.00**
Existing Condition Toll Transactions: Cash	3,294	3,294	3,294	3,294	3,294
Existing Condition Toll Transactions: E-ZPass	5,152	5,152	5,152	5,152	5,152
Total Existing Condition Toll Transactions+Violations	8,446	8,446	8,446	8,446	8,446
AET Toll Transactions: Video	2,002	1,897	1,837	1,758	1,680
AET Toll Transactions: E-ZPass	5,249	5,354	5,389	5,424	5,460
Total AET Toll Transactions	7,251	7,251	7,226	7,182	7,140
AET Transaction Impacts	-1,195	-1,195	-1,220	-1,264	-1,306
No Contact/Uncollectable Transactions					
Toll and Technology Diversion	92	151	210	297	383
Unreadable Plates and DMV No Hits	117	110	106	101	95
Unsuccessful Collection	1,034	981	952	913	876
Total AET No Contact/Uncollectable	1,243	1,243	1,268	1,312	1,354
Existing Condition Violations	48	48	48	48	48
AET Transaction Loss Impact	1,195	1,195	1,220	1,264	1,306
Gross Toll and Fee Revenue					
Existing Condition Gross Toll Revenue: Cash	$3,677	$3,677	$3,677	$3,677	$3,677
Existing Condition Gross Toll Revenue: E-ZPass	4,683	4,683	4,683	4,683	4,683
Existing Condition Fee Revenue	135	135	135	135	135
Total Existing Condition Gross Toll+Fee Revenue	$8,495	$8,495	$8,495	$8,495	$8,495
AET Gross Toll Revenue: Video	$2,311	$2,764	$3,232	$3,655	$4,034
AET Gross Toll Revenue: E-ZPass	4,733	4,792	4,812	4,832	4,852
AET Collected Fee Revenue (30% of Maximum)	1,381	1,308	1,265	1,208	1,151
Total AET Gross Toll+Discounted Fee Revenue	$8,425	$8,865	$9,309	$9,694	$10,036
Total AET Gross Toll Revenue Impact	-$69	$370	$814	$1,199	$1,542
Summary of Existing Condition M&O Costs					
Image Review	$76	$76	$76	$76	$76
DMV Lookup	11	11	11	11	11
Mailing	41	41	41	41	41
Fare Collection/Administration	2,552	2,552	2,552	2,552	2,552
Total Annual Existing Condition M&O Costs	$2,680	$2,680	$2,680	$2,680	$2,680
Summary of AET M&O Costs					
Image Review	$522	$496	$480	$460	$439
DMV Lookup	481	453	436	413	390
Mailing	2,258	2,139	2,067	1,972	1,878
Fare Collection/Administration	866	868	870	870	869
Total Annual AET M&O Cost	$4,127	$3,956	$3,853	$3,714	$3,577
AET Cost Savings	-$1,447	-$1,276	-$1,173	-$1,034	-$897
Net Revenue Impacts (3)					
Total Net Existing Condition Toll+Fee Revenue	$5,815	$5,815	$5,815	$5,815	$5,815
Total Net AET Toll Revenue	4,299	4,908	5,456	5,980	6,459
Total Net AET Toll Revenue Impact	-$1,516	-$907	-$359	$165	$644
5-yr Cumulative AET Net Revenue Impact	-$6,507	-$3,607	-$1,028	$1,441	$3,698
10-yr Cumulative AET Net Revenue Impact	-$9,808	-$4,405	$329	$4,863	$8,998

(1) Per MTA, it is assumed that no billing information can be obtained for vehicles with Canadian license plates.
(2) These are the assumed passenger car video toll surcharge amounts that would be assessed to unregistered video transactions in addition to the $1.00 cash toll. Registered video transaction surcharges were assessed at 50 percent of the unregistered video surcharge.
(3) Net revenue is calculated by subtracting maintenance and operations costs from gross toll+fee revenue.

1,195,000 in 2015 for the $0.00 surcharge level. Uncollectible transactions increase as the unregistered video surcharge increases, totaling 1,306,000 at the $1.00 surcharge in 2015.

The estimated AET gross toll revenue impact is negative $69,000 at the $0.00 surcharge and positive $370,000 at the $0.25 surcharge. At the $1.00 surcharge, the estimated toll revenue impact of AET is a positive $1,542,000. This toll revenue impact takes into account both the gross toll revenue and the discounted fee revenue. Similar to the York Toll Plaza analysis, it is assumed that only 30 percent of the eligible fee revenue is actually collected. This is because fee revenue is often discounted or entirely forgiven.

Maintenance and operation costs decrease under AET as the surcharge level increases. This is largely due to the decreasing numbers of video transactions. There are no AET M&O cost savings at any of the tested surcharge levels compared to the existing condition. The impacts on M&O range from a negative $1,447,000 at $0.00 surcharge to negative $897,000 at the $1.00 surcharge. The reason there are no positive AET M&O cost savings is twofold. First, the license plate lookup and mailing costs associated with invoicing, NOV, NOL, etc. are much larger compared to the existing $1.00 cash toll at Gardiner. At York, these costs were expended in order to collect a $3.00 cash toll. And second, there is a higher proportion of cash (and therefore video) transactions at Gardiner compared to York. This means that there are relatively higher costs associated with collecting a higher number of transactions at Gardiner compared to York.

The same general pattern between existing condition and the AET alternative M&O costs exists at Gardiner as it did at York. Under AET, the Fare Collection/Administration costs fall dramatically and only represent a fraction of those under the existing condition due to the elimination of manual toll collectors. However, as at York, back office costs associated with processing video transactions (Image Review, DMV Lookup, and Mailings) are significantly higher under AET.

The total net revenue impacts are negative in 2015 for the $0.00, $0.25, and $0.50 surcharges. At the $0.75 surcharge the net toll revenue impact becomes positive, totaling $165,000. At the $1.00 surcharge, the net toll revenue impact totals $644,000. The five-year cumulative AET net revenue impact totals an estimated $1,441,000 at the $0.75 surcharge, while the ten-year cumulative impact is estimated to total $4,863,000 at the same surcharge.

A graphical summary of the estimated annual net toll revenue from 2015 through 2030 at the various video surcharge levels and for the existing condition is shown in Figure 9. The net revenue forecasts at the $0.75 and $1.00 surcharges are always above the net toll revenue forecast for the existing condition.

Figure 10 shows the estimated ten-year cumulative toll revenue comparison assuming AET at Gardiner Toll Plaza for each tested video surcharge level. For each surcharge, the forecast cumulative gross toll revenue, gross toll revenue plus fee revenue, and net toll revenue plus the fee revenue are shown. The gross toll revenue plus fee revenue and the net toll revenue plus fee revenue for the existing condition are shown as horizontal lines. The estimated cumulative 10-year net toll revenue plus fee revenue meets or exceeds the existing condition net plus fee revenue at the $0.50, $0.75 and $1.00 surcharge levels.

Figure 9
Estimated Gardiner Toll Plaza AET Annual Net Revenue Forecasts

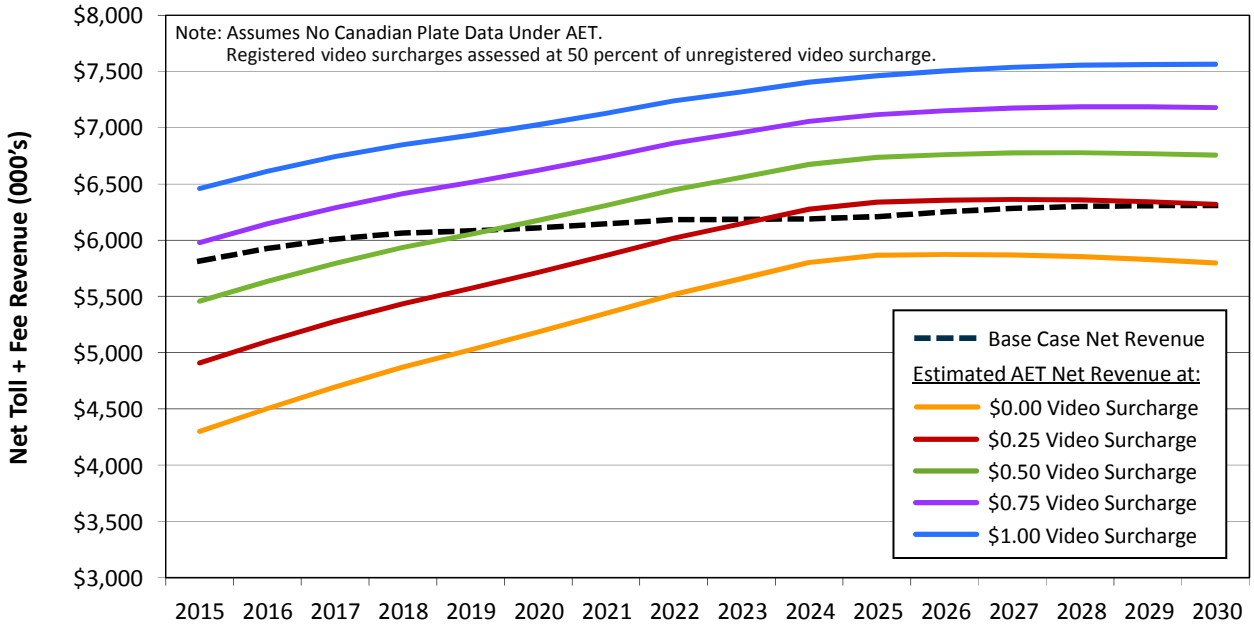
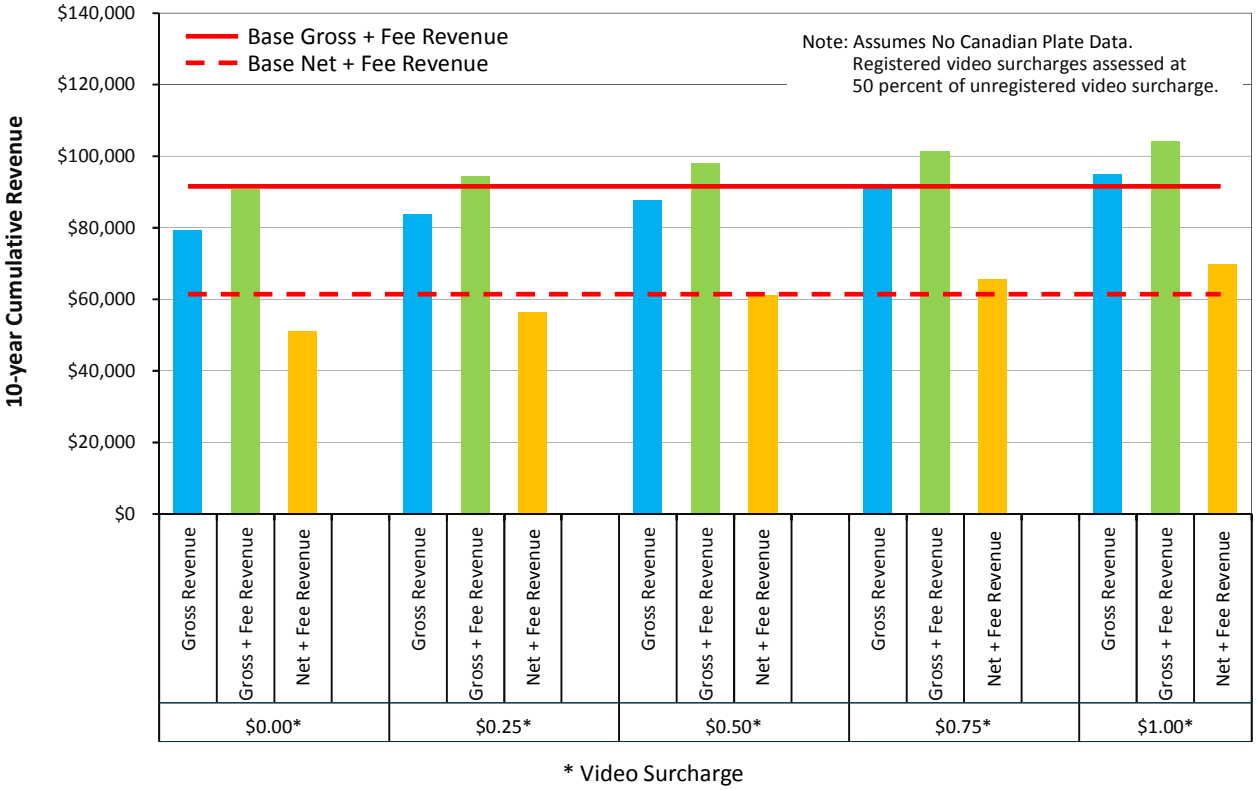


Figure 10
Estimated Gardiner Toll Plaza AET Ten Year Cumulative Revenue Comparison



Detailed estimated traffic and toll revenue impacts are shown in Table 8 for the Gardiner Toll Plaza at a $0.75 video surcharge from 2015 through 2030. This rate was selected for presentation here because it generates positive net toll revenue over both the five and ten year cumulative periods. This table shows the estimated trends over time in toll transactions, leakage (uncollectible transactions), gross toll and fee revenue, and M&O costs for both the existing condition and the AET condition. Also shown are the impacts between the existing and AET conditions for each year and cumulatively through the forecast period.

Leakage due to implementation of AET decreases from 2015 through 2025 primarily due to an increasing market share of E-ZPass vehicles, thus decreasing the number of video transactions. The leakage gradually increases from 2026 through 2030, caused by the saturation of the E-ZPass market and the normal growth of video transactions.

The AET gross toll revenue impact is positive throughout the forecast period. The size of the positive impact decreases slightly from 2015 through 2030, but ranges from positive $1,199,000 in 2015 to positive $741,000 in 2030.

Savings in M&O costs are estimated to be positive from about 2023 through 2030, ranging from $24,000 to $130,000, respectively. While it is anticipated that the existing condition M&O costs continually increase through the forecast period, the M&O costs for the AET scenario are forecast to decrease through 2024 due to the decreasing market share of video transactions. As discussed previously in relation to AET M&O costs at York, decreases in video toll transactions will result in fewer image reviews, DMV lookups and mailings. As a result, fewer staff will be required to perform these processes. Additionally, this will lead to proportionate decreases in direct costs related to out-of-state DMV lookups and mailings. Total AET M&O costs are forecast to start increasing around 2025 due to the saturation of the E-ZPass market. .Again, when that saturation point is reached, the number of video transactions and related costs are estimated to increase at a nominal annual growth rate without any further shift to E-ZPass. AET is expected to have a net positive impact on total M&O costs compared to the existing condition throughout the forecast period.

The total impact on net toll revenue at the $0.75 surcharge level is positive from 2015 ($165,000) through 2030 ($870,000). Cumulatively, the net toll revenue impact ranges from $165,000 in 2015 to $10,195,000 in 2030.

Gardiner Toll Plaza ORT

As was mentioned earlier, we understand that ORT cash surcharges are not in the current business rules for MTA operations. They were tested here, however, in order to see if they were needed, and if so, at what level to achieve toll revenue neutrality. Similar to York, $0.00 surcharge had a substantial positive impact on net toll revenue, so the forecasts for the greater than $0.00 surcharges were not included in this report.

Detailed traffic and toll revenue estimated impacts are shown in Table 9 for the Gardiner Toll Plaza at a $0.00 cash surcharge from 2015 through 2030. This table shows the estimated trends over time in toll transactions, gross toll and fee revenue, and M&O costs for both the existing condition and the ORT condition.

Table 8
Estimated Total Gardiner Toll Plaza AET Traffic and Toll Revenue Impacts
Assuming a $0.75 Video Surcharge (1)(2)
All Values in Thousands

	Year															
Toll Transactions	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Existing Condition Toll Transactions: Cash	3,294	3,164	3,025	2,878	2,725	2,582	2,446	2,318	2,187	2,064	2,024	2,053	2,079	2,103	2,124	2,146
Existing Condition Toll Transactions: E-ZPass	5,152	5,552	5,932	6,287	6,611	6,934	7,256	7,577	7,858	8,135	8,314	8,430	8,538	8,636	8,724	8,812
Total Existing Condition Toll Transactions+Violat	8,446	8,717	8,957	9,165	9,336	9,515	9,702	9,895	10,044	10,199	10,338	10,483	10,617	10,739	10,849	10,957
AET Toll Transactions: Video	1,758	1,685	1,606	1,522	1,436	1,354	1,277	1,205	1,130	1,060	1,038	1,055	1,071	1,085	1,098	1,110
AET Toll Transactions: E-ZPass	5,424	5,824	6,204	6,558	6,881	7,204	7,525	7,846	8,126	8,403	8,582	8,698	8,805	8,903	8,992	9,079
Total AET Toll Transactions	7,182	7,509	7,810	8,080	8,317	8,558	8,802	9,050	9,256	9,464	9,620	9,753	9,876	9,988	10,089	10,189
AET Transaction Impacts	-1,264	-1,208	-1,148	-1,085	-1,019	-958	-899	-844	-788	-735	-718	-730	-741	-751	-759	-768
No Contact/Uncollectable Transactions																
Toll and Technology Diversion	297	285	272	258	243	229	216	204	191	179	176	178	181	183	186	188
Unreadable Plates and DMV No Hits	101	97	93	89	85	81	77	73	70	66	65	66	67	68	69	70
Unsuccessful Collection	913	875	835	792	747	704	665	627	588	552	541	550	558	565	572	578
Total AET No Contact/Uncollectable	1,312	1,258	1,200	1,138	1,074	1,014	958	904	849	798	782	794	806	817	826	836
Existing Condition Violations	48	50	52	54	55	57	58	60	61	63	64	64	65	66	67	67
AET Transaction Loss Impact	1,264	1,208	1,148	1,085	1,019	958	899	844	788	735	718	730	741	751	759	768
Gross Toll and Fee Revenue																
Existing Condition Gross Toll Revenue: Cash	$3,677	$3,564	$3,441	$3,308	$3,169	$3,038	$2,915	$2,800	$2,680	$2,568	$2,537	$2,573	$2,606	$2,636	$2,663	$2,689
Existing Condition Gross Toll Revenue: E-ZPass	4,683	5,001	5,302	5,580	5,831	6,083	6,336	6,588	6,807	7,024	7,168	7,268	7,361	7,445	7,522	7,597
Existing Condition Fee Revenue	135	139	142	144	146	148	150	152	154	155	157	159	161	163	165	167
Total Existing Condition Gross Toll+Fee Revenue	$8,495	$8,704	$8,884	$9,032	$9,146	$9,269	$9,401	$9,541	$9,641	$9,747	$9,862	$10,000	$10,128	$10,244	$10,349	$10,453
AET Gross Toll Revenue: Video	$3,655	$3,540	$3,413	$3,276	$3,131	$2,995	$2,868	$2,750	$2,625	$2,509	$2,478	$2,517	$2,554	$2,587	$2,617	$2,646
AET Gross Toll Revenue: E-ZPass	4,832	5,149	5,449	5,727	5,978	6,230	6,481	6,733	6,952	7,168	7,312	7,412	7,505	7,589	7,665	7,740
AET Collected Fee Revenue (30% of Maximum)	1,208	1,162	1,113	1,060	1,005	954	905	860	813	769	755	768	779	789	798	807
Total AET Gross Toll+Discounted Fee Revenue	$9,694	$9,851	$9,975	$10,063	$10,114	$10,178	$10,255	$10,343	$10,389	$10,445	$10,545	$10,697	$10,837	$10,965	$11,080	$11,193
Total AET Gross Toll Revenue Impact	$1,199	$1,147	$1,091	$1,031	$969	$910	$854	$802	$749	$698	$683	$697	$709	$720	$731	$741
Summary of Existing Condition M&O Costs																
Image Review	$76	$80	$84	$88	$92	$96	$101	$105	$109	$114	$118	$123	$127	$132	$137	$141
DMV Lookup	11	12	13	13	14	14	15	16	16	17	18	18	19	20	21	21
Mailing	41	43	45	48	50	52	54	57	59	61	64	66	69	71	74	76
Fare Collection/Administration	2,552	2,642	2,732	2,820	2,907	2,995	3,087	3,180	3,271	3,364	3,453	3,541	3,631	3,721	3,812	3,905
Total Annual Existing Condition M&O Costs	$2,680	$2,777	$2,874	$2,969	$3,062	$3,158	$3,257	$3,358	$3,456	$3,557	$3,653	$3,749	$3,846	$3,944	$4,043	$4,144
Summary of AET M&O Costs																
Image Review	$460	$453	$445	$435	$422	$411	$400	$389	$377	$365	$368	$383	$398	$414	$429	$445
DMV Lookup	413	409	402	394	384	375	366	358	349	340	343	357	371	385	400	414
Mailing	1,972	1,948	1,915	1,873	1,824	1,777	1,732	1,690	1,641	1,595	1,608	1,675	1,742	1,808	1,875	1,943
Fare Collection/Administration	870	898	924	949	971	995	1,019	1,044	1,066	1,089	1,110	1,131	1,152	1,172	1,192	1,212
Total Annual AET M&O Cost	$3,714	$3,707	$3,686	$3,650	$3,602	$3,558	$3,517	$3,481	$3,432	$3,388	$3,429	$3,546	$3,663	$3,779	$3,896	$4,015
AET Cost Savings	-$1,034	-$930	-$812	-$681	-$540	-$399	-$261	-$123	$24	$168	$224	$203	$183	$164	$147	$130
Net Revenue Impacts (3)																
Total Net Existing Condition Toll+Fee Revenue	$5,815	$5,927	$6,010	$6,063	$6,083	$6,111	$6,144	$6,183	$6,185	$6,190	$6,209	$6,251	$6,282	$6,300	$6,306	$6,308
Total Net AET Toll Revenue	5,980	6,144	6,289	6,413	6,512	6,621	6,738	6,862	6,957	7,057	7,116	7,151	7,174	7,185	7,184	7,179
Total Net AET Toll Revenue Impact	$165	$218	$279	$350	$429	$510	$594	$679	$772	$867	$907	$899	$892	$885	$878	$870
Cumulative AET Net Revenue Impact	$165	$383	$662	$1,012	$1,441	$1,952	$2,545	$3,225	$3,997	$4,863	$5,770	$6,670	$7,562	$8,447	$9,325	$10,195

(1) Per MTA, it is assumed that no billing information can be obtained for vehicles with Canadian license plates.
(2) These are the assumed passenger car video toll surcharge amounts that would be assessed to unregistered video transactions in addition to the $3.00 cash toll. Registered video transaction surcharges were assessed at 50 percent of the unregistered video surcharge.
(3) Net revenue is calculated by subtracting maintenance and operations costs from gross toll+fee revenue.

Table 9
Estimated Total Gardiner Toll Plaza ORT Traffic and Toll Revenue Impacts Assuming No Cash Surcharge
All Values in Thousands

	Year															
Toll Transactions	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Existing Condition Toll Transactions: Cash	3,294	3,164	3,025	2,878	2,725	2,582	2,446	2,318	2,187	2,064	2,024	2,053	2,079	2,103	2,124	2,146
Existing Condition Toll Transactions: E-ZPass	5,152	5,552	5,932	6,287	6,611	6,934	7,256	7,577	7,858	8,135	8,314	8,430	8,538	8,636	8,724	8,812
Total Existing Condition Toll Transactions	8,446	8,717	8,957	9,165	9,336	9,515	9,702	9,895	10,044	10,199	10,338	10,483	10,617	10,739	10,849	10,957
ORT Toll Transactions: Cash	3,250	3,123	2,986	2,842	2,692	2,550	2,417	2,291	2,162	2,041	2,003	2,032	2,059	2,083	2,105	2,127
ORT Toll Transactions: E-ZPass	5,241	5,643	6,024	6,380	6,704	7,028	7,351	7,673	7,955	8,233	8,412	8,529	8,637	8,735	8,824	8,911
Total ORT Toll Transactions	8,492	8,766	9,010	9,222	9,396	9,578	9,768	9,964	10,117	10,274	10,415	10,561	10,695	10,818	10,929	11,038
ORT Transaction Impacts	45	49	53	57	60	63	66	69	72	75	77	78	79	80	80	81
Gross Toll and Fee Revenue																
Existing Condition Gross Toll Revenue: Cash	$3,677	$3,564	$3,441	$3,308	$3,169	$3,038	$2,915	$2,800	$2,680	$2,568	$2,537	$2,573	$2,606	$2,636	$2,663	$2,689
Existing Condition Gross Toll Revenue: E-ZPass	4,683	5,001	5,302	5,580	5,831	6,083	6,336	6,588	6,807	7,024	7,168	7,268	7,361	7,445	7,522	7,597
Existing Condition Fee Revenue	135	139	142	144	146	148	150	152	154	155	157	159	161	163	165	167
Total Existing Condition Gross Toll+Fee Revenue	$8,495	$8,704	$8,884	$9,032	$9,146	$9,269	$9,401	$9,541	$9,641	$9,747	$9,862	$10,000	$10,128	$10,244	$10,349	$10,453
Gross Toll and Fee Revenue																
ORT Gross Toll Revenue: Cash	$3,632	$3,523	$3,403	$3,273	$3,136	$3,007	$2,887	$2,775	$2,657	$2,547	$2,518	$2,554	$2,588	$2,619	$2,646	$2,674
ORT Gross Toll Revenue: E-ZPass	4,746	5,066	5,367	5,647	5,900	6,153	6,406	6,660	6,879	7,097	7,242	7,343	7,436	7,521	7,597	7,673
ORT Collected Fee Revenue (30% of Maximum)	245	240	233	226	219	212	206	200	193	187	186	189	191	193	195	197
Total ORT Gross Toll+Discounted Fee Revenue	$8,623	$8,828	$9,003	$9,146	$9,254	$9,372	$9,499	$9,634	$9,730	$9,831	$9,946	$10,086	$10,215	$10,333	$10,439	$10,544
Total ORT Gross Toll Revenue Impact	$128	$124	$119	$114	$108	$103	$98	$94	$89	$85	$84	$85	$87	$88	$90	$91
Summary of Existing Condition M&O Costs																
Image Review	$76	$80	$84	$88	$92	$96	$101	$105	$109	$114	$118	$123	$127	$132	$137	$141
DMV Lookup	11	12	13	13	14	14	15	16	16	17	18	18	19	20	21	21
Mailing	41	43	45	48	50	52	54	57	59	61	64	66	69	71	74	76
Fare Collection/Administration	2,552	2,642	2,732	2,820	2,907	2,995	3,087	3,180	3,271	3,364	3,453	3,541	3,631	3,721	3,812	3,905
Total Annual Existing Condition M&O Costs	$2,680	$2,777	$2,874	$2,969	$3,062	$3,158	$3,257	$3,358	$3,456	$3,557	$3,653	$3,749	$3,846	$3,944	$4,043	$4,144
Summary of ORT M&O Costs																
Image Review	$84	$89	$94	$98	$103	$107	$112	$118	$122	$128	$118	$123	$127	$132	$137	$141
DMV Lookup	16	17	18	19	20	21	22	23	24	24	25	26	27	28	29	30
Mailing	58	62	65	68	71	74	78	81	84	88	91	95	98	102	106	109
Fare Collection/Administration	2,342	2,408	2,474	2,538	2,602	2,667	2,733	2,802	2,868	2,936	3,004	3,071	3,140	3,209	3,279	3,350
Total Annual ORT M&O Cost	$2,501	$2,576	$2,651	$2,724	$2,796	$2,869	$2,945	$3,023	$3,099	$3,176	$3,238	$3,315	$3,393	$3,471	$3,550	$3,631
ORT Cost Savings	$179	$201	$223	$245	$267	$289	$312	$335	$357	$380	$415	$434	$453	$473	$493	$513
Net Revenue Impacts (1)																
Total Net Existing Condition Toll+Fee Revenue	$5,815	$5,927	$6,010	$6,063	$6,083	$6,111	$6,144	$6,183	$6,185	$6,190	$6,209	$6,251	$6,282	$6,300	$6,306	$6,308
Total Net ORT Toll Revenue	6,122	6,252	6,353	6,422	6,459	6,503	6,554	6,612	6,631	6,655	6,707	6,771	6,822	6,862	6,889	6,913
Total Net ORT Toll Revenue Impact	$307	$325	$343	$359	$375	$392	$410	$429	$446	$465	$498	$519	$540	$561	$583	$604
Cumulative ORT Net Revenue Impact	$307	$633	$975	$1,335	$1,710	$2,102	$2,512	$2,941	$3,387	$3,852	$4,350	$4,869	$5,410	$5,971	$6,553	$7,158

(1) Net revenue is calculated by subtracting maintenance and operations costs from gross toll+fee revenue.

Under ORT, total toll transactions are expected to increase compared to the existing condition at the $0.00 surcharge level. In 2015, an increase of 45,000 toll transactions is anticipated compared to the existing condition. The increase is due to the assumption that video enforcement of cash toll violations (run-throughs) will be introduced to the cash lanes upon construction of an ORT plaza. Since ORT maintains a cash payment option for MTA customers, the model does not assume any technology diversion.

ORT gross toll and fee revenue is estimated to be $128,000 higher than the existing condition in 2015. Estimated future year gross plus fee revenue impacts remain positive throughout the forecasts period. By 2030 the ORT impact is estimated to be about $91,000 greater than the existing condition. Variations in the impact occur due to the varying mix of cash and E-ZPass transactions and due to the particular mix of in-state versus out-of-state cash users over time.

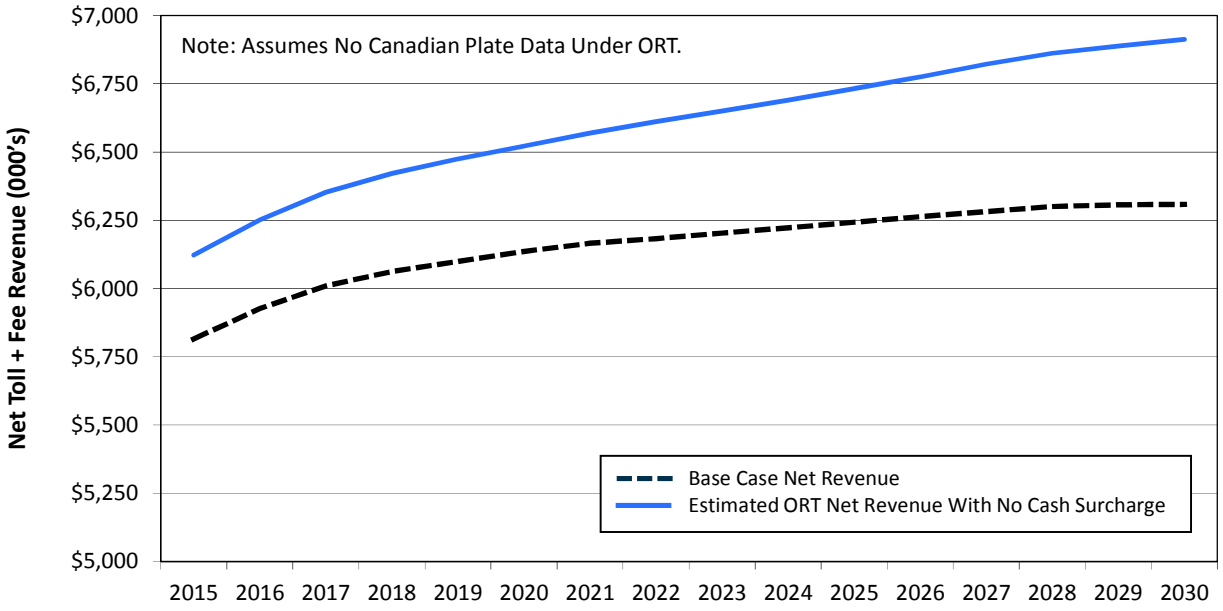
Gardiner Toll Plaza 2015 ORT M&O costs are estimated to be $179,000 lower than those projected under the existing condition; reflecting about a 6.7 percent decrease. By 2030 ORT M&O cost savings are estimated to increase to $513,000. As a percent of total annual existing condition M&O costs, this represents a savings of 12.4%. As described previously, this savings is due primarily to the replacement of legacy system toll equipment that is costly to maintain, with some parts requiring frequent replacement.

Just as was shown at York, under the AET alternative, existing condition and ORT costs are relatively similar across all cost categories. The differences that do occur are in the Fare Collection/Administration category. As mentioned above, ORT costs are slightly lower due to the replacement of the legacy toll equipment. All other cost categories are very similar between the existing condition and the ORT alternative.

Also shown are the impacts between the existing and ORT conditions for each year and cumulatively through the forecast period. As shown, the total estimated net revenue impact increases from $307,000 in 2015 and increases to $604,000 by 2030. The cumulative net revenue impact over that period amounts to $7,158,000.

A graphical summary of the estimated annual net toll revenue from 2015 through 2030 is shown for the $0.00 cash surcharge and for the existing condition in Figure 11. Due to the degree to which the $0.00 surcharge scenario had a positive net revenue impact, net revenue forecast for surcharges greater than $0.00 were not included in this figure.

Figure 11
Estimated Gardiner Toll Plaza ORT Annual Net Revenue Forecasts



Risk Analysis

Methodology

The risk analysis was performed in order to test the sensitivity of the AET and ORT waterfall models by applying a Monte Carlo Simulation directly to the model. This process involved generating random variables in order to test a large number of combinations of possible variable values, ultimately generating a distribution of possible revenue generation in the model. The process itself consisted of four major steps:

- Variable and range selection;
- Distribution fitting;
- Random variable generation; and
- Multivariate risk simulation within the waterfall model.

Variable and Range Selection

Tables 10 through 12 list variables that were selected for sensitivity testing within the risk analysis framework. Variables were selected based on their significance in affecting the outcome of the model results as well as the relative unpredictability of the variable in future years. Each selected variable was given a range based on reasonable upper and lower extreme values that were reasonable in practical application.

Distribution Fitting

Figure 12 provides a sample of a variable with a fitted distribution. Once models and ranges were selected, distributions were fitted to each variable, applying a symmetrical bell curve to the assumed data range. Variables were fit so that roughly 95 percent of the data would be between the upper and lower bounds, and that the base model input would be the 50th percentile value for the distribution.

Random Variable Generation

Random variable generation was performed using the random generation procedures within the R Statistical Software package, and supplemented with the random generation feature within Excel, where applicable. Three thousand randomly generated values were obtained for each of the variables in order to ensure adequate sampling of every distribution. Figure 13 shows examples of these randomly-generated variables plotted against their underlying distributions.

Table 10
York AET Risk Analysis Variable Ranges

Variable	Low	Expected	High
%Tech Diversion	0%	3%	10%
%In State ID'd in Initial Process	77%	96%	100%
%in state ID'd in second manual process	80%	85%	90%
%Fees Waived	48%	70%	88%
% IN-State Shift to E-ZPass from Cash, $2 Surcharge	4%	11%	20%
% IN-State Shift to E-ZPass from Cash, $2.50 Surcharge	5%	13%	23%
% IN-State Shift to E-ZPass from Cash, $3 Surcharge	6%	15%	26%
% IN-State Shift to E-ZPass from Cash, $3.50 Surcharge	8%	17%	30%
% IN-State Shift to E-ZPass from Cash, $4 Surcharge	9%	19%	31%
% IN-State Shift to E-ZPass from Cash, $4.50 Surcharge	11%	21%	33%
% IN-State Shift to E-ZPass from Cash, $2 Surcharge	69%	80%	89%
RVA %Paid 1st invoice	64%	75%	84%
RVA %Paid NOL	30%	50%	70%
Maine UVA %Paid 1st invoice	19%	55%	75%
Maine UVA %Paid NOV	19%	55%	75%
Maine UVA %paid NOL	10%	35%	45%
Massachusetts/New Hampshire UVA %paid 1st Invoice	20%	50%	60%
Massachusetts/New Hampshire UVA %Paid NOV	15%	40%	51%
Massachusetts/New Hampshire UVA %paid NOL	10%	20%	25%
Other UVA %paid 1st Invoice	10%	25%	41%
Other UVA %Paid NOV	5%	20%	31%
Other UVA %paid NOL	4%	9%	17%
Toll Diversion Multiplier	0.5	1	1.5
Additional PC Shift Rate (E-ZPass to Cash)	0.95	1	1.05
Additional CV Shift Rate (E-ZPass to Cash)	0.95	1	1.05

Table 11
Gardiner AET Risk Analysis Variable Ranges

Variable	Low	Expected	High
%Tech Diversion	1%	3%	5%
%In State ID'd in Initial Process	77%	96%	100%
%in state ID'd in second manual process	80%	85%	90%
%Fees Waived	48%	70%	88%
% IN-State Shift to E-ZPass from Cash, $0 Surcharge	2%	6%	12%
% IN-State Shift to E-ZPass from Cash, $0.25 Surcharge	2%	7%	14%
% IN-State Shift to E-ZPass from Cash, $0.5 Surcharge	3%	8%	16%
% IN-State Shift to E-ZPass from Cash, $0.75 Surcharge	3%	9%	17%
RVA %paid 1st reminder	69%	80%	89%
RVA %paid NOV	64%	75%	84%
RVA %Paid NOL	30%	50%	70%
Maine UVA %Paid 1st invoice	19%	55%	75%
Maine UVA %Paid NOV	19%	55%	75%
Maine UVA %paid NOL	10%	35%	45%
Massachusetts/New Hampshire UVA %paid 1st Invoice	20%	50%	60%
Massachusetts/New Hampshire UVA %Paid NOV	15%	40%	51%
Massachusetts/New Hampshire UVA %paid NOL	10%	20%	25%
Other UVA %paid 1st Invoice	10%	25%	41%
Other UVA %Paid NOV	5%	20%	31%
Other UVA %paid NOL	4%	9%	17%
Toll Diversion Multiplier	0.5	1	1.5
Additional PC Shift Rate (E-ZPass to Cash)	0.96	1	1.04
Additional CV Shift Rate (E-ZPass to Cash)	0.96	1	1.04

Table 12
York & Gardiner ORT Risk Analysis Variable Ranges

Variable	Low	Expected	High
% In-State Shift to E-ZPass from Cash	1%	2%	5%
%Fees Waived	48%	70%	88%
%In-state Violators	1%	2%	5%
%Out of State Violators	1%	3%	5%
%Canadian Violators	2%	4%	7%
% In-state ID'd in initial process	77%	96%	100%
% In-state ID'd in second manual process	80%	85%	90%
%Pay 1st notice In-state	21%	40%	61%
%pay 1st notice out of state	11%	20%	31%
%pay NOV in-state	21%	40%	61%
%pay NOV out of state	11%	20%	31%
%pay NOL in-state	30%	50%	70%
%pay NOL out of state	6%	15%	26%
Toll Diversion Multiplier	0.5	1	1.5
Additional PC Shift Rate (E-ZPass to Cash)	0.95	1	1.05
Additional CV Shift Rate (E-ZPass to Cash)	0.95	1	1.05

Figure 12
Sample Variable Range with Fitted Distribution

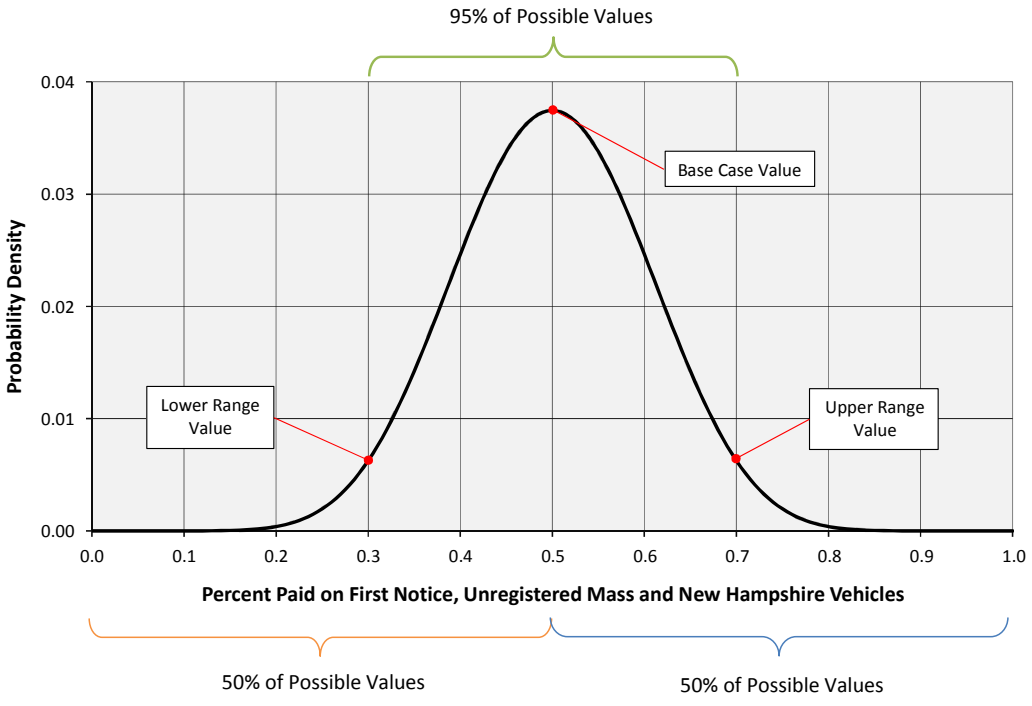


Table 12
York & Gardiner ORT Risk Analysis Variable Ranges

Variable	Low	Expected	High
% In-State Shift to E-ZPass from Cash	1%	2%	5%
%Fees Waived	48%	70%	88%
%In-state Violators	1%	2%	5%
%Out of State Violators	1%	3%	5%
%Canadian Violators	2%	4%	7%
% In-state ID'd in initial process	77%	96%	100%
% In-state ID'd in second manual process	80%	85%	90%
%Pay 1st notice In-state	21%	40%	61%
%pay 1st notice out of state	11%	20%	31%
%pay NOV in-state	21%	40%	61%
%pay NOV out of state	11%	20%	31%
%pay NOL in-state	30%	50%	70%
%pay NOL out of state	6%	15%	26%
Toll Diversion Multiplier	0.5	1	1.5
Additional PC Shift Rate (E-ZPass to Cash)	0.95	1	1.05
Additional CV Shift Rate (E-ZPass to Cash)	0.95	1	1.05

Figure 12
Sample Variable Range with Fitted Distribution

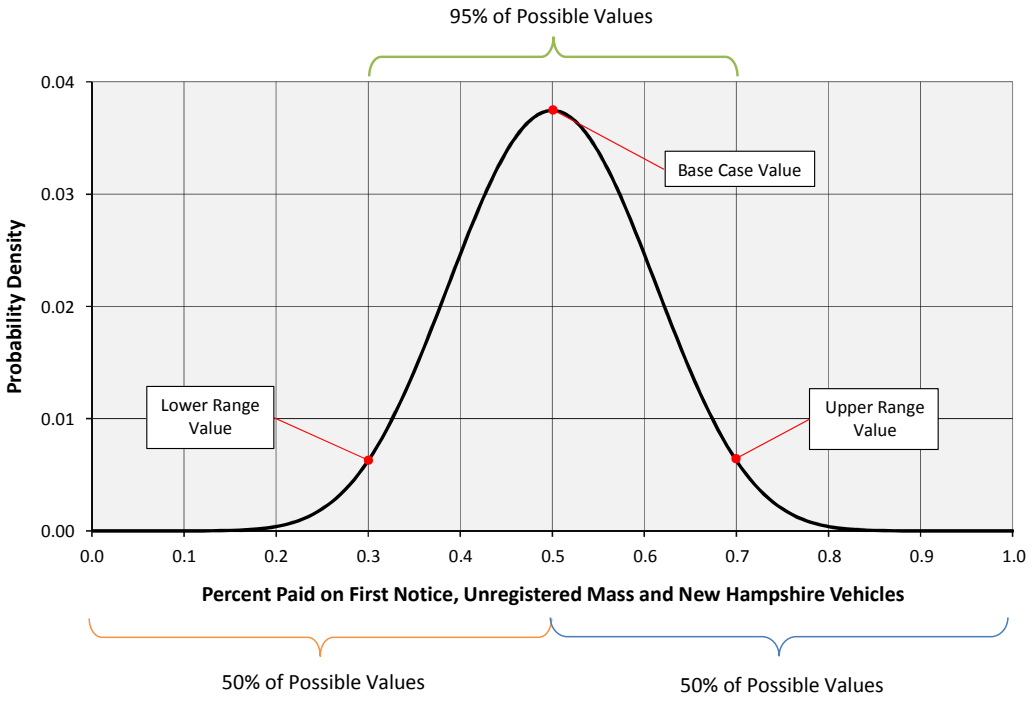
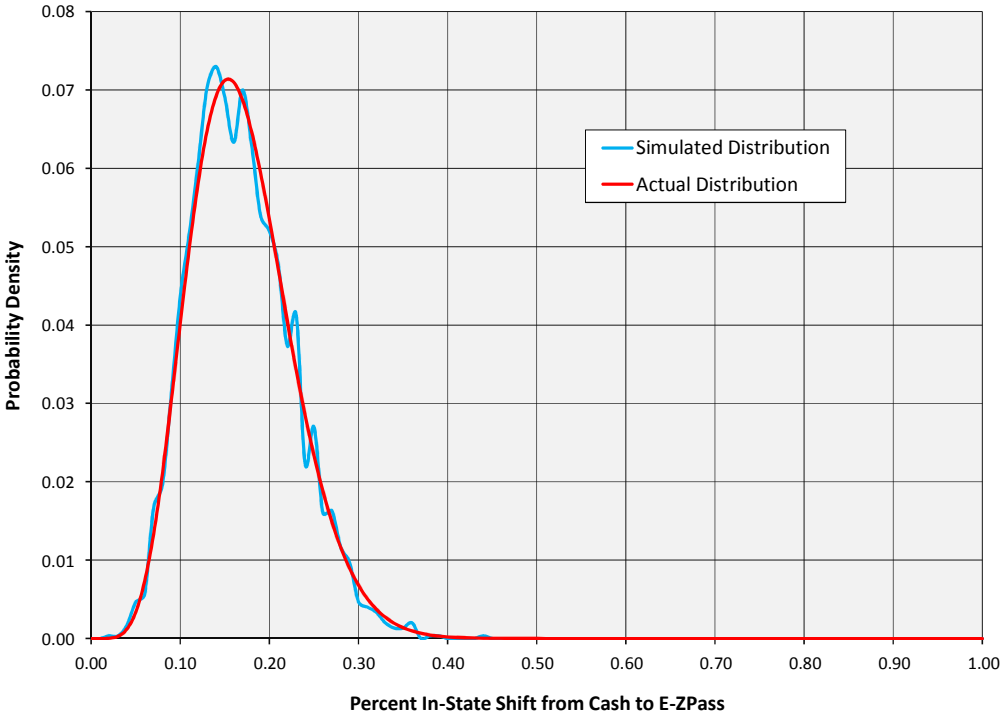


Figure 13
Sample Distribution with Randomly Generated Data



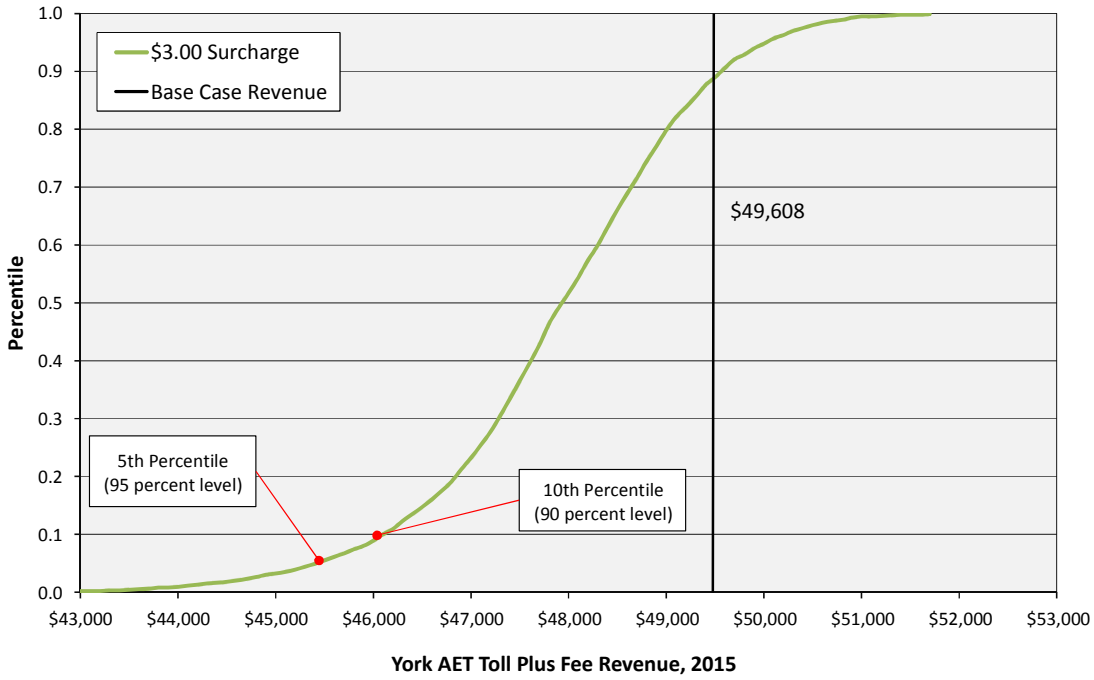
Multivariate Risk Simulation

The Monte Carlo simulation itself was performed by using each of the 3,000 randomly generated sets of variables as model inputs. Typically, simulation will employ a general process or mathematically-derived relationship between input and output variables. In this case, the model itself was used due to relatively low run times. From the distribution of the output values, we can determine an expected range of revenue generation, an example of which is shown in Figure 14. The values for the 10th and 5th percentiles of the data were selected as benchmark values for risk sensitivity. At the 10th percentile, for example, 300 of the 3,000 output values are less than this value, with 2,700 output values generating a greater level of revenue, translating into a 90 percent level of confidence that actual revenue values will meet or exceed this amount.

Risk Analysis Output

Risk models were run for the AET and ORT models for both the York and Gardiner plazas. Optimal surcharge levels were selected for each scenario and results were tabulated for the net toll plus fee revenue for future years between 2015 and 2030.

Figure 14
Sample Monte Carlo Output Distribution



Figures 15 through 18 show yearly net plus fee revenue for the York and Gardiner AET and ORT models for the selected surcharge level , expected model output, and the 90 and 95 percent confidence levels from the risk analysis. In general, the AET risk analysis shows a much greater variation between expected value and lower risk bound than its ORT counterpart. This would be the expected outcome, given the higher level of certainty associated with ORT (given its similarities with current operations) compared to AET.

Figure 15
Estimated York Toll Plaza AET Risk Analysis Annual Net Revenue Forecasts

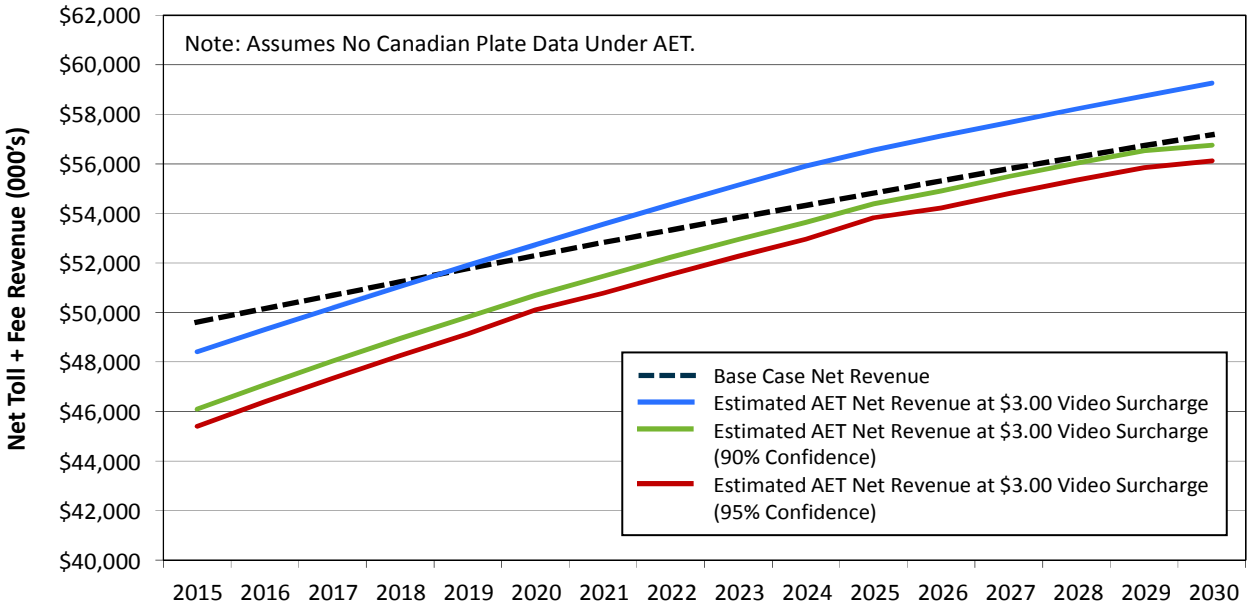


Figure 16
Estimated York Toll Plaza ORT Risk Analysis
Annual Net Revenue Forecasts

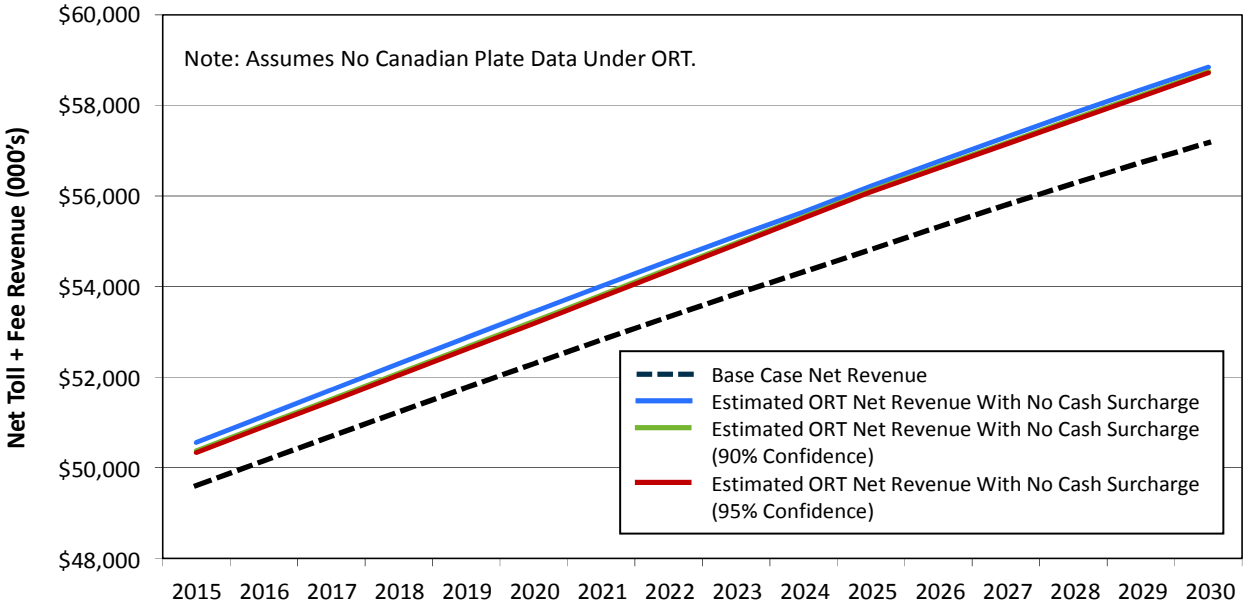


Figure 17
Estimated Gardiner Toll Plaza AET Risk Analysis
Annual Net Revenue Forecasts

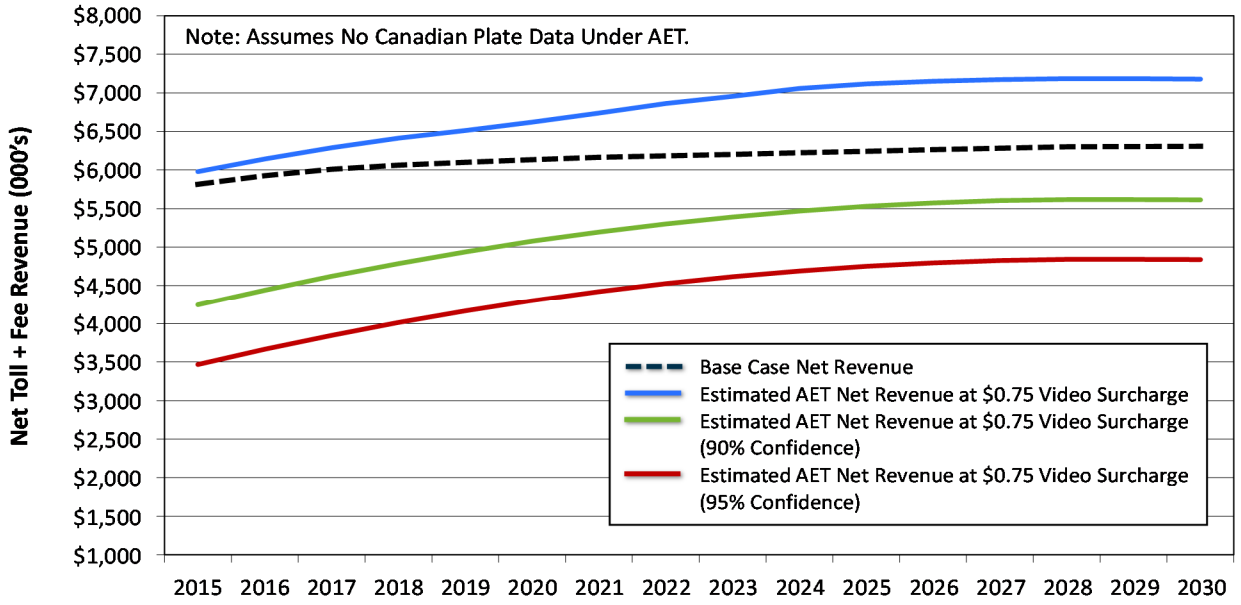
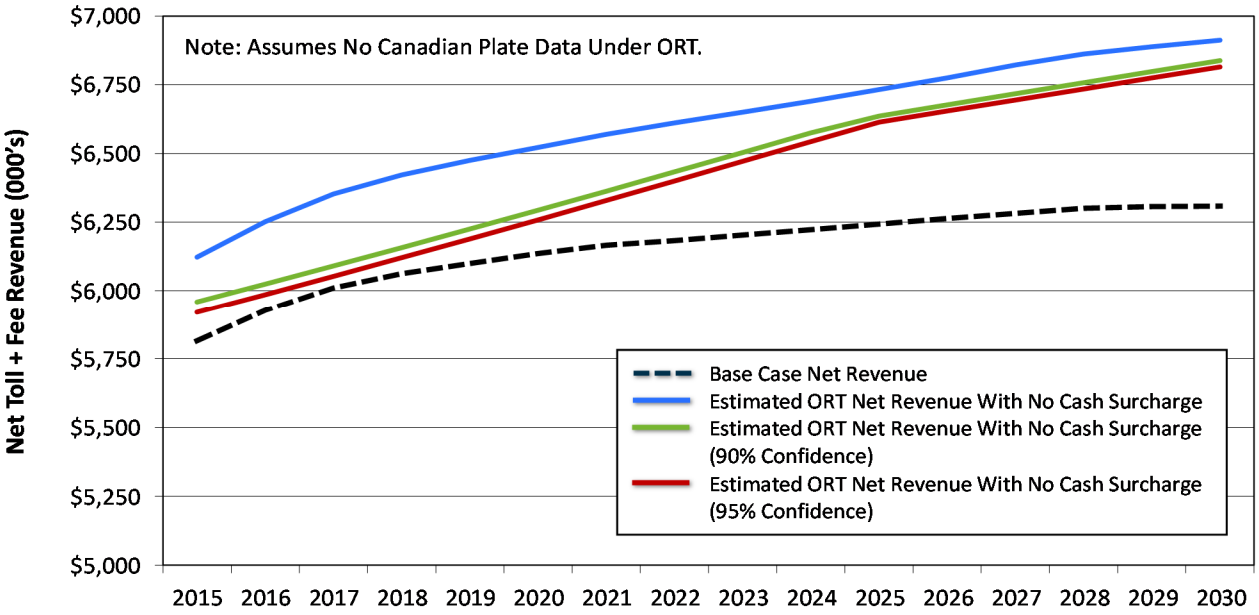


Figure 18
Estimated Gardiner Toll Plaza ORT Risk Analysis
Annual Net Revenue Forecasts



York Plaza

The York AET model (Figure 15) shows approximately a 5 percent drop in revenue between the expected scenario and the 90 percent confidence level, with approximately a 6 percent drop between the expected and the 95 percent level at 2015. The percent differences between expected and risk-generated revenue decrease slightly in the outer model years, to about 4 percent and 5 percent for the 90 and 95 percent levels, respectively. While the expected revenue generated for this model exceeds the annual revenue of the base case after 2019, the 90 and 95 percent confidence levels for revenue generation do not exceed the base case for any model year.

The risk results for the York ORT model (Figure 16) show very minimal difference between the expected revenue and the 90 and 95 percent confidence levels. Annual revenue for both expected revenue and 90 and 95 percent levels exceed base case revenue for all model years.

Gardiner Plaza

Gardiner AET (Figure 17) shows a significant difference between the expected values and the 90 and 95 percent confidence levels, with a 29 percent decrease between the expected value and 90 percent level for 2015 and a 42 percent decrease between the expected revenue and the 95 percent level. The expected annual revenue for Gardiner AET remains above the base case revenue for every year. The bigger divergence between expected and the 90 and 95 percent confidence level at Gardiner is attributable to the higher video market share at Gardiner (compared to York) and the bigger impact of relatively high collection costs at Gardiner (i.e., the cost of collecting a $1.00 toll at Gardiner versus the cost of collecting a $3.00 toll at York).

The ORT results for Gardiner (Figure 18) show relatively modest reductions between the expected revenue and the 90 and 95 percent levels, with a reduction between 4 and 1 percent for the 90

percent level and a reduction between 5 and 1 percent for the 95 percent level. In this case, both the 90 and 95 percent confidence levels for annual net toll plus fee revenue are higher than annual base case revenue throughout the entire forecast period.

Sensitivity Tests

The risk analysis described above was intended to demonstrate the range of outcomes in net revenue under a change in a variety of assumptions over which MTA may have little control. The potential impacts with respect to three other discrete conditions were also tested, in the forms of sensitivity tests, outside the risk analysis above. To an extent, MTA might be able to influence these uncertainty factors, either through strategic marketing initiatives or decisions regarding the enforcement of fee collection. Three issues were subjected to sensitivity testing:

- The proportion of "pre-registered" video transactions;
- The potential availability of Canadian plate data; and
- Fee revenue realization rate.

Pre-Registered Video Transactions

Many agencies now shifting to AET offer the option of one-time vehicle plate registration. This can be incentivized by allowing for significant reductions in the video surcharge and by providing convenient mechanisms for plate pre-registration, such as kiosks in former cash collection lanes and service areas, on line or telephone registration systems, etc. The concept of pre-registration typically involves the motorist registering their own license plate, without even the need to provide any vehicle ownership or other identification information. Pre-paid accounts can then be established for that particular license plate, regardless of state or province of registration. Lists are maintained of pre-registered plates and tolls due when that particular plate is encountered are simply deducted from the pre-paid account.

The pre-registration of accounts has very significant positive benefits for agencies operating AET facilities. There is no need to look up vehicle owner information, no need to send a bill, and no collection risks associated with post payment. In essence, for each vehicle with a pre-registered license plate, the video transaction functions essentially the same as an E-ZPass transaction, except that the vehicle is identified by video imaging of the plate rather than reading an electronic toll transponder.

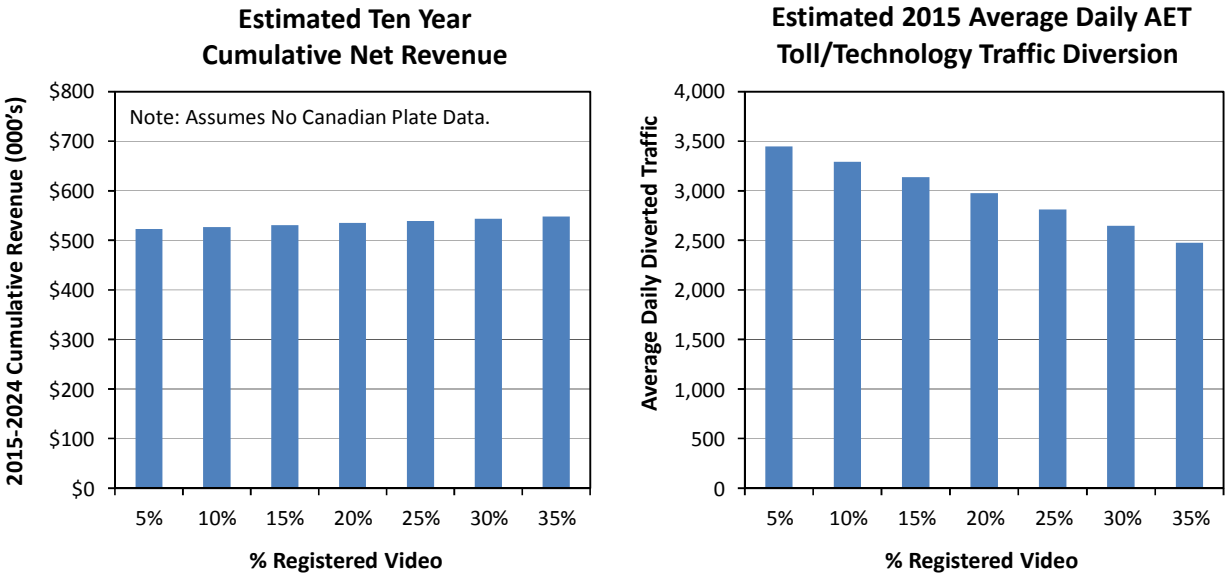
In the base analysis, CDM Smith assumed that the surcharge applied to pre-registered plates would be 50 percent of that applied to unregistered plates. The base analysis assumed just 5 percent of video transactions would be made by vehicles with pre-registered plates, based on actual experience in other toll facilities.

This sensitivity analysis tested the potential net revenue implications of a progressively higher share of video users choosing to pre-register their plates. As shown in Figure 19, 10-year net revenue at the York Plaza would actually increase slightly as the proportion of pre-registered video users increased, notwithstanding the lower toll surcharge being applied as compared to unregistered vehicles. As shown in the right half of Figure 19, since the surcharge applied to those pre-registered video users was half as high, the lower the traffic diversion to the alternative route, primarily US 1. Specifically, in the base forecast, with a $3.00 unregistered surcharge and assuming a $1.50 surcharge for registered vehicles, if only 5 percent of non-E-ZPass traffic pre-registered their plates, approximately 3,500 vehicles per day would shift to US 1. If 25 percent of non-ETC traffic pre-registered their plates, the diversions would be lowered to an estimated 2,800 and less than 2,500 if about one-third of all non-ETC traffic registered their plates.

Similar results are shown for the Gardiner Toll Plaza in Figure 20. Net revenue would be higher, and traffic diversions off the Turnpike would be lower, the higher the percentage of pre-registered plates.

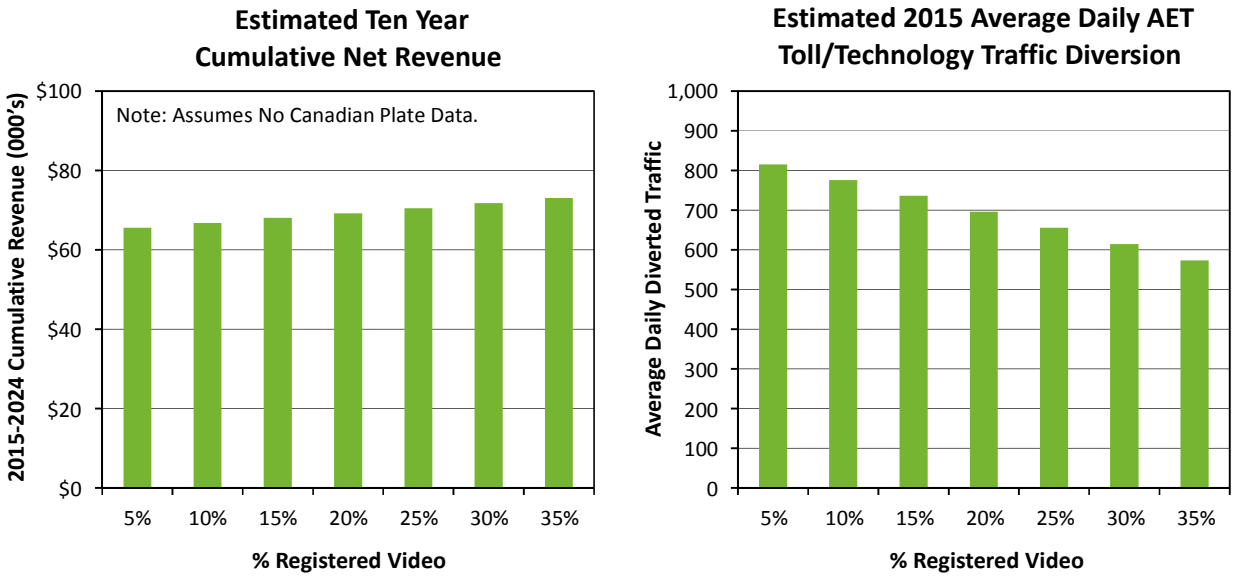
This is an important finding of the study, and suggests that if AET was ultimately implemented across the Maine Turnpike, maximum incentive should be provided for motorists to pre-register plates. This might include providing automated kiosks in some of the former cash collection lanes, and at Turnpike service areas, where motorists can simply register their plate, one time, and qualify for the lower surcharge rate as long as a balance is maintained in the account. Since many agencies across the U.S. are faced with the same situation, it is not unlikely that third party national plate registry providers may emerge in the future to operate pre-registration kiosks and maintain pre-paid balances which may be usable at AET toll facilities nationwide.

Figure 19
Registered Video Account Participation Sensitivity
York Toll Plaza



Note: Assumes unregistered video surcharge is $3.00 and registered video surcharge is $1.50.

Figure 20
Registered Video Account Participation Sensitivity
Gardiner Toll Plaza



Canadian Vehicle Owner Data Availability

As previously discussed, there is considerable uncertainty as to the ability to obtain vehicle owner information for Canadian registered vehicles. Just before the conclusion of our study, CDM Smith was advised that data may become available in the near future for some provinces. As such, we tested the potential implications of Canadian plate data becoming available.

Table 13 shows the relatively small impact that Canadian plate data would have on net revenues over the 10-year analysis period, at the range of video surcharges tested. In general, the net revenue impact of recovering all Canadian plates would be less than 1 percent, at the levels of surcharge being considered in this study.

The ability to obtain Canadian registrations is a significant policy consideration, but not one which would have very heavy impacts on net revenue. This is largely due to the fact that Canadian traffic generally represents 4 to 7 percent of cash vehicles, and cash traffic itself accounts for a minority of revenue collected. Further, the collection of revenue from video customers from "other states" has a relatively low yield, since high levels of repeat billings are assumed and a much higher level of collection risk is included in the analysis.

Table 13
Estimated 10-Year Net Revenue Impacts of Canadian Plate Data Availability

York Toll Plaza					
	Unregistered Video Surcharge				
Scenario	**$1.00**	**$1.50**	**$2.00**	**$2.50**	**$3.00**
No Canadian Data Available	$511,987	$519,954	$525,960	$529,848	$531,461
Canadian Plate Data Available	514,241	522,556	528,887	533,077	534,969
Percent Revenue Change	0.4%	0.5%	0.6%	0.6%	0.7%

Gardiner Toll Plaza					
	Unregistered Video Surcharge				
Scenario	**$0.25**	**$0.50**	**$0.75**	**$1.00**	**$1.25**
No Canadian Data Available	$57,125	$61,834	$66,318	$70,390	$73,936
Canadian Plate Data Available	57,064	61,999	66,702	70,987	74,728
Percent Revenue Change	-0.1%	0.3%	0.6%	0.8%	1.1%

Note: all revenue values in 000s

Fee Revenue Realization Rate

As previously discussed, for the purposes of this study only 30 percent of potential fee revenue was assumed to be collected. The actual percent of fee revenue realized by MTA under AET toll operations could vary significantly from this assumption. Table 14 presents estimated AET fee revenue at the York toll plaza for fee collection rates ranging from 10 percent to 100 percent for years 2015 and 2020. Estimates are also shown as a percent of annual net AET toll + fee revenue. At the assumed fee collection rate of 30 percent, fee revenue constitutes 2.8 percent of estimated annual net AET toll + fee revenue in 2015. Since fee revenue stems primarily from unpaid video toll invoices, projected increases in E-ZPass participation rates result in that share decreasing to 1.9 percent by 2020.

Table 15 presents estimated AET fee revenue at the Gardiner toll plaza for fee collection rates ranging from 10 percent to 100 percent for years 2015 and 2020. At the assumed fee collection rate of 30 percent, fee revenue constitutes 21.2 percent of estimated annual net AET toll + fee revenue in 2015. Projected increases in E-ZPass participation rates result in that share decreasing to 14.4 percent by 2020.

Table 14
Estimated Annual AET Fee Revenue by Collection Rate

Fee Collection Rate	2015 Estimated Fee Revenue	2015 Fees as a Percent of Net AET Toll + Fee Revenue	2020 Estimated Fee Revenue	2020 Fees as a Percent of Net AET Toll + Fee Revenue
10%	$460	1.0%	$330	0.6%
20%	$920	1.9%	$660	1.3%
30%	$1,380	2.8%	$990	1.9%
40%	$1,840	3.7%	$1,320	2.5%
50%	$2,300	4.6%	$1,650	3.1%
75%	$3,450	6.8%	$2,480	4.5%
100%	$4,600	8.9%	$3,300	6.0%

Table 15
Estimated Annual AET Fee Revenue by Collection Rate
Gardiner Toll Plaza
All Revenues in Thousands

Fee Collection Rate	2015 Estimated Fee Revenue	2015 Fees as a Percent of Net AET Toll + Fee Revenue	2020 Estimated Fee Revenue	2020 Fees as a Percent of Net AET Toll + Fee Revenue
10%	$410	8.3%	$320	5.2%
20%	$810	15.1%	$650	10.1%
30%	$1,220	21.2%	$970	14.4%
40%	$1,630	26.4%	$1,290	18.3%
50%	$2,040	31.0%	$1,620	21.9%
75%	$3,050	40.2%	$2,420	29.5%
100%	$4,070	47.3%	$3,230	35.9%

Summary and Conclusions

Various impacts and implications of implementing either ORT or AET at the York and/or Gardiner Toll Plazas have been presented in this report. The study compared traffic, toll rates, operating costs and net revenue over a 10-year forecast period to a hypothetical continuation of the current cash collection of tolls. The analysis was conducted over a 10-year interval for each condition. This section provides a useful "bottom line" summary of the ORT and AET scenarios for each plaza studied, to aid in informed decision making by the Authority.

York Toll Plaza

Table 16 provides the bottom line summary for both AET and ORT at the York Toll Plaza. For each operational alternative, the base estimates as well as estimates at the 90 percent confidence interval are provided. These are all compared to current conditions, assuming cash collection would continue, without assuming any change in toll rates.

If (hypothetically) cash collection could continue at a reconstructed York Toll Plaza, the average toll rate for Maine-issued E-ZPass accounts would be $2.41, consistent with current levels. Other E-ZPass cars would pay a toll of $3.00, as would passenger car motorists using cash. Average daily traffic at this plaza is 38,500 (at estimated 2015 levels), although it increases significantly during peak summer weekends and holiday conditions.

Over the 10-year analysis period, cumulative net revenue is estimated at $520,083,000. On a net present value basis, with a nominal discount rate of 5 percent, this is equivalent to $399,965,000.

HNTB estimates that a total capital investment of about $22.1 million would be required to restore and maintain cash operations at York. When related to the 10-year NPV under the base case, this provides a 10-year net total, for comparison purposes, of $377,865,000. This is the estimated amount of total revenue, less all operating cost and the capital investment cost to restore the current plaza, between 2015 and 2024.

Similar information is provided for the ORT case, under both the base forecast and 90 percent confidence interval. The same toll rates are assumed and no traffic diversions are anticipated. The 10-year net revenue NPV is slightly higher under ORT, largely due to reductions in operating cost. However, a capital cost of $36 million is estimated to replace the current plaza with an ORT facility, resulting in a 10-year net total NPV of $372.5 million, or about $5.3 million lower than continuation of the current base. At the 90 percent confidence interval, the 10-year total is only slightly different.

Under AET, toll rates for E-ZPass users are also assumed to remain the same. However, to overcome the potential revenue leakage and the higher cost of back office collection, a significant surcharge is required for video users. Non-E-ZPass traffic which chooses to pre-register the plate would be charged a $1.50 surcharge, for a total toll of $4.50. Unregistered video users, which would make up the majority of non-E-ZPass traffic, would be charged a surcharge of $3.00 for a total toll of $6.00.

Table 16
York Toll Plaza AET& ORT Bottom Line

Item	"Current" Base Case	ORT Scenario Base Estimate	ORT Scenario 90% Conf. Estimate	AET Scenario (1) Base Estimate	AET Scenario (1) 90% Conf. Estimate
Toll Rate (cars)					
Maine E-Zpass	$2.41	$2.41	$2.41	$2.41	$2.41
Other E-ZPass	$3.00	$3.00	$3.00	$3.00	$3.00
Cash	$3.00	$3.00	$3.00	-	-
Registered Video	-	-	-	$4.50	$4.50
Unregistered Video	-	-	-	$6.00	$6.00
Average Daily Traffic (2015)	38,500	38,500	38,500	35,100	33,000
Net Traffic Diversion	-	-	-	(3,400)	(5,500)
10-Year Net Revenue (000)					
Cumulative Estimate	$520,083	$531,370	$529,759	$522,993	$500,962
Cum Estimate NPV (5%)	$399,965	$408,554	$407,315	$401,317	$384,222
Net NPV Impact	-	$8,589	$7,350	$1,352	($15,743)
Capital Cost (HNTB) (000)	$22,100	$36,000	$36,000	$4,800	$4,800
Cost Impact vs Current	-	$13,900	$13,900	($17,300)	($17,300)
10 Year Net Total (000) (2)	$377,865	$372,554	$371,315	$396,517	$379,422
Net Difference from Base		($5,311)	($6,550)	$18,652	$1,557

(1) Assumes unregistered passenger car video surcharge is $3.00 and the registered video surcharge is $1.50.
(2) 10 year net total equals NPV of 10 year net revenue less capital cost.

Because of the significantly higher toll, CDM Smith estimates a shift of approximately 3,400 vehicles off the Turnpike. While less than 10 percent of the total traffic, it is a much higher proportion of the cash traffic, recognizing that E-ZPass vehicles are not subjected to an increase and would not divert. Under the 90 percent confidence estimate, where higher diversion percentages were tested, the estimated shift to US 1 would be 5,500 vehicles per day.

Under the base estimate, the 10-year cumulative net revenue is estimated at just under $523 million, slightly higher than the continuation of the current system, but lower than under an ORT case. The cumulative 10-year NPV is estimated at $401.3 million, or about $1.4 million above the hypothetical continuation of current operations. With the 90 percent confidence level, a somewhat lower $384.2 million NPV of cumulative net revenue, more than $15.7 less than a continuation of cash.

The HNTB estimate for capital costs associated with implementing AET at York is $4.8 million; some $17.3 million less than the current cost to keep the plaza running and than $31.2 million less than building an ORT facility. When the capital cost is subtracted from the 10-year net present value, AET with a $3.00 unregistered video surcharge is shown to produce a 10-year net total of $396.5 million, some $18.7 million greater than the 10-year total of maintaining the current plaza and about $24

million greater than implementing ORT. Even at the 90 percent confidence level, the net AET revenue impact remains positive.

The above AET scenario is net revenue positive, however, only by imposing a$3.00 video surcharge on unregistered customers. Toll diversion levels of between 3,400 and 5,500 per day would also result under this AET scenario as a result of the video surcharges.

In considering the optimum solution at York, several factors should be taken into consideration:

- The best 10-year net total revenue, after recognizing both operating and capital investment cost, would come from AET (assuming a significant video surcharge);
- However, this would be achieved through a significant increase in charges assessed to both registered and unregistered video vehicles, with a surcharge of as much as $3.00; and
- As a result of the surcharge, there would be significant diversions of traffic to US 1 estimated to range from 3,400 to 5,500 per day (with higher amounts under peak weekend conditions).

Gardiner Toll Plaza

A similar bottom line analysis is presented in Table 17 for the Gardiner Toll Plaza. In this case, both toll rates and 10-year net revenue implications are much lower. As a result, there is considerably less overall risk associated with testing AET at the Gardiner location.

As shown in Table 17, the 10-year cumulative net revenue estimate if operations were to continue in their current mode is $60.7 million. After adjusting for net present value, this is reduced to $46.8 million; again representing a cumulative 10-year total. According to HNTB, the capital cost of restoring and preserving current operations (not recommended) is estimated at $7 million. After subtracting this, a 10-year net total of $39.8 million is shown for the Gardiner Plaza under current operations.

In the case of ORT, cumulative net revenue would be slightly increased, primarily due to the increased share of E-ZPass users and a reduction in the cost associated with cash collection. However, rebuilding the plaza as a full ORT facility is estimated at $14.4 million, some $7.4 million higher than simply maintaining it in its current location. After subtracting the additional capital cost, the 10-year bottom line total for ORT is estimated between $34.0 and $35.3 million, or generally around $5-6 million less than continuing current operations.

Under the AET condition, HNTB estimates that the entire plaza could be replaced for $3.8 million, about $3.2 million less than simply trying to restore the plaza at its current location. However, motorists without E-ZPass would be required to pay a higher toll; unregistered plate vehicles would be assessed a surcharge of $0.75, bringing the per transaction toll for cars to $1.75. This would be expected to divertbetween 800 and 1,400 vehicles per day, spread over several routes.

Table 17
Gardiner Toll Plaza AET& ORT Bottom Line

Item	"Current" Base Case	ORT Scenario Base Estimate	ORT Scenario 90% Conf. Estimate	AET Scenario (1) Base Estimate	AET Scenario (1) 90% Conf. Estimate
Toll Rate (cars)					
Maine E-Zpass	$0.50	$0.50	$0.50	$0.50	$0.50
Other E-ZPass	$1.00	$1.00	$1.00	$1.00	$1.00
Cash	$1.00	$1.00	$1.00	-	-
Registered Video	-	-	-	$1.38	$1.38
Unregistered Video	-	-	-	$1.75	$1.75
Average Daily Traffic (2015)	23,300	23,300	23,300	22,500	21,900
Net Traffic Diversion	-	-	-	(800)	(1,400)
10-Year Net Revenue (000)					
Cumulative Estimate	$60,710	$64,562	$62,922	$65,573	$49,514
Cum Estimate NPV (5%)	$46,757	$49,678	$48,417	$50,270	$37,807
Net NPV Impact	-	$2,921	$1,660	$3,513	($8,950)
Capital Cost (HNTB) (000)	$7,000	$14,400	$14,400	$3,800	$3,800
Cost Impact vs Current	-	$7,400	$7,400	($3,200)	($3,200)
10 Year Net Total (000) (2)	$39,757	$35,278	$34,017	$46,470	$34,007
Net Difference from Base		($4,479)	($5,740)	$6,713	($5,750)

(1) Assumes unregistered passenger car video surcharge is $0.75 and the registered video surcharge is $0.38.
(2) 10 year net total equals NPV of 10 year net revenue less capital cost.

The NPV of the cumulative net revenue under the AET base case (assuming a $0.75 unregistered video surcharge) is estimated at $50.3 million or about $3.5 million greater than if the current operations were retained. However, at the 90 percent confidence level, the NPV of net revenue drops to just $37.8 million (there is a greater range of risk at the Gardiner Toll Plaza since E-ZPass represents a lower share of transactions). When compared with the lower capital cost of AET, the 10-year net total under the AET base case forecast is $46.5 million (about $6.7 million better than the "do nothing" scenario). However, at the 90 percent confidence level, the 10-year total NPV is estimated at $34.0 million, almost $6 million less than if current operations are retained.

A review of the bottom line assessment for the Gardiner Toll Plaza suggests:

- AET would generate about $6.7 million more in 10-year NPV revenue, after recognizing capital cost, compared to the continuation of current operations and assuming a $0.75 unregistered video surcharge;
- There is considerably higher risk associated with AET at the Gardiner Plaza (in percentage terms). But in dollar terms, the net risk is smaller. Even at the 90 percent confidence interval,

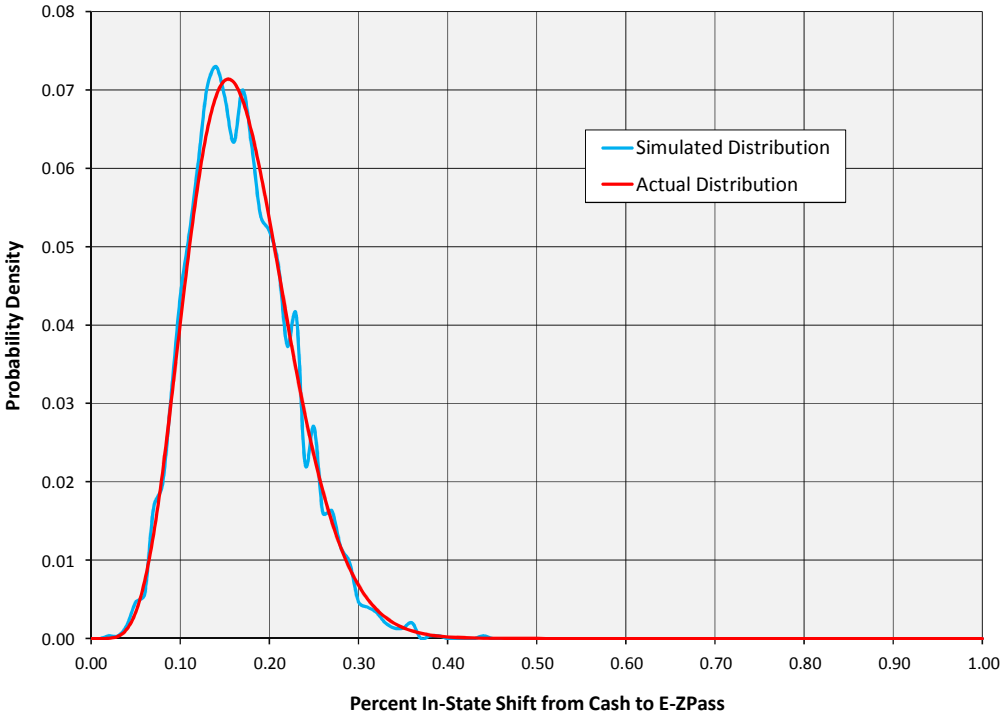
where AET would generate $5.7 million less than the simple continuation of current operations, this is only slightly less than the 10-year net total for ORT;

- In essence, AET has the potential to improve net revenue, after capital costs, while shifting to ORT would likely reduce the 10-year net total, based on the $14.4 million capital costs. Though it must be recognized that no cash surcharge is assumed for ORT while a $0.75 unregistered video surcharge is assumed for AET; and

- Higher toll rates would have to be charged to video users at the Gardiner Plaza, but the surcharge would be considerably lower than that required at York.

In reviewing these bottom line conclusions, it should be recognized that the AET condition assumed only a very small percentage (5 percent) of former cash traffic would choose to register plates. If MTA considers implementation of AET in the future, it should more thoroughly investigate opportunities to encourage pre-registration of plates, as this would likely reduce traffic diversions and slightly improve net revenue performance. The Maine traveler market may be well adapted to this, since there are a large number of seasonal visitors which may not find it worthwhile to invest in electronic toll transponders, but who may make a sufficient number of trips (over a typical one to two week vacation period) to take advantage of the one-time registration of license plates.

Figure 13
Sample Distribution with Randomly Generated Data



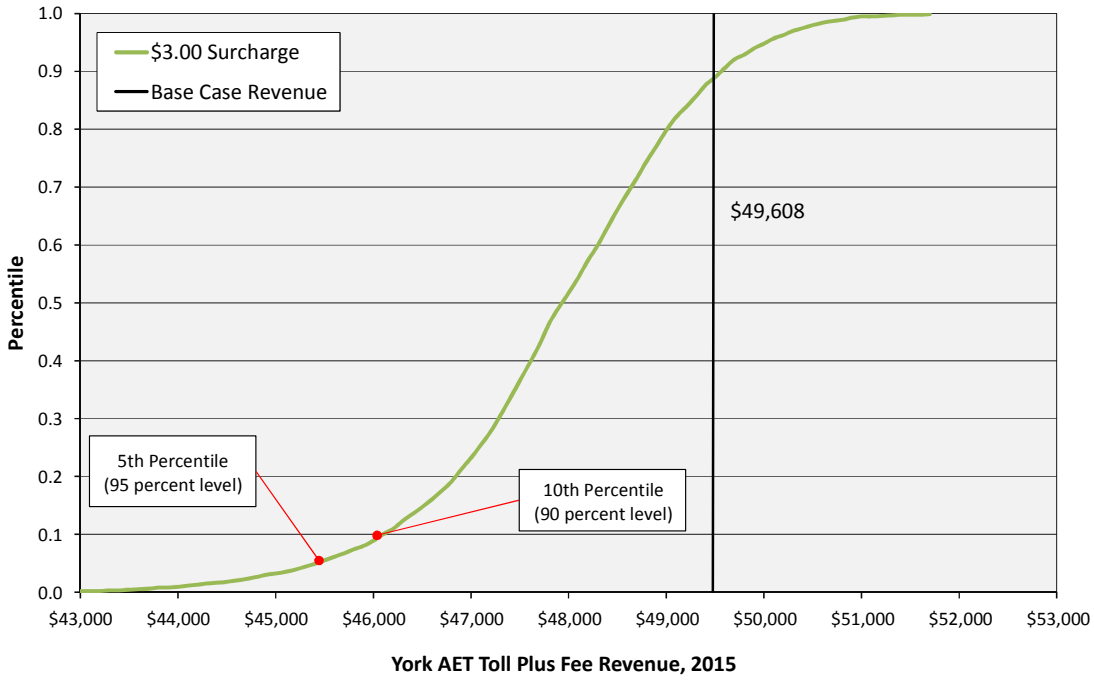
Multivariate Risk Simulation

The Monte Carlo simulation itself was performed by using each of the 3,000 randomly generated sets of variables as model inputs. Typically, simulation will employ a general process or mathematically-derived relationship between input and output variables. In this case, the model itself was used due to relatively low run times. From the distribution of the output values, we can determine an expected range of revenue generation, an example of which is shown in Figure 14. The values for the 10th and 5th percentiles of the data were selected as benchmark values for risk sensitivity. At the 10th percentile, for example, 300 of the 3,000 output values are less than this value, with 2,700 output values generating a greater level of revenue, translating into a 90 percent level of confidence that actual revenue values will meet or exceed this amount.

Risk Analysis Output

Risk models were run for the AET and ORT models for both the York and Gardiner plazas. Optimal surcharge levels were selected for each scenario and results were tabulated for the net toll plus fee revenue for future years between 2015 and 2030.

Figure 14
Sample Monte Carlo Output Distribution



Figures 15 through 18 show yearly net plus fee revenue for the York and Gardiner AET and ORT models for the selected surcharge level , expected model output, and the 90 and 95 percent confidence levels from the risk analysis. In general, the AET risk analysis shows a much greater variation between expected value and lower risk bound than its ORT counterpart. This would be the expected outcome, given the higher level of certainty associated with ORT (given its similarities with current operations) compared to AET.

Figure 15
Estimated York Toll Plaza AET Risk Analysis Annual Net Revenue Forecasts

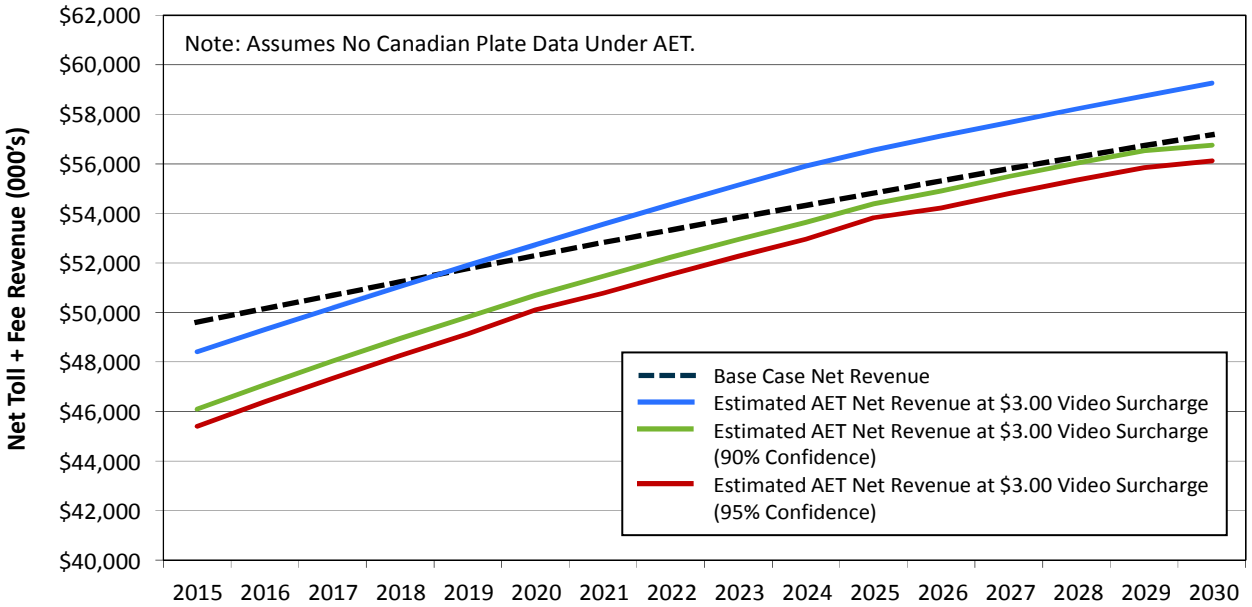


Figure 16
Estimated York Toll Plaza ORT Risk Analysis
Annual Net Revenue Forecasts

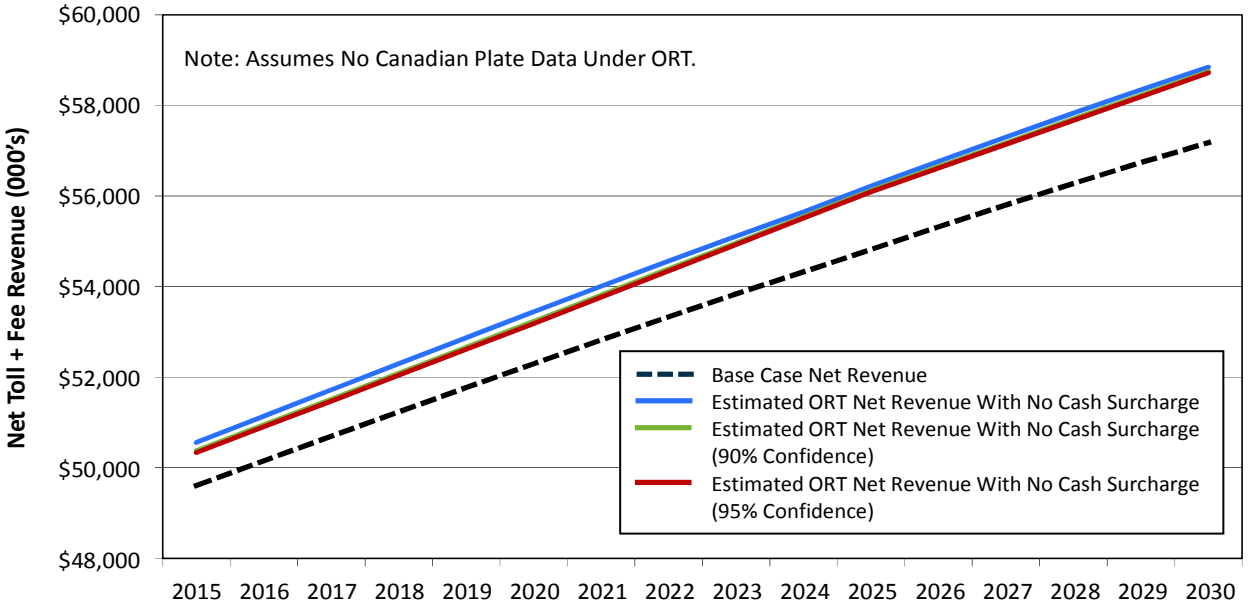


Figure 17
Estimated Gardiner Toll Plaza AET Risk Analysis
Annual Net Revenue Forecasts

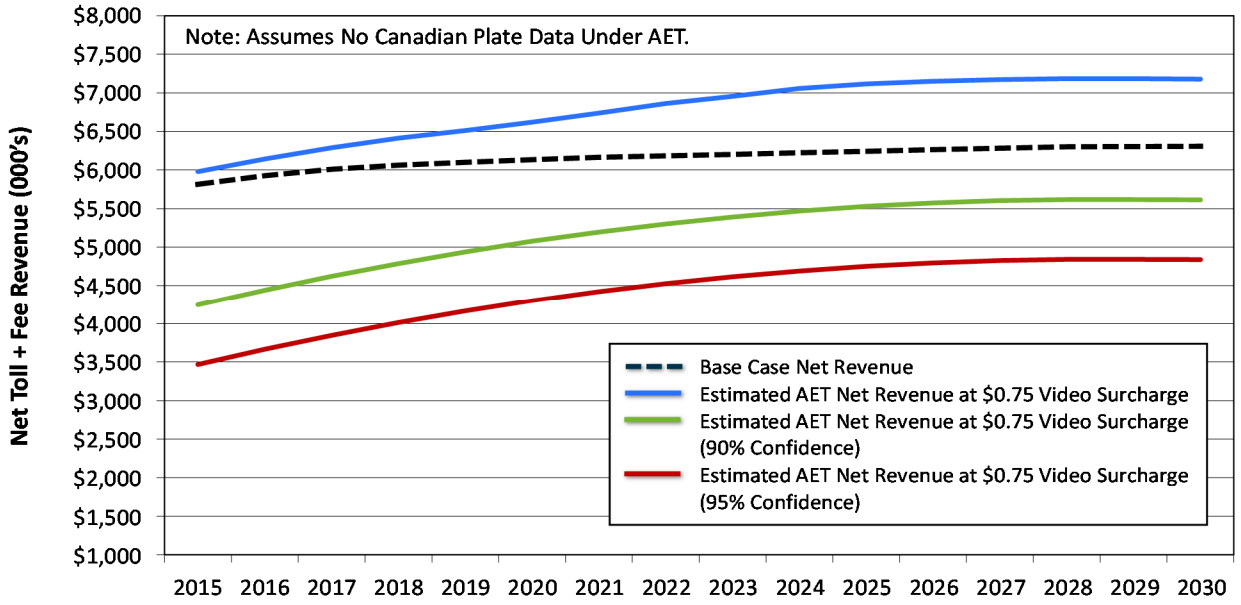
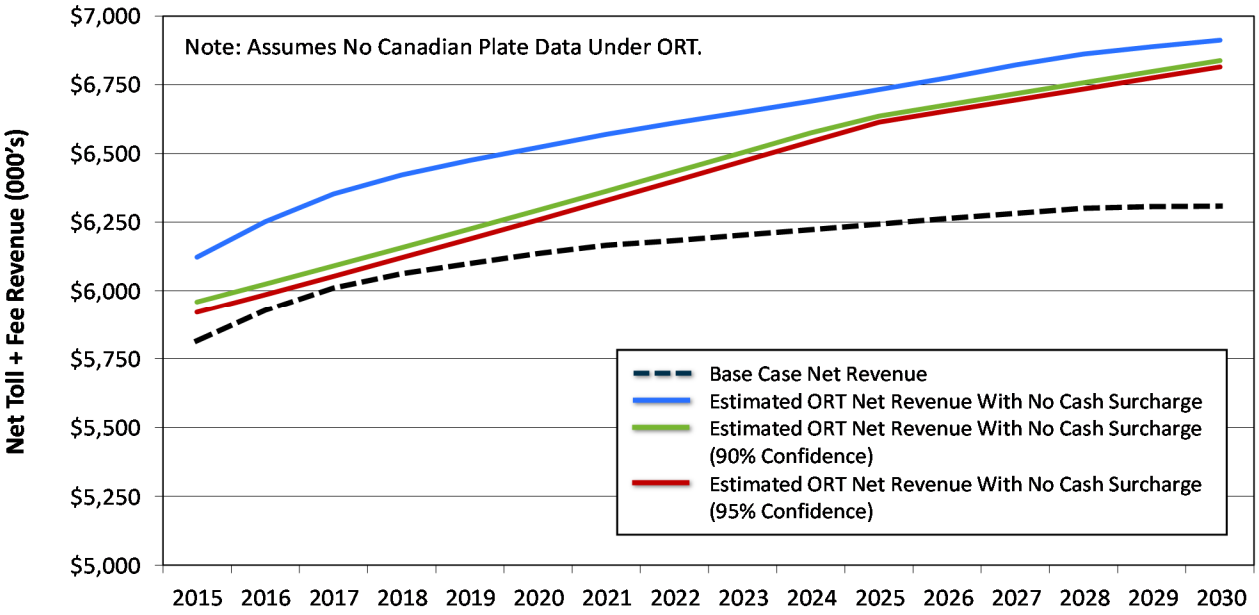


Figure 18
Estimated Gardiner Toll Plaza ORT Risk Analysis
Annual Net Revenue Forecasts



York Plaza

The York AET model (Figure 15) shows approximately a 5 percent drop in revenue between the expected scenario and the 90 percent confidence level, with approximately a 6 percent drop between the expected and the 95 percent level at 2015. The percent differences between expected and risk-generated revenue decrease slightly in the outer model years, to about 4 percent and 5 percent for the 90 and 95 percent levels, respectively. While the expected revenue generated for this model exceeds the annual revenue of the base case after 2019, the 90 and 95 percent confidence levels for revenue generation do not exceed the base case for any model year.

The risk results for the York ORT model (Figure 16) show very minimal difference between the expected revenue and the 90 and 95 percent confidence levels. Annual revenue for both expected revenue and 90 and 95 percent levels exceed base case revenue for all model years.

Gardiner Plaza

Gardiner AET (Figure 17) shows a significant difference between the expected values and the 90 and 95 percent confidence levels, with a 29 percent decrease between the expected value and 90 percent level for 2015 and a 42 percent decrease between the expected revenue and the 95 percent level. The expected annual revenue for Gardiner AET remains above the base case revenue for every year. The bigger divergence between expected and the 90 and 95 percent confidence level at Gardiner is attributable to the higher video market share at Gardiner (compared to York) and the bigger impact of relatively high collection costs at Gardiner (i.e., the cost of collecting a $1.00 toll at Gardiner versus the cost of collecting a $3.00 toll at York).

The ORT results for Gardiner (Figure 18) show relatively modest reductions between the expected revenue and the 90 and 95 percent levels, with a reduction between 4 and 1 percent for the 90

percent level and a reduction between 5 and 1 percent for the 95 percent level. In this case, both the 90 and 95 percent confidence levels for annual net toll plus fee revenue are higher than annual base case revenue throughout the entire forecast period.

Sensitivity Tests

The risk analysis described above was intended to demonstrate the range of outcomes in net revenue under a change in a variety of assumptions over which MTA may have little control. The potential impacts with respect to three other discrete conditions were also tested, in the forms of sensitivity tests, outside the risk analysis above. To an extent, MTA might be able to influence these uncertainty factors, either through strategic marketing initiatives or decisions regarding the enforcement of fee collection. Three issues were subjected to sensitivity testing:

- The proportion of "pre-registered" video transactions;
- The potential availability of Canadian plate data; and
- Fee revenue realization rate.

Pre-Registered Video Transactions

Many agencies now shifting to AET offer the option of one-time vehicle plate registration. This can be incentivized by allowing for significant reductions in the video surcharge and by providing convenient mechanisms for plate pre-registration, such as kiosks in former cash collection lanes and service areas, on line or telephone registration systems, etc. The concept of pre-registration typically involves the motorist registering their own license plate, without even the need to provide any vehicle ownership or other identification information. Pre-paid accounts can then be established for that particular license plate, regardless of state or province of registration. Lists are maintained of pre-registered plates and tolls due when that particular plate is encountered are simply deducted from the pre-paid account.

The pre-registration of accounts has very significant positive benefits for agencies operating AET facilities. There is no need to look up vehicle owner information, no need to send a bill, and no collection risks associated with post payment. In essence, for each vehicle with a pre-registered license plate, the video transaction functions essentially the same as an E-ZPass transaction, except that the vehicle is identified by video imaging of the plate rather than reading an electronic toll transponder.

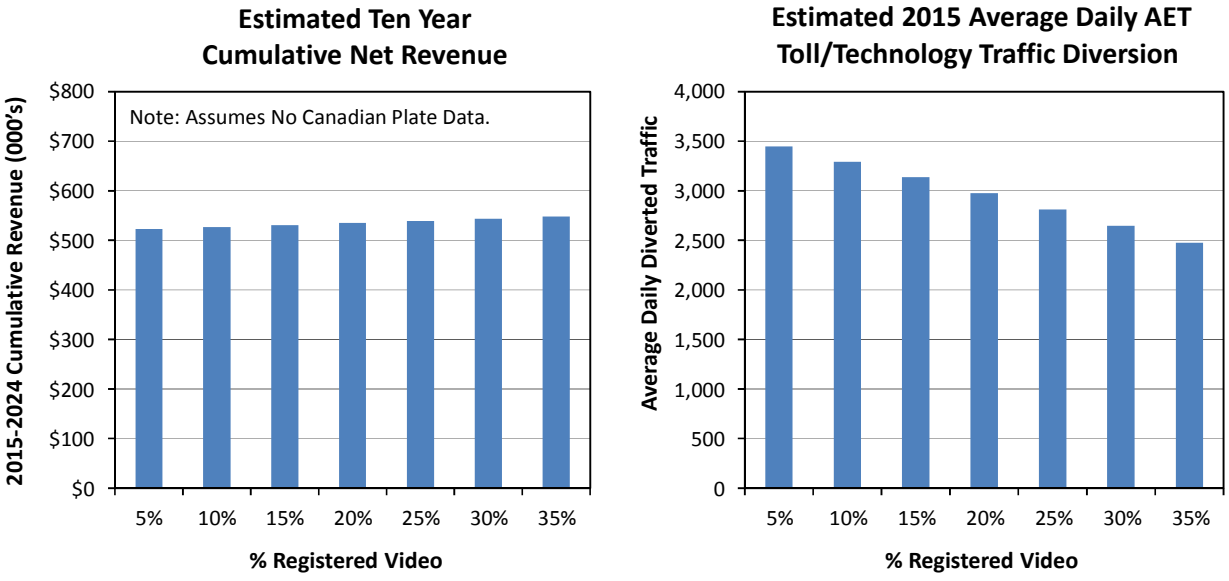
In the base analysis, CDM Smith assumed that the surcharge applied to pre-registered plates would be 50 percent of that applied to unregistered plates. The base analysis assumed just 5 percent of video transactions would be made by vehicles with pre-registered plates, based on actual experience in other toll facilities.

This sensitivity analysis tested the potential net revenue implications of a progressively higher share of video users choosing to pre-register their plates. As shown in Figure 19, 10-year net revenue at the York Plaza would actually increase slightly as the proportion of pre-registered video users increased, notwithstanding the lower toll surcharge being applied as compared to unregistered vehicles. As shown in the right half of Figure 19, since the surcharge applied to those pre-registered video users was half as high, the lower the traffic diversion to the alternative route, primarily US 1. Specifically, in the base forecast, with a $3.00 unregistered surcharge and assuming a $1.50 surcharge for registered vehicles, if only 5 percent of non-E-ZPass traffic pre-registered their plates, approximately 3,500 vehicles per day would shift to US 1. If 25 percent of non-ETC traffic pre-registered their plates, the diversions would be lowered to an estimated 2,800 and less than 2,500 if about one-third of all non-ETC traffic registered their plates.

Similar results are shown for the Gardiner Toll Plaza in Figure 20. Net revenue would be higher, and traffic diversions off the Turnpike would be lower, the higher the percentage of pre-registered plates.

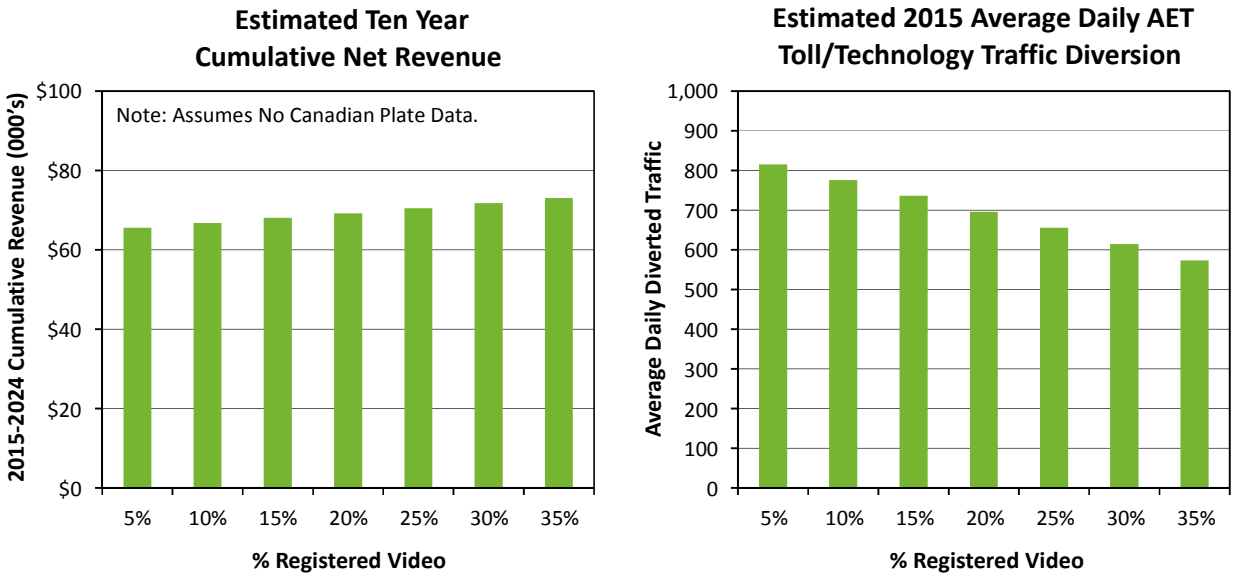
This is an important finding of the study, and suggests that if AET was ultimately implemented across the Maine Turnpike, maximum incentive should be provided for motorists to pre-register plates. This might include providing automated kiosks in some of the former cash collection lanes, and at Turnpike service areas, where motorists can simply register their plate, one time, and qualify for the lower surcharge rate as long as a balance is maintained in the account. Since many agencies across the U.S. are faced with the same situation, it is not unlikely that third party national plate registry providers may emerge in the future to operate pre-registration kiosks and maintain pre-paid balances which may be usable at AET toll facilities nationwide.

Figure 19
Registered Video Account Participation Sensitivity
York Toll Plaza



Note: Assumes unregistered video surcharge is $3.00 and registered video surcharge is $1.50.

Figure 20
Registered Video Account Participation Sensitivity
Gardiner Toll Plaza



Canadian Vehicle Owner Data Availability

As previously discussed, there is considerable uncertainty as to the ability to obtain vehicle owner information for Canadian registered vehicles. Just before the conclusion of our study, CDM Smith was advised that data may become available in the near future for some provinces. As such, we tested the potential implications of Canadian plate data becoming available.

Table 13 shows the relatively small impact that Canadian plate data would have on net revenues over the 10-year analysis period, at the range of video surcharges tested. In general, the net revenue impact of recovering all Canadian plates would be less than 1 percent, at the levels of surcharge being considered in this study.

The ability to obtain Canadian registrations is a significant policy consideration, but not one which would have very heavy impacts on net revenue. This is largely due to the fact that Canadian traffic generally represents 4 to 7 percent of cash vehicles, and cash traffic itself accounts for a minority of revenue collected. Further, the collection of revenue from video customers from "other states" has a relatively low yield, since high levels of repeat billings are assumed and a much higher level of collection risk is included in the analysis.

Table 13
Estimated 10-Year Net Revenue Impacts of Canadian Plate Data Availability

York Toll Plaza					
	Unregistered Video Surcharge				
Scenario	**$1.00**	**$1.50**	**$2.00**	**$2.50**	**$3.00**
No Canadian Data Available	$511,987	$519,954	$525,960	$529,848	$531,461
Canadian Plate Data Available	514,241	522,556	528,887	533,077	534,969
Percent Revenue Change	0.4%	0.5%	0.6%	0.6%	0.7%

Gardiner Toll Plaza					
	Unregistered Video Surcharge				
Scenario	**$0.25**	**$0.50**	**$0.75**	**$1.00**	**$1.25**
No Canadian Data Available	$57,125	$61,834	$66,318	$70,390	$73,936
Canadian Plate Data Available	57,064	61,999	66,702	70,987	74,728
Percent Revenue Change	-0.1%	0.3%	0.6%	0.8%	1.1%

Note: all revenue values in 000s

Fee Revenue Realization Rate

As previously discussed, for the purposes of this study only 30 percent of potential fee revenue was assumed to be collected. The actual percent of fee revenue realized by MTA under AET toll operations could vary significantly from this assumption. Table 14 presents estimated AET fee revenue at the York toll plaza for fee collection rates ranging from 10 percent to 100 percent for years 2015 and 2020. Estimates are also shown as a percent of annual net AET toll + fee revenue. At the assumed fee collection rate of 30 percent, fee revenue constitutes 2.8 percent of estimated annual net AET toll + fee revenue in 2015. Since fee revenue stems primarily from unpaid video toll invoices, projected increases in E-ZPass participation rates result in that share decreasing to 1.9 percent by 2020.

Table 15 presents estimated AET fee revenue at the Gardiner toll plaza for fee collection rates ranging from 10 percent to 100 percent for years 2015 and 2020. At the assumed fee collection rate of 30 percent, fee revenue constitutes 21.2 percent of estimated annual net AET toll + fee revenue in 2015. Projected increases in E-ZPass participation rates result in that share decreasing to 14.4 percent by 2020.

Table 14
Estimated Annual AET Fee Revenue by Collection Rate

Fee Collection Rate	2015 Estimated Fee Revenue	2015 Fees as a Percent of Net AET Toll + Fee Revenue	2020 Estimated Fee Revenue	2020 Fees as a Percent of Net AET Toll + Fee Revenue
10%	$460	1.0%	$330	0.6%
20%	$920	1.9%	$660	1.3%
30%	$1,380	2.8%	$990	1.9%
40%	$1,840	3.7%	$1,320	2.5%
50%	$2,300	4.6%	$1,650	3.1%
75%	$3,450	6.8%	$2,480	4.5%
100%	$4,600	8.9%	$3,300	6.0%

Table 15
Estimated Annual AET Fee Revenue by Collection Rate
Gardiner Toll Plaza
All Revenues in Thousands

Fee Collection Rate	2015 Estimated Fee Revenue	2015 Fees as a Percent of Net AET Toll + Fee Revenue	2020 Estimated Fee Revenue	2020 Fees as a Percent of Net AET Toll + Fee Revenue
10%	$410	8.3%	$320	5.2%
20%	$810	15.1%	$650	10.1%
30%	$1,220	21.2%	$970	14.4%
40%	$1,630	26.4%	$1,290	18.3%
50%	$2,040	31.0%	$1,620	21.9%
75%	$3,050	40.2%	$2,420	29.5%
100%	$4,070	47.3%	$3,230	35.9%

Summary and Conclusions

Various impacts and implications of implementing either ORT or AET at the York and/or Gardiner Toll Plazas have been presented in this report. The study compared traffic, toll rates, operating costs and net revenue over a 10-year forecast period to a hypothetical continuation of the current cash collection of tolls. The analysis was conducted over a 10-year interval for each condition. This section provides a useful "bottom line" summary of the ORT and AET scenarios for each plaza studied, to aid in informed decision making by the Authority.

York Toll Plaza

Table 16 provides the bottom line summary for both AET and ORT at the York Toll Plaza. For each operational alternative, the base estimates as well as estimates at the 90 percent confidence interval are provided. These are all compared to current conditions, assuming cash collection would continue, without assuming any change in toll rates.

If (hypothetically) cash collection could continue at a reconstructed York Toll Plaza, the average toll rate for Maine-issued E-ZPass accounts would be $2.41, consistent with current levels. Other E-ZPass cars would pay a toll of $3.00, as would passenger car motorists using cash. Average daily traffic at this plaza is 38,500 (at estimated 2015 levels), although it increases significantly during peak summer weekends and holiday conditions.

Over the 10-year analysis period, cumulative net revenue is estimated at $520,083,000. On a net present value basis, with a nominal discount rate of 5 percent, this is equivalent to $399,965,000.

HNTB estimates that a total capital investment of about $22.1 million would be required to restore and maintain cash operations at York. When related to the 10-year NPV under the base case, this provides a 10-year net total, for comparison purposes, of $377,865,000. This is the estimated amount of total revenue, less all operating cost and the capital investment cost to restore the current plaza, between 2015 and 2024.

Similar information is provided for the ORT case, under both the base forecast and 90 percent confidence interval. The same toll rates are assumed and no traffic diversions are anticipated. The 10-year net revenue NPV is slightly higher under ORT, largely due to reductions in operating cost. However, a capital cost of $36 million is estimated to replace the current plaza with an ORT facility, resulting in a 10-year net total NPV of $372.5 million, or about $5.3 million lower than continuation of the current base. At the 90 percent confidence interval, the 10-year total is only slightly different.

Under AET, toll rates for E-ZPass users are also assumed to remain the same. However, to overcome the potential revenue leakage and the higher cost of back office collection, a significant surcharge is required for video users. Non-E-ZPass traffic which chooses to pre-register the plate would be charged a $1.50 surcharge, for a total toll of $4.50. Unregistered video users, which would make up the majority of non-E-ZPass traffic, would be charged a surcharge of $3.00 for a total toll of $6.00.

Table 16
York Toll Plaza AET& ORT Bottom Line

Item	"Current" Base Case	ORT Scenario Base Estimate	ORT Scenario 90% Conf. Estimate	AET Scenario (1) Base Estimate	AET Scenario (1) 90% Conf. Estimate
Toll Rate (cars)					
Maine E-Zpass	$2.41	$2.41	$2.41	$2.41	$2.41
Other E-ZPass	$3.00	$3.00	$3.00	$3.00	$3.00
Cash	$3.00	$3.00	$3.00	-	-
Registered Video	-	-	-	$4.50	$4.50
Unregistered Video	-	-	-	$6.00	$6.00
Average Daily Traffic (2015)	38,500	38,500	38,500	35,100	33,000
Net Traffic Diversion	-	-	-	(3,400)	(5,500)
10-Year Net Revenue (000)					
Cumulative Estimate	$520,083	$531,370	$529,759	$522,993	$500,962
Cum Estimate NPV (5%)	$399,965	$408,554	$407,315	$401,317	$384,222
Net NPV Impact	-	$8,589	$7,350	$1,352	($15,743)
Capital Cost (HNTB) (000)	$22,100	$36,000	$36,000	$4,800	$4,800
Cost Impact vs Current	-	$13,900	$13,900	($17,300)	($17,300)
10 Year Net Total (000) (2)	$377,865	$372,554	$371,315	$396,517	$379,422
Net Difference from Base		($5,311)	($6,550)	$18,652	$1,557

(1) Assumes unregistered passenger car video surcharge is $3.00 and the registered video surcharge is $1.50.
(2) 10 year net total equals NPV of 10 year net revenue less capital cost.

Because of the significantly higher toll, CDM Smith estimates a shift of approximately 3,400 vehicles off the Turnpike. While less than 10 percent of the total traffic, it is a much higher proportion of the cash traffic, recognizing that E-ZPass vehicles are not subjected to an increase and would not divert. Under the 90 percent confidence estimate, where higher diversion percentages were tested, the estimated shift to US 1 would be 5,500 vehicles per day.

Under the base estimate, the 10-year cumulative net revenue is estimated at just under $523 million, slightly higher than the continuation of the current system, but lower than under an ORT case. The cumulative 10-year NPV is estimated at $401.3 million, or about $1.4 million above the hypothetical continuation of current operations. With the 90 percent confidence level, a somewhat lower $384.2 million NPV of cumulative net revenue, more than $15.7 less than a continuation of cash.

The HNTB estimate for capital costs associated with implementing AET at York is $4.8 million; some $17.3 million less than the current cost to keep the plaza running and than $31.2 million less than building an ORT facility. When the capital cost is subtracted from the 10-year net present value, AET with a $3.00 unregistered video surcharge is shown to produce a 10-year net total of $396.5 million, some $18.7 million greater than the 10-year total of maintaining the current plaza and about $24

million greater than implementing ORT. Even at the 90 percent confidence level, the net AET revenue impact remains positive.

The above AET scenario is net revenue positive, however, only by imposing a$3.00 video surcharge on unregistered customers. Toll diversion levels of between 3,400 and 5,500 per day would also result under this AET scenario as a result of the video surcharges.

In considering the optimum solution at York, several factors should be taken into consideration:

- The best 10-year net total revenue, after recognizing both operating and capital investment cost, would come from AET (assuming a significant video surcharge);
- However, this would be achieved through a significant increase in charges assessed to both registered and unregistered video vehicles, with a surcharge of as much as $3.00; and
- As a result of the surcharge, there would be significant diversions of traffic to US 1 estimated to range from 3,400 to 5,500 per day (with higher amounts under peak weekend conditions).

Gardiner Toll Plaza

A similar bottom line analysis is presented in Table 17 for the Gardiner Toll Plaza. In this case, both toll rates and 10-year net revenue implications are much lower. As a result, there is considerably less overall risk associated with testing AET at the Gardiner location.

As shown in Table 17, the 10-year cumulative net revenue estimate if operations were to continue in their current mode is $60.7 million. After adjusting for net present value, this is reduced to $46.8 million; again representing a cumulative 10-year total. According to HNTB, the capital cost of restoring and preserving current operations (not recommended) is estimated at $7 million. After subtracting this, a 10-year net total of $39.8 million is shown for the Gardiner Plaza under current operations.

In the case of ORT, cumulative net revenue would be slightly increased, primarily due to the increased share of E-ZPass users and a reduction in the cost associated with cash collection. However, rebuilding the plaza as a full ORT facility is estimated at $14.4 million, some $7.4 million higher than simply maintaining it in its current location. After subtracting the additional capital cost, the 10-year bottom line total for ORT is estimated between $34.0 and $35.3 million, or generally around $5-6 million less than continuing current operations.

Under the AET condition, HNTB estimates that the entire plaza could be replaced for $3.8 million, about $3.2 million less than simply trying to restore the plaza at its current location. However, motorists without E-ZPass would be required to pay a higher toll; unregistered plate vehicles would be assessed a surcharge of $0.75, bringing the per transaction toll for cars to $1.75. This would be expected to divertbetween 800 and 1,400 vehicles per day, spread over several routes.

Table 17
Gardiner Toll Plaza AET& ORT Bottom Line

Item	"Current" Base Case	ORT Scenario Base Estimate	ORT Scenario 90% Conf. Estimate	AET Scenario (1) Base Estimate	AET Scenario (1) 90% Conf. Estimate
Toll Rate (cars)					
Maine E-Zpass	$0.50	$0.50	$0.50	$0.50	$0.50
Other E-ZPass	$1.00	$1.00	$1.00	$1.00	$1.00
Cash	$1.00	$1.00	$1.00	-	-
Registered Video	-	-	-	$1.38	$1.38
Unregistered Video	-	-	-	$1.75	$1.75
Average Daily Traffic (2015)	23,300	23,300	23,300	22,500	21,900
Net Traffic Diversion	-	-	-	(800)	(1,400)
10-Year Net Revenue (000)					
Cumulative Estimate	$60,710	$64,562	$62,922	$65,573	$49,514
Cum Estimate NPV (5%)	$46,757	$49,678	$48,417	$50,270	$37,807
Net NPV Impact	-	$2,921	$1,660	$3,513	($8,950)
Capital Cost (HNTB) (000)	$7,000	$14,400	$14,400	$3,800	$3,800
Cost Impact vs Current	-	$7,400	$7,400	($3,200)	($3,200)
10 Year Net Total (000) (2)	$39,757	$35,278	$34,017	$46,470	$34,007
Net Difference from Base		($4,479)	($5,740)	$6,713	($5,750)

(1) Assumes unregistered passenger car video surcharge is $0.75 and the registered video surcharge is $0.38.
(2) 10 year net total equals NPV of 10 year net revenue less capital cost.

The NPV of the cumulative net revenue under the AET base case (assuming a $0.75 unregistered video surcharge) is estimated at $50.3 million or about $3.5 million greater than if the current operations were retained. However, at the 90 percent confidence level, the NPV of net revenue drops to just $37.8 million (there is a greater range of risk at the Gardiner Toll Plaza since E-ZPass represents a lower share of transactions). When compared with the lower capital cost of AET, the 10-year net total under the AET base case forecast is $46.5 million (about $6.7 million better than the "do nothing" scenario). However, at the 90 percent confidence level, the 10-year total NPV is estimated at $34.0 million, almost $6 million less than if current operations are retained.

A review of the bottom line assessment for the Gardiner Toll Plaza suggests:

- AET would generate about $6.7 million more in 10-year NPV revenue, after recognizing capital cost, compared to the continuation of current operations and assuming a $0.75 unregistered video surcharge;
- There is considerably higher risk associated with AET at the Gardiner Plaza (in percentage terms). But in dollar terms, the net risk is smaller. Even at the 90 percent confidence interval,

where AET would generate $5.7 million less than the simple continuation of current operations, this is only slightly less than the 10-year net total for ORT;

- In essence, AET has the potential to improve net revenue, after capital costs, while shifting to ORT would likely reduce the 10-year net total, based on the $14.4 million capital costs. Though it must be recognized that no cash surcharge is assumed for ORT while a $0.75 unregistered video surcharge is assumed for AET; and

- Higher toll rates would have to be charged to video users at the Gardiner Plaza, but the surcharge would be considerably lower than that required at York.

In reviewing these bottom line conclusions, it should be recognized that the AET condition assumed only a very small percentage (5 percent) of former cash traffic would choose to register plates. If MTA considers implementation of AET in the future, it should more thoroughly investigate opportunities to encourage pre-registration of plates, as this would likely reduce traffic diversions and slightly improve net revenue performance. The Maine traveler market may be well adapted to this, since there are a large number of seasonal visitors which may not find it worthwhile to invest in electronic toll transponders, but who may make a sufficient number of trips (over a typical one to two week vacation period) to take advantage of the one-time registration of license plates.

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APPENDIX 2G

ANALYSIS OF TRAFFIC IMPACTS FROM AET IN YORK BY HNTB 9/14/16

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Date	To
September 14, 2016	MTA
	From
Interoffice Correspondence	Elizabeth Roberts, P.E.
	Subject
	Analysis of Traffic Impacts from AET in York

HNTB

Executive Summary

A study produced by CDM Smith in April 2014 estimated that 3,400 to 5,500 vehicles per day would divert away from the York Toll Plaza if the plaza was converted to All Electronic Tolling (AET). This study analyzed the traffic impacts of the expected traffic diversion to non-interstate highways if the York Toll Plaza is converted to AET. Data from the CDM Smith study was utilized to assess the impacts of this estimated diversion on US Route 1, State Route 236, and other area roadways.

TWO METHODS OF ANALYSIS

The traffic impacts of the diversion were analyzed for two different time periods – an average summer weekday and the peak hour of an average day (non-summer day) using two different methodologies due to the different characteristics of each.

FINDINGS AND CONCLUSIONS

Both analyses identified that traffic would increase on non-interstate highways and depending upon the time of year, the following municipalities would experience significant impacts to key roadways and intersections:

- Ogunquit
- York
- Kittery
- Eliot
- Wells
- South Berwick
- Berwick
- North Berwick
- Sanford
- Kennebunk

Summer Analysis

To analyze an average summer weekday, data from the Maine Department of Transportation's (MaineDOT's) travel demand model was used in collaboration with MaineDOT staff. MaineDOT's travel demand model provides forecasted traffic volumes that reflect an average summer weekday. The travel demand model is a planning tool that looks at travel times and toll costs to determine the most likely routes of travelers. The MaineDOT's travel demand model covers the entire state and includes some of the routes in New Hampshire near the border. The travel demand model provides measures of effectiveness regionally and statewide. The results capture the impacts not only during peak travel hours but also the off-peak travel hours of the day.

The average summer weekday analysis showed that traffic impacts from installing AET at York Toll Plaza would increase traffic on non-interstate highways. Increases in daily summer traffic volumes are expected along US Route 1, with much higher increases in traffic on other non-interstate roadways in

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York County such as State Route 236, State Route 109/9 between Exit 19 and US Route 1, and State Route 4 through the Berwicks. Several roadways would see increases of daily summer traffic volumes of 5-50%. Travelers on these inland corridors will experience more delays at intersections already identified by MaineDOT as having a relatively poor level of service. Such intersections include the State Route 236/Depot Road intersection in Eliot and intersections in downtown South Berwick where State Routes 4 and 236 overlap.[1]

Traffic impacts from installing AET at York Toll Plaza could result in an additional 10,715-19,982 additional vehicle hours of travel in York County **per summer day.** Peak summer traffic lasts about 10 weeks. This would result in an additional 750,000 – 1,400,000 vehicle-hours of travel (and corresponding additional vehicle emissions) per summer.

Non-Summer Analysis
A peak hour of an average day in Maine is the hour with the highest amount of traffic during a day where there is an average amount of traffic like May, September, or October. During average traffic months, traffic volumes on US Route 1 are lighter and therefore it is expected that US Route 1 would be the roadway to attract most of the diverting traffic. The average day peak hour analysis focused on the peak hour impacts to key intersections affected by the diversion to the York Toll Plaza.

The MaineDOT Statewide model was not used for the peak hour analysis as it is set up to model a summer weekday and it provides daily traffic volume results. For this analysis, we used an industry accepted traffic analysis software tool – Synchro, results of a 2010 Origin and Destination Study, and travel time information from Google Maps.

The peak hour analysis of an average day showed that two intersections in the study area that already operate at a LOS F would see expected delays triple. At the intersection of US Route 1 at Shore Road and Beach Street in Ogunquit, average delays for Shore Road and Beach Street would increase from 73 seconds (1.2 minutes) to 202-326 seconds (3.4-5.4 minutes). At the intersection of the Turnpike Connector and the SB Turnpike ramps in York, average delays for the southbound off-ramp would increase from 120 seconds (2 minutes) to 253-376 seconds (4.2-6.3 minutes). Converting the York Toll Plaza to AET could triple the delays at the intersection of US Route 1 at Shore Road and Beach Street in Ogunquit and at the SB Turnpike ramps in York during a peak hour of an average day.

A potential conversion of the York Toll Plaza to AET would cause the northbound direction of US Route 1 in Ogunquit to operate over capacity and would cause the southbound direction to operate at 76-86% of its capacity during an average peak hour in May (which was analyzed as it represents a peak hour of an average day). In other words, traffic backups and congestion would happen during peak hours of average traffic months if the York Toll Plaza is converted to AET.

If the York Toll Plaza is converted to AET, there would be an increase in the number of hours during the year when traffic on US Route 1 would be congested in other words stop-and-go conditions. Traffic conditions on US Route 1 that are currently experienced in July and August would occur on the shoulder seasons. Significant traffic volume growth will occur in the months of May, June, September, and October. Stated more simply, summer-like traffic will expand into the Spring and Fall.

During the summer, traffic volumes and corresponding emissions would increase on other non-interstate roads in York County. Daily traffic volumes on some of the major non-interstate roadways in York County could increase by 5-50%, while traffic volumes on the Maine Turnpike decreases. What does this

[1] Maine Department of Transportation Bureau of Transportation Systems Planning. *Route 236 Corridor Study Kittery – Eliot – S. Berwick*: October 2008.

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mean for the non-interstate roads? Traffic at unsignalized intersections on impacted roadways would see more delay. The need for signals and intersection improvements at several unsignalized intersections would be accelerated. In contrast, the Maine Turnpike would see a proportionately small decrease in traffic.

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Purpose

A study produced by CDM Smith in April 2014 estimated that 3,400 to 5,500 vehicles per day would divert away from the York Toll Plaza if the plaza was converted to all electronic tolling (AET). This study analyzed the traffic impacts of the expected traffic diversion to non-interstate highways if the York Toll Plaza is converted to AET. Data from the CDM Smith study was utilized to assess the impacts of this estimated diversion on US Route 1, State Route 236, and other area roadways.

Detailed Analyses

The estimate of diversion provided by CDM Smith represents the expected number of vehicles that would divert to non-interstate highways during an average day in the year 2015 due to a tolling surcharge for non-E-ZPass vehicles. However, since the anticipated opening year for the AET project in York is now 2019, the traffic analysis of this study focuses on 2019.

2019 Traffic Diversion Estimates

The range of values given by CDM Smith represents an average value of 3,400 vehicles and a 90th percentile confidence interval value of 5,500 vehicles. A 90th percentile confidence interval value is the value at which there is a 90% chance of the actual value being lower than the estimate, or a 10% chance of the actual value being higher than the estimate. Evaluating a range of estimates for diverting traffic gives a reasonable range of possible outcomes to assess risk.

The values for 2019 were calculated from information provided in the CDM Smith report and in collaboration with CDM Smith. The estimate of diversion from CDM Smith's report for 2019 is 918,000 vehicles per year, which would result in an average of 2,515 vehicles per day. CDM Smith also developed a 90th percentile confidence estimate for diversion in 2019 of 4,700 vehicles per day[2].

Analysis time Periods

The impacts of the diverting traffic were analyzed for the following time periods:

1) An average summer weekday
2) The peak hour of an average day

These two time periods were selected because motorists are expected to act differently during these periods. During an average summer weekday, traffic along the route parallel to the Maine Turnpike – US Route 1 is very congested and is therefore not very attractive for traffic diversion. Traffic along US Route 1 is heavy for several hours of a typical summer weekday. Therefore, it is important to understand the impacts of diverting traffic over an entire day during the peak summer traffic months. The results of the analysis of an average summer day was measured in traffic volume increase or decrease, vehicle-miles-traveled (VMT), vehicle-hours-traveled (VHT) and average speeds for all of York County.

During months outside of the summer that are considered average, like May, September, or October, traffic can be expected to behave differently. During average traffic months, traffic conditions on US Route 1 are lighter and therefore it is expected that US Route 1 would be the roadway to attract most of the diverting traffic. To analyze this average condition, only the peak hour of the average day is analyzed. The results of the analysis of the peak hour of an average day was measured in traffic volume increase or decrease, level-of-service (LOS) and vehicle delays.

[2] Email from CDM Smith, February 26, 2016. The 90th percentile confidence estimate is an estimate of diversion that would not be exceeded 90% of the time.

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Analysis of Average Summer Weekday

An average summer weekday is a weekday (Monday through Thursday) during the months of July and August, and the last week of June. To analyze an average summer weekday, data from the Maine Department of Transportation's (MaineDOT's) travel demand model was used in collaboration with MaineDOT staff. MaineDOT's travel demand model provides forecasted traffic volumes that reflect an average summer weekday. The travel demand model is a planning tool that looks at travel times and toll costs to determine the most likely routes of travelers. The MaineDOT's travel demand model covers the entire state and includes some of the routes in New Hampshire near the border. The travel demand model provides measures of effectiveness regionally and statewide. The results capture 24-hour impacts rather than peak hour impacts.

The 2019 estimate of diversion (from the previous section) is 2,515 vehicles per day. These diversion estimates represent diversion for an average day. But MaineDOT's travel demand model represents a summer weekday, not an average day. In coordination with CDM Smith, an estimate for summer weekday diversion was developed to check if the summer weekday diversion would be less than the average weekday diversion.

A summer day has more traffic, but travelers are less likely to divert at the same rate as an average day because of the congestion on the parallel route – US Route 1. It was estimated that the summer weekday diversion for 2019 would be higher than the average day estimates from the CDM Smith report. Therefore, the average day estimates developed by CDM Smith could be used for the analysis of a summer weekday.

So, MaineDOT's travel demand model was run with the input of the average diversion from the Maine Turnpike at York of 2,515 vehicles for a summer weekday. MaineDOT's travel demand model was also run with the input for the 90th percentile diversion of an average day of 4,700 vehicles per day (from the previous section), in order to provide a range of values for diversion impacts. The results of the travel demand model for York County are summarized in Table 1.

Table 1 –Traffic Impacts in York County due to AET, Summer Weekday

	2019 Traffic Results without Diversion	Increase due to Average Expected Diversion	% Change from Expected	Increase due to 90th Percentile Expected Diversion	% Change from Expected
Vehicle Miles Traveled (VMT)	7,419,588	94,436	1%	202,692	3%
Vehicle Hours Traveled (VHT)	164,649	10,715	7%	19,982	12%
Average Speeds (mph)	45.1	-2.3	-5%	-3.8	-8%

The results of the travel demand model show that a toll surcharge for non-E-ZPass users at the York Toll Plaza would increase the overall VMT and VHT in York County as vehicles divert from the Maine Turnpike to non-interstate highways – requiring additional travel time and distance. The increase in VHT corresponds with a reduction in average speeds. As vehicles leave the Maine Turnpike and use alternate routes, the distance that they travel becomes longer and this shows as an increase in VMT. As the non-interstate highways become more congested, the total time vehicles spend on the roads increases, which shows as an increase in VHT, and the speeds decrease.

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As can be seen from Table 1, traffic impacts from installing AET at York Toll Plaza could result in an additional 10,715-19,982 additional vehicle hours of travel in York County **per summer day.** Peak summer traffic lasts about 10 weeks. This would result in an additional 750,000 – 1,400,000 vehicle-hours of travel (and corresponding additional vehicle emissions) per summer.

Some of the area roadways would be impacted more than others. Depending on origins and destinations of travelers, some roads would be more attractive to those diverting travelers. Figures 1-4 show the increases and percentage increases of daily vehicles on non-interstate highways.

As can be seen from Figures 1 and 3, increases in traffic volumes are expected along US Route 1, but not as much as other roadways such as State Route 236, State Route 109/9, and State Route 4. Figures 2 and 4 show that several roadways would see increases of daily traffic volumes of 5-50%. Tables 2 and 3 show the changes in traffic volumes for the major roads in the study area[3].

Table 2 – Average Daily Traffic Changes on Highways with York AET during Summer

Roadway	Existing Traffic Volume	Traffic Volume Change	% Change
Maine Turnpike North of the York Toll Plaza	67,790	-2,515	-3.7%
Route 1	11,973	777	6.5%
Route 236	6,890	2,127	30.9%
Route 109/9	6,153	1,062	17.3%
Route 4	3,967	2,085	52.6%

Table 3 – 90th Percentile Daily Traffic Changes on Highways with York AET during Summer

Roadway	Existing Traffic Volume	Traffic Volume Change	% Change
I-95 North of the York Toll Plaza	67,790	-4,700	-6.9%
Route 1	11,973	979	8.2%
Route 236	6,890	2,116	30.7%
Route 109/9	6,153	1,556	25.3%
Route 4	3,967	1,878	47.3%

As can be seen from Tables 2 and 3, only 3.7 to 6.9% of the traffic on the Maine Turnpike is expected to divert. However, this traffic would divert to non-interstate highways where the increase in traffic can be 5-50% over existing levels. In other words, what would be a proportionately small decrease in traffic volumes for the Maine Turnpike will be a proportionately large increase for the non-interstate highways.

As US Route 1 is already over capacity for several hours of a typical summer day, traffic shifts to other non-interstate highways in York County. The sum of the traffic volume changes shown in Tables 2 and 3 does not equal zero because as non-interstate highways become congested, existing travelers of those highways change their routes (secondary shifts).

[3] The MaineDOT's travel demand model loads traffic to the network at a limited number of points, which can have an effect on the appearance of the results. However, the order of magnitude of traffic changes are valid.

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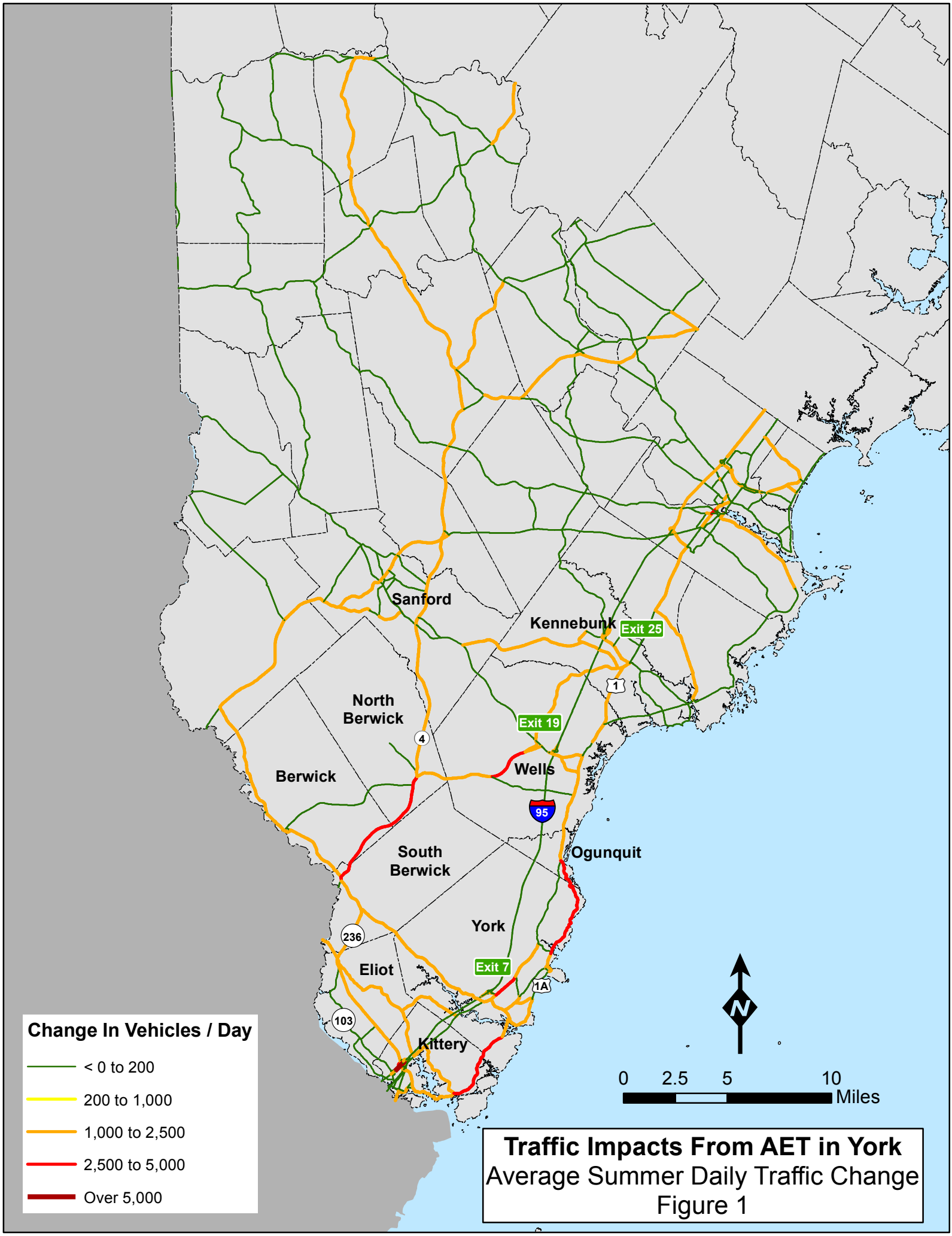
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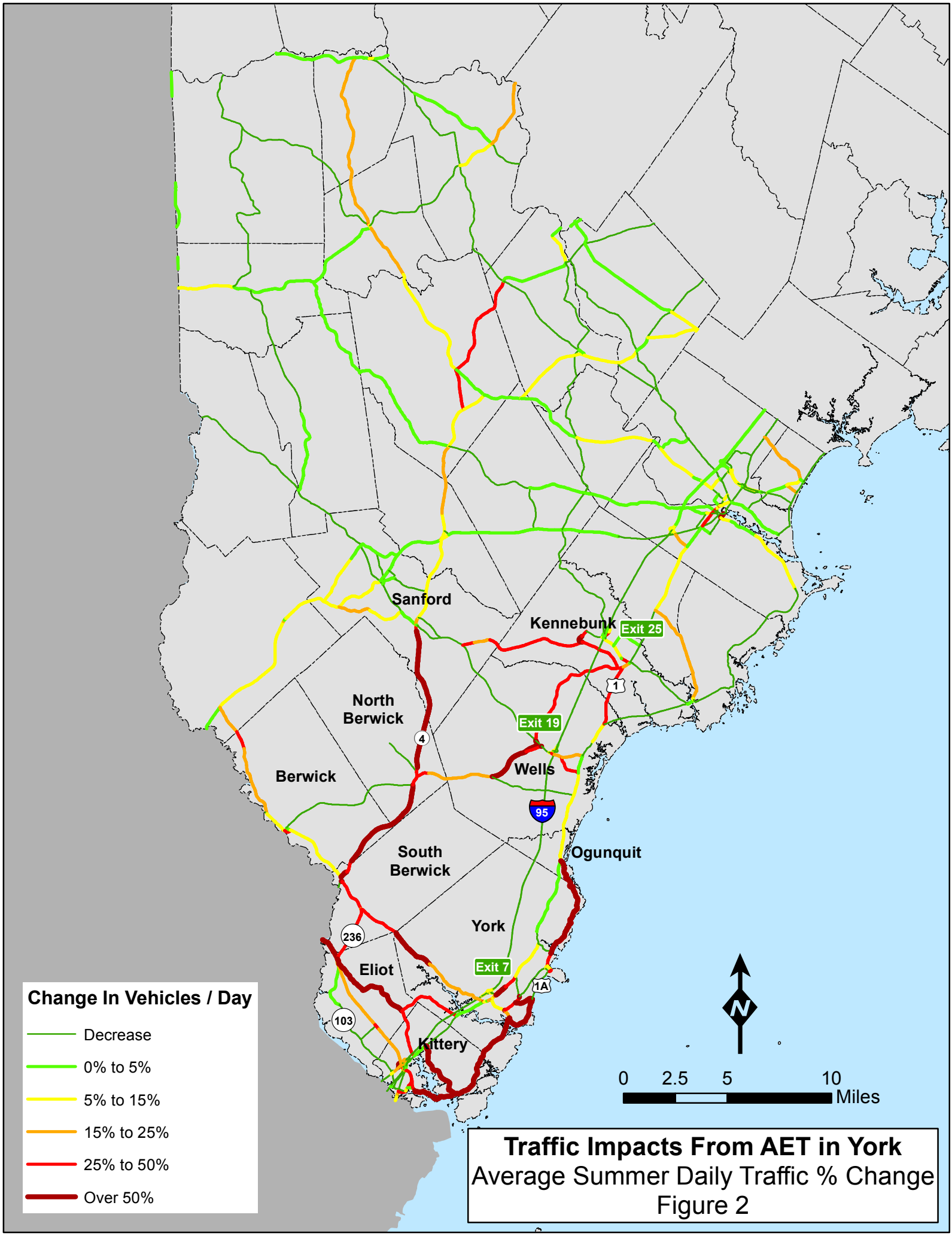
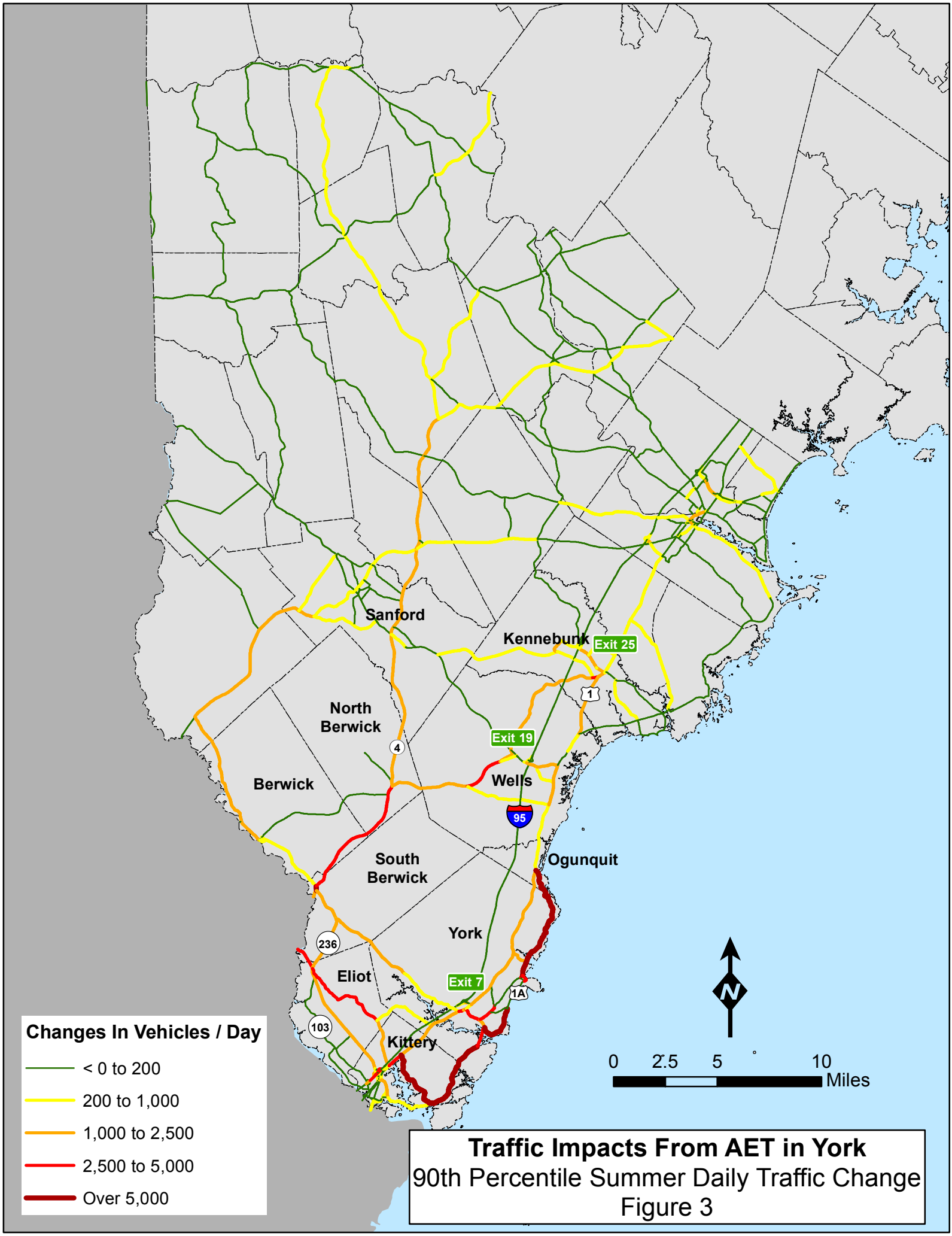
Traffic Impacts From AET in York
Average Summer Daily Traffic Change
Figure 1



Traffic Impacts From AET in York
Average Summer Daily Traffic % Change
Figure 2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York
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Kittery
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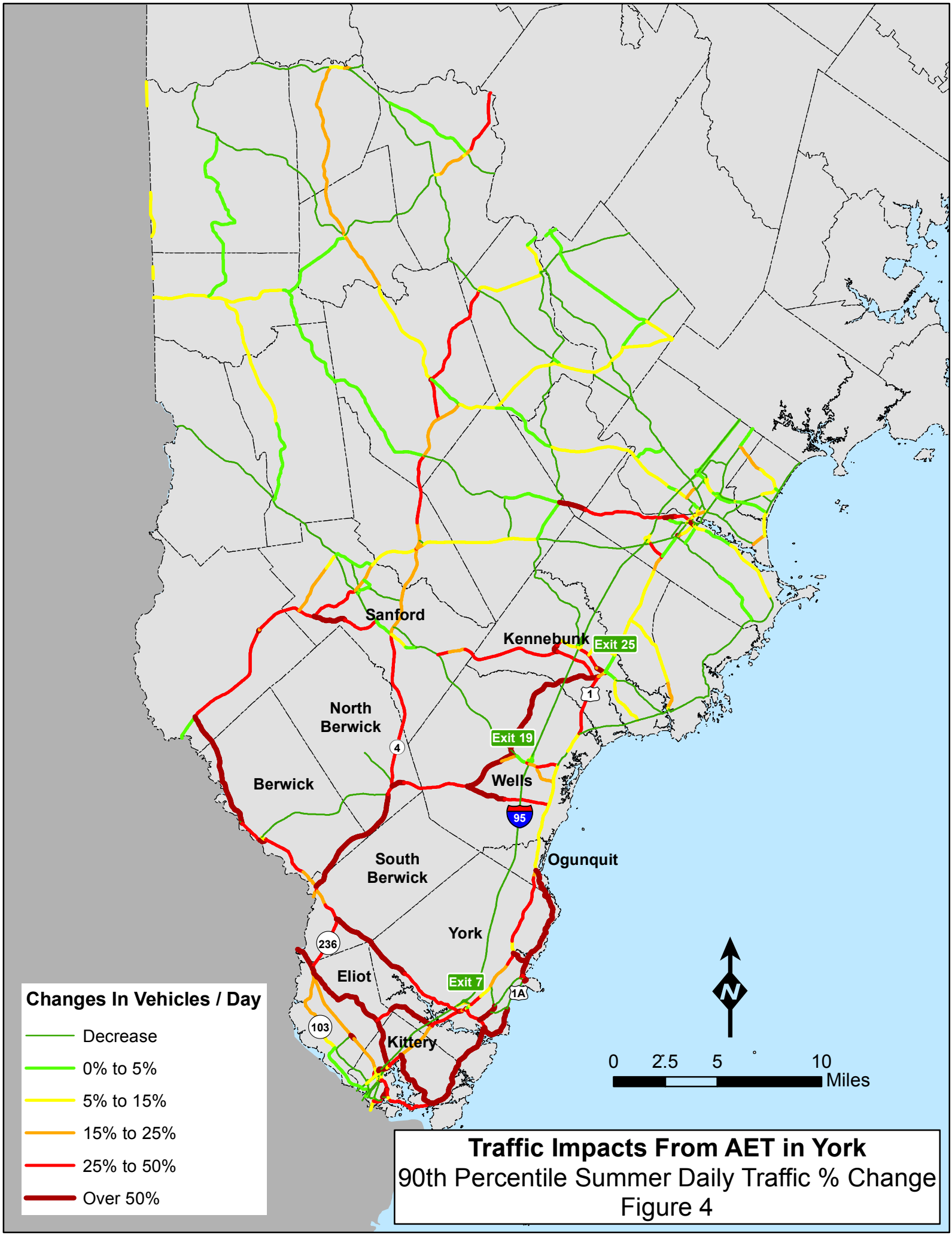
Traffic Impacts From AET in York
90th Percentile Summer Daily Traffic Change
Figure 3



Traffic Impacts From AET in York
90th Percentile Summer Daily Traffic % Change
Figure 4

Analysis of Non-Summer Traffic

A peak hour of an average day in Maine is the hour with the highest amount of traffic during a day where there is an average amount of traffic like May, September, or October. During average traffic months, traffic volumes on US Route 1 are lighter and therefore it is expected that US Route 1 would be the roadway to attract most of the diverting traffic. The average day peak hour analysis focused on the peak hour impacts to key intersections affected by the diversion to the York Toll Plaza.

The MaineDOT Statewide model was not used for the peak hour analysis as it is set up to model a summer weekday and it provides daily traffic results. For this analysis, we used an industry accepted traffic analysis software tool – Synchro, results of a 2010 Origin and Destination Study, and travel time information from Google Maps.

The process to analyze the peak hour of an average day was accomplished in the following steps each of which is described in more detail below:

- Develop peak hour diversion estimates from CDM Smith's daily estimates
- Distribute the diverted trips onto the roadway network
- Develop a study area based on the amounts of traffic diverted to the non-interstate highways
- Perform a traffic capacity analysis for the intersections for a no-build and a build scenario
- Perform a critical roadway link capacity analysis

As identified previously, the estimated average diversion for 2019 is 2,515 vehicles per day and the 90th percentile confidence estimate is 4,700 trips per day. In order to determine the peak hour diversion of an average day, a K factor was developed. A K factor is the peak hour traffic volume divided by the daily traffic volume. Data from the York Toll Plaza for a weekday in May from the most recent year data available was used to determine the K factor. A weekday in May corresponds to an average day on US Route 1. A K factor of 0.078 was calculated from the York Toll Plaza data, which results in an expected peak hour diversion of 196 to 366 vehicles.

TRIP DISTRIBUTION

To create a traffic model for the analysis of a peak hour of an average day, a study area was established. Since traffic on US Route 1 is lighter on an average day, it was assumed that the majority of diverting traffic would not be influenced by roadway congestion and would choose either US Route 1 or another route such as State Route 236 depending on the traveler's origin or destination. Data from the Maine Turnpike Authority's 2010 Origin and Destination Study was used to determine what percentage of the diverting vehicles would use US Route 1 or another route.

In 2010, an origin and destination survey was conducted for the Maine Turnpike Authority (MTA). A total of 61,500 surveys were distributed to Maine Turnpike patrons, with 21.3% or 13,095 surveys of those returned. This was a statistically valid number of responses that was received and yielded a confidence level of 95%. It is reasonable to assume that the data collected in the 2010 origin and destination survey is representative of the current pool of Maine Turnpike patrons. Therefore, this data was used to distribute diverting trips if the York Toll were converted to AET.

The first step in developing the distribution of the diverting trips was to apply a series of filters to the 13,095 surveys received and only consider those that were considered "valid" for the purposes of evaluating diversion at the York Toll Plaza. The following is a breakout of the filters used and the total number of surveys remaining after that filter was applied.

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Trips passing through the York Toll (4,068 surveys)
This filter was used to extract only those surveys that reported a trip passing through the York Toll Plaza (i.e. northbound trips entering the Maine Turnpike at or south of Exit 7 and exiting north of Exit 7 and southbound trips entering the Maine Turnpike north of Exit 7 and exiting at or south of Exit 7).

Cash Trips (1,228 surveys)
This filter was used to extract only those surveys that reported paying tolls via cash. This filter was applied because HNTB assumes that all patrons who currently use the York Toll and pay using E-ZPass would continue to use the York Toll if it were converted to AET.

Trips not willing to convert to ETC (853 surveys)
Survey participants were asked, in 2010, if they would be willing to convert from cash to E-ZPass if the York Toll were converted from a conventional toll plaza to an Open Road Tolling (ORT) facility. HNTB assumes that if a patron would be willing to convert to E-ZPass if the York Toll were converted to an ORT facility then they would also be willing to convert to E-ZPass if it were converted to an AET facility as well. As a result, patrons that responded positively to this question were removed from further consideration.

Valid Trips (843 surveys)
An additional 10 surveys were determined to contain inaccurate and/or missing information that would be required for the analysis (i.e. a northbound trip reporting with an end destination of New York). These were also removed from consideration.

The remaining 843 surveys are representative of patrons who use the York toll plaza, use cash to pay tolls, and would not be willing to convert to E-ZPass if the York Toll were converted to AET. Moreover, these surveys are representative of the patrons that would likely divert to avoid the York Toll.

The next step was to determine what percentage of traffic would use US Route 1 to avoid the York Toll. It is reasonable to assume that patrons would either A) avoid the York toll by using US Route 1 between the York (Exit 7) and Wells (Exit 19) interchanges or B) completely divert from the Maine Turnpike. To do this, Google maps was used to first estimate the travel time using the Maine Turnpike and then estimate the travel time to completely divert the Maine Turnpike by using the "Avoid Tolls" toggle. To develop a travel time for a trip that would divert from the Maine Turnpike using US Route 1 between York and Wells, 13 minutes was added to the trip time given by Google Maps that could have been made by staying on the Turnpike. The travel times to divert using US Route 1 between York and Wells were then compared to the travel times to completely divert from the Maine Turnpike. All trips whose travel time was greater than 15 minutes to avoid US Route 1, were assumed to avoid the York Toll using US Route 1 between the York and Wells interchanges. Note that HNTB assumed that all northbound trips ending in or southbound trips originating from a town that was either bisected by or located east of I-95 would divert using US Route 1. Figure 5 shows the destination towns of the non-E-ZPass users from the origin and destination survey.

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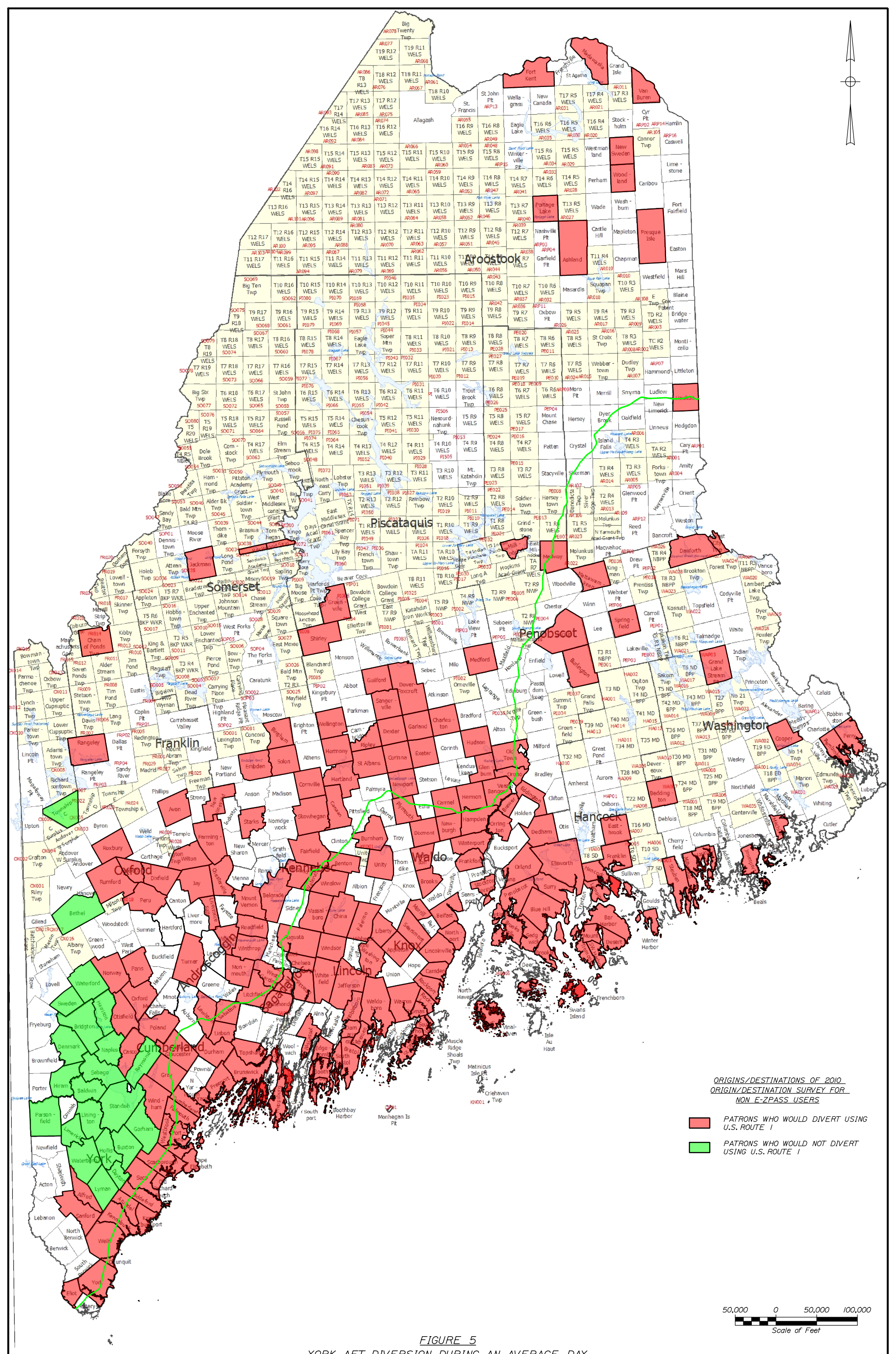

FIGURE 5
YORK AET DIVERSION DURING AN AVERAGE DAY

As shown in Figure 5, all trips with either a northbound destination or a southbound origin located in a town that is shaded in gray are assumed to divert the York toll using roads other than US Route 1. Of the 843 surveys considered, a total 75 surveys (or 8.9%) reported one of these trips. Therefore, it can be expected that only 8.9% of the traffic diverting the York Toll would divert using roads other than US Route 1 during an average day.

STUDY AREA

The study area for the peak hour of an average day analysis, includes the two interchanges on either side of the York Toll Plaza – Exits 7 and 19, the parallel arterial (US Route 1), and arterial roads that provide access to Exits 7 and 19 – the Turnpike Connector in York, and State Route 9/109 in Wells. Other roads were not included in this analysis as the MTA origin and destination survey data indicates that 9% of the trips would not use US Route 1. The intersections that were chosen include those that are expected to have increased turning traffic volumes as well as the intersection of US Route 1 and Beach Street/Shore Road in Ogunquit due to the complexity of that intersection.

The study area contains the following three signalized intersections:

- State Route 109/9 and the Exit 19 ramps
- State Route 109/9 and US Route 1
- US Route 1 and the Turnpike Connector/Stonewall Lane

The remaining three intersections analyzed are unsignalized. They are the following:

- Exit 7 NB ramps and the Turnpike Connector (stop controlled)
- Exit 7 SB ramps and the Turnpike Connector (stop controlled)
- US Route 1 and Beach Street and Shore Road (stop controlled)

TRAFFIC DATA COLLECTION

In order to gain a better understanding of the existing traffic conditions in the study area, traffic data was gathered from available sources. The data collected was used in performing traffic capacity analysis, which estimates traffic congestion and delay. The traffic data that was gathered included 24 hour traffic data as well as hourly turning movement counts.

Twenty-four hour traffic data was gathered from available sources. The most recent data available for an entire year was gathered for the following locations:

- US Route 1 in Ogunquit at the location of MaineDOT's permanent count station,
- York Toll Plaza

Existing hourly turning movement data were collected for the study area intersections from various sources. The turning movement data that was collected was taken during *average traffic* months (May, September, and October).

PEAK HOUR TRAFFIC CAPACITY ANALYSIS DESCRIPTION

An industry accepted traffic analysis software, Synchro, was used to analyze study area intersections. Synchro is a microsimulation traffic model whose methods are based on the Highway Capacity Manual (HCM)[4]. The HCM is an industry-accepted manual that sets forth a methodology to determine the level of service at which traffic operates.

Level of Service (LOS) is a qualitative measure describing operational conditions within a traffic stream. LOS is based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience. Letters designate each level ranging from A to F, where a LOS

[4]Transportation Research Board. *Highway Capacity Manual*, Washington, D.C.: 2000.

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of A represents free flow operating conditions and LOS F represents a stop-and-go congested condition. Descriptions of each LOS designation are as follows:

- *LOS A* represents free flow. The general level of comfort and convenience to the motorist is excellent.
- *LOS B* is in the range of stable flow but the level of comfort and convenience is somewhat less than at LOS A.
- *LOS C* is in the range of stable flow, but marks the beginning of the range of flow in which the operation of the individual users becomes significantly affected by the presence of other motorists. The general level of comfort and convenience declines is noticeable at this level.
- *LOS D* represents high density but stable flow. The motorists experience a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operations problems at this level.
- *LOS E* represents operating conditions at or near the capacity level. Comfort and convenience levels are extremely poor. Operations at this level are usually unstable because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.
- *LOS F* represents a stop-and-go condition. More vehicles are on the roadway than can be accommodated.

Generally, most agencies consider a LOS D or better to be an acceptable design standard. Tables 3 and 4 summarize the relationship between delay and LOS for unsignalized intersections and signalized intersections, respectively.

Table 3- LOS Criteria for Unsignalized Intersections

Level of Service	Delay per Vehicle (sec)
A	0.0 to 10.0
B	10.1 to 15.0
C	15.0 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Table 4 - LOS Criteria for Signalized Intersections

Level of Service	Delay per Vehicle (sec)
A	0.0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

The traffic analysis model Synchro was used to analyze traffic conditions in the study area for 2019 No-Build and 2019 Build conditions.

2019 TRAFFIC ANALYSIS

The process of analyzing traffic within the study area involved starting with peak hour of traffic that represents a peak hour for an average day. The hour 3:00-4:00 was found to be the highest hour of a

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typical May weekday for the York Toll Plaza and the count station on US Route 1 in Ogunquit. As such, the hour of 3:00-4:00 would yield the peak hour of the study area.

A traffic network was set up from the traffic data that was gathered. The peak hour traffic volumes were assumed to grow at a rate of 1.1% per year to the opening year of 2019. The peak hour growth rate is consistent with the historic growth rate measured on US Route 1 in Ogunquit during May in the study area.

2019 No-Build traffic congestion and delays were analyzed using the methods described in the previous section. The traffic volumes were input into the traffic capacity model and analyzed. The delay and LOS ratings for each of the nine study area intersections are illustrated in Table 6.

Table 6 – 2019 No-Build Delay & LOS Summary

Intersection Description	**Control**	**Delay (s)**	**LOS**
Route 1 at Turnpike Connector/Stonewall Lane in York	Signal	18.3	B
Route 1 at Route 9/109 in Wells	Signal	12.1	A
Route 1 at Shore Road and Beach Street in Ogunquit	Stop	73.3	F
Turnpike Connector and the NB Turnpike ramps in York	Stop	6.6	A
Turnpike Connector and the SB Turnpike ramps in York	Stop	120.3	F
Route 9 and the Turnpike ramps in Wells	Signal	16.6	B

The level of service results for unsignalized intersections reflects the average delay on the stop controlled approaches to the intersection. The level of service results for signalized intersections reflects the overall delay for the entire intersection. As shown, two of the intersections in the study area are not expected to operate at an acceptable level of service in 2019:

- Route 1 at Shore Road and Beach Street in Ogunquit
- Turnpike Connector and the SB Turnpike ramps in York

2019 BUILD TRAFFIC ANALYSIS

The average traffic diversion and 90th percentile confidence traffic diversion estimates were distributed onto the 2019 study area roadway network based on current traffic distribution at the York Toll Plaza. These Build condition traffic volumes were input into the traffic capacity model and analyzed. The delay and LOS ratings for each of the nine study area intersections are illustrated in Table 7.

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Table 7 – 2019 Delay & LOS Summary

		2019 No Build		2019 Avereage Diversion with AET		2019 90th Percentile Diversion with AET	
Intersection Description	**Traffic Control**	**Delay (s)**	**LOS**	**Delay (s)**	**LOS**	**Delay (s)**	**LOS**
Route 1 at Turnpike Connector/Stonewall Lane in York	Signal	18.3	B	20.1	C	24.9	C
Route 1 at Route 9/109 in Wells	Signal	14.6	B	17.7	B	20.1	C
Route 1 at Shore Road and Beach Street in Ogunquit	Stop	73.3	F	202.4	F	326.2	F
Turnpike Connector and the NB Turnpike ramps in York	Stop	6.6	A	6.6	A	7.3	A
Turnpike Connector and the SB Turnpike ramps in York	Stop	120.3	F	253.1	F	375.8	F
Route 9 and the Turnpike ramps in Wells	Signal	13.9	B	15.8	B	17.3	B

As shown, all intersections analyzed would worsen with AET. Some experience moderate increases in delay, while others would see significant increases in the amount of time it would take to travel through these intersections. The two intersections in the study area that are not expected to operate at an acceptable level of service in 2019 would worsen significantly with additional diversion. At the intersection of US Route 1 at Shore Road and Beach Street in Ogunquit, average delays for Shore Road and Beach Street would increase from 73 seconds (1.2 minutes) to 202-326 seconds (3.4-5.4 minutes). At the intersection of the Turnpike Connector and the SB Turnpike ramps in York, average delays for the southbound off-ramp would increase from 120 seconds (2 minutes) to 253-376 seconds (4.2-6.3 minutes). Converting the York Toll Plaza to AET could triple the delays at the intersection of US Route 1 at Shore Road and Beach Street in Ogunquit and at the intersection of the SB Turnpike ramps and the Turnpike Connector in York during a peak hour of an average day.

CRITICAL ROADWAY LINK CAPACITY ANALYSIS

In addition to the intersection analysis, a roadway link capacity analysis was also performed. Hourly traffic volumes are required to conduct this analysis. The MaineDOT maintains a permanent count station in Ogunquit located just north of Captain Thomas Road. Figure 1 shows the hourly traffic volumes that occurred on an average weekday in August 2014 on US Route 1 Southbound.

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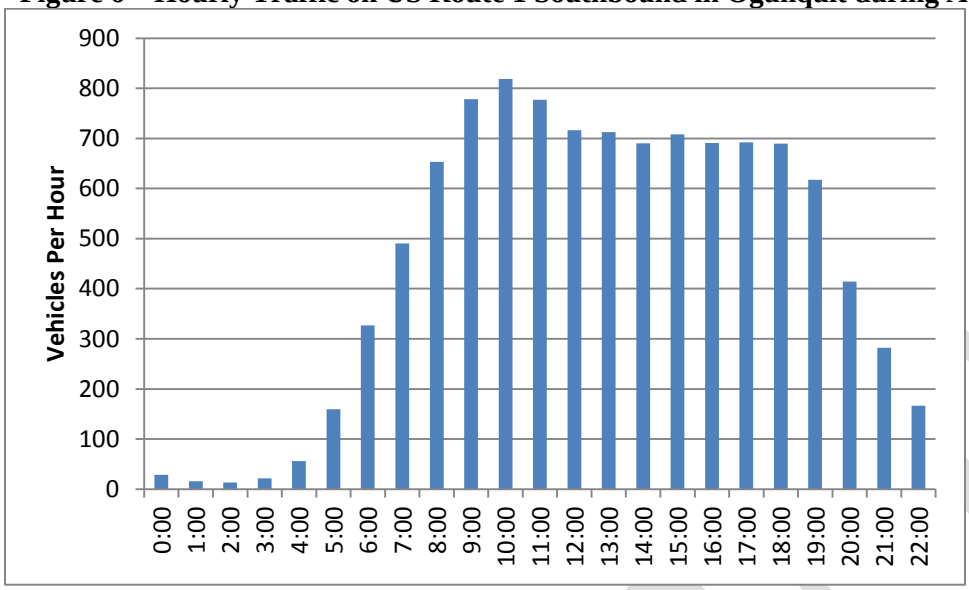
Figure 6 – Hourly Traffic on US Route 1 Southbound in Ogunquit during August 2014 Weekdays



As can be seen from Figure 6, traffic volumes on US Route 1 southbound peaks around 10:00 a.m. and falls slightly and remains steady at around 700 vehicles per hour for seven hours. The pattern that this graphic shows is that there is more traffic demand than available roadway capacity. The capacity for the roadway is the amount traffic that gets through the count station on US Route 1 every hour during the plateau – about 700 vehicles per hour. Therefore, whenever traffic on US Route 1 in Ogunquit reaches 700 vehicles per hour per direction, traffic conditions become congested.

According to the traffic count data on US Route 1 for an average weekday in May, there were 428 southbound vehicles and 515 northbound vehicles during 2014. If peak hour traffic grows at the rate of 1.1%, then the expected peak hour traffic volumes for 2019 would be 450 southbound vehicles and 541 northbound vehicles. Table 8 shows the expected 2019 traffic volumes with diverted traffic.

Table 8 – 2019 Average Day Peak Hour Traffic on US Route 1 in Ogunquit

	2019 Traffic without Diversion	Traffic Volume/ Capacity	Average Diversion plus 2019 Traffic	Traffic Volume/ Capacity	90th Percentile Diversion plus 2019 Traffic	Traffic Volume/ Capacity
Northbound	541	0.77	637	0.91	721	1.03
Southbound	450	0.64	532	0.76	603	0.86

As can be seen from Table 8, a potential conversion of the York Toll Plaza to AET would cause the northbound direction of US Route 1 in Ogunquit to operate at 91-103% of its capacity and would cause the southbound direction to operate at 76-86% of its capacity. If a roadway operates at or over capacity, then the amount of traffic that wants to use the roadway cannot be accommodated. Traffic conditions become congested with stop-and-go traffic. The traffic demand would spill into the next hour which affects traffic conditions in that hour.

Traffic backups and congestion would likely occur in the northbound direction during peak hours in May (an average traffic month) if the York Toll Plaza is converted to AET. The southbound direction would also experience additional delays due to the increased volume to capacity ratio. The months of June, September, and October typically have more traffic than May and therefore, traffic backups and congestion would occur during peak hours of these months, as well. Table 9 shows an analysis of hourly

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traffic count data for May, June, September, and October. As can be seen from Table 9, there could be 2 – 3 times as many hours of traffic congestion on US Route 1 during average traffic months if the York Toll Plaza is converted to AET.

Table 9 – 2019 Hours of Congested Traffic on US Route 1 in Ogunquit

Month	Total Number of Congested Traffic Hours during Month	Total Number of Congested Traffic Hours during Month with Average Diversion
May	22	62
June	77	164
September	97	193
October	33	94

Conclusions

This study analyzed the traffic impacts of the expected traffic diversion if the York Toll Plaza is converted to AET. The traffic impacts of the diversion were analyzed for two different time periods – an average summer weekday and the peak hour of an average day due to the different characteristics of each.

Both analyses identified that traffic would increase on non-interstate highways and depending upon the time of year, the following municipalities would experience significant impacts to key roadways and intersections:

- Ogunquit
- York
- Kittery
- Eliot
- Wells
- South Berwick
- Berwick
- North Berwick
- Sanford
- Kennebunk

The average summer weekday analysis showed that traffic impacts from installing AET at York Toll Plaza would increase traffic on the non-interstate highways. Increases in daily summer traffic volumes are expected along US Route 1, with much higher increases in traffic volumes on other non-interstate highways in York County such as State Route 236, State Route 109/9, and State Route 4. Several roadways would see increases of daily summer traffic volumes of 5-50%. Travelers on these inland corridors will experience more delays at intersections already identified by MaineDOT as having a relatively poor level of service. Such intersections include the State Route 236/Depot Road intersection in Eliot and intersections in downtown South Berwick where State Routes 4 and 236 overlap[5].

The peak hour analysis of an average summer day showed that two intersections in the study area that already operate at a LOS F would see expected delays triple. At the intersection of US Route 1 at Shore Road and Beach Street in Ogunquit, average delays for Shore Road and Beach Street would increase from 73 seconds (1.2 minutes) to 202-326 seconds (3.4-5.4 minutes). At the intersection of the Turnpike Connector and the SB Turnpike ramps in York, average delays for the southbound off-ramp would increase from 120 seconds (2 minutes) to 253-376 seconds (4.2-6.3 minutes). Converting the York Toll

[5] Maine Department of Transportation Bureau of Transportation Systems Planning. *Route 236 Corridor Study Kittery – Eliot – S. Berwick*: October 2008.

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Plaza to AET could triple the delays at the intersection of US Route 1 at Shore Road and Beach Street in Ogunquit and at the SB Turnpike ramps in York during a peak hour of an average day.

A potential conversion of the York Toll Plaza to AET would cause the northbound direction of US Route 1 in Ogunquit to operate over capacity and would cause the southbound direction to operate at 76-86% of its capacity during an average peak hour in May (which was analyzed as it represents a peak hour of an average day). In other words, traffic backups and congestion would happen during peak hours of average traffic months if the York Toll Plaza is converted to AET.

If the York Toll Plaza is converted to AET, there would be an increase in the number of hours during the year when traffic on US Route 1 will be congested in other words stop-and-go conditions. Traffic conditions on US Route 1 that are currently experienced in July and August would occur on the shoulder seasons. Significant traffic volume growth will occur in the months of May, June, September, and October. Stated more simply, summer-like traffic will expand into the Spring and Fall.

During the summer, traffic and corresponding emissions would increase on other non-interstate highways in York County. Daily traffic volumes on some of the non-interstate highways in York County could increase by 5-50%, while traffic volumes on the Maine Turnpike decreases. What does this mean for the non-interstate roads? Traffic at unsignalized intersections on impacted roadways would see more delay. The need for signals and intersection improvements at several unsignalized intersections would be accelerated. In contrast, the Maine Turnpike would see a proportionately small decrease in traffic volumes.

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APPENDIX 2H

COMMENTS ON FINAL ETRANS REPORT BY CDM SMITH
7/22/16

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CDM Smith
195 Church Street, Suite 7A
New Haven, CT 06510
tel: 203 865-2191
fax: 203 624-0484

July 22, 2016

Mr. Peter Mills
Executive Director
Maine Turnpike Authority
2360 Congress Street
Portland, ME 04102

Subject: **Comments on Final eTrans Report "Shortfalls in MTA's Response to the Army Corp of Engineers (March 30, 2016)"**

Dear Peter:

As requested, CDM Smith has reviewed the final eTrans Report "Shortfalls in MTA's Response to the Army Corp of Engineers (March 30, 2016)". This report summarizes our findings in light of the specific work we did regarding the York Mainline conversion to either AET or ORT and in light of our experience on other similar work throughout the United States.

Introduction

CDM Smith was (and still is in most cases) the traffic engineering consultant to a number of the agencies mentioned in the eTrans report where AET has been implemented, including for the Pennsylvania Turnpike Commission, the Central Florida Expressway Authority, and for Highway 407 in Toronto (the first AET facility in North America). In addition, the Florida Turnpike, the Maryland Transportation Authority, the E-470 Public Highway Authority (Colorado), the Harris County Toll Road Authority (Texas), and many more have deployed AET based on CDM Smith traffic and revenue studies. The same approach and considerations for those studies were taken into account as part of our analysis of AET and ORT impacts at the York Toll Plaza.

The CDM Smith Study for the Maine Turnpike Authority (MTA) was conducted without bias for either AET or ORT, but rather on the mix of variables specific to the York (and Gardiner) toll plaza. These variables are unique for each and every toll facility. The mix of in-state versus out-of-state cash customers, overall cash market share, license plate successful read rate, valid department of motor vehicle address records, toll diversion, and more, are all location specific. They determine the potential levels of revenue leakage under AET and ORT, as well as the level of video or cash surcharges required to make up any toll revenue shortfalls.

In the end, we did not recommend either AET or ORT, but rather only the measures required to ensure net revenue neutrality for both. Based upon the impacts of these measures, previous professional tolling recommendations, and an MTA staff recommendation, the MTA Board of

Directors selected ORT. Based on our national experience and a number of technical project-specific risk factors including the percentage of MTA income at risk at York, the mix of out-of-state and Canadian traffic, the cash market share, the toll surcharge, and traffic diversion, it is our professional opinion that the MTA decision was prudent and consistent with good tolling practice nationally.

Following are responses to each section of the eTrans report, as they apply to the work conducted by CDM Smith and summarized in our "Maine Turnpike ORT/AET Impact Analysis (March 18, 2014)".

Response to eTrans Report: Cover Page

The cover page of the eTrans report provides a table which contrasts ORT versus AET on several key elements. All ORT characteristics are labeled as "marginal" or "poor", while those for AET are all labeled as "best". It is odd that a "toll cost to customer" category has not been included since this is the aspect of any toll road that most directly affects all users. If "toll cost to customer" were to be considered, ORT would be labeled as "best" since no changes would be required for cash or E-ZPass customers (compared to existing rates). AET would likely merit a "worst" label since a substantial $3.00 surcharge would be required for video (current cash) customers in order to maintain net toll revenue neutrality.

It is also misleading for the author to show the "Life-cycle Costs/Retained Revenue" to be "best" under AET and "poor" for ORT. The only reason for the net positive result under AET is due to the $3.00 video surcharge needed to recover lost revenue. Later in the eTrans report (see Section 3.3.d, page 17) the author says the $3.00 video surcharge is "significantly greater than those likely to occur". Without that level of video surcharge, net toll revenue losses would be significant under AET (based on our analysis).

While the CDM Smith study did not analyze the other components this table ranks, I would take exception to the "poor" ranking under ORT for "Safety" and "Customer Service". Numerous studies (including experience at MTA's converted ORT facilities, as well as those in neighboring New Hampshire) have shown that ORT dramatically reduces accidents compared to traditional mixed use (cash and E-ZPass) toll plazas. Regarding "Customer Service", some of the top focus group responses we have had for those opposing AET is the loss of customer service via the toll attendants. Those motorists indicated that they liked the option to pay cash and ask toll attendants for directions or for help in case of emergencies. These are certainly not reasons to maintain toll collectors, but it does provide ORT with a heightened customer service option not available with AET.

Response to eTrans Report: Section 1.0 (Executive Summary)

In Section 1.0, the author takes issue with the level of traffic diversion CDM Smith estimated under AET. He makes two arguments. First, the CDM Smith estimates of 3,400 to 5,500 daily trips diverting to alternative routes is far too high. And, second, that these levels of diversion are "assumed to be realized over the long term."

The 3,400 daily diversion value is CDM Smith's base case estimate for diversion assuming AET was implemented in 2015. The 5,500 daily diversion level is based on CDM Smith's financial risk analysis assuming a 90 percent confidence level. Risk analyses are often performed in order to provide the financial community (rating agencies, bond insurers, and investors) with some level of assurance that a toll authority's financial obligations can be met. A detailed description of CDM Smith's risk analysis is provided in our Study Report.

The eTrans author seems to imply that there is no alternative road way capacity to absorb this level of diversion. Travel in the southern coastline area of Maine is highly seasonal. As shown in the table below, July and August traffic levels greatly exceed those in other months. Traffic volumes and congestion can be severe during these two peak summer months. Relatively little diversion would occur during these two months (though not necessarily during off peak night time periods). However, for half the year, traffic volumes are about half those during the two peak summer months. During these periods the alternative routes would have ample capacity to absorb significant levels of diversion to avoid a doubling of the video toll at York.

York Toll Plaza 2015
Monthly Traffic Variations

Month	Monthly Variation
January	64.3 %
February	63.9
March	75.1
April	85.1
May	102.2
June	114.2
July	147.9
August	152.3
September	116.8
October	103.7
November	88.9
December	82.3
Average	100.0

The eTrans author's second comment regarding diversion, that these levels of diversion are "assumed to be realized over the long term," is simply untrue. Table 5 (page 21) of the CDM Smith report provides the information summarized in the table below. As shown, CDM Smith base case diversion levels decrease from 3,449 per day in 2015 to less than half that level by 2025 (at 1,627 per day). These decreases in diversion are largely the result of the assumed continued shift from video transactions to E-ZPass (which has no AET toll surcharge) over time.

CDM Smith Estimated Annual Diversion at York Toll Plaza Assuming Conversion to AET

Year	Estimated Annual Diversion	Estimated Daily Diversion
2015	1,259,000	3,449
2016	1,164,000	3,189
2017	1,076,000	2,948
2018	994,000	2,723
2019	918,000	2,515
2020	847,000	2,321
2021	782,000	2,142
2022	721,000	1,975
2023	664,000	1,819
2024	611,000	1,674
2025	594,000	1,627

In an attempt to support his statements regarding CDM Smith's high diversion levels, the author then uses experience on the Tobin Bridge (formally known as the Mystic River Bridge), which recently converted to AET.

In an attempt to demonstrate that the diversion rates we estimated at the York Toll Plaza are too high when AET is assumed, the eTrans report cites the fact that traffic volumes on the Tobin Bridge actually increased for the five month period including August through December 2015 compared to the same five month period in 2014. Over this period, traffic increased by 7.4 percent. His conclusion, therefore, is that AET does not result in toll diversion.

This example does not make any sense for three reasons. First, conversion to AET at the Tobin Bridge took place in July 2014. Thus, AET was operational during both of the time periods they analyzed. So, the growth rate they show really only reflects normal background growth or growth

from other non-AET related sources. For this comparison to be meaningful, they would need to have compared August through December 2013, when there was no AET, versus August through December 2014, when there was AET.

Secondly, the toll diversion rates developed in the CDM Smith report are based on the $3.00 (passenger car) toll increase that would be incurred by video customers under AET. This would be double the current cash toll rates. Toll rates on the Tobin Bridge were $3.00 for cash and $2.50 for E-ZPass (car rates) prior to conversion to AET. Upon conversion to AET, the rates remained unchanged at $3.00 for video (also referred to as toll-by-plate) and $2.50 for E-ZPass. So, even if the author had chosen the correct time periods to compare, we would not have expected any toll diversion to occur at the Tobin Bridge because there was no additional video toll surcharge.

Thirdly, even if the author had selected the correct time periods to compare and a similar toll increase had occurred at the Tobin Bridge, it is impossible to know, without careful analysis, what level of toll diversion would be expected at this highly urban location. Simply using this as an example because it converted to AET is not sufficient to say that diversion rates should also be similar those in the York corridor.

What is most important regarding the AET conversion at the Tobin Bridge is the actual impact it has had on toll revenue collection. The eTrans report does not mention the fact that video payment violations rates have been very high at this location. An April 1, 2015 article in the New Salem News (http://www.salemnews.com/news/local_news/motorists-racking-up-hefty-fines-for-unpaid-cashless-tolls/article_23bb90f3-ed93-5940-ae1b-7ff8aea11ed1.html) wrote the following:

> "Figures from the state Department of Transportation reveal that from mid-July to Dec. 31 the state collected less than half of the $2.7 million in pay-by-plate tolls billed to motorists crossing the Tobin during that time.
>
> [M]otorists who didn't pay up after getting bills in the mail have been hit with more than $3.2 million in late fees and other charges, with MassDOT collecting only $600,000 of that by the end of the year."

As a result of such high violation rates, MassDOT felt it necessary to forgive tolls through an amnesty program. Specifically, MassDOT issued the following notice on this subject: (https://www.paybyplatema.com/pbp/Desktop/Default.aspx):

> "Important Notice: Effective June 1st, 2015 all current delinquent customers will be offered an amnesty settlement. All Pay By Plate fees will be waived and all Registry of Motor Vehicles (RMV) holds will be removed. Only outstanding tolls will need to be paid in full. This amnesty program is for Tobin Bridge outstanding fees only."

Violation fees are meant to both deter motorists from not paying the toll and to help make up for lost toll revenue from those who do violate and never pay. So, while this amnesty program may help in collecting some lost toll revenue, the loss of fee revenue will result in continued net revenue losses.

For comparative purposes, the total video uncollectible rate assumed by CDM Smith for the York Toll Plaza is 42.2 percent (Table 1, page 14). This includes losses from both unbillable transactions and uncollectible transactions. In spite of the slightly lower video collection assumptions CDM Smith developed for the York Toll Plaza, the revenue risk is much higher compared to that for the Tobin Bridge.

In the case of the Tobin Bridge, video transactions account for only about 15 percent of total transactions. This means that a 50 percent video loss rate results in revenue leakage of only about 7.5 percent. In addition, the Tobin Bridge only accounts for about 7.7 percent of total MassDOT Turnpike System toll revenue. The situation at York, however, is quite different. At York, about 30 percent of current transactions are cash (versus 15 percent at Tobin Bridge), thus putting twice the revenue at this location at risk. In addition, the York Toll Plaza is the single highest revenue generating location on the Maine Turnpike accounting for just over 40 percent of total system revenue in 2015 (versus 7.7 percent for Tobin Bridge).

It is also almost comical that the eTrans report uses an example 60 miles south of the York Toll Plaza (on an entirely different road and in a different type of area) when the closest example of a successful toll conversion can be found just a 15 minute drive south of the York Toll Plaza on I-95 in Hampton, New Hampshire. The New Hampshire DOT converted the traditional mixed use (cash and E-ZPass) barrier toll plaza in Hampton to ORT in 2010. Following its success, they converted the Hooksett Mainline Toll Plaza in 2013. Current plans are for the conversion of the Dover and Rochester plazas by the 2021-2022 time period.

In 2011 Hampton Toll Plaza on Interstate 95 was selected as one of the top ten transportation projects in the country in that year's competition based upon judging in three categories: "on time", "under budget", and "innovative management". The competition was sponsored by the American Association of State Highway and Transportation Officials (AASHTO), AAA, and the U.S. Chamber of Commerce (https://www.nh.gov/dot/media/nr2011/nr09011195.htm).

And upon conversion of the Hooksett Toll Plaza, NHDOT Turnpikes Administrator Chris Waszczuk noted that the benefits of implementing ORT at the Hooksett Tolls include (https://www.nh.gov/dot/media/nr2013/20130522-open-road-tolling.htm):

- Improved customer convenience
- Reduced travel time – 270,000 hours annually
- No lines or stopping to pay tolls
- Reduced fuel consumption – 465,000 gallons annually
- Improved air quality – less vehicle idling and delays
- Safer – no lane changing or slowing down
- 30% discount for E-ZPass "passenger type" vehicles

The author of the eTrans report seems to be so focused on promoting AET at all costs, that he neglects to see (or look for) any benefits afforded by ORT. The New Hampshire example is but one of many successful ORT conversions throughout the country. Other examples include the New Jersey Turnpike and Garden State Parkway (NJ), Pennsylvania Turnpike, Central Florida Expressway, and many more.

Response to eTrans Report: Section 2.0 (U.S. Army Corps of Engineers Observations/Requests and MTA's Response)

In Section 2.2 of the eTrans report the author states that toll revenue leakage under ORT has been underestimated, thus making it look more favorable versus AET. It is true, that intentional toll cheats would be able to use the E-ZPass lanes under ORT. But, the same is true with conventional toll plazas with dedicated E-ZPass lanes (which there are at the York Toll Plaza). Thus, conversion to ORT would not result in any (or only minimally more for those who mistakenly get in the express E-ZPass ORT lanes) additional revenue leakage compared to conventional toll plazas. Under AET, revenue leakage occurs when cameras do not take a clear image of the plate, when the department of motor vehicles has incorrect address information, or when motorists do not pay invoices.

Regardless of what the author says on this point, actual experience of ORT revenue collection on the Maine Turnpike at the converted New Gloucester Toll Plaza has shown that there is negligible revenue loss. CDM Smith is the traffic engineering consultant to the Pennsylvania Turnpike, the New Jersey Turnpike, and the Garden State Parkway (NJ). Toll revenue leakage at locations where ORT has been implemented has not been an issue. The same can be said for experience at the Hampton and Hooksett Toll Plazas in New Hampshire.

For some reason, the eTrans report notes the following, which is totally irrelevant to their argument regarding increased ORT revenue leakage (page 5):

> "In addition, E-ZPass lane violations are not limited to just open road lanes in ORT operations. For example, the E-ZPass lanes on the Pennsylvania Turnpike (gate-free lanes in the toll plazas) have been subject to such fraud and abuse that:
>
> > *"When the Pennsylvania Turnpike's fiscal year ended in May (2015), there were $33.3 million still outstanding in unpaid tolls."*[xxi]
>
> Therefore, for this study to assume only modest violations in ORT lanes at the York Toll Plaza is overly optimistic and biases the results against AET."

Citing this experience in Pennsylvania is irrelevant and misleading for several reasons. First, if, as the author asserts, this $33.3 million in revenue loss is not attributable to ORT, but rather to gate free E-ZPass only lanes (referred to as "slip ramps" by the Pennsylvania Turnpike Commission), then it is plainly clear this has nothing to do with ORT. Secondly, had the author correctly understood what the $33.3 million outstanding tolls referred to, he would not have made this argument at all. In fact, the $33.3 million referred to represents unpaid tolls for the entire system, including ORT plazas, slip ramps, and conventional toll plazas (which form the vast majority of the Pennsylvania Turnpike toll system). They also represent the cumulative two-year total in unpaid tolls. It should also be noted that while $33.3 million sounds like a substantial amount, given the total two-year revenue collection on the Pennsylvania Turnpike, this amounts to only a little more than 1.5 percent of systemwide toll revenue. But, again, the bigger point here is that the $33.3 million dollar unpaid tolls referenced has nothing to do with ORT revenue loss (either on the Pennsylvania Turnpike or on the Maine Turnpike).

Further, if eTrans had read down a little farther in the Pennsylvania Turnpike article from which it quoted, it would have seen that Turnpike Commission Chair Sean Logan said his "*concern is the level of unpaid and uncollected tolls will increase dramatically if the turnpike continues down the road to all electronic tolling without the authority to go after violators with an enforcement mechanism that gets drivers attention*".

In Section 2.4 the eTrans report again uses incomplete and misleading information from another real world example of AET conversion to argue that AET is good and ORT is bad. Unfortunately, this fails as well. They cite the Central Florida Expressway (CFX) Authority as having "recently

studied AET deployment throughout the U.S. and Canada and elected to move forward with AET deployment…" CDM Smith is the traffic engineering consultant to the CFX Authority and conducted the traffic and revenue studies leading to their recent decision to implement AET.

Based on the eTrans report, one would be forgiven for interpreting this statement to mean that the CFX Authority decided to convert its entire system to AET. In fact, that is not the case. AET, in this case, will be implemented on a new expansion project as part of a western beltway around Orlando, FL. Total toll revenue on the new AET segment is estimated to amount to $1.2 million after one year of operation. Total CFX toll revenue in that same year is estimated to amount to $451.5 million; thus, AET revenue will account for 0.3 percent of total system toll revenue (revenue forecasts for the AET segment and total system are from the Central Florida Expressway Authority FY 2015 General Traffic and Earnings Consultant's Annual Report, CDM Smith, February 2016).

This proposed toll segment is, in many ways, a good candidate for AET. It will serve a highly commuter oriented market and is expected to have more than 80 percent SunPass (Florida's equivalent to E-ZPass) participation. In addition, it will serve as an ideal pilot program for any further expansion projects since any losses at this location would not present a revenue risk to the CFX Authority. None of these conditions are true of the York Toll Plaza. Finally, the eTrans author does not mention that all of the current CFX Authority toll system was converted from traditional toll collection to ORT several years ago; they have no plans to convert any of the existing ORT plazas to AET.

Response to eTrans Report: Section 3.0 (Environmental, Safety and Financial Issues Not Properly Addressed in MTA's Analysis)

Section 3.3 specifically deals with "Shortfalls in the MTA's Financial Analyses". The eTrans assertions here fall into the following categories:

1. The CDM Smith report should have considered a life-cycle cost analysis instead of a net revenue analysis.
2. The CDM Smith report limited its analysis to a 10-year time frame.
3. The CDM Smith report focused on a worst case scenario instead of a most likely scenario.
4. The AET video surcharge amounts are higher than those for other AET facilities and inconsistent with "Good Industry Practices".
5. CDM Smith estimates of toll diversion are too high.
6. CDM Smith underestimated cash revenue leakage rates under ORT.
7. CDM Smith assumed different business rules for AET than they did for ORT.

Items #1 and #2 – These two are related. We provided net AET and ORT traffic and revenue impacts over a 16-year period from 2015 through 2030 (see CDM Smith report Tables 5 and 6). We also conducted a net present value analysis of the revenue impacts along with estimated capital costs for both AET and ORT over a ten-year period. CDM Smith did not recommend either AET or ORT based on this analysis, but rather provided technical analysis and a professional measurement of impacts, and left that decision up to the MTA.

The structure of the analysis, however, is consistent with studies CDM Smith has conducted for numerous other toll authorities. Furthermore, this is the type of information that is requested by the financial industry (rating agencies, bond insurers, and investors). Maximum focus, from their point of view, is on the risk to toll revenue and the ability of a toll agency to maintain minimum debt service coverage ratios. In this case, AET introduces more revenue risk than does ORT, thus the need for the $3.00 video surcharge. Capital costs related to construction of a new toll plaza (be it AET or ORT) is substantially less risky. Cost incurred in construction are well established and represent a one-time expenditure. Revenue losses, on the other hand, can occur on an annual basis. Consistent with other tolling agency practices nationally, I would think that the MTA would be much more concerned with preservation of its long term revenue stream, when compared to the one time capital cost to construct a new toll facility.

Item #3 – This is simply not the case. CDM Smith's base case (see Tables 5 and 6 of the CDM Smith report) reflects "a most likely scenario". We incorporated actual experience at MTA regarding nearly every variable considered in the analysis. Table 1 of CDM Smith's report highlights several of the key assumptions in the model that MTA staff provided based on actual experience. The same is true on the cost side of the equation (image review costs, mailing costs, etc.). The author of the eTrans report may think these variables are too high or that they will change in the future. In order to maintain a strong bond rating, we must base our analysis on current operations. Rating agencies are not interested in "up-side" forecasts and do not rate toll agencies on what might happen in the future. If anything, they are much more interested in the "down-side". Thus, the CDM Smith report also conducted a risk analysis at both a 90 percent and 95 percent confidence level in order to provide the MTA (as well as rating agencies and others, if needed) some measure of confidence that debt service coverage levels could be maintained with either 90 percent or 95 percent confidence.

Item #4 – This is an odd statement. No toll rates (whether cash, E-ZPass, or video) are set based on "Industry Standards". Rates are set to meet operating, capital, and debt service needs. The video surcharges estimated for the York Toll Plaza are based on factors unique to this location, including a majority of out-of-state travelers (including a significant number of Canadian

customers), high cash paying market share (which would be video under AET), a high number of invalid department of motor vehicle addresses, current violation payment experience, etc.

Item #5 – Diversion levels developed in the CDM Smith study were discussed above in detail.

Item #6 – The eTrans author again questions CDM Smith leakage rates for ORT, arguing they should be much higher. This, too, was discussed above in detail.

Item #7 – The CDM Smith analysis assumed the same business rules for both AET and ORT. The eTrans report does not give any examples of where different business rules were used, so it is difficult to respond beyond this. Perhaps they are conflating assumed cash leakage rate assumptions under ORT versus those assumed under AET as being based on business rules. Those types of assumptions are not business rules, but rather actual operating characteristics based on MTA's own experience and on the experience of other ORT facilities such as those in New Hampshire, New Jersey, Pennsylvania, and elsewhere.

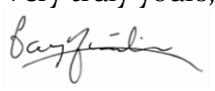
Response to eTrans Report: Section 4.0 (Summary)

CDM Smith has no comments on this section.

To repeat what was said in the Introduction, CDM Smith entered into this assignment without a bias toward AET or ORT. We have conducted many studies where the preferred outcome was for conversion to, or the introduction of, AET. As clearly stated in our report, AET is not infeasible, but rather must be accompanied by a substantial video surcharge in order to maintain net toll revenue neutrality. ORT at York, on the other hand, would not require any additional toll surcharges to maintain revenue neutrality on MTA's system. The MTA selected ORT. Based on our national experience and a number of technical project-specific risk factors including the toll surcharge, the percentage of MTA income at risk at York, the mix of out-of-state and Canadian traffic, the cash market share, and traffic diversion, it is our professional opinion that the MTA decision was and remains prudent.

If you have any questions or comments, please do not hesitate to contact me at your convenience.

Very truly yours,



Gary T. Quinlin
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APPENDIX 2I

SHORTFALLS IN MTA'S REPONSE TO USACE: ETRANS GROUP, INC. 3/30/16

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Shortfalls in MTA's Response to the Army Corp of Engineers

Anticipated Environmental and Other Impacts at York Toll Plaza for MTA Recommended Option vs. All Electronic Tolling (AET)

Estimated Impacts \ Option	ORT/Cash@ MM 8.8	AET @MM 6.7
NRCS Wetland (Ac)	1.0[1]	0
Stream (ft)	80[1]	0
Vernal Pools	2[1]	0
FEMA Flood Plain (Ac)	0.3[1]	0
Threatened/Endangered Species Habitat	3[1]	0
Right-of-Way	0.3[1,3]	0
Net Environmental Gain	No	Yes
Meets Engineering Requirements	Some[1]	Yes
Safety (Toll collectors and public)	Poor	Best
Satisfies Purpose & Need	Marginally	Best
Customer Service	Poor	Best
Estimated Construction $	$ 40.8 M[2]	$ 3.8 M[2]
Life-cycle Costs/Retained Revenue	Poor	Best

Acceptability: Best Marginal Worst

Prepared
by
The eTrans Group, Inc.

for

The Town of York, Maine

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1.0 Executive Summary

The Maine Turnpike Authority's (MTA) recent recommendation for replacing the existing York Toll Plaza with a new, hybrid toll plaza at Milepost 8.8 that offers cash and open road toll (ORT) options is inconsistent with its own findings.

On March 17, 2010, after studying options for the York Toll Plaza for several years, the Maine Turnpike Authority (MTA) submitted a Draft Phase I report[i] for the environmental review process by the U.S. Army Corps of Engineers (ACOE). In its May 5, 2010 response[ii] to the MTA's initial submittal, the ACOE noted that the MTA:

- did not properly consider safety issues associated with conventional (cash) toll collection; [iii] and,

- dismissed one-way[iv] and all electronic tolling (AET)[v] options inconsistent with Federal Highway Administration Guidelines for environmental review per Section 404 (b)(1) of the Clean Water Act (hereafter referred to as Guidelines).

The MTA commissioned CDM Smith to conduct *"an impact assessment for possible conversion to Open Road Tolling (ORT) or All Electronic Tolling (AET) at two toll plazas on the Maine Turnpike."* [vi] However, this study (Final Draft released on March 18, 2014) does not respond to several ACOE requests. It is also fraught with significant structural and other issues that bias its results against AET. (e.g. Under the direction of the MTA, the CDM Smith study only considered an AET pilot program at these two plazas).[vii] Nevertheless, even with significant bias in their results, *after "considering traffic, toll rates, operating costs, net revenue over a 10-year period, and capital costs to a hypothetical continuation of the current cash collection of tolls"* [viii]:

The CDM Smith study found AET to be a
***"financially feasible option"* at the York Toll Plaza.**[ix]

CDM Smith also noted that*: "AET offers free flow travel for all motorists with lower overall capital costs."*[x]

However, limitations of scope of this study result in biases in the results, including an estimated $3.00 (passenger car) surcharge [xi] would be required for those customers not actively enrolled in the ETC program (up to 20% of ALL customers). The author is unaware of any MTA policy this would violate, though a $3.00 surcharge is rarely required. A significant surcharge is normally charged AET customers who use the license plate toll option and do not pre-enroll in the AET program. This is done to avoid those actively enrolling in the AET program from cross-subsidizing the costs of those that do not actively enroll. This is the fair and equitable approach.

This study also stated that: *"The imposition of a $3.00 video surcharge is also estimated to result in diversion of traffic to US Route 1 from 3,400 to 5,500 per day."* [xii] Further, it appears that traffic diversions from 3,400 to 5,800 per day were assumed to be realized over the long term. This is not likely as these levels of traffic diversion would be a major portion of that traffic assumed not actively enrolled in the AET program. And, even if traffic diversions at these levels did occur initially, the congestion the diverted traffic would encounter on US Route 1 would be so bad that few motorists would leave the MTA mainline a second time and word about the anticipated congestion on the alternative route would be quickly spread amongst the motoring public. i.e. The problem would be self-regulating and not occur over the long term. Further, traffic diversions at these levels have not been experienced elsewhere.

The Mystic River Bridge (60 miles south of the York Toll Plaza) converted to all AET in July, 2014. While highway engineers argued that there would be significant traffic diversion, there was no drop in traffic after AET was installed. In fact, traffic increased by over 7%. (See data below.)

Total Transactions - Mystic River Bridge
AET Implemented in July 2014

Month / Year	Aug	Sep	Oct	Nov	Dec	Year Total
2014	1,029,823	996,819	1,022,968	931,389	959,549	**10,677,868**
2015	1,122,826	1,056,865	1,102,529	1,003,845	1,022,756	**11,023,092**
Change	93,003	60,046	79,561	72,456	63,207	**345,224**
Increase	9.**03**%	6.02%	7.78%	7.78%	6.59%	**7.44%**

Source: Massachusetts Turnpike Authority

This is particularly significant because drivers using this facility have three options to avoid AET: US Route 93 (no tolls), the Ted Williams Tunnel (ORT), or the Callahan Tunnel (ORT).

> **Even though an abnormally high level of traffic diversion was assumed upon the conversion to AET, CDM Smith found the AET option at the York Toll Plaza financially feasible in spite of the fact that this study suffers from several major shortfalls which bias the results of this work against the AET option at the York Toll Plaza.**

CDM Smith study also noted that

> *"the plaza reconstruction cost <of AET> is greatly reduced. As importantly, there is essentially no additional right-of-way typically required, since the gantries are constructed across existing roadways only. AET also has the benefit of virtually eliminating accident risk at toll plaza locations; toll plazas typically represent high accident locations on toll roads across the country."* [xiii]

On July 23, 2015 the MTA released the results of a Jacob's Engineering study that reviewed the safety and environmental impacts of five alternative solutions for the York Toll Plaza.[xiv] However, even though CDM Smith found AET financially feasible, an AET alternative was not considered for the York Toll Plaza in these analyses. Therefore, the significant environmental and safety benefits of the AET option were not considered. In summary,

> **The MTA eliminated the AET option from the York Toll Plaza analyses even though its own advisors found it to be economically feasible.**

This report provides a summary of the information requested by the ACOE and the MTA's response to these requests. Environmental, safety and financial issues not properly addressed by the MTA in its alternatives analyses are also presented.

This report demonstrates that the AET option is, by far, the most environmentally friendly option. It also demonstrates that the AET option eliminates all of the safety issues associated with collection of tolls at the roadside, as well as the costs and risks associated with this type of toll operation. Consideration of all such costs, as well as realistic estimates of net retained revenue, in a life-cycle cost analysis should also demonstrate that AET is the most financially feasible alternative for the York Toll Plaza.

2.0 U.S. Army Corps of Engineers (ACOE) Observations/Requests and the MTA's Response

2.1 Major Oversights in the MTA Submittal

In its May 5, 2010 response[xv] to the MTA's initial submittal, the ACOE noted that the MTA's analyses:

- did not properly consider safety issues associated with conventional (cash) toll collection; [xvi] and,

- dismissed one-way[xvii] and all electronic tolling (AET)[xviii] options inconsistent with Federal Highway Administration Guidelines for environmental review per Section 404 (b)(1) of the Clean Water Act (hereafter referred to as Guidelines).

The MTA has yet to appropriately respond to these concerns.

2.2 Other Issues the ACOE Requested the MTA Investigate

The ACOE asked the MTA to investigate:

1) *"available and practicable strategies* <that> *exist to address out of state/country toll collection"*; [xix] and,

2) *"the percent loss in revenue with high speed electronic toll collection within the context of a mixed tolling arrangement"* <including> *other state's experiences with this option".* [xx]

However, the MTA has yet to appropriately respond to these requests.

A number of commercial options are available to increase the effectiveness of collecting tolls from out of state vehicles, including:

http://bestpass.com and https://platepass.com

There have also been several mobile apps introduced to help resolve this issue, including:

https://www.bancpass.com/ptoll/ and http://www.paytollo.com/

There is also at least one company currently offering to provide toll payment services through cell phones. Other commercial solutions will also likely be introduced. Collectively, these and other commercial solutions will likely have a significant impact on the ability of the MTA and others to collect out of state tolls.

The CDM Smith Study commissioned and managed by the MTA also assumed a slight increase in Open Road Toll (ORT) violations at the York Toll Plaza - citing no observed increase in violations at the New Gloucester Toll Plaza since introduction of ORT as justification for this. However, though not routinely reported for several reasons, toll authorities throughout North America have been wrestling with escalating ORT violations. In addition, E-ZPass lane violations are not limited to just open road lanes in ORT operations. For example, the E-ZPass lanes on the Pennsylvania Turnpike (gate-free lanes in the toll plazas) have been subject to such fraud and abuse that:

> *"When the Pennsylvania Turnpike's fiscal year ended in May <2015>, there were $33.3 million still outstanding in unpaid tolls."*[xxi]

Therefore, for this study to assume only modest violations in ORT lanes at the York Toll Plaza is overly optimistic and biases the results against AET.

In response to the MTA's initial submittal, the ACOE also asked the MTA to:

3) provide a technical response to York's recommendation to carry the AET option forward into Phase II of the Highway Methodology process that addresses: [xxii]

a) how losses in toll revenue under the AET toll option might be mitigated
b) how revenue risks can be reduced to a practicable level, and
c) the availability and practicability of "innovative enforcement programs".

The MTA has yet to appropriately respond to these requests.

The ACOE also asked the MTA to

4) provide a technical response to the Whippoorwill Home Owners Association's (WHOA): [xxiii]

"compelling arguments that AET is in fact, economically practicable, particularly if the high costs of new toll plaza construction, long-term maintenance costs of a new toll plaza, and employee salaries are eliminated. Equally compelling is their position that the AET would meet the majority of project goals."

The MTA has yet to appropriately respond to this request.

The ACOE also asked the MTA to:

5) *"consider an AET option but with a design that enabled conversion/expansion in the event that "leakage" could not be addressed or exceeded acceptable thresholds."* [xxiv]

The MTA has yet to appropriately respond to this request.

2.3 MTA's Response to ACOE Requests - A Quick Summary

Of the ACOE requests (above) in response to MTA's initial submittal:

#1) and #2) were given only cursory review; [xxv]
#3 a), b) and c) do not appear to have been addressed;
#4) was not given adequate consideration in the study commissioned by the MTA; [xxvi] and,
#5) was dismissed though no defensive reason was presented. [xxvii]

On March 18, 2014 the MTA released the results of a CDM Smith study[xxviii] it had commissioned to conduct an independent assessment of conversion to ORT versus pilot AET operations at the York and the Gardiner toll plazas on the Maine Turnpike. CDM Smith developed a detailed model to analyze the potential net revenue impacts of both AET and ORT at each toll plaza. That effort included a waterfall algorithm to estimate revenue recovery rates at different stages in the process and a detailed sensitivity analyses of the impacts of variations in their major assumptions (e.g. the potential impacts of speculative AET pricing surcharges).

Primary objectives of this study commissioned by the MTA and major assumptions in the analyses resulted in the retention of significant bias against AET in the MTA's recent evaluation of alternative solutions for the York Toll Plaza. For example, the MTA study never considered full deployment of AET:

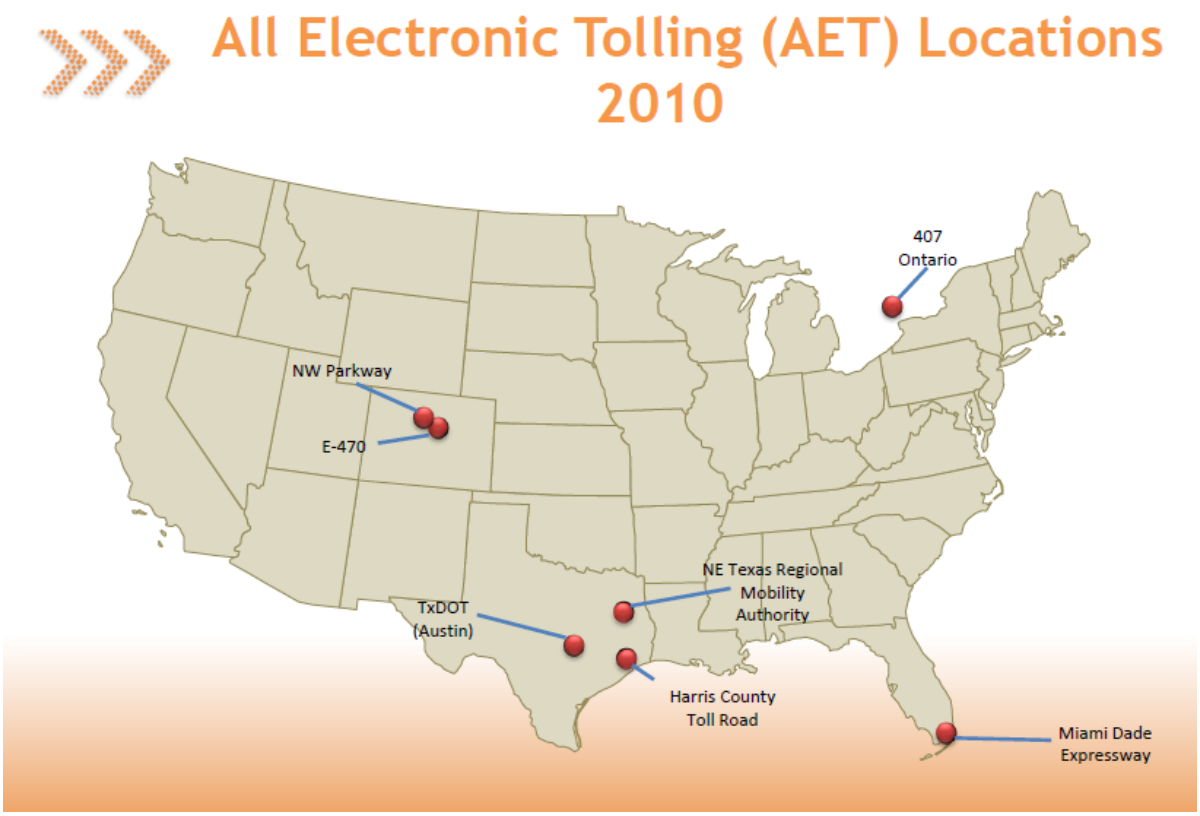
"The Maine Turnpike Authority may ultimately consider all electronic tolling on the full system in the future, but this analysis only addressed the potential pilot implementation of AET or ORT at the York and/or Gardiner facilities." [xxix]

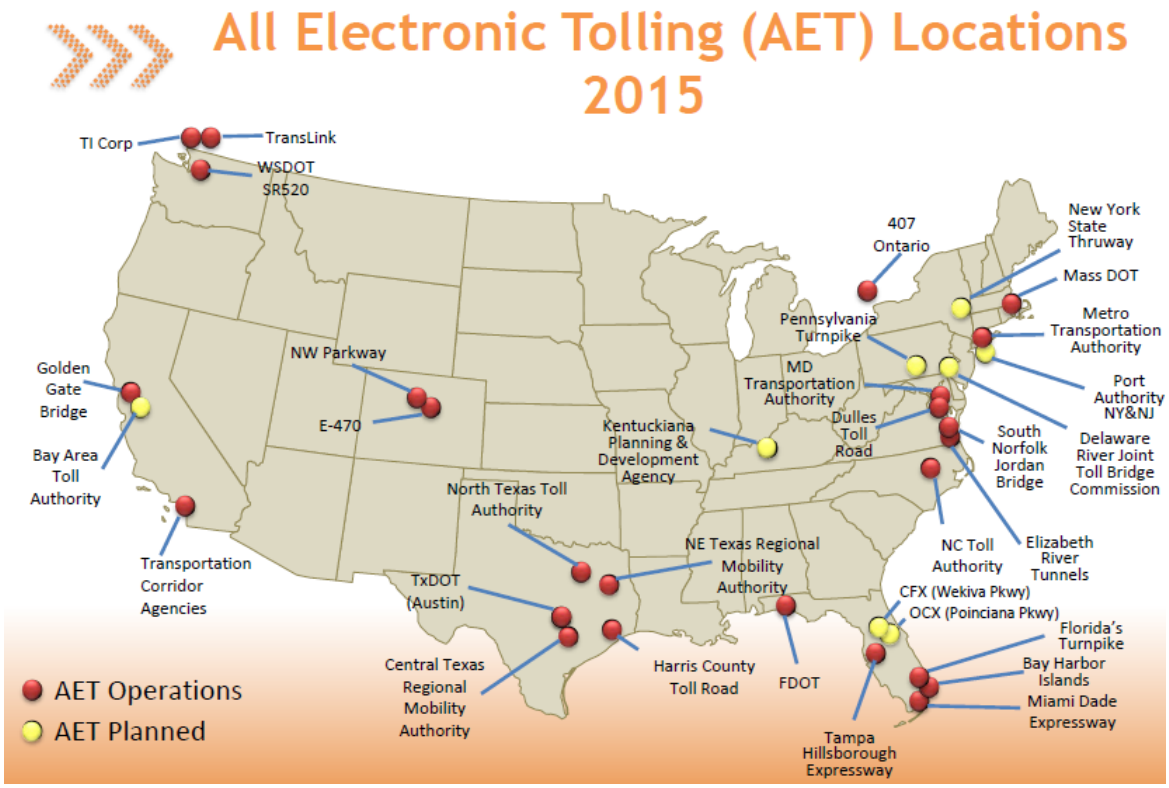
Therefore, under the direction of the MTA, the CDM Smith study only evaluated the benefits of an AET pilot program at two of the 18 (eighteen) toll plazas operated by the MTA. This resulted in many of the costs associated with the ORT option and benefits of the AET option being overlooked. (The impacts of how this assumption biased the MTA's analyses are explained in further detail in the summary of Safety and Financial Analyses below.) Therefore, the results of this study[xxx] are subject to many of the same limitations as the MTA's previous alternative evaluation efforts that were biased against AET. [xxxi]

Further, on July 23, 2015 the MTA released the results of a Jacob's Engineering study to review the safety and environmental impacts of five alternative solutions for the York Toll Plaza.[xxxii] However, under the direction of the MTA, an AET option was not considered for the York Toll Plaza in these analyses. Therefore, the significant environmental and safety benefits of AET were not considered; and, as a result, all electronic tolling (AET), a technology successfully introduced on the *Highway 407 ETR* in Toronto, Ontario, in 1997, and successfully implemented at dozens of toll facilities throughout the world since then, has been overlooked in the final options for the York Toll Plaza to be reviewed in detail.

2.4 The MTA Dismissed AET - the Most Viable Option for the York Toll Plaza

Twenty five toll authorities are currently operating AET successfully in the U.S. and Canada, and several more authorities are planning for the implementation of AET in the near future. There are also several AET operations in South America (Chile, Brazil), Europe , Scandinavia, Japan and Australia, and AET has been recently deployed in the Caribbean and South Africa. Many of these operations have been operating AET successfully for over a decade. These AET operations also span a wide variety of operating conditions, from deploying AET on green-field facilities where the initial transponder penetration was in the low teens when toll collection started (e.g. H407 ETR in Toronto), to successfully collecting tolls from large percentages of vehicles from outside of the country including several operations in Europe.





Source: Central Florida Expressway Authority, February 2016

The Central Florida Expressway Authority, which serves large volumes of out of state travelers, recently studied AET deployments throughout the U.S. and Canada and elected to move forward with AET deployment because AET.[xxxiii]

a) greatly reduces the environmental impacts of toll collection

b) reduces capital, operations and maintenance costs

c) requires less right-of-way

d) offers increased traffic throughput,

e) eliminates the safety issues with toll plazas, and

f) leads to less driver confusion.

Nevertheless, the MTA has dismissed AET again even though the AET option for the York Toll Plaza:

a) has essentially no environmental impacts (AET actually enables reclamation of several acres of wetlands resulting in a net environmental gain),

b) eliminates the safety risks (and costs of crashes) of collecting cash tolls at the roadside,

c) is the better option financially (once all anticipated capital and operating costs and net revenue are considered in a life-cycle cost analysis),

d) avoids the congestion (and its commensurate environmental impacts) associated with collecting cash tolls at the roadside, and

e) provides those using the Turnpike with a level of service significantly better than other options.

According to the ACOE:

"An alternative can only be dismissed if it is not available, not practicable (after considering cost, logistics, and available technology), or more environmentally damaging." [xxxiv]

Since AET is clearly available, the MTA has not demonstrated that AET is not practicable, considering costs, logistics and available technology, and the AET option offers a net positive environmental impact, the AET option should not have been dismissed.

3.0 Environmental, Safety and Financial Issues Not Properly Addressed in MTA's Analyses

Several environmental impacts have been identified with the hybrid toll plaza proposed for Mile Marker 8.8 (refer to summary above), not the least of which is possible intrusion on nearby homes (noise, light and groundwater impacts). The AET solution for upgrade of the York Toll Plaza imposes none of these impacts on the community. Additional details on the environmental and safety benefits of the AET option are presented below.

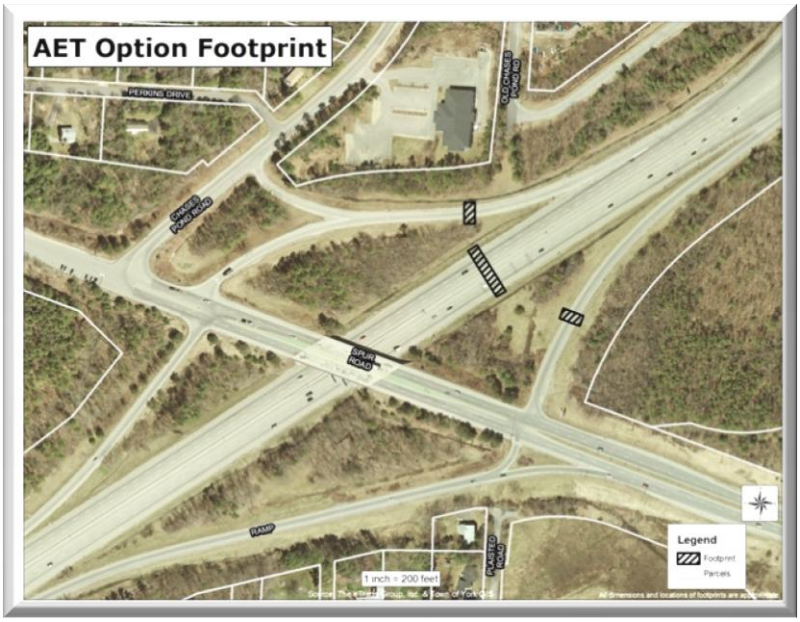
Residences Near Proposed Location of Relocated York Toll Plaza



Source: Town of York Maine

3.1 Environmental Benefits of an AET Solution for the York Toll Plaza

An AET toll gateway has been proposed immediately North of the Connector at MM 6.7.



All Electronic Tolling Footprint at Mile Marker 6.7 is the Best Solution from an Environmental Perspective [xxxv]

The net aquatic and wetlands environmental impacts of an AET toll gateway at this location are positive.

An AET toll gateway at this location allows the reclamation of several acres of wetlands once the existing toll plaza footprint outside of the mainline R/W can be abandoned - without transferring the environmental problems at the existing toll plaza to a new location such as the pristine environment that currently exists at MM 8.8.

An AET toll gateway at MM 6.7 avoids negative impacts to housing.

The AET option eliminates the need to spread additional salt on the roadway at the toll gateway during inclement cold weather to improve the safety of both vehicles and pedestrians at a barrier toll plaza. The impacts of oil, brake, radiator fluid and other contaminates that, like salt, can leach into the groundwater are also minimized by the AET option because vehicles are not required to stop to pay a toll. Since many of the homes along the MTA corridor in this area are served by groundwater wells, this is a significant environmental benefit of the AET option. Though the recommended location for the new York Toll Plaza at MM 8.8 is not expected to displace existing residences, homes in the area could be significantly impacted by other

environmental impacts such as noise, vehicle emissions and light intrusion should a new hybrid toll plaza be built at that location.

By negating the need to stop and queue vehicles on the corridor, the AET option avoids the heavy vehicle braking and acceleration noise and increased vehicle missions associated with imposing a stop and go environment on through traffic. The AET option also offers a commensurate reduction in fuel consumption for roadway users. Also, unlike the recommended hybrid toll plaza at MM 8.8, the AET solution at MM 6.7 would not impose visual blight on the corridor, or introduce additional impacts from vehicular noise and emissions. Further, although nighttime lighting would be required at the AET toll gateway, the impacts of this lighting on housing along the MTA corridor at MM 6.7 would be significantly less than the impact of lighting for an ORT and cash toll plaza at MM 8.8 since the interchange immediately south of the proposed AET toll gateway at MM 6.7 is already artificially lit.

3.2 Safety Benefits of an AET Solution for the York Toll Plaza

An AET toll gateway immediately North of the Connector at Mile Marker 6.7 is the best solution from a safety perspective.

The MTA and its advisors repeatedly identify safety as a primary concern in their alternative evaluations for the York Toll Plaza, including providing comparative safety issues between options being investigated. However, the AET option was inappropriately dismissed early in the original analysis (July 2006), [xxxvi] and eliminated from the list of viable options by the MTA during its recent review. Therefore, the significant safety benefits of the AET option have not been given adequate consideration.

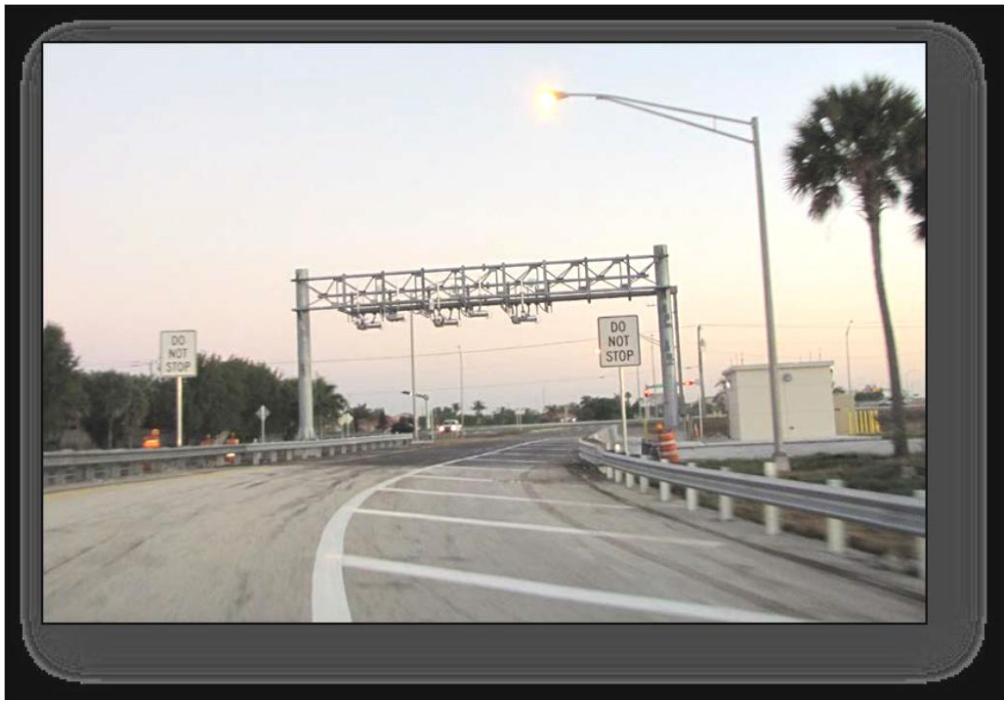
The York Toll Plaza is currently identified as a High Crash Location (HCL) by the Maine DOT.[xxxvii] A summary of Jacob's efforts to review crash data on the Turnpike identifies possible roadway alignment or other geometric issues that could be problematic for location of a toll plaza.[xxxviii] However, no estimates appear to have been made regarding the possible increase in crashes that will occur from introducing a toll plaza at the alternative locations investigated. Cash toll collection at the roadside requires placement of a physical barrier across the roadway to stop vehicles paying the toll. Therefore, the ORT solution proposed by the MTA introduces several major conflicts into the traffic flow. In addition to the physical barriers - the toll booths and safety appurtenances around them, the ORT solution requires vehicles to merge from traffic, slow, get in queue with other vehicles, stop to pay the toll, then accelerate and safely merge back into traffic as they approach mainline speeds. In addition, though a tunnel under the toll plaza can help reduce pedestrian safety issues, pedestrian traffic within the immediate confines of the toll plaza will invariably occur and introduce additional conflict.

Introducing a toll plaza to a mainline corridor creates an inherently dangerous situation where one may not have existed - a phenomenon that is well documented in the literature.

Relocating an ORT solution for the York Toll Plaza to a "safer" location only relocates the inherent problems associated with the toll plaza environment to the new location.

A hybrid solution like that being proposed (ORT and cash toll collection) reduces the safety issues somewhat. However, the fact that a barrier toll plaza is proposed where a significant portion of mainline traffic will be required to merge from traffic, successfully navigate through the toll plaza, pay the toll, then merge back with mainline traffic, will cause accidents.

The AET option for the York Toll Plaza reintroduces free-flow traffic operations on the Maine Turnpike at this location and avoids all of the safety issues associated with a toll plaza in their entirety.



Source: Central Florida Expressway Authority, February 2016

A recent study funded by SAFER-SIM and the Florida Department of Transportation (FDOT) evaluated the safety effectiveness of converting from traditional mainline toll plazas (TMTP) and Hybrid Mainline Toll Plazas (HMTP) to All-Electronic Toll (AET) collection.[xxxix] (Attached) Before and after data were collected from one hundred mainline toll plazas on more than 750 miles of toll roads in Florida. The data indicate that converting from a TMTP to an AET operation resulted in an average reductions of 77, 76, and 67 percent for total, fatal-and-injury

and Property Damage Only (PDO) crashes, respectively. The safety benefits of converting from a HMTP to an AET operation resulted in reductions of 23, 29 and 19 percent for total, fatal-and-injury, and PDO crashes respectively. [xl] The results of this work demonstrate that converting to an AET operation significantly improves traffic safety for all crash categories, especially, fatalities. Such conversions also change tolling points from amongst the highest risk locations on expressways to posing safety risks associated with routine expressway segments.

The significance of the risk of fatalities at conventional barrier toll plazas is exemplified by the fact that there have been several fatal crashes at toll plazas in the region in recent years. These include two fatal crashes at the Hampton Toll Plaza on I-95 in New Hampshire, which is essentially an extension of the Maine Turnpike. Two fatal crashes have also occurred at toll plazas in Massachusetts and New Jersey.

I-95 (New Hampshire)	**Hampton Toll Plaza**	**October 2010**
I-95 (New Hampshire)	**Hampton Toll Plaza**	**May 2015**
New Hampshire Turnpike	**Merrimack Toll Plaza**	**August 2015**
Massachusetts Turnpike	**Auburn Toll Plaza**	**July 2015**
Garden State Parkway	**Paramus Toll Plaza**	**October 2015**
Atlantic City Expressway	**Egg Harbor Toll Plaza**	**November 2015**

Note that five of these fatal crashes were within the last year!

Further, although there were no fatalities, in March 2016 six people were injured when a vehicle struck two toll booths at the Newark Toll Plaza on I-95 in Delaware, and four people were injured when a car failed to stop at the Delaware Toll Plaza just outside of Newark.

Crashes involving personal injury are far more frequent and can be catastrophic. Though not a fatal crash, the following video of a tractor trailer crashing through a Dover Toll Booth on the Spaulding Turnpike in May 2015 demonstrates the major risks of collecting cash at the roadside.

https://www.youtube.com/watch?v=pE_83KbHp7g

Treacherous winter driving conditions that frequent this region greatly increase the risk of a serious incident at this location. The fact that a significant share of the motorists using the York Toll Plaza are from out of State, many of whom are unfamiliar with the area and the Toll Plaza , further increases the likelihood of a major incident at this location.

As long as a physical barrier is used to collect tolls at the York Toll Plaza,
a major vehicular crash (whether it is at its current location or a new location)
is not a matter of IF, but WHEN.

Estimates of the costs of all such crashes should be included in the life-cycle cost analyses conducted for the alternatives analyses reviewing options for the York Toll Plaza. As with other costs of AET conversion, these costs should be estimated on a systems-wide basis.

Thefts at roadside toll collection points are a safety issue that also appear to have been overlooked by the MTA.

Theft at roadside toll collection points pose significant risk to MTA personnel and the public - exemplified by two recent robberies at toll plazas in the North East. On Sunday afternoon, January 10, 2016, at an East Orange tollbooth on the Parkway. The perpetrator

> *"leaned into the tollbooth, pushed the attendant out of the way and took money from the drawer before he drove away,"* [xli]

Though revenue loss from this incident was likely limited by cash drawer management policies established by the authority, collecting cash at the roadside poses a significant risk to life and limb for both MTA personnel and the public at large during such robberies. These events exemplify the risks of armed robbery where cash is collected at the roadside - a risk that can be more effectively managed in a customer service center environment through the implementation of AET.

3.3 Shortfalls in the MTA's Financial Analyses

Good industry practice suggests that a financial analyses of alternative options for a project of this magnitude (refurbishing or relocating the York Toll Plaza) consist of a review of the life-cycle costs of the most-likely operating scenario for each option being considered, as well as a sensitivity analysis of the possible impact on the results of variations in major assumptions. However, the MTA's financial analysis falls significantly short of expectations.

Structurally, there are three significant oversights in the financial analyses of the AET option:

a) Estimates were developed of retained revenue (vs. life-cycle costs that consider net revenue). The MTA commissioned study also appeared to focus on a worst case (assuming estimated worst case conditions) instead of estimating the results of the most likely scenario. This appears to have included assuming that significant revenue losses and diverted traffic would be sustained throughout the 10 year study period instead of the most likely scenario. This suggests that MTA management would do nothing to manage toll operations to improve revenue collections, reduce violation activity and minimize diversion over time. One has to assume that this would not be the case.

b) The study commissioned by the MTA only considered deployment of a pilot AET toll operation at the York and Gardner toll plazas. The remainder of the MTA operation was assumed to operate "as is", which is mostly in conventional (cash) toll collection mode. Therefore, cost savings from AET operations at the 16 (sixteen) remaining toll plazas on the Turnpike - locations not affected by out-of-state traffic and the challenges associated with collecting these tolls as the York Toll Plaza location - were not considered.

When analyzing AET, economies of scale must also be considered. Amortizing the fixed costs of back office operations of AET over all 18 locations is a key component of the total cost savings. As part of their AET conversion plan, the Massachusetts Department of Transportation will be computerizing the reading and, upon conversion, invoicing all cash users throughout their system. Each license plate becomes an account that can be invoiced on a scheduled basis. Because the single largest group of cash payers on the Maine Turnpike are Mainers, it is easier to enforce the collection of non-cash tolls on these customers.

c) The study commissioned by the MTA only considered a 10 year study period. Since the analysis compared the AET option with a hybrid toll plaza offering ORT and conventional cash toll collection, [xlii] limiting the study to only 10 years did not require consideration of the significant costs of maintaining the conventional toll operation facilities in the out-years, as well as the salaries of the staff required to sustain conventional toll operations at the roadside on a 24/7 basis - nor did it consider the significant cost savings that would be realized by AET during this period. Some of the greatest savings in labor expenses can be achieved by converting to AET at the less traveled toll plazas because all 18 locations are currently manned 24 hours per day, 7 days a week in both directions.

These structural anomalies are significant and bias the results of this evaluation effort against AET. A number of other anomalies also bias the results of these analyses against AET. The more significant of these include:

a) Estimates of the more significant benefits of converting to an AET operation (including significant enhancements in both environmental and safety conditions) are not considered in the financial analyses.

b) AET toll surcharges and fees assumed are inconsistent (higher) than those typically encountered on AET operations, and the reasons for establishing these surcharges are inconsistent with Good Industry Practice for pricing AET operations. [xliii]

c) HNTB's estimate for the capital costs of ORT conversion at the existing toll plaza ($36.0 million) was used. [xliv] However, Jacobs' recent report (16 Nov 2015) estimates relocation costs to MM 8.8 at $40.8 million. [xlv] The cost analyses should be updated to include current estimates of costs associated with providing ORT at the recommended York Toll Plaza relocation site.

d) Traffic diversion estimates are based on surcharges significantly greater than those likely to occur - and it appears that these traffic diversion estimates are assumed to occur through the entire ten year financial analysis. Should such levels of traffic diversions occur, especially over an extended period of time, action would certainly be taken to effectively reduce these diversions.

e) Toll revenue shrinkage in cash toll operations do not appear to have been adequately considered in the financial analyses. Revenue leakage in cash toll operations is typically significant and admittedly a problem at the MTA based on observed reduced *"run-through violation rates"* at the New Gloucester Toll Plaza after violation enforcement systems were installed in the conventional lanes. [xlvi] Run-through violation rates are just one of many sources of "leakage" (revenue losses) in cash toll lanes - all which should have been addressed in the MTA's alternatives analyses.

f) The business rules for ORT operations associated with license plate tolling and violations enforcement were assumed to be significantly different than those assumed for AET operations. However, the business rules for managing these issues in both operations need to be similar to sustain viability of toll operations in each mode over the long-term.

4.0 Summary

The proper review and evaluation of options for the York Toll Plaza requires an investigative effort that responds to observations and requests of the ACOE, and includes an unbiased review and consideration of all options, issues and risks so that a prudent and responsible decision can be made. This measure of care and responsibility, commonly referred to as due diligence, is especially critical when public expenditures and safety risks as significant as those encountered at conventional mainline barrier toll plazas are being considered. Conducting such a review requires a thorough assessment of all aspects of the project, environmental, technical, financial and socio-political, to ensure that the best decision is made.

From an environmental perspective, an unbiased review clearly denotes the benefits of AET when compared to the MTA's preferred option. (A summary of anticipated environmental and other impacts for both options is provided below.) Of particular note is the fact that the AET option (even if implemented system-wide) requires no additional right-of-way beyond the existing footprint of the Maine Turnpike - versus projected right-of-way impacts of relocating just the existing York Toll Plaza at MM 8.8 of 0.3 acres (an estimate that is misleading because it does not include land already purchased by the MTA, or land that may be required to build an access road to the new administration building).

In fact, in addition to offering NO additional environment damage, NO vehicles stopping and creating pollution, and less heavy salting, the AET solution enables reclamation of several acres of wetlands that have been damaged. The environmental footprint of the Maine Turnpike also becomes significantly smaller when AET is implemented throughout the entire system.

The MTA's analysis of options for this project does not adequately consider some critical issues, while giving inappropriate credence to others. This has resulted in the MTA offering a short-list of options for public review and comment that do not pass the scrutiny of an independent assessment. The MTA's review of alternatives for the York Toll Plaza is based on faulty logic and reasoning. A more thorough and current review of the facts is necessary to ensure that an appropriate decision is made on the best way to resolve the York Toll Plaza relocation issue.

Anticipated Environmental and Other Impacts
at York Toll Plaza for
MTA Recommended Option vs. All Electronic Tolling (AET)

Estimated Impacts \ Option	ORT/Cash@ MM 8.8	AET @ MM 6.7
NRCS Wetland (Ac)	1.0[1]	0
Stream (ft)	80[1]	0
Vernal Pools	2[1]	0
FEMA Flood Plain (Ac)	0.3[1]	0
Threatened/Endangered Species Habitat	3[1]	0
Right-of-Way	0.3[1,3]	0
Net Environmental Gain	No	Yes
Meets Engineering Requirements	Some[1]	Yes
Safety (Toll collectors and public)	Poor	Best
Satisfies Purpose & Need	Marginally	Best
Customer Service	Poor	Best
Estimated Construction $	$ 40.8 M[2]	$ 3.8 M[2]
Life-cycle Costs/Retained Revenue	Poor	Best

Acceptability: Best Marginal Worst

1) *"Southern Toll Plaza, Technical Memorandum on Alternatives Analysis (draft)",* Jacobs Engineering, Evaluation Matrix, July 23, 2015.
2) *"Maine Turnpike ORT/AET Analysis (Final Draft)",* CDM Smith, March 18, 2014, pg. ES-3.
3) Potential Right-of-Way Impacts includes only land that would need to be acquired and used as a right-of-way for the new toll facility. Land already purchased by the MTA and land that may be required to build an access road to the new administration building is not included in this estimate.

References

[i] *"Maine Turnpike Southern Toll Plaza Replacement Study, Draft – Phase I Report",* for submittal to the U.S. Army Corps of Engineers, HNTB Corporation, November 5, 2009.
[ii] Additional Information Required, Application # NAE-2007-01211, Maine Turnpike Authority, Attachment to letter from Jay Clement (ACOE) to Conrad Welzel (MTA), May 5, 2010.
[iii] IBID, Part 1, Existing Conditions, Section b.
[iv] IBID, Part 2, Existing Site Evaluation, Section 2.c.
[v] IBID, Part 2, Existing Site Evaluation, Section 2.d. (1)
[vi] *"Maine Turnpike ORT/AET Impact Analysis (Final Draft)",* CDM Smith, March 18, 2014, pg. ES-1.
[vii] IBID, pg. 1.
[viii] IBID, pg. ES-4.
[ix] IBID., pg. ES-4.
[x] IBID, pg. ES-4.
[xi] IBID., pg. ES-2.
[xii] IBID. pg. ES-2.
[xiii] IBID. pg. 3.
[xiv] *"Southern Toll Plaza, Technical Memorandum on Alternatives Analysis (draft)",* Jacobs Engineering Group, July 23, 2015
[xv] Additional Information Required, Application # NAE-2007-01211, Maine Turnpike Authority, Attachment to letter from Jay Clement (ACOE) to Conrad Welzel (MTA), May 5, 2010.
[xvi] IBID, Part 1, Existing Conditions, Section b.
[xvii] IBID, Part 2, Existing Site Evaluation, Section 2.c.
[xviii] IBID, Part 2, Existing Site Evaluation, Section 2.d. (1)
[xix] IBID, Part 2, Existing Site Evaluation, Section 2.d. (3)
[xx] IBID, Part 2, Existing Site Evaluation, Section 2.e.
[xxi] *"Investigation: Hundreds Don't Pay Turnpike Tolls Each Day",* CBS Pittsburgh, November 2, 2015.
[xxiixxii] IBID, Town of York Submittal.
[xxiii] IBID. WHOA Submittal.
[xxiv] IBID, Part 2, Existing Site Evaluation, Section 2.p.
[xxv] "*Practicability of All-Electronic Tolling at the York Toll Plaza*", Attachment 1, Final ACOE Response, MTA latest submittal to ACOE, September 1, 2015, pgs. 3-5.
[xxvi] IBID, pgs. 7-8.
[xxvii] IBID, pg. 5.
[xxviii] *"Maine Turnpike ORT/AET Impact Analysis (Final Draft)",* CDM Smith, March 18, 2014.
[xxix] IBID, pg 1..
[xxx] Op cit.
[xxxi] *"York Toll Plaza Upgrade Options, A Realistic Approach",* The eTrans Group, Inc., April 23, 2010.
[xxxii] *"Southern Toll Plaza, Technical Memorandum on Alternatives Analysis (draft)",* Jacobs Engineering Group, July 23, 2015
[xxxiii] Central Florida Expressway, February 2016.
[xxxiv] *"Additional Information Required, Application # NAE-2007-01211",* Maine Turnpike Authority, Attachment to letter from Jay Clement (ACOE) to Conrad Welzel (MTA), Part 2, Existing Site Evaluation, Section 2.b, May 5, 2010.
[xxxv] *"York Toll Plaza Upgrade Options, A Realistic Approac*h", The eTrans Group, Inc. April 23, 2010.
[xxxvi] IBID., pg. 9.
[xxxvii] *"Southern Toll Plaza, Technical Memorandum on Alternatives Analysis (draft*)", Jacobs Engineering Group, July 23, 2015, pg. 6.
[xxxviii] *"Southern Toll Plaza, Technical Memorandum on Alternatives Analysis (draft)",* Jacobs Engineering Group, July 23, 2015, , pgs. 5-6.
[xxxix] "*Safety Evaluation of All-Electronic Toll Collection System (TRB 15-2700)",* Muamer Abuzwidah and Mohamed Abdel-Aty, University of Central Florida, Orlando, Florida, 2015.
[xl] "IBID.

[xli] NJ.com, January 15, 2016.
[xlii] *"Maine Turnpike ORT/AET Impact Analysis",* CDM Smith, March 18, 2014, pgs. ES 2-3.
[xliii] *"Dispelling the Myths: Toll and Fuel Tax Collection Costs in the 21st Century",* Fleming, etal, Policy Study No. 409, the Reason Foundation, November 2012, pgs 24 to 28.
[xliv] *"Maine Turnpike ORT/AET Impact Analysis",* CDM Smith, March 18, 2014, pgs. ES 2-3.
[xlv] *"Southern Toll Plaza, Technical Memorandum on Alternatives Analysis (draft)",* Jacobs Engineering Group, July 23, 2015, , pg. 15.
[xlvi] *"Maine Turnpike ORT/AET Impact Analysis",* CDM Smith, March 18, 2014, pg. 2.

CONTROL SHEET

PROJECT:	**York Toll Plaza Upgrade (Phase 2)**
DOCUMENT TITLE:	**Shortfalls in MTA's Response to the Army Corp of Engineers**
CLIENT CONTACT:	**Mr. Dean Lessard** **Director of Public Works** **Town of York** **186 York Street** **York, Main 03909** **(207) 363-1010**
ETRANS PROJECT #:	**P00141**
Release:	**1.1**
AUTHOR:	**Daryl S. Fleming**
SIGNATURE:	*Daryl S. Fleming* _____
Date:	**March 30, 2016**

APPENDIX 2J

EXISTING CONDITIONS, EXCERPT FROM HNTB PHASE 1 REPORT SUBMITTED MARCH 2010

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SECTION 3 - EXISTING CONDITIONS AT THE YORK TOLL PLAZA

The following is a detailed analysis of the existing conditions at the York Toll Plaza based on the investigation and report titled, Response to LD534, presented to the Maine Legislature‟s Joint Standing Committee on Transportation in February 2008 along with updates to some of these conditions.

It is noteworthy to begin this discussion by reiterating the following: the location of the existing York Toll Plaza was not selected by HNTB or the MTA, nor was its location based upon engineering criteria or Best Practices. Its location was primarily determined by political negotiations between state and federal transportation officials surrounding the construction of the Piscataqua River Bridge and the new section of highway connecting the bridge with the Maine Turnpike. Both HNTB and the MTA opposed the decision at the time. Knowledge of this history and its long-term consequences, with which we are now addressing, serve as a reminder as to why engineering and environmental Best Practices should factor heavily into long-term transportation investment decisions. Fortunately, the strengthening of the environmental permitting process over the last 40 years, in particular the USACE Highway Methodology, combined with the recent development of FHWA guidelines for toll plazas, requires a more deliberative and accountable decision-making process for today‟s significant capital projects. From an engineering perspective, the plaza was built with approximately a 25 year design life. Now 40 years old, the plaza is not only failing functionally, but also structurally. The age of the plaza, the outmoded conditions of the existing tollbooths, canopy, and tunnel, and the poor soil conditions all contribute to the overall poor condition and performance of the plaza. The proximity to the Exit 7 Interchange and roadway geometry that does not meet engineering standards, compromise staff and motorist safety, and further renders the existing facility inadequate. A summary of these deficiencies is presented. Details on the Standards and Best Practices, against which these conditions and/or deficiencies are evaluated, are presented in Part 2 – Existing Site Evaluation in the section on Design Guidelines.

1. Proximity to Interchange

The proximity of the Chase‟s Pond Road Interchange (Exit 7), located immediately south of the York Toll Plaza, introduces potentially unsafe and undesirable operational conditions due to excessive and forced traffic weaving and poor sight distance (Figure 1.1). The FHWA‟s recently published “State of the Practice and Recommendations on Traffic Control Strategies at Toll Plazas,” recommends a one (1) mile separation between toll plazas and interchanges. The location of the existing toll plaza does not meet this recommendation. Exit 7‟s southbound off-ramp is less than 1,000 feet from the plaza and the northbound on-ramp is less than 500 feet from the plaza. The close proximity of these interchange ramps to the plaza create unsafe traffic weaving, signing difficulty, and driver confusion for all travelers. Traffic weaving occurs, for example, when Exit 7 northbound traffic merges into mainline traffic and changes lanes to access one of the center lanes, while mainline truck traffic shifts to the right to access wide load and dedicated E-ZPass lanes. As described here, there is a very short distance for a driver to interpret conditions, make decisions, and take the appropriate action. Adding to driver confusion is the fact that typical highway sign spacing cannot be appropriately accommodated within this short distance. Sign spacing is therefore very compressed which requires drivers to interpret, decide, and act much quicker than is normally

required. As a result of these conditions there have been numerous crashes over the years. In fact, the MaineDOT has classified the York Toll Plaza as a High Crash Location (HCL) consistently for the past ten years. Recent data shows an excessive number of crashes occurring at the plaza in both the northbound and southbound directions. The most recent HCL data reporting period 2006-2008, continues to document this trend with an above average number of crashes occurring on the northbound length of the turnpike between Exit 7 and the plaza. Over the last four years the number of crashes occurring southbound between the plaza and Exit 7 has increased to a point where this length of turnpike is now also classified as a High Crash Location. The overall trend is that both the north and southbound lanes at the York Toll Plaza are High Crash Locations and continue to grow worse over time. More HCL data including MaineDOT‟s Crash Summary Report‟s can be found in Appendix G. Given these results, the existing plaza is in an undesirable location.



FIGURE 1.1 - Exit 7 Interchange Ramps South of York Toll Plaza

2. Sight Distance

Sight distance to the toll plaza is compromised by bridges, curves, and hills. The FHWA Guidelines recommend that toll plazas should be sited such that motorists will be able to see the plaza while driving at posted speeds with adequate stopping and decision sight distance. Bridges, curves, and hills negatively impact the sight distance. At the York Toll Plaza there are two crest vertical curves and a horizontal curve that limit decision sight distance to the plaza for southbound traffic; and the Chase‟s Pond Road Bridge limits these distances for northbound traffic. As noted earlier, limiting sight distance affects the decisions drivers make as well as forces them to make those decisions in a much quicker time. During high volume periods, less informed decisions can lead to poor operation and an increased risk of crashes. These and the following conditions make the current plaza location unsafe and undesirable.



FIGURE 1.2 - Northbound Sight Distance
Bridge and horizontal curve negatively impact sight distance.

3. Proximity to Overhead Structures - Bridges

The proximity of the plaza to the Chase"s Pond Road Bridge, being 2,200 feet from the existing plaza, limits the available sight distance as seen in Figure 1.2 above. Note, that the bridge pier, bridge deck (and beams) hide some of the plaza from view. Further, the bridge abutment hides the Exit 7 northbound on-ramp from view. The limited view caused by the bridge creates safety risks to motorists as well as operational concerns from hurried decision making. Desirably, there should be a 3,500 foot separation between the plaza and overhead structures such as bridges. A clear view of the toll plaza, including all available lanes allows drivers to make timely, informed decisions on speed and path. While the view of the toll plaza is only partially obstructed, the overall decision sight distance criteria is compromised from the blocked view of the interchange ramps (typically not an issue because they should be one mile away). The close proximity of this bridge is an undesirable characteristic of the existing toll plaza location.

4. Horizontal Geometry

The York Toll Plaza was built on a horizontal curve. The FHWA Guidelines state that a toll plaza should be located on a straight section of roadway and not on a horizontal curve. As detailed in the discussion of Sight Distance, the combination of the existing horizontal and vertical curves reduces the available sight distance to the plaza. Limiting sight distance in this way affects the lane choice decision a driver must make and forces the driver to make that decision in a much shorter period of time. This becomes critical in high volume periods when lane distribution plays a larger role in overall plaza capacity. The horizontal curve also reduces the ability of this location to support highway speed tolling. This will be discussed in more detail later in the report. The curved roadway also has an operational impact on the plaza, specifically in the southbound direction. Vehicles approaching southbound make a sweeping right turn approaching the plaza. This movement creates a tendency for southbound vehicles to

travel through toll lanes on the outside of the curve (interior of the plaza) and reduces utilization of the tollbooths on the inside of the curve. Traffic that is not uniformly distributed in the plaza reduces operational efficiency, with some lanes over-utilized and some underutilized. While a certain amount of non-uniform usage is common at plazas, the existing roadway curve exacerbates the skewed distribution and therefore results in an undesirable condition.

5. Vertical Geometry

The existing York Toll Plaza is located at the low point of a hill that begins just north of the plaza (Figure 1.3). The FHWA Guidelines recommend toll plazas be located at the crest of a vertical curve. Locating the plaza on a high point will increase sight distance and provide operational benefits, as the approach up-grade will aide in slowing vehicles and the departure down-grade will aide in accelerating vehicles. The existing vertical geometry presents undesirable conditions for traffic departing northbound and approaching southbound. The northbound impact is primarily operational in nature, since the roadway north of the plaza includes a significant grade of 4.72% that impacts acceleration for departing vehicles, particularly heavy acceleration and the associated noise from trucks. There is currently a truck climbing lane in this area to mitigate this condition. Noteworthy is the fact that this is the only climbing lane on the Maine Turnpike and is required because of the requirement of heavy vehicles to stop or slow at the base of the hill. The southbound approach represents a concern from a safety perspective since it is on the downgrade of 4.72%. This creates a condition where vehicles (especially trucks) must brake sooner to compensate for the downgrade in addition to the significant speed reduction required in the plaza area. While the Maine Turnpike has a rule prohibiting excessive noises, this condition also contributes to some truck drivers using noisy engine brakes to assist with the deceleration. An additional safety concern associated with this down grade is the potential for vehicles which have lost their brakes to strike the plaza. The existing plaza location, as it relates to hills, is in a poor location from an operational perspective as well as from a safety perspective.



FIGURE 1.3 - Southbound Sight Distance
Horizontal curve and down gradient are not desirable due to safety and operational concerns.

6. Toll Booths and Safety Bumpers

The original tollbooth structures were designed in the 1960s and are considered deficient by today‟s standards from a space, layout, protection, and systems perspective. The original design did not anticipate the need for additional equipment required by modern technology such as computers and ETC systems. The current booths have limited space for collector activities and become extremely crowded during peak periods when all lanes are open, requiring one booth to have two attendants serving both directions (Figure 1.4). Current toll islands are designed for these smaller booths and will not accommodate the larger, modern booths as installed at other locations on the Maine Turnpike. Existing heating systems are outdated, take-up more space than modern components, and only provide a minimum amount of comfort. Modern booths are assembled with the latest heating and ventilating systems to provide better comfort. For additional information on toll booths, safety bumpers, and other toll plaza components, refer to Appendix C, What is a Toll Plaza?



FIGURE 1.4 - York Toll Booth
Note, tight quarters for toll attendants when booth operated in both directions.

Current standards for toll booths incorporate a double concrete bumper to provide safety for the toll collector and to redirect an errant vehicle into its lane. The present bumpers are nearly non-existent as shown in Figure 1.5 compared to a newer bumper shown in Figure 1.6 on the following page. This is due to poor soil conditions in the area which is allowing these bumpers to settle. Soil settlement is discussed in more detail in Subsection 9 (Soil Conditions) of this section of the report.



FIGURE 1.5 - York Toll Booth, Single Bumper and Settled Island



FIGURE 1.6 - New Gloucester Toll Booth, Double Bumper and Raised Median

7. Tunnel

A narrow tunnel is located under the York Toll Plaza to serve as the main passageway for employees to safely access the toll booths and as a utility corridor to and from the individual booths. The tunnel is in poor condition and in need of rehabilitation. The tunnel is located in an area of high groundwater and experiences significant water infiltration. The tunnel ceiling has numerous cracks and utility penetrations which also allow for the infiltration of surface water into the tunnel. From a safety perspective, having water in the tunnel is undesirable due to the electrical and communication utilities present, as well as for the turnpike employees using the tunnel. Figure 1.7 illustrates water seepage and staining of the concrete in addition to the significant corrosion to the utilities. The majority of these utilities were added to accommodate electronic tolling.

These additions have reduced the passage width as well as increased the leaks and safety concerns.



FIGURE 1.7 - Conduit Penetrations in York Tunnel

Figure 1.8 illustrates the numerous utilities in the tunnel along with staining of the floor due to leaks in the tunnel. Many repairs have been completed in the tunnel to mitigate the water infiltration but it remains an ongoing maintenance concern.



FIGURE 1.8 - Numerous Conduit Runs in York Tunnel

Figure 1.9 demonstrates the narrow width of York‟s tunnel compared to the wider tunnel at the New Gloucester Toll Plaza shown in Figure 1.10. The extensive costs associated with a comprehensive tunnel repair are comparable to the costs for a new tunnel.



FIGURE 1.9 - York Tunnel
Note, leak stains and narrow passageway.



FIGURE 1.10 - New Gloucester Tunnel
Note, wide passageway.

8. Canopy

A canopy is located over the toll lanes as seen in Figure 1.11. The structural supports for the existing canopy are at capacity due to the signage that has been placed on the structure over time. Typically the placement of electronic variable messages signs on the canopy allows staff to change messages such as "Any Vehicle", "E-ZPass", and "Lane Closed". However, the installation of these larger and heavier signs is not feasible due the condition of the existing canopy.



FIGURE 1.11 - Canopy and Signs at York Plaza

9. Soil Conditions

The existing plaza was built in an area with poor subsurface soil conditions, mainly consisting of compressible clay. With this site condition recognized in the design, the plaza tunnel, booths, and canopy were constructed on foundation piers to prevent settlement of the entire structure due to consolidation of the clay soils. However, the roadway approaches to the plaza were not pier-supported. As a result, the approaches have and continue to settle as the clay soil consolidates. In an effort to mitigate the ongoing settlement of the roadway approaches, pavement overlays and shim courses have been added routinely thus minimizing the steep approach grade to the plaza. Even with the pavement shimming work, the plaza has a noticeable slope approaching and leaving the plaza, with the roadways settling away from the pier-supported plaza. This can be seen in Figure 1.12 and depicted in Figure 1.13 Settlement Schematic. This approach settlement has created a range of adverse conditions, from low bed tractor trailers striking the concrete slab (See Figure 1.13) to excessive settlement of the approach slabs and concrete safety bumpers (shown in Figures 1.5 and 1.6). Low bed tractor-trailers that strike the concrete roadway slab with their trailer bottoms often get stuck and increase potential for vehicle accidents, and settlement of the approach slab and concrete bumpers reduces the ability of the bumpers to absorb vehicle collisions increasing risk to toll plaza staff and patrons. Both conditions result in safety concerns.



FIGURE 1.12 - Settlement of Approach Slab
Note, abrupt rise at plaza.

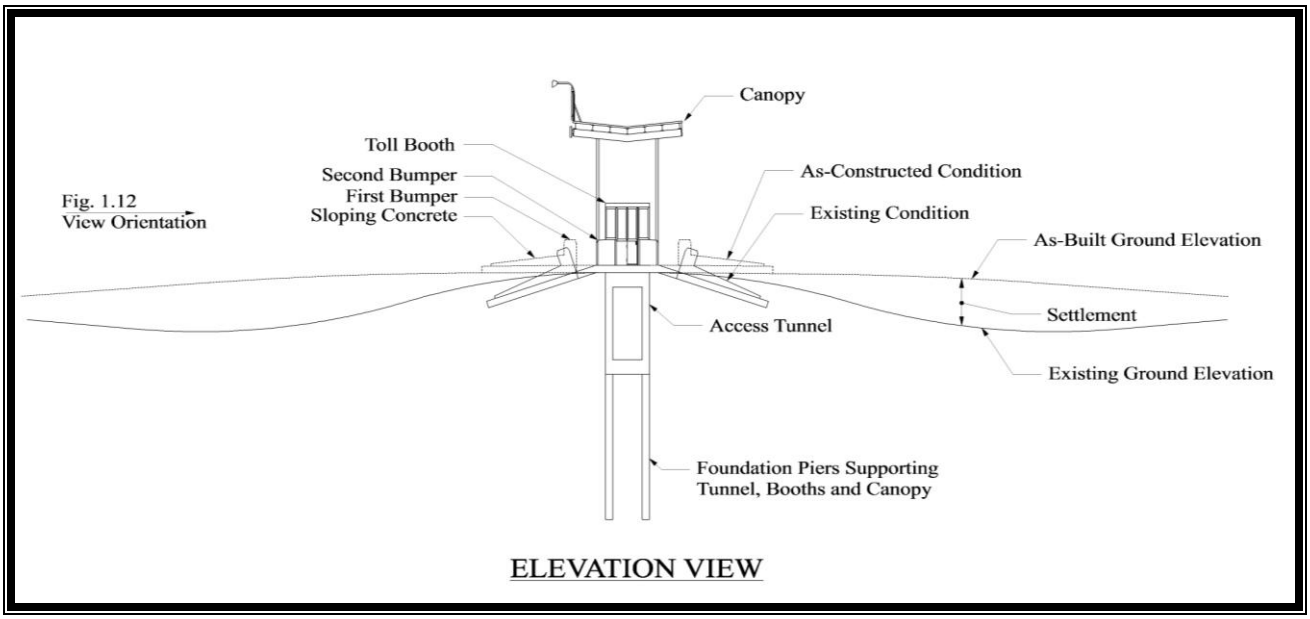

FIGURE 1.13 - Settlement Schematic



FIGURE 1.14 - Damaged Concrete Slab at Plaza

10. Summary of Existing Conditions

In summary, the existing plaza - considering both infrastructure and location - is functionally obsolete. The facility is nearly 40 years old and not conducive to safe operation with today‟s traffic volumes and speeds. With respect to the FHWA‟s current Design Guidelines and Best Practices, the plaza‟s layout and location are non-conforming to many standards. The plaza is too close to an interchange; located on a curve, which does not provide adequate sight distance from the north or south; and, is too close to the Chase‟s Pond Road bridge, further limiting decision sight distance. In combination, these deficiencies lead to the plaza being rated as the 11th highest crash location in the state.

The plaza is at the bottom of a hill requiring heavy acceleration noise and engine braking. In addition, the plaza is located in an area where excessive differential soil settlement is causing some low-bed tractor trailers to strike the concrete slab while paying tolls and often getting stuck on the slab. With respect to the plaza, the toll booths and lanes are too narrow; the canopy is reaching its structural carrying capacity; and, the employee access tunnel is narrow, leaking, and unsafe. All of these current deficiencies (which are expected to continue to worsen with time) impact the safety of turnpike staff and patrons, as well as increases overall operation and maintenance costs. Additional information on maintenance costs can be found in Appendix H, Renewal & Replacement – Maintenance Program.

Based on these findings, it is prudent to complete an evaluation of the existing site in the form of upgrade options addressing the multitude of physical and operational deficiencies. These upgrade options are presented in Part 2 of this report, Existing Site Evaluation. Similar evaluations of potential new plaza locations are presented in Part 3, Alternate Site Evaluation.

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APPENDIX 2K

TECHNICAL MEMORANDUM ON TOLL PLAZA LANE ANALYSIS BY JACOBS 10/13/15

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JACOBS®
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New York, NY 10121 U.S.A.
1.212.944.2000 Fax 1.212.302.4645

Technical Memorandum

Date: October 13, 2015

To: Maine Turnpike Authority

From: Rick Gobeille, P.E.

Subject: York Toll Plaza Replacement Project
Toll Plaza Lane Analysis

PURPOSE

This study was conducted to determine the number of toll lanes that would be required for the design of the York Toll Plaza Replacement Project. During the course of this analysis, considerations were made for a range of parameters, including multiple annual growth rates of traffic, a range of E-ZPass Transponder market shares and an analysis of lane needs during the construction phasing for the project. The toll plaza lane analysis provided in this technical memorandum was first presented to the Maine Turnpike Authority Board on December 18, 2014. This memorandum updates our analysis to include the last full year of data.

METHODOLGY

Jacobs developed a static spreadsheet-based model of the York Toll Plaza. The model utilizes the traffic data collected, toll transaction processing rates appropriate for the various methods of payment, designation of staffed lanes and open road toll lanes (ORT) and the effects queueing has on traffic.

We first requested detailed toll transactions for a full year from September 1, 2014 through August 31, 2015. Data was provided that segmented traffic by hour, by lane, by vehicle class and by method of payment. Our modeling considers traffic on a continuous 24 hour basis because queues occur over time. A queue resulting from one hour of very high traffic volume that exceeds capacity can recover quickly if subsequent hours have lower traffic volumes. Morning and afternoon rush hours are typical of this. Conversely, extended periods of traffic that exceed capacity by smaller amounts may generate significantly longer queues in both duration and length. Thanksgiving and major holiday weekends are examples of this.

With the adoption of E-ZPass, the key element in the sizing of toll facility lane requirements is the volume of cash-paying traffic. A plaza should be designed to accommodate periods of highest total, E-ZPass and cash paying traffic volumes. Highest cash-paying traffic volumes often occur during holiday and weekend peaks when the percentage of cash-paying traffic is highest. The Jacobs model addresses each of these conditions.

As presented to the Turnpike and agreed to, we utilized the 15th highest days for total traffic and cash paying traffic as the baseline threshold for establishing lane requirements. In the design year, there should be no significant queues for the 15th and each subsequent day for the balance of the year.

SUMMARY OF DATA COLLECTED

As part of the analysis, daily traffic volumes were ranked by total daily volume and total cash volume. As expected, the highest traffic volumes are clustered around the major holidays and summer weekends. High volume and high cash paying traffic days do not always align. Outside of those 20 to 25 highest volume and cash paying traffic days (with total traffic well above 35,000 vehicles per direction), total volumes quickly level off at levels between 15,000 and 35,000 vehicles per direction. Figures 1 and 2 show the E-ZPass and total volumes ranked highest to lowest by day for southbound and northbound traffic. Tables 1 and 2 list selected dates ranked for both total and cash paying traffic.

Figure 1

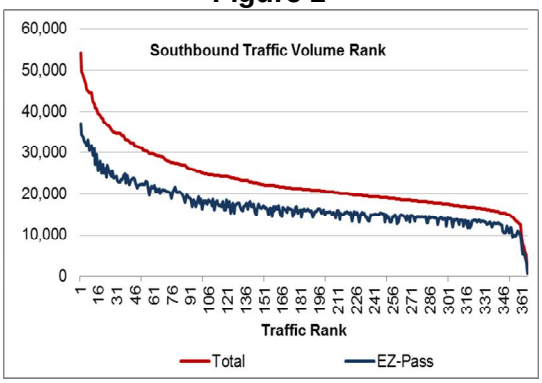


Figure 2

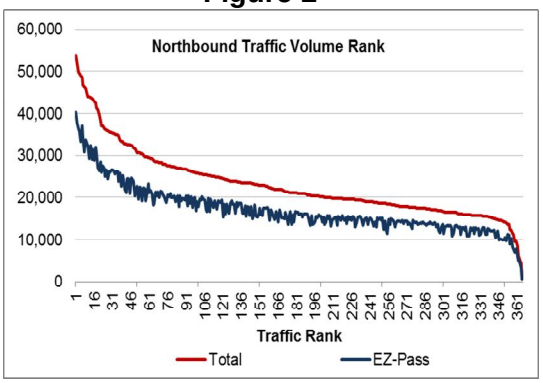


Table 1

Southbound Traffic Volume Ranks				
	Highest Total Traffic		Highest Cash Paying Day	
	Date	Total Volume	Date	Cash Volume
1st Highest Day	July 5, 2015	54,272	July 5, 2015	17,113
5th Highest Day	July 19, 2015	46,586	July 19, 2015	14,198
10th Highest Day	August 30, 2015	44,502	August 8, 2015	13,594
15th Highest Day	August 1, 2015	39,510	August 23, 2015	12,715
20th Highest Day	August 22, 2015	37,443	August 14, 2015	11,273

Table 2

Northbound Traffic Volume Ranks				
	Highest Total Traffic		Highest Cash Paying Day	
	Date	Total Volume	Date	Cash Volume
1st Highest Day	July 2, 2015	53,875	July 3, 2015	15,678
5th Highest Day	July 3, 2015	48,957	July 31, 2015	14,252
10th Highest Day	July 10, 2015	44,635	July 2, 2015	13,520
15th Highest Day	August 21, 2015	43,319	August 21, 2015	11,866
20th Highest Day	July 11, 2015	39,682	August 16, 2015	11,526

DESCRIPTION OF MODEL

Jacobs has modeled the York Toll Plaza utilizing our internally developed static toll plaza model. The model operates in two basic modes. The first mode works in an unconstrained manner and

is used to identify the number and type of lanes required for a toll plaza to have no vehicle queueing. The second mode constrains the number of toll plaza lanes and estimates the duration and length of vehicle queues for a specific volume and mix of approaching traffic.

The basic model utilizes traffic data that is segmented by time of day (hourly), vehicle type (car or truck), and the method of toll payment (cash and E-ZPass). Other primary inputs used by the model include lane type (staffed and E-ZPass), vehicle processing rates (staffed lane, E-ZPass ORT lane), and reduced processing rates for the various lane types when traffic becomes congested.
The model also considers annual growth of traffic and future changes in the mix of payment methods. For future estimating growth rates and payment method changes, traffic is further segmented into three periods (peak, off-peak and shoulder). The periods are used to better represent changes in E-ZPass rates and traffic volume growth rates. Table 3 represents the northbound hourly segmentation of traffic and the changes in method of payment forecasted for the 15th highest traffic day of the opening year (2018) of the analysis. Looking at the "E-ZPass Market Share" column differences in the percentage of E-ZPass by hour can easily be seen ranging over the 24 hour period from a minimum of 54.81 percent to a maximum of 78.25 percent for cars. For all vehicles, E-ZPass market share ranged from a low of 68.37 percent to a maximum of 82.91 percent in this analysis.

Table 3
Toll Plaza Model Hourly Traffic Segmentation
Opening Year, 15th Highest Traffic Day in Northbound Lanes

			Car Volume		Truck Volume		E-ZPass Market Share	
Time	**Time of Day**	**Weekly Volume**	**Staffed / Cash**	**E-ZPass**	**Staffed / Cash**	**E-ZPass**	**Car**	**Total**
12 am - 1 am	Off Peak	343	74	185	9	75	71.37%	75.79%
1 - 2	Off Peak	252	44	110	11	87	71.47%	78.19%
2 - 3	Off Peak	199	28	74	9	88	72.59%	81.41%
3 - 4	Off Peak	279	65	79	16	120	54.81%	71.00%
4 - 5	Off Peak	272	46	67	18	142	59.13%	76.47%
5 - 6	Off Peak	439	57	163	18	201	74.08%	82.91%
6 - 7	Off Peak	748	118	392	29	209	76.85%	80.33%
7 - 8	Off Peak	1,250	221	795	32	202	78.25%	79.75%
8 - 9	Off Peak	1,442	311	904	35	192	74.39%	76.00%
9 - 10	Off Peak	1,715	394	1,086	28	207	73.38%	75.39%
10 - 11	Shoulder	2,359	572	1,511	46	230	72.53%	73.80%
11 - 12 pm	Shoulder	2,921	745	1,875	44	257	71.55%	72.98%
12 pm - 1 pm	Shoulder	3,332	877	2,124	71	259	70.77%	71.54%
1 - 2	Shoulder	3,551	924	2,315	68	244	71.47%	72.05%
2 - 3	Peak	4,007	1,002	2,718	62	225	73.06%	73.44%
3 - 4	Peak	3,953	1,014	2,714	35	190	72.80%	73.46%
4 - 5	Shoulder	3,630	874	2,562	50	144	74.56%	74.54%
5 - 6	Shoulder	3,477	796	2,506	38	137	75.88%	76.01%
6 - 7	Shoulder	2,622	697	1,778	27	120	71.83%	72.38%

7 - 8	Shoulder	2,909	729	1,994	41	145	73.22%	73.52%
8 - 9	Shoulder	2,227	593	1,523	26	85	71.97%	72.19%
9 - 10	Off Peak	1,585	448	1,011	20	105	69.30%	70.46%
10 - 11	Off Peak	981	269	632	22	58	70.13%	70.33%
11 - 12 pm	Off Peak	661	200	378	9	74	65.36%	68.37%
Total		**45,155**	**11,102**	**29,494**	**764**	**3,795**	72.65%	73.72%

There are three other significant aspects of the toll plaza queuing model. All calculations for trucks are made using passenger car equivalents. For our analysis of the York Toll Plaza we considered single truck processing rates to be equivalent to the processing rate of two passenger vehicles. The model also is designed to address the restrictions on plaza throughput when queue lengths extend back to the main travel lanes of the divided highway. Based on the proposed plaza layouts, the model first limits vehicle processing rates when there was a total of approximately 4,000 linear feet of queue or about 114 vehicles, and then constrains processing rates at 8,000 linear feet or 228 vehicles. The model cumulatively addresses queueing. Any unprocessed traffic in the constrained model is added to the demand volume in the next hour. The model would then correctly forecast extended periods of vehicle demand exceeding capacity.

The outputs of the model will recommend lane type configurations for a number of configurations and time periods as well as queue lengths and durations when the configurations of the plaza lanes are specifically defined.

MODEL PARAMETERS

Several parameters in addition to traffic volumes were considered for the York Toll Plaza model in order to determine the number of required lanes. Many of these parameters are based on our professional judgement developed from our experience on these types of project nationwide. The following discusses those parameters.

Traffic Growth, The model included an analysis by hour for all 365 days. Traffic was grown annually through the design year 2043. In consultation with the Turnpike staff, our base analysis considered 1.4 percent annual traffic growth, a number consistent with that used by the Authority. We also ran a sensitivity case for 2 percent annual traffic growth through 2043. Growth rates higher than 2 percent were not considered. At those levels of growth for the design year 2043, traffic volumes would exceed the mainline capacity of the Turnpike.

Lane Types and Vehicle Processing Rates Two lane types were considered for the York Toll Plaza. First, cash toll lanes that would process cash and E-ZPass for both cars and commercial vehicles typically requiring vehicles to stop. Second, Open Road Toll lanes (ORT) that process E-ZPass transactions at normal highway speeds were considered. Vehicles in the cash lanes were processed at a rate of 325 vehicles per hour (VPH). Vehicles in the ORT lane were processed at a rate of 1,800 VPH.

Adjustments were made to address the longer transaction times of commercial vehicles and the effect of queuing restricting access to the ORT lanes. Commercial vehicles were converted to the equivalent of two passenger cars to represent the longer processing time for trucks. Large queues for cash paying customers may restrict traffics ability to reach the ORT lanes. In

consideration of the proposed geometry of the toll plazas we have modeled constraints on the ability of the plaza to process all traffic demand. When the total vehicle queue reaches 115 vehicles, the processing rate of the ORT lanes was reduced to 1,400 VPH; it was further reduced to 1,000 VPH when the total queue exceeded 230 vehicles.

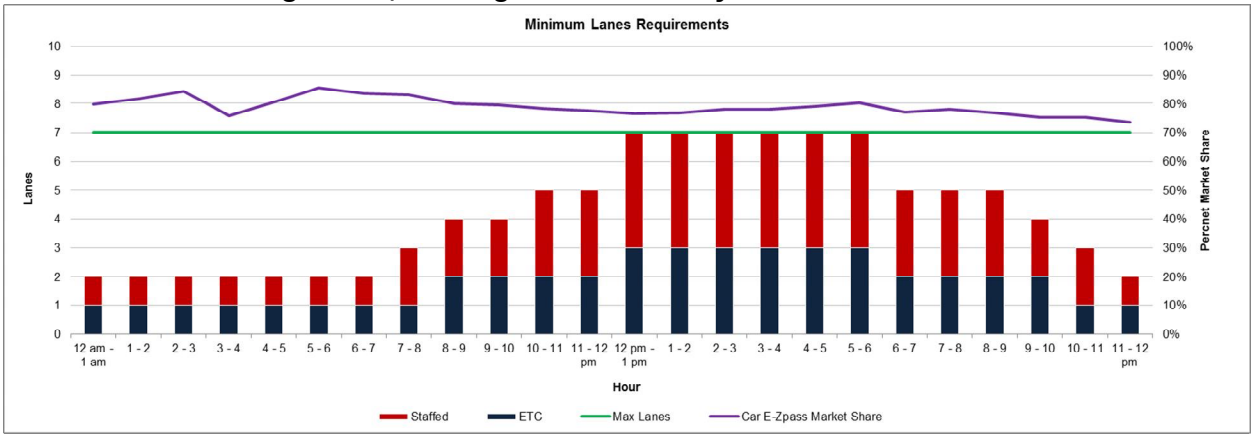
E-ZPass Market Shares The percentage of vehicles paying with E-ZPass is also a factor in determining the number of lanes required for the toll plaza. Most significantly, lower levels of E-ZPass result in higher volumes of cash paying traffic that results in higher numbers of cash lanes required. The percentage of traffic paying with E ZPass varies by time-of-day, day-of-week and month-of-year. Our model varies E-ZPass for every hour. For our base case analysis and experience, we estimated that E-ZPass transaction percentages would grow to average in the low 80 percentage range from today's low 70 percent range. Some days, and even some hours, would be higher and some lower. Typically, the highest percentage paying with E-ZPass occurs during peak commuting hours, with the lowest percentage occurring during holiday and vacation periods when there are large numbers of infrequent travelers.

Low and high sensitivity cases were run on E-ZPass market shares. For the low case it was assumed that the E-ZPass share of transactions would grow to an average in the mid 70 percent range. Conversely, the high range grew E-ZPass transaction shares to the mid 80 percent range. In our opinion, because of the mixed commuter / recreational nature of the Maine Turnpike, the base case in the low 80 percent range is the most likely to occur.

SAMPLE DAILY MODEL OUTPUT

Figure 3 graphically depicts the output from our model for northbound traffic on the 15th highest traffic day in the design year. This is the base case, with 4 cash lanes and 3 ORT lanes and E-ZPass market shares close to 80 percent. The blue bars depict the required number of ORT lanes and the red bars depict the required number of staffed lanes, all by hour.

Figure 3
Sample Constrained Toll Plaza Model Output
Design Year, 15th Highest Traffic Day in Northbound Lanes



BASE CASE ANALYSIS

Table 4 summarizes our base case recommendations for toll lanes in both southbound and northbound directions. (Note, the table shows results for the first highest traffic day.) It is important to note that there will continue to be some 15 to 20 days annually with traffic queues longer than one-hour in duration. These occur primarily during major holidays and summer weekends. There are expected to be de minimus queues for the remaining days throughout the design period for the base case assumptions of traffic growth and E-ZPass market share. These may be caused by an irregular arrival rate of traffic or other unique situations not associated with normal traffic operations. The required lanes for the full plaza are also shown graphically in Figure 4.

Figure 4
Northbound and Southbound Required Lanes

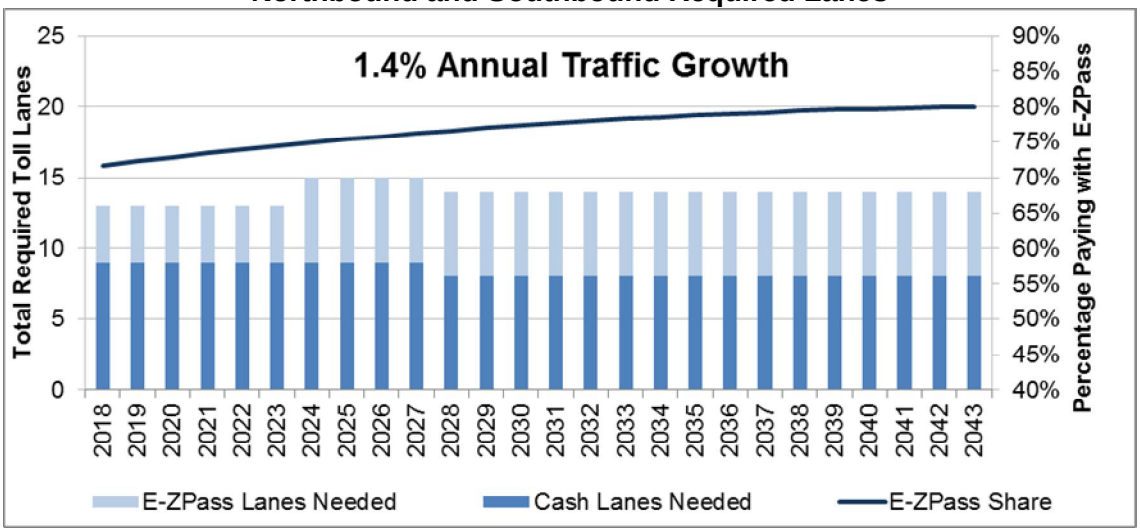
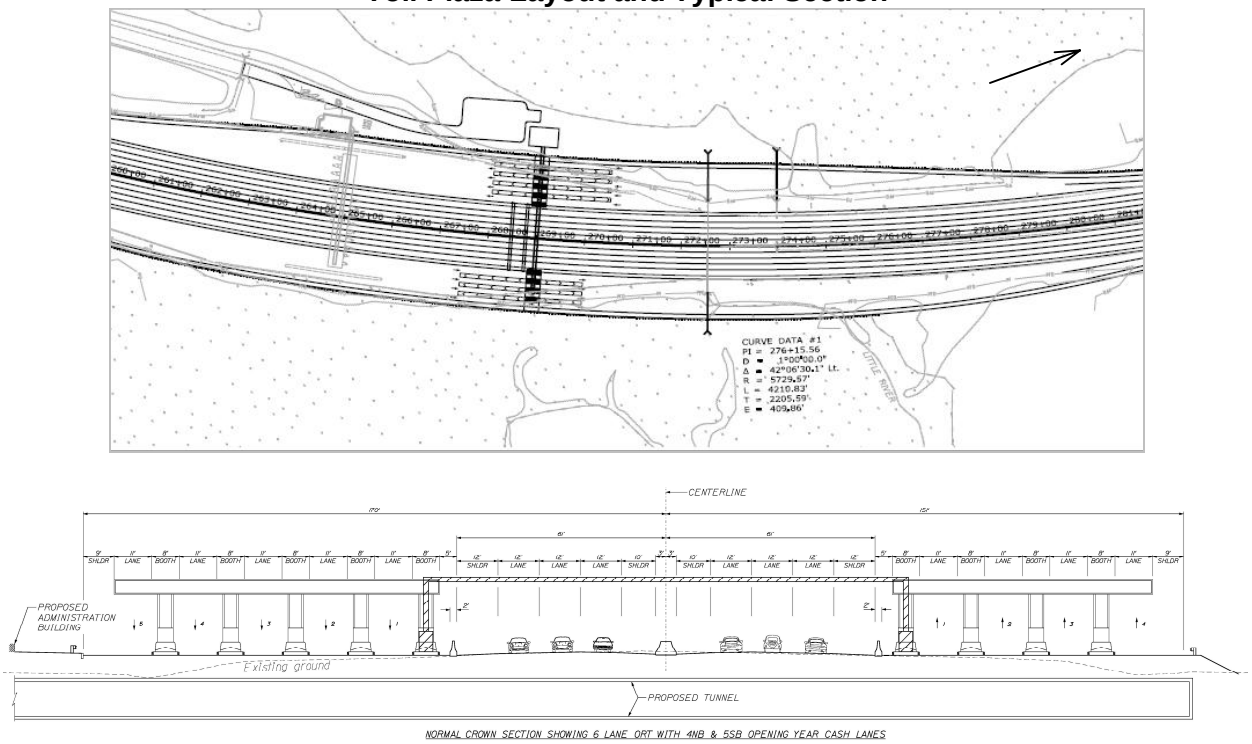


Table 4
Required Lanes for 1st Highest Traffic Day

	1.4% Annual Growth – Base Case E-ZPass 80%							
	SB Lanes				NB Lanes			
Year	Total SB Lanes	Cash	ORT	Highest Day E-ZPass Share	Total NB Lanes	Cash	ORT	Highest Day E-ZPass Share
2018	7	5	2	68.5%	6	4	2	74.9%
2019	7	5	2	69.3%	6	4	2	75.3%
2020	7	5	2	70.1%	6	4	2	75.6%
2021	7	5	2	70.9%	6	4	2	75.9%
2022	7	5	2	71.6%	6	4	2	76.3%
2023	7	5	2	72.3%	6	4	2	76.6%
2024	8	5	3	73.0%	7	4	3	76.8%
2025	8	5	3	73.6%	7	4	3	77.1%
2026	8	5	3	74.2%	7	4	3	77.4%
2027	8	5	3	74.8%	7	4	3	77.7%
2028	7	4	3	75.3%	7	4	3	77.9%
2029	7	4	3	75.8%	7	4	3	78.1%
2030	7	4	3	76.3%	7	4	3	78.4%
2031	7	4	3	76.7%	7	4	3	78.6%
2032	7	4	3	77.2%	7	4	3	78.8%
2033	7	4	3	77.6%	7	4	3	78.9%
2034	7	4	3	77.9%	7	4	3	79.1%
2035	7	4	3	78.3%	7	4	3	79.3%
2036	7	4	3	78.6%	7	4	3	79.4%
2037	7	4	3	78.9%	7	4	3	79.5%
2038	7	4	3	79.1%	7	4	3	79.7%
2039	7	4	3	79.4%	7	4	3	79.8%
2040	7	4	3	79.6%	7	4	3	79.8%
2041	7	4	3	79.7%	7	4	3	79.9%
2042	7	4	3	79.9%	7	4	3	80.0%
2043	7	4	3	80.0%	7	4	3	80.0%

Figure 5 depicts the proposed layout of the York Toll Plaza based on Jacobs' analyses using the toll plaza model. Ultimately, it is recommended that there be 3 ORT lanes in each direction, though they are not needed until 2024 for the highest day in the base case, plus 4 northbound and 5 southbound staffed lanes.

Figure 5
Toll Plaza Layout and Typical Section



SENSITIVITY ANALYSES

Sensitivity analyses were conducted for two additional levels of traffic and E-ZPass growth. The purpose of these sensitivities is to test the ability of the proposed design to work if future volumes and E-ZPass transactions differ from those forecasted in the Base Case. Table 5 summarizes the results for the 85 percent E-ZPass case with 2 percent annual traffic growth. In this unlikely case there would still be no need for four ORT lanes. However, if traffic grew at that rate, there also would not be a sufficient number of travel lanes on the mainline of the Turnpike. Because of this we would consider additional improvements be made only in conjunction with improvements to the mainline travel lanes, otherwise the Turnpike travel lanes will not have the ability to deliver traffic to the toll plaza.

Sensitivity cases were also run for lower levels of E-ZPass growth rates. Summarizing the six specific cases that were analyzed:

- 0 percent annual traffic growth rate
  - 75 percent E-ZPass range
  - 80 percent E-ZPass range
  - 85 percent E-ZPass range

- 1 percent annual traffic growth rate
  - 75 percent E-ZPass range
  - 80 percent E-ZPass range

  - 85 percent E-ZPass range

- 2 percent annual traffic growth
  - 75 percent E-ZPass range
  - 80 percent E-ZPass range
  - 85 percent E-ZPass range

Tables 5 and 6 display the results of the sensitivity runs for likely different rates of growth and different payment mixes. Those tables are based on constraining the required number of ORT lanes at 3. Results shown are for the highest traffic day.

Table 5
Results for 1st Highest Day

	2% Annual Growth – E-ZPass 85 Percent							
	SB Lanes				NB Lanes			
Year	Total SB Lanes	Cash	ORT	E-ZPass Share*	Total NB Lanes	Cash	ORT	E-ZPass Share*
2018	7	5	2	68.5%	6	4	2	74.9%
2019	7	5	2	69.6%	6	4	2	75.6%
2020	7	5	2	70.7%	6	4	2	76.3%
2021	7	5	2	71.7%	6	4	2	77.0%
2022	8	5	3	72.8%	7	4	3	77.6%
2023	8	5	3	73.8%	7	4	3	78.2%
2024	7	4	3	74.7%	7	4	3	78.8%
2025	7	4	3	75.6%	7	4	3	79.3%
2026	7	4	3	76.5%	7	4	3	79.8%
2027	7	4	3	77.4%	7	4	3	80.4%
2028	7	4	3	78.2%	7	4	3	80.8%
2029	7	4	3	78.9%	7	4	3	81.3%
2030	7	4	3	79.6%	7	4	3	81.7%
2031	7	4	3	80.3%	7	4	3	82.1%
2032	7	4	3	80.9%	7	4	3	82.5%
2033	7	4	3	81.5%	7	4	3	82.8%
2034	7	4	3	82.0%	7	4	3	83.2%
2035	7	4	3	82.5%	7	4	3	83.5%
2036	7	4	3	83.0%	7	4	3	83.7%
2037	7	4	3	83.4%	7	4	3	84.0%
2038	7	4	3	83.8%	7	4	3	84.2%
2039	7	4	3	84.1%	7	4	3	84.4%
2040	7	4	3	84.4%	7	4	3	84.6%
2041	7	4	3	84.6%	7	4	3	84.8%
2042	7	4	3	84.8%	7	4	3	84.9%
2043	7	4	3	85.0%	7	4	3	85.0%

*Note E-ZPass shares are for the first highest traffic day.

Table 6
Results for 1st Highest Day

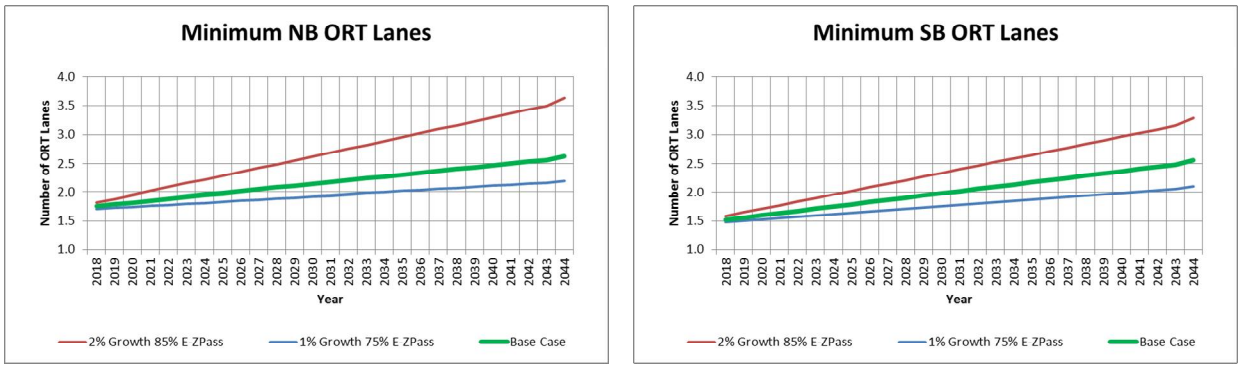
	1.0% Annual Growth – E-ZPass 75 Percent							
	SB Lanes				NB Lanes			
Year	Total SB Lanes	Cash	ORT	E-ZPass Share*	Total NB Lanes	Cash	ORT	E-ZPass Share*
2018	7	5	2	68.5%	6	4	2	74.9%
2019	7	5	2	68.9%	6	4	2	74.9%
2020	7	5	2	69.2%	6	4	2	74.9%
2021	7	5	2	69.6%	6	4	2	74.9%
2022	7	5	2	69.9%	6	4	2	74.9%
2023	7	5	2	70.3%	6	4	2	74.9%
2024	7	5	2	70.6%	6	4	2	74.9%
2025	7	5	2	70.9%	6	4	2	74.9%
2026	7	5	2	71.3%	6	4	2	74.9%
2027	8	5	3	71.7%	6	4	2	74.9%
2028	8	5	3	72.0%	7	4	3	75.0%
2029	8	5	3	72.3%	7	4	3	75.0%
2030	8	5	3	72.7%	7	4	3	75.0%
2031	8	5	3	72.9%	7	4	3	75.0%
2032	8	5	3	73.1%	7	4	3	75.0%
2033	8	5	3	73.4%	7	4	3	75.0%
2034	8	5	3	73.7%	7	4	3	75.0%
2035	8	5	3	73.8%	7	4	3	75.0%
2036	8	5	3	74.1%	7	4	3	75.0%
2037	8	5	3	74.3%	7	4	3	75.0%
2038	8	5	3	74.4%	7	4	3	75.0%
2039	8	5	3	74.6%	7	4	3	75.0%
2040	8	5	3	74.8%	7	4	3	75.0%
2041	8	5	3	74.9%	7	4	3	75.0%
2042	8	5	3	74.9%	7	4	3	75.0%
2043	8	5	3	75.0%	7	4	3	75.0%

*Note E-ZPass shares are for the first highest traffic day.

Figure 6 shows the unconstrained required number of ORT lanes for the 15th highest day for each year through to the design year. Three cases are presented in each graph; the Base Case, the high growth high E-ZPass case, and a low growth low E-ZPass share case. As can be seen from the graphs a third ORT lane would be required for all cases by the design year 2043. In order to accommodate the 15th highest day, the third ORT lane would be required north bound

in 2026 and south bound in 2031. Considering the low growth scenarios, the third ORT lane would be required north bound in 2034 and south bound in 2041 to accommodate the 15th highest day. In the case of high rates of traffic growth and a high rate of E-ZPass usage a fourth ORT lane may be required. However, as discussed earlier, the Turnpike itself does not have sufficient capacity to deliver that level of traffic.

Figure 6
15th Highest Day ORT Lane Requirements



CONSTRUCTION PHASING ANALYSIS

We also prepared an analysis for the construction season from late October until late April for the years 2016 through 2018. If the York Toll Plaza were to be reconstructed basically in place during a two year construction period as detailed in other documents there would be a closure of portions of the toll existing toll plaza. Because of the high summer and fall traffic volumes, this activity would need to be conducted during the off-season. Our analysis supports a plaza operating with 2 dedicated E-ZPass lanes and 3 cash lanes in each direction during the construction. With the exception of Thanksgiving, Christmas and Presidents day holidays, this configuration would be sufficient to process traffic. It is suggested that some of the lanes be able to operate in reversible directions as a possible way to mitigate any potential queues on those holidays. It is likely that the queues will be significant on those peak days.

CONCLUSION

Based on the toll plaza lane analysis, we have determined three (3) ORT lanes in each direction, plus four (4) northbound and five (5) southbound cash toll lanes would be required for the York Toll Plaza Replacement Project. This conclusion is based on model developed by Jacobs that analyzes traffic volumes by hour, by lane, by vehicle class and by method of payment. Growth rates for our model were selected in consultation with the Authority. The base case for our analyses used a 1.4% annual growth rate and an E-Z pass rate of 80%. A design year of 2043 was selected for the final year of analysis, and estimates for the number of toll lanes prepared for each year between 2018 and 2043. This analysis shows the gradual evolution of cash lanes to ORT lanes over time. A decision was made to size the toll plaza once, so it did not need to be reconstructed as the growth in E-Z Pass usage occurs. The guidelines for the State of Practice and Recommendation on Traffic Control Strategies at Toll Plaza states new ORT plazas should include the same number of express lanes equal to the number of

approach highway lanes. This guideline only reinforces our recommendation to build three (3) ORT lanes at the onset of construction rather than wait 6 years to reconstruct the plaza to accommodate the E-Z Pass customers demand.

APPENDIX 2L

TECHNICAL MEMORANDUM ON ALTERNATIVES ANALYSIS BY JACOBS 10/13/15

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JACOBS®

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Boston, MA 02210 USA
617.242.9222 Fax 617.242.9824

Technical Memorandum

Date: October 13, 2015

To: Maine Turnpike Authority

From: Rodney Emery, PE, PTOE, FITE

Subject: Southern Toll Plaza
Technical Memorandum on Alternatives Analysis

INTRODUCTION

This technical memorandum was prepared by Jacobs Engineering Group (Jacobs) in accordance with the contract scope of work with Maine Turnpike Authority (MTA) for Task Order 1, Amendment 2 – Southern Toll Plaza Preliminary Engineering and Permitting Services dated March 12, 2015. The scope of work consists of engineering and permitting services related to alternatives evaluation and conceptual design for replacement of the York Toll Plaza. Alternatives for open road tolling (ORT) facilities were identified and developed for conceptual design.

This technical memorandum summarizes the methods and results of the alternatives analysis. The categories analyzed include Engineering/Safety, Environmental, Abutter Impacts, Logistics during Construction and Costs/Financials. The analysis includes a screening matrix that summaries the advantages or disadvantages, quantified impacts, and qualitative comments of each alternative based on the criteria identified in the evaluation matrix. For each resource category, the impacts were assigned a relative rating. The relative rating is then shown by color to help visualize and show trends when comparing locations and when comparing dissimilar resources. The least impact range is green, and the most impact range is orange, with yellow representing the middle range. The alternate sites can be compared both individually by resource, and collectively between resources. A complete and thorough evaluation of each alternative must meet the project's purpose statement. This technical memorandum was developed to provide the findings of the alternatives evaluated and recommendation for the Southern Toll Plaza.

The alternatives identified in this memorandum are at mile 7.3, mile 8.1, mile 8.8, mile 10.0 and mile 13.2. The No Build alternative was not evaluated because it does not meet the project purpose and need of the project. Split plaza was not reviewed as part of the alternative evaluations; only the single toll plaza configuration was used. Given the small impacts of a single plaza, primarily to abutters and the natural environment, there is no advantage to split plaza design. A split plaza design would in affect increase the impacts to the number of abutters and potentially wetlands, streams and vernal pools located on two sides on the turnpike rather than just the one side. A split plaza design would increase staff and maintenance requirements by the fact that two separate maintenance facilities, parking areas and access roads would be required to service the two locations rather than the one. Here are some of the operational disadvantages to a split plaza:

- A split plaza could double the required number of supervisors;
- A split plaza would increase the number of toll attendants because they would no longer be able to switch between the northbound and southbound directions to accommodate peak flows;

- A split plaza would require two sets of utilities;
- A split plaza would require two fully equipped support buildings;
- A split plaza would require up to four turnarounds for winter maintenance, whereas a single plaza would require up to two.

The direct impact line is the cut or fill slope limit shown on the conceptual alternative plans.

See Figures 1 through Figure 5 for conceptual plans, profiles and typical section of mile 7.3, mile 8.1, mile 8.8, mile 10.0 and mile 13.2. See Appendix A for the Evaluation Matrix, Appendix B for the Project Purpose Statement and Appendix C for Recommended Alternative.

ENGINEERING / SAFETY

The following engineering guidelines were used for the alternative designs evaluated in this memo:

- "A Policy on Geometric Design of Highways and Streets" (AASHTO, 2011)
- "Manual on Uniform Traffic Control Devices" (MUTCD, Federal Highway Administration, 2009)
- "State of the Practice and Recommendations on Traffic Control Strategies at Toll Plazas" (Federal Highway Administration, 2006)
- "Roadside Design Guide" (AASHTO, 2011)

The purpose of national engineering guidelines is to provide guidance based on established practices that are supplemented by recent research. Below are excerpts from various guidelines highlighting their purpose as well as how to implement the guidelines.

1. A Policy on Geometric Design of Highways and Streets (AASHTO, 2011):
   Page xli: The intent of this policy is to provide guidance to the designer by referencing a recommended range of values for critical dimensions. Good highway design involves balancing safety, mobility, and preservation of scenic, aesthetic, historic, cultural, and environmental resources. This policy is therefore not intended to be a detailed design manual that could supersede the need for the application of sound principles by the knowledgeable design professional.

2. Manual on Uniform Traffic Control Devices (MUTCD, FHWA, 2009)
   Page 1: The purpose of traffic control devices, as well as the principles for their use, is to promote highway safety and efficiency by providing for the orderly movement of all road users on streets, highways, bikeways, and private roads open to public travel throughout the Nation.

   Page 2: Uniformity of devices simplifies the task of the road user because it aids in recognition and understanding, thereby reducing perception/reaction time. Uniformity assists road users, law enforcement officers, and traffic courts by giving everyone the same interpretation. Uniformity assists public highway officials through efficiency in manufacture, installation, maintenance, and administration. Uniformity means treating similar situations in a similar way. The use of uniform traffic control devices does not, in itself, constitute uniformity. A standard device used where it is not appropriate is as objectionable as a non-standard device; in fact, this might be worse, because such misuse might result in disrespect at those locations where the device is needed and appropriate.

Page 4: This manual describes the application of traffic control devices, but shall not be a legal requirement for their installation.

3. "State of the Practice and Recommendations on Traffic Control Strategies at Toll Plazas" (Federal Highway Administration, 2006)
   Page 1: The purpose and focus of this report is to develop guidelines for designing and implementing traffic control strategies and devices at toll plazas that, for example, inform drivers which lanes to use for specific methods of payment, reduce speed variance, discourage lane changing and properly install equipment and devices.
   Page 1: The goal is to achieve a consistent strategy for handling potential points of conflict, controlling flow of various vehicle types and conveying information at toll plazas so that safety and operations are enhanced, better efficiency and economy of design are achieved, and motorist recognition and comprehension are improved. This must be accomplished in consideration of the fact that each toll facility may desire its own unique identity.

4. Roadside Design Guide (AASHTO, 2011):
   Page xxvii: A second noteworthy point is that this book is a guide. It is not a standard, nor is it a design policy. It is intended to be used as a resource document from which individual highway agencies can develop standards and policies. Although much of the material in the guide can be considered universal in its application, several recommendations are subjective in nature and may need modification to fit local conditions. However, it is important that significant deviations from the guide be based on operational experience and objective analysis.

Evaluation of alternatives will be based on these design policies, guides, reports and manuals. The overriding theme throughout these documents is uniformity of design while applying these guidelines and best practices. The evaluation matrix is intended to provide a comprehensive summary for balancing safety, mobility, and preservation of scenic, aesthetic, historic, cultural, and environmental resources.

A. Horizontal Alignment (Column 1)

FHWA guidelines state the toll plaza should be located on a tangent section of highway such that motorists will be able to see the plaza, while driving at posted speeds with adequate stopping sight distance before the queue zone. Horizontal curvature within the plaza area will limit the sight distance affecting the lane choice decision time a driver has. Curvature approaching the tollbooths has an operational impact on the lanes utilized by approaching traffic. Vehicles tend to travel more toward the outside of a curve resulting in less traffic using booths on inside of curve. There is less impact if the curvature is prior to decision points and tangent through the plaza.

Low-range of impacts is applied to alternatives with tangent section through plaza and approaches to split point. Mid-range impacts are applied to alternatives with a curve on approach to split point and a tangent through the plaza. High-range impacts are locations with a curve through the plaza.

Alternatives at mile 8.8 and mile 13.2 are rated as low-range impacts. Alternatives at mile 8.1 and mile 10.0 are rated as mid-range impacts due to curvature at approaches to split point, and mile 7.3 is rated as high-range impact due to curvature through the plaza.

B. Vertical Alignment (Column 2)

FHWA guidelines state a toll plaza should be at the crest of a profile grade which results in sight distance advantages and plaza operations benefits from gravitational forces in slowing vehicles approaching the plaza and accelerating vehicles departing the plaza. A consideration should be made for commercial vehicles. The recommended approach and departure grades are between positive 1% and 2%. The vertical alignment has been separated into three categories to better differentiate the alternatives. The first category rates if the cash toll plaza is at a high point. This rating is a general comparison to show if the existing profile complies with guidelines from State of the Practice and Recommendations on Traffic Control Strategies at Toll Plazas. Low-range of impacts is applies to alternatives with an existing profile crest at the location of cash plaza. Mid-range impacts are applied to alternatives located near a crest and with some minor profile modifications to cash lanes, could be constructed maintaining ORT lanes on existing pavement. High-range impacts are locations in a sag vertical curve or would need major grade changes to create a crest vertical curve at the cash plaza. Alternative at mile 8.8 and mile 13.2 are rated as low-range impact due to the cash plaza being close to the existing profile high point. Alternatives at mile 7.3, mile 8.1 and mile 10.0 are rated as mid-range impacts due to the need for a profile adjustment. No alternative is rated as high-range of impacts. The second category rates the approach grades to the plaza. Approach grades are evaluated starting at the point where two lanes begin to widen for cash plaza and ends where traffic exiting plaza forms two lanes. Low-range of impacts is applied to alternatives with ideal approach and departure grades between positive 1% and 2%. Mid-range impacts are applied to alternatives with approach or departure grades between positive 0.5% and 1% or between positive 2% and 3%. High-range impacts are applied to alternatives with approach or departure grades less than positive 0.5% or greater than 3%. Alternative at mile 8.8 is rated as low-range impact. Alternatives at mile 8.1 and mile 13.2 are rated as mid-range impacts. Mile 7.3 and mile 10.0 are rated high-range impact. The third category has no rating. This category shows the alternatives that use the existing pavement for the ORT lanes with no modification to existing turnpike profile. These categories are based on guidelines. After selection of an alternative location, continued engineering judgments will determine if modification to the existing vertical alignment will be needed.

C. Sight Distance (Column 3)

There are two different types of sight distance to consider, stopping sight distance (SSD) and decision sight distance (DSD). AASHTO defines SSD to be sufficiently long enough to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path. A typical example would be the sight distance required to react and stop prior to vehicles stopped at the cash plaza to pay toll. AASHTO defines DSD as the distance needed for a driver to detect an unexpected or otherwise difficult to perceive information source or condition in a roadway environment that may be visually cluttered, recognize the condition or its potential threat, select an appropriate speed and path, and initiate and complete complex maneuvers. AASHTO specifically mentions toll plazas as an example of where DSD is needed.

DSD is used at locations whenever there is a likelihood for error in either information reception, decision making, or control actions. DSD is needed prior to the split between highway speed and conventional toll plaza lanes. The driver approaching the toll facility will make a decision to proceed through conventional toll plaza or ORT lanes, and following signage to determine which lane is appropriate.

AASHTO guidelines have been used to evaluate each alternative. The evaluation of each alternative consists of decision sight distances and stopping sight distances at multiple locations both northbound and southbound. The existing turnpike does not meet current guidelines in all locations and upgrading the

turnpike to meet current design guidelines would require significant work. AASHTO states "The fact that new design values are presented herein does not imply that existing streets and highways are unsafe, nor does it mandate the initiation of improvement projects.", "Specific site investigations and crash history analyses often indicate that the existing design features are performing in a satisfactory manner." A low-range of impacts is applied when decision sight distances meet or exceed the minimum length, mid-range impacts are applied when one or two decision sight distances do not meet the design speed but do meet a slightly lower design speed (5 mph less), high-range impacts are applied when one or more decision sight distances do not meet design speed and need to be reduced by 10 mph or more.

Alternatives at mile 7.3, mile 8.1, mile 10.0 are all rated as mid-range impacts. Alternatives at mile 8.8 and mile 13.2 are rated as low-range impacts.

D. Separation from Interchange (Column 4)

AASHTO recommends separation between interchanges to 1 mile minimum for urban and 3 miles minimum for rural highways. FHWA references the AASHTO standard and states this should remain the guideline for selection of new mainline toll plaza sites. AASHTO defines urban as an area within a set of boundaries with over 5,000 in population. The population in York is over 5000, therefore a 1 mile minimum for urban highways will be used for this evaluation.

Low-range of impacts is applied to interchanges greater than 1 mile from plaza. Mid-range impacts are applied to interchanges greater than 1 mile from plaza and ramp tapers within 1 mile. High-range impacts are locations with less than 1 mile of separation between plaza and interchange.

Alternatives at mile 8.8, mile 10.0, mile 13.2 are all rated as low-range impacts. Alternative at mile 8.1 is rated as a mid-range impact due to proximity of exit 7, and mile 7.3 is rated as high-range impact.

E. Historic Crash Data (Column 5)

MaineDOT has a system of classifying whether or not a particular roadway location is considered a *high crash location* (HCL). MaineDOT's Crash Records Section identifies all reported crashes that have property damage in excess of $1,000, or where there has been personal injury. To retain and categorize this information, MaineDOT has established a "Node and Element System." This system assigns a four or five digit node number to each intersection, major bridge, railroad crossing, and crossing of town, county, or urban compact lines as a *node*. The segments of road that connect the nodes are referred to as *elements or links*. As crashes are received by MaineDOT, the information is assigned to the corresponding element or node corresponding to the geographic location.

A designation of HCL warrants an analysis for patterns of crashes associated with possible geometric issues. If crash history of a particular element or link or node meets two criteria, then MaineDOT would classify it as a HCL. The two (2) criteria that must be met are:

- The element/link or node must have eight (8) or more reported crashes over the past 3 years
- The element/link must have a "critical rate factor" (CRF) greater than 1.00. (The critical rate factor relates the crash rate at a particular element/link or node to the statewide crash rate average for a similar type of facility).

It should be noted that the critical rate factors are calculated differently between nodes and links, since nodes are essentially intersections (i.e. spot locations) and links have length of roadway.

In early and mid-2015, Jacobs coordinated with the Safety office of MaineDOT to obtain crash data for the Maine Turnpike in the study area. The study area consists of the existing York Toll Plaza (mile 7.3), mile 8.1, mile 8.8, mile 10.0, and mile 13.2. The Safety Office provided crash information relating to the study area for the last three years of available data, which are 2012 to 2014. As of early 2015, the State of Maine contains 382 high crash locations (HCL) nodes (i.e. intersections, bridges, etc.) and 483 HCL links (i.e. roadway segments).

The toll plaza at mile 7.3 is listed as a high-crash location (HCL), and the other four sites are not considered a HCL. However, to provide a more in-depth view for comparison purposes with the other sites, individual crashes identified by mile post location were reviewed and summarized. Any crashes within 0.5 miles of the subject site were deemed to be affiliated with the site. For example, any crashes between 8.3 and 9.3 were attributed to the 8.8 site (i.e, plus/minus 0.5 miles). Due to the crash area of influence for each site, some crashes were attributed to 2 sites.

It should be noted that this methodology was developed in lieu of using MaineDOT's node and link system, since some links would represent more than one site and have ambiguous value. Links in the MaineDOT system are directional and have irregular lengths and node placements, relative to the reverse direction.

For this evaluation, low-range impacts to high-range impacts were identified for each of the considered sites. Any sites containing 30 or more crashes were classified as a *high-range impact* location. Any sites containing between 20 and 30 crashes were classified as a mid-*range impact* location. Sites containing less than 20 crashes were designated as *low-range impact*. Table 1 shows a summary of the crash impacts for the 5 locations under this evaluation.

Table 1: Crash Impacts (2012-2014 Data)

MaineDOT Crash History (2012-2014)	NB	SB	Total
MaineTurnpike, Mile 7.3	18	25	43
MaineTurnpike, Mile 8.1	8	15	23
MaineTurnpike, Mile 8.8	3	10	13
MaineTurnpike, Mile 10.0	7	14	21
MaineTurnpike, Mile 13.2	10	8	18

As shown in Table 1, mile 7.3 is classified as a high-range impact location since it has over 30 crashes over the course of 3 years. This high-range impact classification can be primarily attributed to the proximity of the York interchange and the ramp merging, diverging, and weaving movements. It is also designated as a high crash location (HCL) by MaineDOT. Mile 8.8 and mile 13.2 are classified as low-range impacts since they have less than 20 crashes over the course of 3 years. Mile 8.8 has the lowest crashes over the course of 3 years.

While individual crash records were examined as part of the crash analysis, there is no definitive means of determining the number of crashes that would have occurred if there were no toll plaza or no interchange in close proximity. Assuming (conservatively) that 50% of the crashes at the toll plaza are due to other reasons besides the toll plaza or interchange, the crash rates within the plaza limits would still be higher than the statewide average.

The weaving issue at the existing Toll Plaza is a multi-faceted problem. It is a function of four characteristics that contribute to increased crashes and decreased operational efficiency:

1) Close proximity of an interchange
2) Horizontal curve
3) Elevation of the plaza site (bottom of a hill)
4) Proximity of a bridge.

The existing Toll Plaza is located within 700 feet of the Exit 7 interchange.

- This causes merging and weaving complications within the Plaza limits due to some vehicles navigating to the interchange and the majority vehicles continuing along I-95.
- Also, the close proximity of the existing Toll Plaza causes inefficient usage of toll lanes, where vehicle queues begin to compile before overall toll capacity is reached.

The existing Toll Plaza is situated on a horizontal curve.

- The southbound traffic tends to drift to the outside of the curve which reduces utilization of all tollbooths (i.e., the left side booths become over-utilized and the right side booths become under-utilized).
- The curve hinders the sight of the toll booths for the southbound vehicles until approximately 1,500 feet before reaching the existing toll plaza. This doesn't allow for adequate time to make appropriate and necessary lane changes which compromises safety.

The existing Toll Plaza is located at the base of a hill.

- A heavy vehicle having a brake malfunction poses as a safety concern for the Toll Plaza, where a heavy vehicle may strike the plaza in such an event.
- There are drainage issues, pavement "shoving", leading to excess rutting and the potential for hydroplaning.
- The excess noise affiliated with trucks decelerating before the toll plaza and accelerating after the toll plaza.

The existing Toll Plaza is less than ½ mile from the Chases Pond Road Bridge over I-95

- The bridge hinders the sight of the merging on-ramp traffic at Exit 7 from northbound vehicles
- Reduces the visibility of queuing traffic at the toll booths in the northbound direction
- Information overload with signage due to the proximity of the interchange and the Toll Plaza is another issue.

F. Geotechnical (Column 6)

The geotechnical study for the alternative at mile 7.3 (400 feet north of existing plaza) was based on subsurface field investigations performed in 2014 and 2015, while the study for the other four alternatives at miles 8.1, 8.8, 10.0 and 13.2 were based on site observations along with geologic information available from the Maine Office of GIS. For each alternative, the project impact area is roughly 1.5 miles long with varying geotechnical conditions within this corridor. The proposed construction at each location was considered in the evaluation and includes a new tunnel, toll booth, highway widening, and administration building and parking lot.

The following generalized value rankings for the Geotechnical sub-category are based on the following:

- Green (Low Impact) represents mostly stable granular soils, no apparent groundwater impact, and

no apparent bedrock excavation (Ledge). No alternative falls into this category.

- Yellow (Medium Impact) represents ledge excavation, possible unstable soils, minor groundwater impacts, and possible need for retaining walls to limit impacts on adjacent wetland areas. Four out of the five alternatives fall into this category.
- Orange (High Impact) represents soft and compressible soils, impacts due to high groundwater elevation, and no apparent ledge. One of the five alternatives falls into this category.

Findings of Selected Alternatives:

1. Mile 7.3: The subsurface conditions of concern mainly consist of a thick deposit of soft marine clay which has been settling since the roadway construction in 1947, high groundwater elevations, and possible unstable soils adjacent to low-lying wetland areas. The assigned impact ranking for this alternative is High.
2. Mile 8.1: The subsurface conditions of concern include shallow bedrock and rock outcrops (observed on the west side of the roadway), possible clay material (based on the Maine GIS information) above bedrock, and possible unstable soils at adjacent wetland areas. The assigned impact ranking for this alternative is Medium.
3. Mile 8.8: The subsurface conditions of concern include shallow bedrock and rock outcrops (observed on the west side of the roadway), and possible unstable soils at adjacent wetland areas. The assigned impact ranking for this alternative is Medium.
4. Mile 10.0: The subsurface conditions of concern include shallow bedrock and rock outcrops (observed on the west side of the roadway), possible unstable soils at adjacent wetland areas, and possible need of retaining wall to limit impacts on the adjacent wetland soils along the northeast side of the proposed roadway alignment where the road is to be widened and filled in. The assigned impact ranking for this alternative is Medium.
5. Mile 13.2: The subsurface conditions of concern include shallow bedrock and rock outcrops (observed on both the west and east sides of the roadway), and possible unstable soils at adjacent wetland areas. The assigned impact ranking for this alternative is Medium.

ENVIRONMENTAL

An extensive review of the corridor yielded a series of alternative sites between mile 8.1 and 13.2 including a site near the existing toll plaza location in York that warranted further evaluation. A significant effort was expended to gather updated environmental data in the form of on the ground surveys of wetlands, vernal pools and streams as well as update information on floodplains, cultural/historical resource impacts and potential threatened/endangered species habitats. The environmental findings and screening of the alternatives developed was prepared in a separate report titled “Environmental Screening Report for Potential Southern Maine Toll Plaza Locations” dated October 8, 2015.

A. Wetland Impacts (Column 7)

The following provides a general overview of each alternative location evaluated. Estimated wetland impacts are based upon field mapped wetlands and area calculations of direct impacts from limits of cut/fill completed as part of the conceptual design.

1. Mile 7.3: The study area identified a large wetland complex located on the west and east sides of the turnpike. Wetlands in this area were identified as forested wetland and wetlands of special significance (WOSS). The wetland complex is also identified on the York Shoreland Zoning Map

as a Shoreland Zone including Resource Protection. The expected wetland alteration at this location is 5.5 acres.

2. Mile 8.1: The study area identified a small forested wetland area located on the west and east sides of the MTA. Wetlands in this area were identified as forested wetland and WOSS (Vernal Pools). These wetlands are both shown as Resource Protection on the York Shoreland Zoning Map. There is also Stream Protection identified on the Shoreland Zoning Map on both sides of the turnpike. The expected wetland alteration at this location is 1.0 acres.
3. Mile 8.8: The study area identified several small forested wetland areas located on the west and east sides of the MTA. Wetlands in this area were generally identified as forested wetland. There is an emergent wetland at mile 9.0. The emergent wetland and the significant vernal pools are considered WOSS. There appears to be Stream Protection on the west side and Resource Protection on the east side shown on the York Shoreland Zoning Map. Wetland alterations at this location will include 1.0 acres of wetland alteration.
4. Mile 10.0: The study area identified forested wetlands with several significant vernal pools. The wetlands containing significant vernal pools are considered WOSS. The wetland impacts at this location are 1.0 acres.
5. Mile 13.2: The study area identified small wetlands on the west side of the turnpike and no wetlands on the east side at mile 13.2. At mile 13.4, there is a potential stream on the east side of the turnpike. Wetlands in this area were identified as forested wetlands. There is Stream Protection on the west side of the turnpike as shown on the York Shoreland Zoning Map near mile 13.0. The expected wetland alterations at this location is 0.7 acres.

B. Impacts to Maine DEP Wetlands of Special Significance (Column 8)

The Maine Department of Environmental Protection has established regulations identifying certain wetlands containing high functional value as “Wetlands of Special Significance” (WOSS). WOSS require higher level permitting considerations at the State permit level.

1. Mile 7.3: Wetlands in this area were identified as forested wetland and wetlands of special significance. The WOSS are associated with the Little River and 100-year floodplain. These wetlands are within an area of Resource Protection on the York Shoreland Zoning Map. Approximately 1.9 acres of WOSS would be altered.
2. Mile 8.1: Wetlands in this area were identified as forested wetland and WOSS (Significant Vernal Pool). These wetlands are both shown as Resource Protection on the York Shoreland Zoning Map. There is also Stream Protection identified on the Shoreland Zoning Map on both sides of the turnpike. Approximately 0.1 acres of WOSS would be altered.
3. Mile 8.8: There is an emergent wetland at mile 9.0 and vernal pools identified in the study area. The emergent wetland and the significant vernal pools are considered WOSS. There also appears to be Stream Protection on the west side and Resource Protection on the east side shown on the York Shoreland Zoning Map. Approximately 0.8 acres of WOSS would be altered.
4. Mile 10.0: The wetlands containing significant vernal pools are considered WOSS. The expected WOSS impacts are approximately 1.0 acres.
5. Mile 13.2: At mile 13.4, there is a stream on the east side of the turnpike. Wetlands in this area were identified as forested wetlands. There is a second steam on the west side of the turnpike as shown on the York Shoreland Zoning Map around mile 12.9. The expected WOSS impacts are approximately 0.2 acres.

C. Wetlands Relative Function and Value (Column 9)

While all wetlands have functional value, the importance of the wetlands functions and values will depend on a number factors. The USACE has established guidelines for evaluation and assessing wetland functions and values through the "Highway Methodology Approach," that identifies 13 criteria. Criteria includes Groundwater Recharge/Discharge, Floodflow Alteration, Production Export, Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline Stabilization, Wildlife Habitat, Recreation, Uniqueness/Heritage, Visual Quality/Aesthetics and Endangered Species Habitat.

In an effort to understand the relevant significance of the wetlands at each potential tolling location, an assessment of comparative functions and values was completed and categorized as high, average, and low based upon extent of impacts and value of the resources. The overall extent of wetland impacts at each location was given a higher weight since permitting will typically look for avoidance and minimization of impacts. The following functional assessment is based upon best professional judgment of the field data collected and desktop analysis summarized using the Highway Methodology Approach.

1. Mile 7.3: This alternative includes wetlands 3, 4, 24, and 25 as shown in Environmental Screening Report. The wetlands adjacent to the existing toll booth are classified as seasonally saturated, broad-leaved deciduous forested wetlands (PFO1E). These areas are considered Red Maple (Acer rubrum) swamps. The dominant vegetative species are red maple, white pine (Pinus strobus), highbush blueberry (Vaccinum corymbosum), speckled alder, cinnamon fern, sensitive fern, and royal fern. These wetlands are large forested wetlands that contain the Little River with associated floodplain wetlands. A portion of these floodplain wetlands are shown on the FEMA flood map as being located within the 100-year floodplain. According to the county soil survey, the soils within the 100-year floodplain are very poorly drained Chocorua peat which generally includes several feet of organic soil. The remaining wetlands are classified as poorly drained Scantic silt loam.

   The primary functions and values of these wetlands include groundwater discharge, floodflow alteration, sediment/toxicant retention, and nutrient removal. These areas are very low in the watershed and the flow through these wetlands is very slow. The fine-textured and organic soils promote groundwater discharge in these wetlands due to slow vertical flow. The Little River becomes more defined east of the turnpike showing that water from this wetland channelizes as it travels east. The floodflow alteration function is high due to the vast size of the wetland and the amount of water that it can retain. Sediment/toxicant retention and nutrient removal is high near the turnpike due to the added stormwater runoff and contaminants from the pavement. Due to the extent of wetland impacts (over 5 acres) and their relative functions/values, these wetlands were assessed a high value as compared to resources corridor-wide.

2. Mile 8.1: This alternative includes wetlands 8, 21, and 22 as shown in Environmental Screening Report. These wetlands are classified as seasonally saturated, broad-leaved deciduous forested wetlands (PFO1E). The dominant vegetative species are red maple, gray birch, highbush blueberry, speckled alder, cinnamon fern and sensitive fern. There is a stream that enters wetland 21 via a 48-inch concrete culvert under the turnpike. The Town of York has a Stream Protection District around this stream on both sides of the turnpike. There is an undefined floodplain shown on the FEMA flood map in the area east of the turnpike in wetlands 21 and 22, which is identified as a 500-year flood. According to the county soil survey, the soils within the wetlands are very poorly drained Chocorua mucky peat and poorly drained Brayton fine sandy loam.

The primary functions and values of these wetlands include groundwater discharge, sediment/toxicant retention, and nutrient removal. These wetlands serve as groundwater discharge areas as they contain organic soils and are surrounded by soils with shallow ledge depths. Sediment/toxicant retention and nutrient removal is high near the turnpike due to the added stormwater runoff and contaminants from the pavement. They are flat and contain ponded conditions during much of the year which allows for sediment/toxicant retention as well as nutrient removal from the turnpike. The expected wetland impacts are approximately 1 acre in this area and collectively with the relative functional assessment was assigned an average value.

3. Mile 8.8: This alternative includes wetlands 9-11 and 16-18 as shown in the Environmental Screening Report. Wetland 11 is classified as a seasonally flooded, persistent emergent wetland (PEM1C) dominated by broad-leaved cattail. The remaining wetlands are seasonally saturated, broad-leaved deciduous forested wetlands (PFO1E). The dominant vegetative species are red maple, white pine, highbush blueberry, speckled alder, cinnamon fern and sensitive fern. The east side of the turnpike is shown as Resource Protection on the Town of York shoreland zoning map. According to the county soil survey, the soils in wetland 11 are mapped as very poorly drained Chocorua mucky peat and the remaining forested wetlands were not mapped as wetland soil.

   The primary functions and values of the emergent wetland include groundwater discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat. This marsh is located in the bottom of the watershed with many wetlands above it and shallow to bedrock soils in the adjacent upland. The value for sediment/toxicant retention and nutrient removal is high in this marsh but currently does not function accordingly due to a natural hill between the turnpike and the wetland. The forested wetlands on the east side of the turnpike function well for sediment/toxicant retention and nutrient removal. The wetlands in this area serve as wildlife habitat since portions of it may contain Ribbon Snake and Spotted Turtle habitat. There are documented vernal pools in the forested wetlands as well. The expected wetland impacts are approximately 1 acre in size and collectively with the relative functional assessment was assigned an average value.

4. Mile 10.0: This alternative includes wetlands 35, 43, and 44 as shown in Environmental Screening Report. These wetlands are classified as seasonally saturated broad-leaved deciduous forested wetlands (PFO1E). The dominant vegetative species are red maple, yellow birch, highbush blueberry, speckled alder, cinnamon fern and sensitive fern. Wetland 43 on the east side of the turnpike is shown as Resource Protection on the Town of York shoreland zoning map. According to the county soil survey, the soils in the Resource Protection zone are poorly drained Raynham silt loam and the remaining wetland soils are poorly drained Brayton fine sandy loam.

   The primary functions and values of the wetlands include sediment/toxicant retention, nutrient removal, and wildlife habitat. There is a jurisdictional stream which travels under Chases Pond Road into wetland 35 and then under the turnpike where it enters wetland 43 via an 18-inch culvert. Sediment/toxicant retention and nutrient removal is high near the turnpike due to added stormwater runoff and contaminants from the pavement. All of these wetlands contain vernal pools as well as possible Ribbon Snake and Spotted Turtle Habitat. The expected wetland impacts are approximately 1 acre and include over 30,000 square feet of vernal pool impacts. Due to these critical habitat impacts, the relative functional assessment was assigned average value.

5. Mile 13.2: This alternative includes wetlands 38, 39, 47 and 48 as shown in Environmental Screening Report. These wetlands are classified as a seasonally saturated broad-leaved deciduous

forested wetland (PFO1E). The dominant vegetative species are red maple, white pine, highbush blueberry, speckled alder, cinnamon fern and sensitive fern. There is Stream Protection District along Clay Hill Brook which runs through wetland 48 on the west side of the turnpike and wetland 38 on the right side of the turnpike at mile 13.0. According to the county soil survey, the soils in the wetland are classified as very poorly drained Biddeford mucky peat and poorly drained Scantic silt loam.

The primary functions and values of the wetland include floodflow alteration, groundwater discharge, sediment/ toxicant retention, nutrient removal and wildlife habitat. Clay Hill Brook contains a 100-year floodplain on the west side of the turnpike according to the FEMA flood map. The fine-textured soils and shallow ledge allow for groundwater discharge to occur. There are two vernal pools near mile 13.4 which serve as amphibian breeding habitat. There is also a potential stream on the east side of the turnpike running westerly. The expected wetland impacts are approximately 0.7 acres. Comparatively, this study area represented the lowest overall impacts and was assessed a low value as compared to other wetlands.

D. Stream Impacts (Column 10)

Both the MDEP and USACE regulate stream impacts. Depending on the stream's location, ability to sustain fish and other aquatic species, the relative value of the stream will vary. Regardless of the presence or lack of presence (fish and aquatic species), streams are regulated and require permitting for impacts.

1. Mile 7.3: 360 linear feet of stream would be impacted.
2. Mile 8.1: 50 linear feet of stream would be impacted.
3. Mile 8.8: 80 linear feet of stream would be impacted.
4. Mile 10.0: 160 linear feet of stream would be impacted.
5. Mile 13.2: 140 linear feet of stream would be impacted.

Review of the MDEP Chapter 502 Stormwater Regulations indicated no Urban Impaired Streams are located within the improvement areas.

E. Vernal Pool Impact (Column 11)

"Vernal pools or "spring pools" are shallow depressions that usually contain water for only part of the year. In the Northeast, vernal pools may fill during the fall and winter as the water table rises. Rain and melting snow also contribute water during the spring. Vernal pools typically dry out by mid to late summer. Although vernal pools may only contain water for a relatively short period of time, they serve as essential breeding habitat for certain species of wildlife, including salamanders and frogs. Since vernal pools dry out on a regular basis, they cannot support permanent populations of fish. The absence of fish provides an important ecological advantage for species that have adapted to vernal pools, because their eggs and young are safe from predation by fish.

Species that must have access to vernal pools in order to survive and reproduce are known as "obligate" vernal pool species. In Maine, obligate vernal pool species include wood frogs, spotted and blue-spotted salamanders (two types of mole salamanders) and fairy shrimp. While wood frogs and mole salamanders live most of their lives in uplands, they must return to vernal pools to mate and lay their eggs. The eggs and young of these amphibians develop in the pools until they are mature enough to migrate to adjacent uplands. Fairy shrimp are small crustaceans which spend their entire life cycle in vernal pools, and have

adapted to constantly changing environmental conditions. Fairy shrimp egg cases remain on the pool bottom even after all water has disappeared. The eggs can survive long periods of drying and freezing, but will hatch in late winter or early spring when water returns to the pool."

1. Mile 7.3: Vernal pools were identified both in the STI evaluation work and prior HNTB studies. One vernal pool with a total of 1,750 square feet of resource would be impacted.
2. Mile 8.1: No vernal pools would be impacted at this location.
3. Mile 8.8: Vernal pools were identified both in the STI evaluation work and prior HNTB studies. Two vernal pools with a total of 7,230 square feet of resource would be impacted.
4. Mile 10.0: Vernal pools were identified both in the STI evaluation work and prior HNTB studies. Four vernal pools with a total of 32,480 square feet of resource would be impacted.
5. Mile 13.2: Vernal pools were identified both in the STI evaluation work and prior HNTB studies. Two vernal pools with a total of 7,430 square of resource would be impacted.

Vernal pool data and mapping are provided in Environmental Screening Report.

F. Impacts to Maine DEP Vernal Pools of Special Significance (Column 12)

The Maine Department of Environmental Protection regulates vernal pools differently than the USACE. In Maine, a vernal pool is defined by meeting a prerequisite number of egg mases as opposed to the USACE who may regulate all vernal pools regardless of the number egg masses present. The following provides a summary of MDEP vernal pool impacts.

1. Mile 7.3: No MDEP regulated vernal pools were identified.
2. Mile 8.1: No MDEP regulated vernal pools were identified.
3. Mile 8.8: One MDEP regulated vernal pools was identified totaling 950 square feet of impact.
4. Mile 10.0: Four MDEP regulated vernal pools were identified totaling 32,480 square feet of impact.
5. Mile 13.2: No MDEP regulated vernal pools were identified.

G. FEMA Floodplain (Column 13)

The FEMA Flood Map Service Center is the official public source for flood hazard information produced in support of the National Flood Insurance Program (NFIP). This information was referenced to assess the potential impacts to federally regulated flood areas. In addition, mapped flood hazard areas were wetlands are present are considered Wetlands of Special Significance by the MDEP.

1. Mile 7.3: The project area is mapped as a Zone "A" 100-year flood hazard area. No specific elevation information is available from FEMA suggesting a flood elevation study has not been completed. Approximately 1.0 acres of floodplain would be impacted.
2. Mile 8.1: Approximately 0.5 acres of floodplain would be impacted.
3. Mile 8.8: Approximately 0.3 acres of floodplain would be impacted.
4. Mile 10.0: No flood hazard mapping was identified in the project area. A zone "A" 100-year flood hazard area is mapped easterly of the project area but does not appear to be within the limits of direct impact as referenced from FEMA flood hazard mapping.
5. Mile 13.2: The project areas adjacent the MTA is mapped as a Zone "A" 100-year flood hazard area. No specific elevation information is available from FEMA suggesting a flood elevation study has not been completed.

H. Cultural / Historical Resources (Column 14)

The Maine Historic Preservation Commission (MHPC) was contacted and provided locations of the proposed tolling plazas. MHPC responded on January 7, 2015 and determined no archaeological sites have been identified for any of the alternative locations. We would note that once a preferred location is identified and a preliminary design completed, the MHPC should be contacted to confirm the original findings. Also included is a 2010 "Historic Architectural Reconnaissance Survey for the York Toll Plaza Project" prepared for HNTB by PAL. The report addresses area of potentially eligible listings in the National Register together with Drive and Indirect impacts. PAL concluded not effect on historic architectural portions and no further work is necessary for the areas studied in the report.

I. Potential Threatened / Endangered Species Habitat (State Listed) (Column 15)

The Maine Natural Areas Program was consulted along with the Maine Department of Inland Fisheries and Wildlife (IF&W) to obtain database information on habitats for rare, threatened, endangered and special concern species that may be relevant to each alternative location. The following is a general summary of the database findings.

Table 2: Potential State Threatened/Endangered Species Habitat Summary

	Maine Natural Areas Program			**Maine Inland Fisheries and Wildlife**			
Mile	Sweet Pepperbush	Spicebush	Smooth Winterberry Holly	IWWH [1]	Ribbon Snake	Spotted Turtle	Redfin Pickeral/ Swamp Darter
7.3	X	X		X			
8.1	X	X		X	X	X	
8.8	X		X	X	X	X	
10.0	X			X			X
13.2							

Note: "X" indicates mapped habitat within the project vicinity.
(1) "IWWH" – Inland Waterfowl & Wading Bird Habitat.

1. Mile 7.3: Maine Natural Areas Program: Database information suggests no rare and exemplary botanical features are mapped in the project area. Spicebush and Sweet Pepper-bush were mapped northerly of the project area (3 locations) but are not within the project area.
   IF&W requires a 100 foot vegetated stream buffer which includes the Little River. In addition, IF&W identified an Inland Waterfowl and Wading Bird habitat along the Little River.
2. Mile 8.1: Maine Natural Areas Program: Database information from the Maine Natural Areas Program suggests rare and exemplary botanical features are mapped in the project area. Spicebush and Sweet Pepper-bush were mapped easterly of the project area. These areas do not appear to be directly within the project area but may warrant field verification should this location be advanced for further study.
   IF&W: Stream protection was identified together with Inland Waterfowl and Wading Bird habitat. Database information indicates that there are 3 habitat areas (Ribbon Snake, Spotted Turtle and Inland Bird Wading Habitat) within the general project area.
3. Mile 8.8: Maine Natural Areas Program: Database information suggests rare and exemplary botanical features are mapped in the project area. Sweet Pepper-bush (4 locations) and Smooth Winterberry Holly (1 location) were mapped in the project area. Some of the mapped areas may be directly within the project and will warrant field verification should this location be advanced for further study.

IF&W: Stream protection was identified together with Inland Waterfowl and Wading Bird habitat. Database information indicates that 3 habitat areas (Ribbon Snake, Spotted Turtle and Inland Waterfowl and Wading Bird Habitat) with potential threatened or endangered species are located within the identified project area.

4. Mile 10.0: Maine Natural Areas Program: Database information suggests rare and exemplary botanical features are mapped in the project area. Sweet Pepper-bush was mapped on the west side of the turnpike but are depicted outside of the project area. Field verification will be warranted to confirm that both of the species are or are not within the project area.
   IF&W: Stream protection was identified along together with Inland Waterfowl and Wading Bird habitat and a potential Redfin Pickerel/Swamp Darter habitat. A total of 160 linear feet of stream impacts is anticipated. Database information indicates that 2 habitat areas with potential threatened or endangered species are located within the identified project area.
5. Mile 13.2: Maine Natural Areas Program: Database information suggests no rare and exemplary botanical features are mapped in the project area.
   IF&W: Stream protection was identified on the resource mapping. A total of 140 linear feet of stream impacts is anticipated. Database information indicates that Spotted Turtle Habitat is located easterly of the project area but does not appear to be directly within the limits of direct impacts.

New England Cottontail Rabbit

The New England Cottontail is identified by the Maine Department of Inland Fisheries and Wildlife Service as a candidate for listing as an endangered species. The New England Cottontail is limited to York and Cumberland County Maine, although their range once extended as far north as Augusta according to IF&W information. The IF&W reports that in recent years cottontails have been found in Berwick, Biddeford, Cape Elizabeth, Cumberland, Dayton, Elliot, Falmouth, Gorham, Kittery, Portland, Saco, Scarborough, South Berwick, South Portland, Wells, Westbrook, Windham, and York. As part of the permitting, IF&W will require a review of each site for potential habitat and indications of Cottontail presence. Should the species be identified, mitigation for associated impacts will likely be required. In 2010, a New England Cottontail Pellet Study (July 2010 by Normandeau Associates, Inc.) was completed in the area of mile 7.3 and 8.7. The study noted that no conclusive signs of the New England Cottontail were observed.

J. US Fish & Wildlife Threatened and Endangered Species

The Environmental Screening Report includes a listing from the US Fish and Wildlife Service (USF&W) of threatened and endangered species. The listing identified one species that may exist within the project area (Northern Long-Eared Bat). This is based upon the data obtained from the Environmental Conservation Online System (ECOS) and the Information, Planning, and Conservation System (IPaC) administered by the US Fish and Wildlife. The USF&W does not list the New England Cottontail as a threatened or endangered species.

Northern Long-Eared Bats

As part of the federal permitting (USACE) process, the USF&W is expected to require that all sites with tree clearing be surveyed for the presence of Northern Long-Eared Bats. When tree clearing is required, the U.S. Fish and Wildlife will most likely recommend that clearing be completed between October 16 and April 19, during which bats are most likely to be in their hibernacula (caves or mines) where they hibernate over the winter. Tree clearing during this time

period will most likely avoid any direct effects to bats that may be roosting in trees during the late spring, summer, and early fall. The alternative is to undertake a field study to determine if Northern Long-Eared Bats are present through an acoustical listening study. Should the bats be present, the timing of clearing will important and may be subject to restrictions.

ABUTTER IMPACTS

A. Potential Right-of-Way Impacts (Column 16)

The alternatives were designed to avoid and minimize the impact to properties. The conceptual design of the alternatives included an estimation of land that would need to be acquired and used as a right-of-way for the new toll facility. The limits of the proposed right-of-way are irregular because they are a function of topography, earth-moving activities (i.e., cutting and filling), slopes, existing property boundaries, viability of remaining portions of properties acquired, and continued access to individual properties. Right-of-way impacts may include construction of a new administration building, parking lot, highway widening or retaining wall. The amount of land to be acquired for the construction and operation of the alternatives would be minimized wherever possible.

Potential right-of-way impacts ranging from 0 to 0.9 acres are considered low impacts, potential right-of-way impacts ranging from 1.0 to 3.0 acres are moderate impacts and potential right-of-way impacts greater than 3.01 acres are high impacts.

Mile 10.0 has 3.5 acres of potential right-of-way impact identified as a high impact. Mile 8.1 has 2.0 acres and mile 13.2 has 2.5 acres of potential right-of-way impact identified as a mid-range impact. Mile 7.3 has 0.1 acres and mile 8.8 has 0.3 acres of potential right-of-way impact identified as a low impact.

B. House Displacement (Column 17)

Certain houses and businesses may need to be acquired for the highway and toll facility right-of-way. Displacements are counted where the existing residence or commercial building is within 75 feet of the direct impact line. In addition, lot size was considered during the determination of house displacement. If a majority of a lot is needed for the project, the house on the subject lot was also considered as a displacement. This does not imply that a house requires displacement. No houses within 75 feet of the direct impact line are considered a low impact. Houses within 75 feet of the direct impact line is identified as a displacement and considered a high impact.

There is one house displacement anticipated for alternative at mile 13.2. There are no house displacements anticipated for alternatives at mile 7.3, mile 8.1, mile 8.8, and mile 10.0.

C. Houses within 1000 feet of direct impact line (Column 18)

Houses 1000 feet of the direct impact line were identified for each alternative. This was to quantify the number of houses that may experience a change in noise and a change in scenic view. Noise measurements were not conducted. The noise in some areas would be altered by the alternative. The scenic view of some areas would be altered by the build alternative and the loss of aesthetic resources such as vegetation, forestland, farmland, pastures, and/or streams. The quality of the view is a very subjective determination; nevertheless, this is an important discriminator between the alternatives. The metrics of 1000 feet was used to tabulate the number of homes for each alternative. This metric was used based on our professional judgement for evaluating the alternatives but are not used as part of the impact

assessment, since there is no regulation to enforce it. The existing houses that would be displaced (acquired for the highway right-of-way) are excluded from this count. Houses within 1000 feet of the direct impact line ranging from 0 to 10 are considered a low impact. Houses within 1000 feet of the direct impact line ranging from 11 to 30 are considered a moderate impact. Houses within 1000 feet of the direct impact line ranging from 31 or greater are considered a high impact.

Mile 7.3 has 47 houses, mile 10.0 has 46 houses and mile 13.2 has 41 houses within 1000 feet of the direct impact line identified as a high impact. Mile 8.1 has 6 houses and mile 8.8 has 4 houses within 1000 feet of the direct impact line identified as a low impact.

LOGISTICS DURING CONSTRUCTION

A. Constructability (Column 19)

Constructability is optimizing cost, time, and quality factors with the material, equipment, construction means, methods, and techniques used on a project; accomplished by matching owner values with available construction industry practices. Constructability is a project management technique for reviewing construction processes from start to finish during the pre-construction phrase. It will identify obstacles and constraints before a project is actually built to reduce or prevent error, delays and cost overruns. Constructability constraints for this project may include poor soils conditions, environmental impacts, traffic management or maintaining the existing toll facility while the new toll facility is being constructed in close proximity. Traffic movement through the work zone during all construction phases and the geometric constraints of temporary construction features (e.g. shoring and bracing) can be another constructability issue.

Alternatives following the standard construction industry practice and with minimal construction constraints is considered conventional. Alternative with difficult construction constraints is considered difficult.

Mile 7.3 is complicated construction phasing due to close proximity of new plaza, 400 feet away, while maintaining operations at existing plaza. This alternative may require temporary booths or E-ZPass lanes to maintain tolling lanes in each direction during construction. This alternative has poor soil conditions and will require the removal of material up to 5 feet in depth and replaced with a lightweight aggregate fill to bottom of proposed roadway subbase. Wick drains would be installed in the new roadway areas and spaced 4 to 5 feet on center in a triangular grid. Where wick drains are installed, the area would be surcharged for 4 to 7 months. The wick drains would help speed up the consolidation of the clay.

There are no constructability constraints or issues anticipated for alternatives at mile 8.1, mile 8.8, mile 10.0 and mile 13.2

B. Safety of Toll Collectors (Column 20)

Making sure the MTA employees, toll collectors and maintenance staff who perform work in the immediate vicinity of the existing plaza (including electrical work, construction, and other repairs) are safe during construction is a critical element to MTA. Safety of toll collectors is a high priority and all alternatives will have appropriate safety measures. This category differentiates the level of conflict areas and how difficult protection of toll collectors will be during construction.

The most aggressive mitigation strategy to protect workers from vehicular traffic is to provide workers access to booths without requiring them to cross active traffic by-pass toll lanes. This is accomplished with the use of a tunnel. However, with the construction phasing and removal of poor soil, there may be some disruption to the existing tunnel.

Low-range of impacts are applied to alternatives providing safe practice and measures during construction with minimal changes to toll collector's normal routines and are separated from the construction zone. Mid-range impacts are applied to alternatives with moderate changes to toll collector's normal routines and minor or moderate overlap through construction areas. High-range of impacts are applied to alternatives with major changes to toll collector's normal routines and major overlap through construction areas.

Mile 7.3 has some mid-range constraints due to close proximity to the existing toll plaza. The construction zone for this alternative falls within the existing toll plaza.

Alternatives at mile 8.1, mile 8.8, mile 10.0 and mile 13.2 are considered good since there are no safety constraints or issues anticipated.

C. Traveler Impacts (Column 21)

Construction for a new toll facility will have impacts to travelers. Impacts may occur at the construction work zone and/or at the existing toll plaza. Travelers must access the dedicated toll lanes via the toll plaza approach area. Excessive vehicle queue in the approach area impacts access and efficiency of dedicated toll lanes. Traveler impacts may include queueing (traffic backup) and delays at the existing toll facility in proximity to the new toll facility being constructed.

Traveler impacts are a measure of the complexity of traffic management and to what level of inconvenience it affects vehicles traveling on the turnpike during construction. The higher level of Alternatives with construction in close proximity to the existing plaza will have more complex traffic management which may affect travelers more than alternatives with no overlap of the existing plaza.
Low-range of impacts is applied to construction at existing grade and minor traffic shifts. Mid-range impacts are applied to construction at or near existing grade and traffic shifts requiring more complexity. High-range impacts are applied to construction at a significantly higher or lower new grade requiring very complex traffic management.

Alternatives at mile 7.3 and mile 8.1 are considered mid-range impacts due to more complex traffic management with ramp traffic and proximity to the existing toll plaza. Alternatives at mile 8.8, mile 10.0 and mile 13.2 are rated as low-range of impacts due to minimal traffic management efforts.

COSTS

Construction costs are based on known high cost items such as common excavation, hot mix asphalt, toll booths, tunnel etc. and a contingency for smaller item costs not typically quantified until final design. Costs for wetland, stream and ROW impacts are included for each alternative. Additional costs added to each alternative are 10% contingency, 10% design engineering and 8% construction engineering. Costs for maintenance of traffic are included and are commensurate with complexity of alternative location. Soil conditions are a factor in the construction sequencing and cost. Multiple borings were taken near mile 7.3 so this estimate is more refined concerning soil remediation. Other alternatives consist of visual determination of site conditions with appropriate cost estimating.

A. Initial Capital Costs (Column 22)

Capital costs consist of estimations for a complete plaza with contingencies of 10% for lower cost items to be defined during final design. The estimated cost includes: all construction items, new toll facility, access road, utilities, utilities removed from existing toll facility, demo of the existing toll facility and reconfigure to a highway, wetland mitigation, maintenance of traffic; demolition of toll plaza, tunnel, building; toll equipment and systems, new Right of Way acquisition, design and construction engineering. The initial capital cost does not include prior Right of Way acquisitions along the turnpike. This cost includes the reconfiguration of the existing plaza location for all alternatives regardless of distance to alternative site. The project limits of alternative at mile 7.3 include the removal and all work associated with reconfiguration at the existing toll plaza, however all other alternatives will require removal of the existing plaza and reconfiguring the roadway with standard ramp designs. The reconfiguration and removal cost at the existing plaza site will be the same for alternatives with no overlap in the layout, however alternatives with an overlap area will benefit from a reduced cost for reconfiguration. These costs are incorporated into initial capital costs for each alternative.

1. The initial capital costs for mile 7.3 is approximately $60.4 million.
2. The initial capital costs for mile 8.1 is approximately $39.7 million.
3. The initial capital costs for mile 8.8 is approximately $40.8 million.
4. The initial capital costs for mile 10.0 is approximately $42.6 million.
5. The initial capital costs for mile 13.2 is approximately $46.6 million.

B. Revenue Loss during Construction (Column 23)

This evaluation of revenue loss during construction only considers the complexity of maintenance of traffic. Alternatives constructed at existing grade will have minor effects on the flow of traffic, however construction at a new grade will require shifting traffic multiple times through the workzone. The likelihood of the traveling public diverting to other routes avoiding tolls will increase.

Low-range of impacts is applied to construction at existing grade. High-range impacts is applied to construction at a new grade.

Alternatives at mile 8.1, mile 8.8, mile 10.0 and mile 13.2 are all rated as low-range impacts. Alternative at mile 7.3 is rated as high-range impact.

C. Life-Cycle / Operation Costs (Column 24)

The life-cycle costs are determined by settlement and associated maintenance issues. Paving operations at mile 7.3 will be required on a 6 year cycle rather than the 10 year cycle based on future settlement due to poor soil conditions.

Low-range impacts are applied to normal conditions requiring normal maintenance procedures and life cycle. Mid-range impacts are applied to a slight increase in maintenance costs or reduced life cycle. High-range impacts are applied to a significant increase in maintenance costs or significant reduction in life cycle.

Alternatives at mile 8.1, mile 8.8, mile 10.0 and mile 13.2 are all rated as low-range impacts. Alternative at mile 7.3 is rated as a mid-range impact due to an increase in maintenance costs.

CONCLUSION

Each of the alternatives had some categories of impacts that had similar results as the recommended alternative but overall we believe that the net positive attributes of alternative mile 8.8 make it the desirable choice for further study and evaluation. Clearly, the alternative that locates the new plaza at approximately mile 8.8 has superior Engineering and Safety benefits while minimizing environmental and abutter impacts compared to a reconstruction of the toll plaza in the vicinity of mile 7.3. The reconstructed toll plaza at mile 7.3 site would still have less than ideal geometric and safety characteristics because of the horizontal and vertical curves leading to the toll plaza and the poor safety record that has classified the approaches and departure zones as a high crash location according to Maine DOT historic records. Based on our teams' field investigation and research efforts, the wetland and stream impacts for the existing mile 7.3 alternative compared to the recommended location, range from 3 to 5 times higher. Additional benefits of the recommended alternative consist of less disruption to the travelling public, reduced construction time, and significant cost savings in the range of $20 million. Jacobs recommends continuation of the development and refinement of alternative for mile 8.8 to continue pre-permitting activities and design refinement of this alternative. See Appendix C, for the memorandum on the Recommended Alternative.

FIGURES

Figure 1 **Conceptual Plan, Profile and Typical Section at Mile 7.3**
Figure 2 **Conceptual Plan, Profile and Typical Section at Mile 8.1**
Figure 3 **Conceptual Plan, Profile and Typical Section at Mile 8.8**
Figure 4 **Conceptual Plan, Profile and Typical Section at Mile 10.0**
Figure 5 **Conceptual Plan, Profile and Typical Section at Mile 13.2**

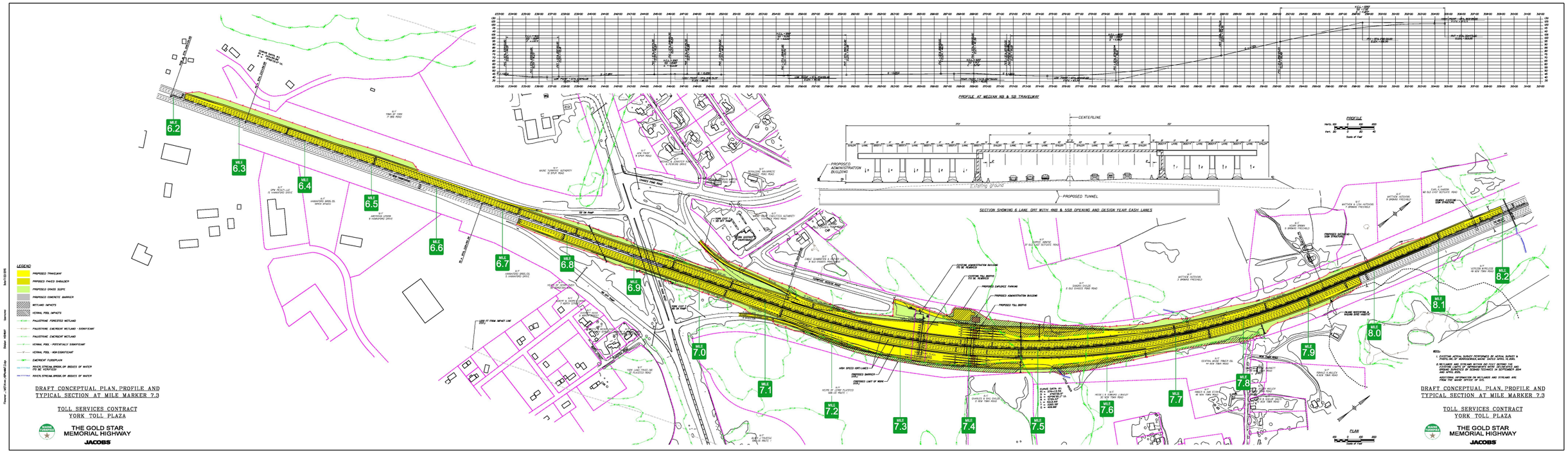


FIGURE 1 - Conceptual Plan, Profile and Typical Section at Mile 7.3

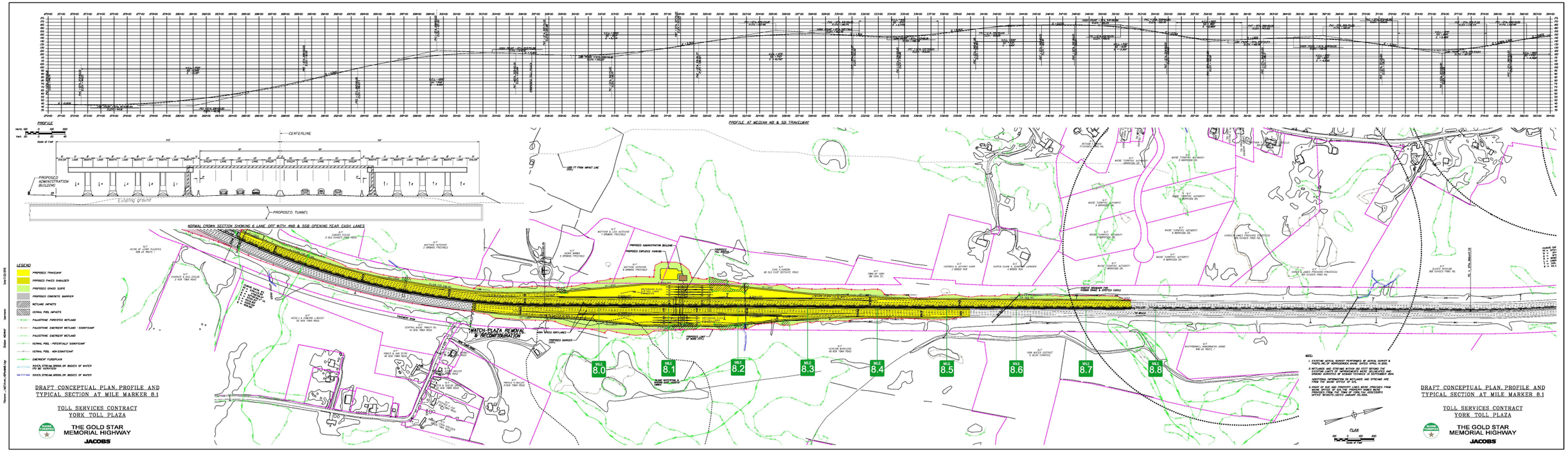


FIGURE 2 - Conceptual Plan, Profile and Typical Section at Mile 8.1

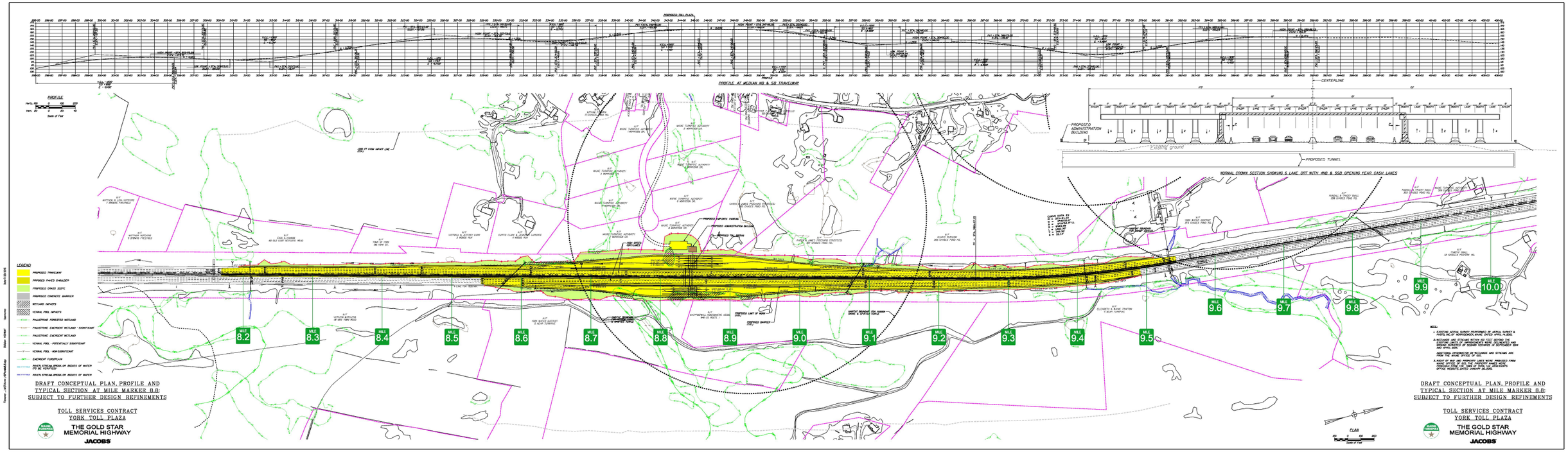


FIGURE 3 - Conceptual Plan, Profile and Typical Section at Mile 8.8

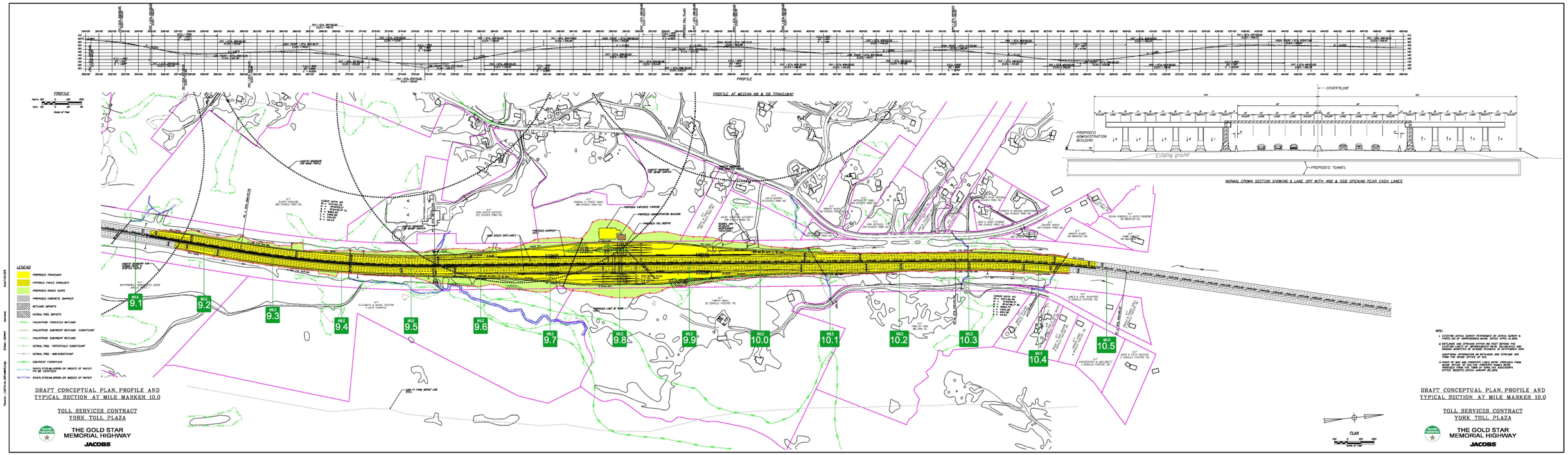


FIGURE 4 - Conceptual Plan, Profile and Typical Section at Mile 10.0

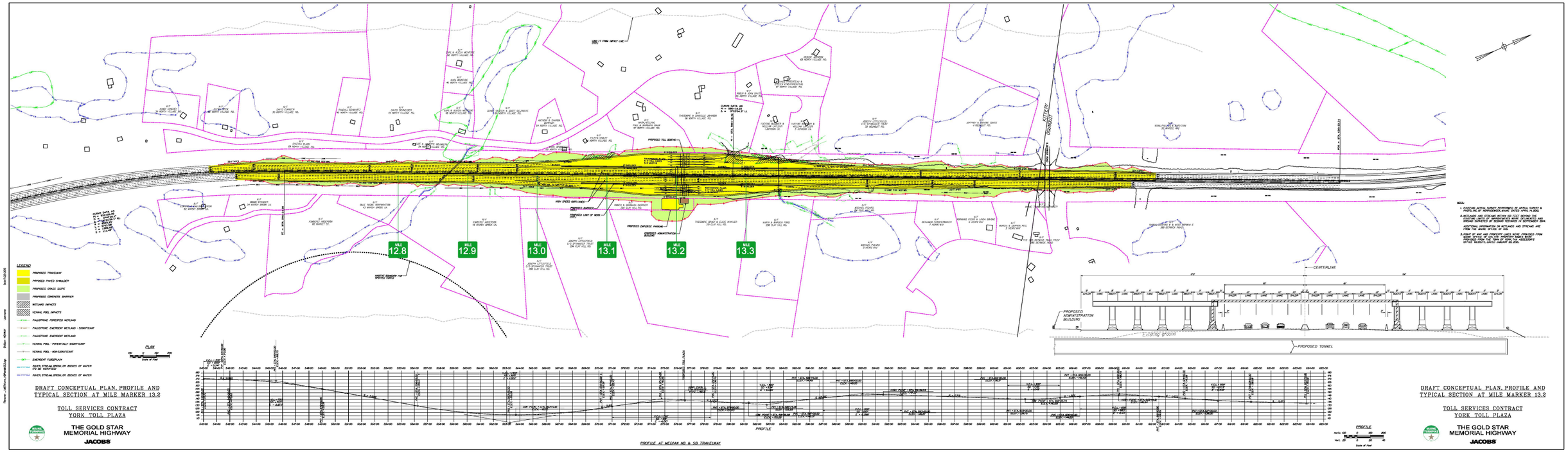


FIGURE 5 - Conceptual Plan, Profile and Typical Section at Mile 13.2

APPENDIX A

EVALUATION MATRIX

EVALUATION MATRIX

Approximate Location \ Evaluation Parameter	1	2			3	4	5	6	7	8	9	10	11		12		13	14	15
	ENGINEERING / SAFETY								ENVIRONMENTAL										
	Horizontal Alignment (1)	Vertical Alignment (1)			Sight Distance (2)	Separation from Interchange (>1 mile) (1)	Historic Crash Data (3)	Geotechnical (4)	Wetland Impacts (Total) (5)	Impacts to Maine DEP Wetlands of Special Significance (5)	Wetlands Relative Function and Value (6)	Stream Impacts (7)	Vernal Pool Impact (Total) (8)		Impacts to Maine DEP Vernal Pool of Special Significance		FEMA Floodplain (9)	Cultural / Historical Resources (10)	Potential Threatened / Endangered Species Habitat (State Listed)(11)
		Cash Plaza on Crest	Cash Plaza - Approach Grades between +1% and +2%	ORT Lanes on Existing or New					(Acres)	(Acres)		(LF)	No.	(SF)	No.	(SF)	(Acres)		No.
Mile 7.3	On Curve	Average	Poor	New	Average	No	43	Clay	5.5	1.9	High	360	1	1,750	0	0	3.0	No Impact	1
Other Sites Analyzed																			
Mile 8.1	Curve on approach	Average	Poor	Existing	Average	Marginal	23	Ledge	1.0	0.1	Average	50	0	0	0	0	0.5	No Impact	3
Mile 8.8*	On straight	Good	Average	Existing	Good	Yes	13	Ledge	1.0	0.8	Average	80	2	7,230	1	950	0.3	No Impact	3
Mile 10.0	Curve on approach	Average	Average	Existing	Average	Yes	21	Ledge	1.0	1.0	High	160	4	32,480	4	32,480	0.0	No Impact	2
Mile 13.2	On straight	Good	Poor	Existing	Good	Yes	18	Ledge	0.7	0.2	Low	140	2	7,430	0	0	0.0	No Impact	1
Low-Range of Impacts	On straight	Good	Good	Existing	Good	Yes	Low-range	Good	< 0.34	No Impact	Low	No Impact	No Impact		No Impact		No Impact	No Impact	No Impact
Mid-Range of Impacts	Curve on approach	Average	Average	New	Average	Marginal	Mid-range	Marginal	≥ 0.34 – 3.0	Resource Impacted	Average	Resource Impacted	Resource Impacted		Resource Impacted		Resource Impacted	Resource Impacted	Resource Impacted
High-Range of Impacts	On Curve	Poor	Poor		Poor	No	High-range	Poor	> 3.0		High								

Approximate Location \ Evaluation Parameter	16	17	18	19	20	21	22	23	24
	ABUTTER IMPACTS			LOGISTICS DURING CONSTRUCTION			COSTS / FINANCIALS		
	Potential Right-of-Way Impacts (12)	House Displacement within 75 feet of direct impact line (13)	Houses within 1000 feet of direct impact line (14)	Constructability (15)	Safety of Toll Collectors (16)	Traveler Impacts (17)	Initial Capital Costs (18)	Revenue Loss during Construction (19)	Life-Cycle / Operations Costs (20)
	Acres						$Millions		
Mile 7.3	0.1	0	47	Difficult	Extra Precaution	Intermediate	$60.4	Significant	Not Typical
Other Sites Analyzed									
Mile 8.1	2.0	0	6	Conventional	No Impacts	Intermediate	$39.7	Minimal	Typical
Mile 8.8*	0.3	0	4	Conventional	No Impacts	Minor	$40.8	Minimal	Typical
Mile 10.0	3.5	0	46	Conventional	No Impacts	Minor	$42.6	Minimal	Typical
Mile 13.2	2.5	1	41	Conventional	No Impacts	Minor	$46.6	Minimal	Typical
Low-Range of Impacts	0 – 0.9	0	0 - 10	Conventional	No Impacts	Minor		Minimal	Typical
Mid-Range of Impacts	1.0 – 3.0	NA	11 - 30	Difficult	Extra Precaution	Intermediate		Significant	Not Typical
High-Range of Impacts	>3.01	>0	>31			Major			

* Recommended for 10% design and further analysis.

Footnotes:

1. Horizontal Alignment, Vertical Alignment and Separation from Interchange (>1 mile) values are based on criteria and design policies from the guidelines in the Federal Highway Administration report "State of the Practice and Recommendation on Traffic Control Strategies at Toll Plaza" 2006 and American Association of State Highway and Transportation Officials (AASHTO) "A Policy on Geometric Design of Highways and Streets", 2011.
2. Sight Distance value is based on the criteria and design policies from the guidelines in the American Association of State Highway and Transportation Officials (AASHTO) "A Policy on Geometric Design of Highways and Streets", 2011.
3. Information is based on MaineDOT's historical crash data and MaineDOT Office of Safety guidelines. Sites with 30 or more crashes were identified as high-range. Sites with 20-30 crashes were identified as mid-range. Sites with less than 20 crashes are low-range.
4. Geotechnical. Green represents mostly stable granular soils, no apparent groundwater impact, and no apparent bedrock excavation (ledge). Yellow represents ledge excavation, possible unstable soils, and minor groundwater impacts. Red represents soft and compressible soils, impacts due to high
5. Wetland Impacts are based on anticipated direct impacts on field delineated wetlands. Severity of impact based on level of USACE permitting required. Category 1 is non-reporting to the Corps. Category 2 requires notification to Corps but meets General Permit requirements. If not Category 1 or 2, a
6. Wetland Relative Function and Value is based on a preliminary comparative assessment of each proposed location in accordance with U.S. Army Corps of Engineers methodology.
7. Stream Impacts are based on anticipated direct impacts to potentially jurisdictional waterways, which could be modified based upon regulatory agency determinations.
8. Vernal Pool Impacts are based on anticipated direct impacts within Significant and Non-Significant Pools.
9. Floodplains are based on anticipated direct impacts.
10. Cultural / Historic Resources are based on anticipated direct impacts.
11. Potential Threatened / Endangered Species Habitat (State Listed) are based on anticipated direct impacts within a State or Federally designated habitat area.
12. Potential Right-of-Way Impacts is land that would need to be acquired and used as a right-of-way for the new toll facility. Right-of-way impacts may include construction of a new administration building, parking lot, highway widening or retaining wall. Right-of-impacts do not include new access road to the new administration building.
13. House Displacement is quantified for houses within 75 feet of direct impact line. The direct impact line is the cut or fill limit shown on the conceptual plans.
14. Houses within 1000 feet from direct impact line.
15. Constructability is measured by construction constraints that may include poor soils conditions, environmental impacts, tolling equipment / installation, traffic management, and/or construction phasing.
16. Safety of Toll Collectors. Identifying the safety of the toll collectors and maintenance staff who may have to walk through a construction zone.
17. Traveler Impacts may include traffic delays or construction of the new plaza being within proximity of the existing toll plaza.
18. Initial Capital Costs. Costs to construct the new toll facility, access road, utilities, utilities removed from existing toll facility, demo of the existing toll facility and reconfigure to a highway, wetland mitigation, toll equipment and systems, ROW acquisition, design/construction engineering and 10%
19. Revenue Loss during Construction. It is anticipated there will be revenue lost if traffic is diverted during construction.
20. Life-Cycle / Operations Costs. The life-cycle costs are associated maintenance issues. Example, paving operations may be on a 6-year cycle rather than a 10-year cycle based future settlement due to poor soil conditions.

APPENDIX B

PROJECT PURPOSE STATEMENT

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

Regulatory Division
CENAE-R-51

July 24, 2015

Sara Zografos
Maine Turnpike Authority
2360 Congress Street
Portland, Maine 04102

Dear Ms. Zografos:

This is in reference to the Authority's continued interest in replacing the southern barrier toll plaza on the Maine Turnpike at York, Maine.

In 2007 the Corps identified a basic project purpose for the project. Based on continued coordination with your office and interested parties since then, we have determined that a revision to the project purpose is now appropriate. The purpose of the project is to replace the existing barrier toll plaza on the Maine Turnpike at York, Maine with highway speed electronic tolling lanes and cash (non-EZ pass) lanes to address safety deficiencies, settling/subsidence, facility deficiencies including substandard tolling equipment, existing and projected traffic volumes, and traveler impacts and expectations. We will use this revised basic project purpose to review future alternatives analyses to avoid and minimize adverse impacts to waters and wetlands and to comply with the Section 404(b)(1) Guidelines.

If you have any questions concerning this matter, please contact Jay Clement at 207-623-8367 at our Manchester, Maine Project Office.

Sincerely,

Jay L. Clement for
Frank J. Del Giudice
Chief, Permits & Enforcement Section
Regulatory Division

Copies Furnished:
Mark Kern – EPA
Thomas Davidowicz – USFWS
Cassandra Chase – FHWA
Robert Green – Maine DEP

APPENDIX C

RECOMMENDED ALTERNATIVE

Technical Memorandum

JACOBS®

343 Congress Street
Boston, MA 02210 USA
617.242.9222 Fax 617.242.9824

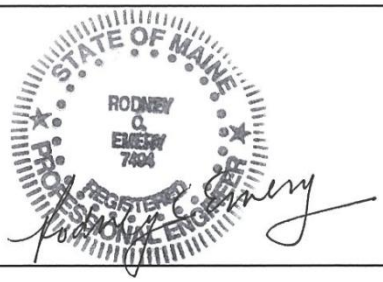
Memorandum

Date: June 22, 2015

To: Maine Turnpike Authority

From: Rodney Emery, PE, PTOE, FITE

Subject: York Toll Plaza Replacement Project
Recommended Alternative



Jacobs Engineering Group was retained by the Maine Turnpike Authority (MTA) to review locations for a replacement of the existing toll plaza currently located at approximately mile 7.3 on the Turnpike. An extensive review of the corridor yielded a series of alternative sites between mile 8.1 and 13.2 including a site near the existing toll plaza location in York that warranted further evaluation. A significant effort was expended to gather updated environmental data in the form of on the ground surveys of wetlands, vernal pools and streams as well as update information on floodplains, cultural/historical resource impacts and potential threatened/endangered species habitats. A series of evaluation criteria was developed, in collaboration with staff at the Turnpike, that consisted of Engineering/Safety, Environmental, Abutter Impacts, Logistics during Construction and Costs/Financials categories. A rating system was developed for each category of impact which was used to compare the alternatives. The alternative sites north of the existing toll plaza were selected based on engineering and environmental criteria and are located at approximately mile 8.1, mile 8.8, mile 10.0 and mile 13.2. Based on the work to date, this evaluation matrix supports the following recommendation.

Each of the alternatives had some categories of impacts that had similar results as the recommended alternative but overall we believe that the net positive attributes of alternative mile 8.8 make it the desirable choice for further study and evaluation. Clearly, the alternative that locates the new plaza at approximately mile 8.8 has superior Engineering and Safety benefits while minimizing environmental and abutter impacts compared to a reconstruction of the toll plaza in the vicinity of mile 7.3. The reconstructed toll plaza at mile 7.3 site would still have less than ideal geometric and safety characteristics because of the horizontal and vertical curves leading to the toll plaza and the poor safety record that has classified the approaches and departure zones as a high crash location according to Maine DOT historic records. Based on our teams' field investigation and research efforts, the wetland and stream impacts for the existing mile 7.3 alternative compared to the recommended location, range from 3 to 5 times higher. Additional benefits of the recommended alternative consist of less disruption to the travelling public, reduced construction time, and significant cost savings in the range of $20 million.

Recommendation

Jacobs recommends continuation of the development and refinement of alternative for Mile 8.8 to continue pre-permitting activities and design refinement of this alternative.

Jacobs Engineering Group Inc.

Technical Memorandum

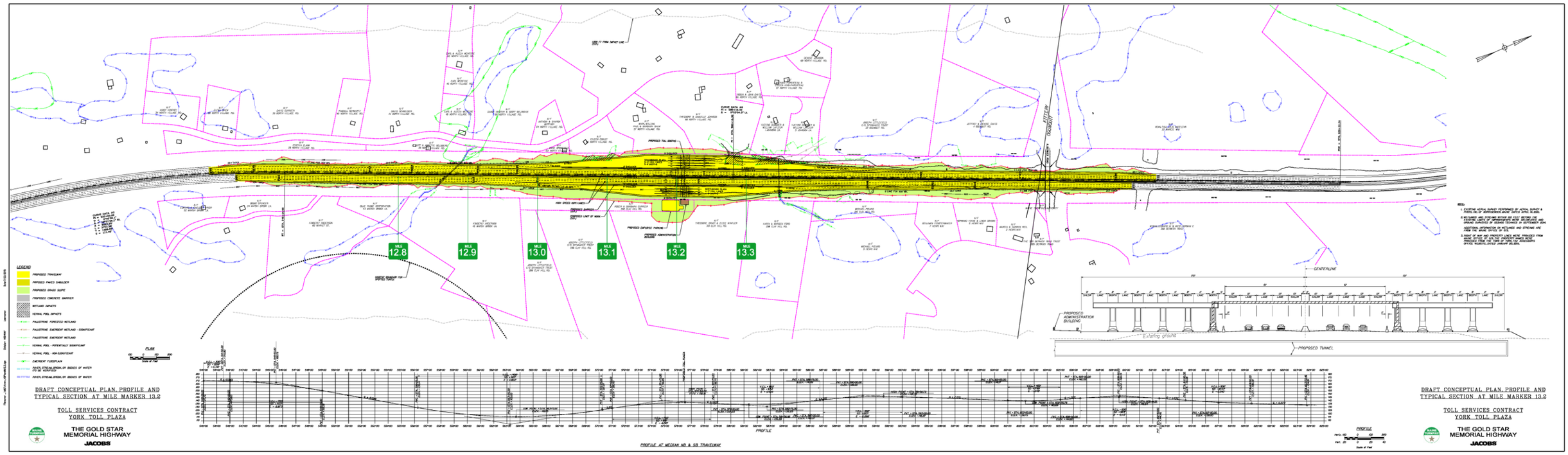


FIGURE 5 - Conceptual Plan, Profile and Typical Section at Mile 13.2

APPENDIX A

EVALUATION MATRIX

EVALUATION MATRIX

Approximate Location \ Evaluation Parameter	1	2			3	4	5	6	7	8	9	10	11		12		13	14	15
	ENGINEERING / SAFETY								ENVIRONMENTAL										
	Horizontal Alignment [1]	Vertical Alignment [1]			Sight Distance [2]	Separation from Interchange (>1 mile) [1]	Historic Crash Data [3]	Geotechnical [4]	Wetland Impacts (Total) [5]	Impacts to Maine DEP Wetlands of Special Significance [5]	Wetlands Relative Function and Value [6]	Stream Impacts [7]	Vernal Pool Impact (Total) [8]		Impacts to Maine DEP Vernal Pool of Special Significance		FEMA Floodplain [9]	Cultural / Historical Resources [10]	Potential Threatened / Endangered Species Habitat (State Listed) [11]
		Cash Plaza on Crest	Cash Plaza - Approach Grades between +1% and +2%	ORT Lanes on Existing or New					(Acres)	(Acres)		(LF)	No.	(SF)	No.	(SF)	(Acres)		No.
Mile 7.3	On Curve	Average	Poor	New	Average	No	43	Clay	5.5	1.9	High	360	1	1,750	0	0	3.0	No Impact	1
Other Sites Analyzed																			
Mile 8.1	Curve on approach	Average	Poor	Existing	Average	Marginal	23	Ledge	1.0	0.1	Average	50	0	0	0	0	0.5	No Impact	3
Mile 8.8*	On straight	Good	Average	Existing	Good	Yes	13	Ledge	1.0	0.8	Average	80	2	7,230	1	950	0.3	No Impact	3
Mile 10.0	Curve on approach	Average	Average	Existing	Average	Yes	21	Ledge	1.0	1.0	High	160	4	32,480	4	32,480	0.0	No Impact	2
Mile 13.2	On straight	Good	Poor	Existing	Good	Yes	18	Ledge	0.7	0.2	Low	140	2	7,430	0	0	0.0	No Impact	1
Low-Range of Impacts	On straight	Good	Good	Existing	Good	Yes	Low-range	Good	< 0.34	No Impact	Low	No Impact	No Impact		No Impact		No Impact	No Impact	No Impact
Mid-Range of Impacts	Curve on approach	Average	Average	New	Average	Marginal	Mid-range	Marginal	≥ 0.34 – 3.0	Resource Impacted	Average	Resource Impacted	Resource Impacted		Resource Impacted		Resource Impacted	Resource Impacted	Resource Impacted
High-Range of Impacts	On Curve	Poor	Poor		Poor	No	High-range	Poor	> 3.0		High								

Approximate Location \ Evaluation Parameter	16	17	18	19	20	21	22	23	24
	ABUTTER IMPACTS			LOGISTICS DURING CONSTRUCTION			COSTS / FINANCIALS		
	Potential Right-of-Way Impacts [12]	House Displacement within 75 feet of direct impact line [13]	Houses within 1000 feet of direct impact line [14]	Constructability [15]	Safety of Toll Collectors [16]	Traveler Impacts [17]	Initial Capital Costs [18]	Revenue Loss during Construction [19]	Life-Cycle / Operations Costs [20]
	Acres						$Millions		
Mile 7.3	0.1	0	47	Difficult	Extra Precaution	Intermediate	$60.4	Significant	Not Typical
Other Sites Analyzed									
Mile 8.1	2.0	0	6	Conventional	No Impacts	Intermediate	$39.7	Minimal	Typical
Mile 8.8*	0.3	0	4	Conventional	No Impacts	Minor	$40.8	Minimal	Typical
Mile 10.0	3.5	0	46	Conventional	No Impacts	Minor	$42.6	Minimal	Typical
Mile 13.2	2.5	1	41	Conventional	No Impacts	Minor	$46.6	Minimal	Typical
Low-Range of Impacts	0 – 0.9	0	0 - 10	Conventional	No Impacts	Minor		Minimal	Typical
Mid-Range of Impacts	1.0 – 3.0	NA	11 - 30	Difficult	Extra Precaution	Intermediate		Significant	Not Typical
High-Range of Impacts	>3.01	>0	>31			Major			

* Recommended for 10% design and further analysis.

Footnotes:

1. Horizontal Alignment, Vertical Alignment and Separation from Interchange (>1 mile) values are based on criteria and design policies from the guidelines in the Federal Highway Administration report "State of the Practice and Recommendation on Traffic Control Strategies at Toll Plaza" 2006 and American Association of State Highway and Transportation Officials (AASHTO) "A Policy on Geometric Design of Highways and Streets", 2011.
2. Sight Distance value is based on the criteria and design policies from the guidelines in the American Association of State Highway and Transportation Officials (AASHTO) "A Policy on Geometric Design of Highways and Streets", 2011.
3. Information is based on MaineDOT's historical crash data and MaineDOT Office of Safety guidelines. Sites with 30 or more crashes were identified as high-range. Sites with 20-30 crashes were identified as mid-range. Sites with less than 20 crashes are low-range.
4. Geotechnical. Green represents mostly stable granular soils, no apparent groundwater impact, and no apparent bedrock excavation (ledge). Yellow represents ledge excavation, possible unstable soils, and minor groundwater impacts. Red represents soft and compressible soils, impacts due to high
5. Wetland Impacts are based on anticipated direct impacts on field delineated wetlands. Severity of impact based on level of USACE permitting required. Category 1 is non-reporting to the Corps. Category 2 requires notification to Corps but meets General Permit requirements. If not Category 1 or 2, a
6. Wetland Relative Function and Value is based on a preliminary comparative assessment of each proposed location in accordance with U.S. Army Corps of Engineers methodology.
7. Stream Impacts are based on anticipated direct impacts to potentially jurisdictional waterways, which could be modified based upon regulatory agency determinations.
8. Vernal Pool Impacts are based on anticipated direct impacts within Significant and Non-Significant Pools.
9. Floodplains are based on anticipated direct impacts.
10. Cultural / Historic Resources are based on anticipated direct impacts.
11. Potential Threatened / Endangered Species Habitat (State Listed) are based on anticipated direct impacts within a State or Federally designated habitat area.
12. Potential Right-of-Way Impacts is land that would need to be acquired and used as a right-of-way for the new toll facility. Right-of-way impacts may include construction of a new administration building, parking lot, highway widening or retaining wall. Right-of-impacts do not include new access road to the new administration building.
13. House Displacement is quantified for houses within 75 feet of direct impact line. The direct impact line is the cut or fill limit shown on the conceptual plans.
14. Houses within 1000 feet from direct impact line.
15. Constructability is measured by construction constraints that may include poor soils conditions, environmental impacts, tolling equipment / installation, traffic management, and/or construction phasing.
16. Safety of Toll Collectors. Identifying the safety of the toll collectors and maintenance staff who may have to walk through a construction zone.
17. Traveler Impacts may include traffic delays or construction of the new plaza being within proximity of the existing toll plaza.
18. Initial Capital Costs. Costs to construct the new toll facility, access road, utilities, utilities removed from existing toll facility, demo of the existing toll facility and reconfigure to a highway, wetland mitigation, toll equipment and systems, ROW acquisition, design/construction engineering and 10%
19. Revenue Loss during Construction. It is anticipated there will be revenue lost if traffic is diverted during construction.
20. Life-Cycle / Operations Costs. The life-cycle costs are associated maintenance issues. Example, paving operations may be on a 6-year cycle rather than a 10-year cycle based future settlement due to poor soil conditions.

APPENDIX B

PROJECT PURPOSE STATEMENT

Technical Memorandum

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

Regulatory Division
CENAE-R-51

July 24, 2015

Sara Zografos
Maine Turnpike Authority
2360 Congress Street
Portland, Maine 04102

Dear Ms. Zografos:

This is in reference to the Authority's continued interest in replacing the southern barrier toll plaza on the Maine Turnpike at York, Maine.

In 2007 the Corps identified a basic project purpose for the project. Based on continued coordination with your office and interested parties since then, we have determined that a revision to the project purpose is now appropriate. The purpose of the project is to replace the existing barrier toll plaza on the Maine Turnpike at York, Maine with highway speed electronic tolling lanes and cash (non-EZ pass) lanes to address safety deficiencies, settling/subsidence, facility deficiencies including substandard tolling equipment, existing and projected traffic volumes, and traveler impacts and expectations. We will use this revised basic project purpose to review future alternatives analyses to avoid and minimize adverse impacts to waters and wetlands and to comply with the Section 404(b)(1) Guidelines.

If you have any questions concerning this matter, please contact Jay Clement at 207-623-8367 at our Manchester, Maine Project Office.

Sincerely,

Jay L. Clement for
Frank J. Del Giudice
Chief, Permits & Enforcement Section
Regulatory Division

Copies Furnished:
Mark Kern – EPA
Thomas Davidowicz – USFWS
Cassandra Chase – FHWA
Robert Green – Maine DEP

APPENDIX C

RECOMMENDED ALTERNATIVE

Technical Memorandum

JACOBS®

343 Congress Street
Boston, MA 02210 USA
617.242.9222 Fax 617.242.9824

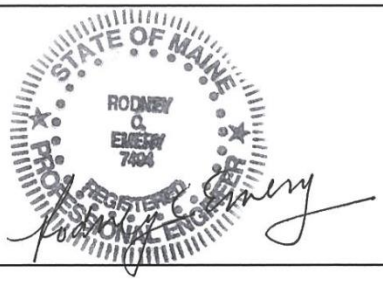
Memorandum

Date: June 22, 2015

To: Maine Turnpike Authority

From: Rodney Emery, PE, PTOE, FITE

Subject: York Toll Plaza Replacement Project
Recommended Alternative



Jacobs Engineering Group was retained by the Maine Turnpike Authority (MTA) to review locations for a replacement of the existing toll plaza currently located at approximately mile 7.3 on the Turnpike. An extensive review of the corridor yielded a series of alternative sites between mile 8.1 and 13.2 including a site near the existing toll plaza location in York that warranted further evaluation. A significant effort was expended to gather updated environmental data in the form of on the ground surveys of wetlands, vernal pools and streams as well as update information on floodplains, cultural/historical resource impacts and potential threatened/endangered species habitats. A series of evaluation criteria was developed, in collaboration with staff at the Turnpike, that consisted of Engineering/Safety, Environmental, Abutter Impacts, Logistics during Construction and Costs/Financials categories. A rating system was developed for each category of impact which was used to compare the alternatives. The alternative sites north of the existing toll plaza were selected based on engineering and environmental criteria and are located at approximately mile 8.1, mile 8.8, mile 10.0 and mile 13.2. Based on the work to date, this evaluation matrix supports the following recommendation.

Each of the alternatives had some categories of impacts that had similar results as the recommended alternative but overall we believe that the net positive attributes of alternative mile 8.8 make it the desirable choice for further study and evaluation. Clearly, the alternative that locates the new plaza at approximately mile 8.8 has superior Engineering and Safety benefits while minimizing environmental and abutter impacts compared to a reconstruction of the toll plaza in the vicinity of mile 7.3. The reconstructed toll plaza at mile 7.3 site would still have less than ideal geometric and safety characteristics because of the horizontal and vertical curves leading to the toll plaza and the poor safety record that has classified the approaches and departure zones as a high crash location according to Maine DOT historic records. Based on our teams' field investigation and research efforts, the wetland and stream impacts for the existing mile 7.3 alternative compared to the recommended location, range from 3 to 5 times higher. Additional benefits of the recommended alternative consist of less disruption to the travelling public, reduced construction time, and significant cost savings in the range of $20 million.

Recommendation

Jacobs recommends continuation of the development and refinement of alternative for Mile 8.8 to continue pre-permitting activities and design refinement of this alternative.

Jacobs Engineering Group Inc.

APPENDIX 9A

Wetlands Report

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Wetlands Report
York Toll Plaza Replacement

Introduction

Sebago Technics, Inc. has been retained to complete a wetland and vernal pool delineation and survey report for the Maine Turnpike Authority, for land that may be impacted by the replacement of the Toll Plaza in York Maine. The selected land is adjacent to the existing turnpike right of way between mile eight and mile nine of the U.S. I-95 Turnpike. The following summary narrative describes the result of our wetland and vernal pool field evaluation.

Description of Project Area:

The project site is located inland in York, Maine on and around U.S. I-95 Turnpike below Chases Pond. The site includes forested wetlands on the east and the west side of the turnpike and an adjacent stream that runs through a culvert under the highway between mile seven and mile eight that eventually connects with the Little River as well as a stream between mile nine and ten that connects with the Cape Neddick River near the edge of the project site. The site is a mile and a half away from the existing York Toll Plaza that is currently in use by the Maine Turnpike Authority.

Vernal Pools

A vernal pool survey was conducted on this site in April 2016 and April/May 2015. The survey conforms to the standards and methods outlined in Chapter 335, Section 9, of the Natural Resource Protection Act, Maine Department of Environmental Protection.

There were a total of 12 vernal pools identified on the property as follows:

1. Six vernal pools within wetlands 54, 56, 13, and 19, met the definition of "Significant Vernal Pool" based on the egg mass counts of pool-breeding amphibians for the 2016 survey by Sebago Technics, Inc. . In vernal pool 54-3 there were 70 wood frog egg masses and 72 spotted salamander egg masses. In vernal pool 54-2 there were 45 spotted salamander egg masses and four wood frog egg masses. Vernal pool 13-1 had 75 spotted salamander egg masses, 27 wood frog egg masses, one fairy shrimp and a spotted turtle sighting. In vernal pool 19-1 there were 120 spotted salamander egg masses found. There were 20 spotted salamander egg masses in vernal Pool 56-1. There have been no egg masses found in vernal pool 54-4 in 2015 or 2016, but in 2008 a previous survey identified 60 fairy shrimp designating this pool significant.

2. Six other vernal pools were identified within the wetlands mapped for this assessment. These pools were determined to be a non-significant vernal pools based on MDEP criteria. The highest egg mass count for vernal pool 12-1 during the 2016 survey was 14 spotted salamander. Vernal Pool 17-1 contained 29 wood frog egg masses, and 15 spotted salamander egg masses. There were 4 spotted

salamander egg masses identified in vernal pool 18-1, 8 spotted salamander egg masses identified in vernal pool 18-3, and 13 wood frog egg masses identified in vernal pool 18-2. Vernal pool 53-1 had 9 wood frog egg masses and 2 spotted salamander egg masses. Vernal pool 54-1 had 4 spotted salamander egg masses.

3. There were several areas where a previous study had identified vernal pools where none were found during this study. In wetland 16 a vernal pool had been delineated with no indicator species identified in any years of survey. The most recent survey in 2015 and 2016 did not identify any egg masses thus confirming that there is no vernal pool here. Adjacent to wetland 56 there was documentation of two vernal pools but after reviewing the area it was determined there were no vernal pools as the areas were without water during the month of April.

   See attached "Maine State Vernal Pool Assessment Forms" for egg mass counts and habitat information.

Wetlands

The wetlands on the site were delineated by Gary M. Fullerton of Sebago Technics in April and May, 2015. This delineation was completed in general accordance with the standards and methods outlined in the 1987 Wetlands Delineation Manual and Regional Supplement authored and published by the U.S. Army Corps of Engineers. The wetlands were marked in the field with alpha numeric pink "wetland boundary" flagging. The delineated wetland boundaries were located in the field using a Trimble global positioning system (GPS) backpack unit.

Wetland Classification

The wetlands on the site fall within two general classifications as defined by *Classification of Wetlands and Deepwater Habitats* (Cowardin, et al., 1979). There are forested and emergent wetlands, all within the Palustrine (non-tidal) system.

Each wetland is labeled with two descriptions on the wetlands map in Appendix 9B. The first is an arbitrary label to distinguish one wetland from another. The second is the classification symbol established by Cowardin, et al., as described below.

1. Wetland 11 is classified as a seasonally flooded, persistent emergent wetland (PEM1C) dominated by broad-leaved cattail (*Typha latifolia*). This wetland is part of a larger complex that drains from Chases Pond and eventually connects with the Cape Neddick River. The soils in the wetland are Chocorua peat while the surrounding soils are lyman-rock outcrop. There are no significant vernal pool breeding areas defined within the wetland.

2. The remaining wetlands within the project site are classified as seasonally saturated, broad-leaved, deciduous, forested wetlands (PFO1E). The dominant vegetation in most of these wetlands are as follows: red maple (*Acer rubrum*), white pine, (*Pinus strobus*), highbush blueberry (*Vaccinium corymbosum*), speckled alder (*Alnus incana*), cinnamon fern (*Osmundastrum*

cinnamomeum), and sensitive fern (*Onoclea sensibilis*). The soils consist of lyman loam, lyman rock outcrop, and Brayton and Westbury very stony fine sandy loam.

Wetlands of Special Significance

Freshwater wetlands of special significance were found on the site. A wetland of special significance is defined in the Natural Resources Protection Act, Chapter 310 – Wetlands and Waterbodies Protection, Section 4. The following eight criteria are used in determination of a wetland of special significance:

1. *Critically imperiled or imperiled community. The freshwater wetland contains a natural community that is critically imperiled (S1) or imperiled (S2) as defined by the Natural Areas Program.*

   Findings: No critically imperiled communities exist, but several imperiled communities are present. The indicated areas of sweet pepper bush (*Clethera alnifolia*) and spicebush (*Lindera benzoin*) are rated S2 and are listed as "special concern" species with good to fair occurrence rank. Smooth Winterberry Holly (*Ilex laevigata*) is listed as a special concern species in the state of Maine, for this site (between mile eight and nine of the turnpike) the state rank is S3 and the occurrence rank is poor. Featherfoil (*Hottonia inflata*) is listed as threatened and given an occurrence rank of extant.

2. *Significant wildlife habitat. The freshwater wetland contains significant wildlife habitat as defined by 38 MRSA § 480-B(10).*

   Findings: Wetlands 19, 54, and 56 contain significant vernal pools and qualify as significant wildlife habitat. There is a 250-foot jurisdictional zone adjacent to the high water mark of the vernal pools. There is Inland Waterfowl and Wading Bird Habitat, as well as spotted turtle and ribbon snake habitat in Wetland 11.

3. *Location near coastal wetland. The freshwater wetland area is located within 250 feet of a coastal wetland.*

   Findings: No coastal wetlands exist within 250 feet of the site.

4. *Location near GPA great pond. The freshwater wetland area is located within 250 feet of the normal high water line, and within the same watershed, of any lake or pond classified as GPA under 38 MRSA § 465-A.*

   Findings: No GPA great pond is located within 250 feet of the site.

5. *Aquatic vegetation, emergent marsh vegetation or open water. The freshwater wetland contains under normal circumstances at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, unless the 20,000 or more square foot area is the result of an artificial pond or impoundment.*

   Findings: Wetland 11 contains approximately 90,000 square feet of emergent marsh vegetation. This wetland contains approximately 20,000 square feet of broad-leaved cattail (*typha latifolia*) as well as a few red maple saplings (*acer rubrum*), some meadowsweet, and speckled alder. This is the only wetland within the project area that meets the minimum criteria for this category.

6. *Wetlands subject to flooding. The freshwater wetland area is inundated with floodwater during a 100-year flood event based on flood insurance maps produced by the Federal Emergency Management Agency or other site-specific information.*

   Findings: Wetland 18 is located in a 100-year flood area and qualifies as a wetland of special significance. Refer to attached FEMA Firmette Panel number 230159 0022 D.

7. *Peatlands. The freshwater wetland is or contains peatlands, except that the department may determine that a previously mined peatland, or portion thereof, is not a wetland of special significance.*

   Findings: There are no peatlands on the site.

8. *River, stream, or brook. The freshwater wetland area is located within 25 feet of a river, stream or brook.*

   Findings: The wetlands within 25 feet of the Cape Neddick River and the streams associated with it are considered wetlands of special significance. There are streams running adjacent to wetlands 13 and 30 that all connect to the Cape Neddick River.



_____

Gary M. Fullerton, CSS, LSE

Director of Natural Resources

APPENDIX 9B

Vernal Pool Report

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Vernal Pool Survey Report

York Toll Plaza Relocation

Introduction

A vernal pool survey was performed on the York Toll Plaza relocation project site at mile 8.8 of interstate 95 in York, Maine on April 6th, April 19th, and April 29th 2016 by Gary M. Fullerton, Sebago Technics, Inc. (STI). This survey was conducted to identify vernal pool habitats regulated by the Maine Department of Environmental Protection (MDEP) and the U.S. Army Corps of Engineers (USACE). Biotic and abiotic components of each vernal pool habitat may vary throughout the course of each year; and may differ from year to year. Based on the observations made, this survey was performed following the peak breeding period of indicator species thus correctly characterizing all vernal pools observed. The wetlands delineated by Sebago Technics, Inc. for this project were reviewed for vernal pools indicator species.

In order to be considered a vernal pool under the jurisdiction of MDEP, a vernal pool must be characterized as a Significant Vernal Pool. According to the MDEP's current regulations (Chapter 335, Section 9 of the MDEP Natural Resources Protection Act {NRPA}), a vernal pool is a natural, temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish. In addition, a Significant Vernal Pool contains one or more of the following:

- 40 or more wood frog (*Rana sylvatica*) egg masses
- 20 or more spotted salamander (*Ambystoma maculatum*) egg masses
- 10 or more blue spotted salamander (*Ambystoma laterale*) egg masses
- Presence of fairy shrimp (*Eubranchipus sp.)*
- Presence of any state-listed threatened or endangered species

As defined by Chapter 335 of MDEP's NRPA, impacts to a Significant Vernal Pool depression, or any part of the critical terrestrial habitat within 250 feet of the pool depression, may require an Individual NRPA permit. Regulation by USACE is on a case-by-case basis and may be stimulated by the presence of any of the above listed species, regardless of abundance or geographic setting.

Results:

There were 13 vernal pools identified within the project area at the conclusion of the vernal pool survey. The table in Appendix 1 summarizes the information collected using the Significant Vernal Pool Data Collection Form provided by MDEP. All of the Vernal Pools at this site are contained within forested wetlands (PF1OE). Vernal Pools 13-1 and 19-1 are classified as being excavated for borrow material for turnpike projects most likely in the 1950's. Due to the time lapse and the fact that significant egg mass counts were observed, we are assuming these pools would be considered significant under the DEP definition. Vernal pool 18-3 is considered a natural-modified pool because it has been altered by the development adjacent to the pool and a portion of the pool was excavated. The remaining vernal pools were all classified as natural pools.

There are six vernal pools on the project site that were determined to be significant and seven non-significant vernal pools.

Significant Vernal Pools

Vernal Pool 13-1 is an unnatural pool that appears to have been excavated as a pond and is an isolated pool. The pool is three to five feet deep and has shallow organic matter on the bottom of the pool. The vegetation observed was wet site graminoids and shrubs. On April 19th, there were 75 spotted salamander egg masses observed in the pool, a fairy shrimp was identified, and a spotted turtle was seen in the 2016 survey. On that date, there were 32 wood frog egg masses observed. Despite the unnatural origin this is being considered a significant vernal pool.

Vernal Pool 19-1 is an unnatural pool that appears to have been excavated that is on the east side of the turnpike and lies just beyond the existing tree line. It receives runoff from the turnpike via an excavated and rip-rap lined ditch. It is a semi-permanent pool that is part of a larger forested wetland complex. The pool itself is classified as a shrub swamp based on the vegetation present. Wet site ferns, shrubs, graminoids and floating aquatic plants were observed in the pool. The water has a reddish-brown color and a thick layer of leaf litter on the bottom. Over 100 spotted salamander egg masses were observed in the pool on both survey dates while no other indicator species were present.

Vernal Pool 54-2 is a natural pool associated with a large forest wetland complex (wetland 54) with no inlet or outlet. The soil is a shallow layer of organic matter on the bottom of the pool. The vegetation observed is moist site ferns and wet site shrubs. The depth of the pool is one to three feet deep. There were 45 spotted salamander egg masses observed on April 19th and 4 wood frog egg masses.

Vernal Pool 54-3 is a natural pool that is part of the large forested wetland complex. The pool is ephemeral and one to three feet deep with organic matter on the pool floor. The vegetation consists of wet site ferns, shrubs, moist site shrubs, vascular plants, and sphagnum moss. This

pool contained approximately 70 wood frog egg masses and 72 spotted salamander egg masses.

Vernal Pool 54-4 is a natural pool associated with the large forested wetland complex. This ephemeral pool is one to three feet deep with mineral soil. The vegetation at this pool is both wet site ferns and moist site ferns. In the surveys done by Sebago Technics, Inc. in 2015 and 2016 no indicator species were observed, but a previous study done by HNTB had identified 60 fairy shrimp in the pool in 2008. Since this pool has been previously designated a significant vernal pool, it will remain so unless there are three consecutive years of data that indicate otherwise.

Vernal Pool 56-1 is a natural pool associated with a large wetland complex. It is a shallow pool with mineral soils and various wet site and moist site vegetation. There is no inlet or outlet to this pool. There were 20 spotted salamander egg masses identified in this pool and no wood frog egg masses.

Non-significant Vernal Pools

Vernal Pool 12-1 is a non-significant vernal pool that is associated with a larger wetland complex and has an intermittent inlet from wetland 11. The pool is one to three feet deep and contains shallow organic soil and has wet site ferns and shrubs growing in and around the pool. There were 14 spotted salamander egg masses observed on April 19th in this pool. No other indicator species were observed.

Vernal Pool 17-1 is a non-significant natural pool that is adjacent to the turnpike clearing. It contains mineral soil but there is shallow organic matter restricted to the deepest portion of the pool. There are moist site ferns and vascular plants as well as wet site shrubs. There were both wood frog egg masses and spotted salamander egg masses at this site, but the numbers were not significant. A snapping turtle was observed on April 29th.

Vernal Pool 18-1 is a non-significant natural vernal pool associated with a large forested wetland complex. Within a forested wetland, this is an ephemeral pool between one and three feet deep with organic matter deep and widespread. The vegetation at this site is wet site ferns, shrubs, graminoids, sphagnum moss and moist site vascular plants. There is a road bed owned by the York Water District with a culvert under it that feeds this vernal pool from VP 18-3. There were only a few spotted salamander egg masses identified in this pool.

Vernal Pool 18-2 is a non-significant pool in a shrub swamp that is associated with the large wetland complex. This pool is ephemeral. It is shallow, 0 to 12 inches deep with mineral soil. There are moist site ferns, moist site vascular plants, and wet site shrubs. There were wood frog egg masses identified in this pool but no other indicators.

Vernal Pool 18-3 is a non-significant pool that has an intermittent inlet from a trench that was dug in wetland 18 for unknown reasons. This pool is semi-permanent and is between one and three feet deep. There are wet site shrubs and mineral soils in this pool and there were 8 spotted salamander egg masses identified.

Vernal Pool 53-1 is a non-significant isolated pool that is part of a forested wetland. The pool is ephemeral and has no inlet or outlet. The vegetation consists of wet site shrubs and the soil is mineral. Both wood frog and spotted salamander egg masses were found in insignificant numbers.

APPENDIX 9C

Vernal Pool Maps

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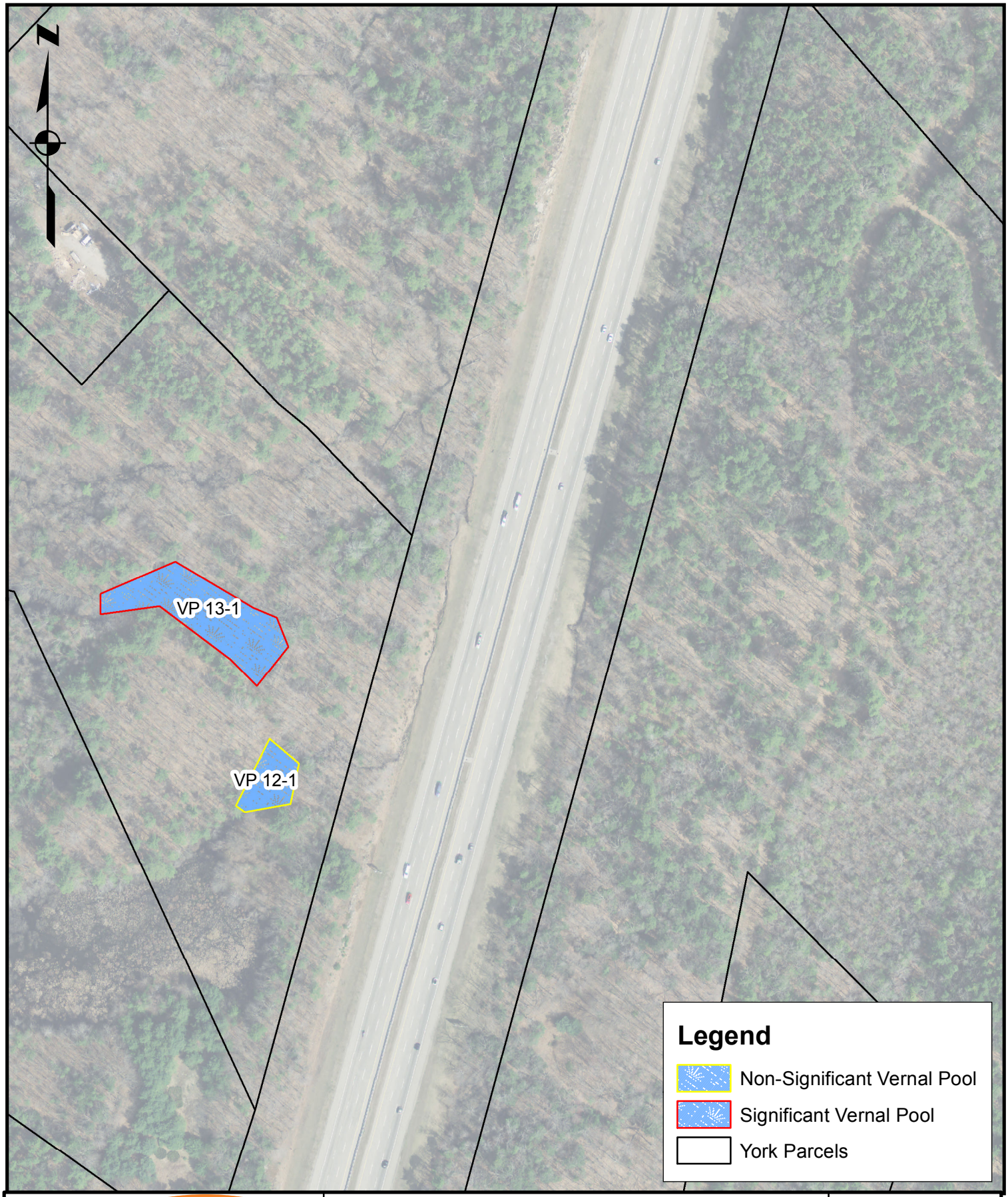


SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 1A
South Portland, ME 04106
Tel. 207-200-2100
250 Goddard Rd. - Suite B
Lewiston, ME 40240
Tel. 207-783-5656

Vernal Pools
FOR: Maine Turnpike Authority

SCALE: 1 " = 200 '

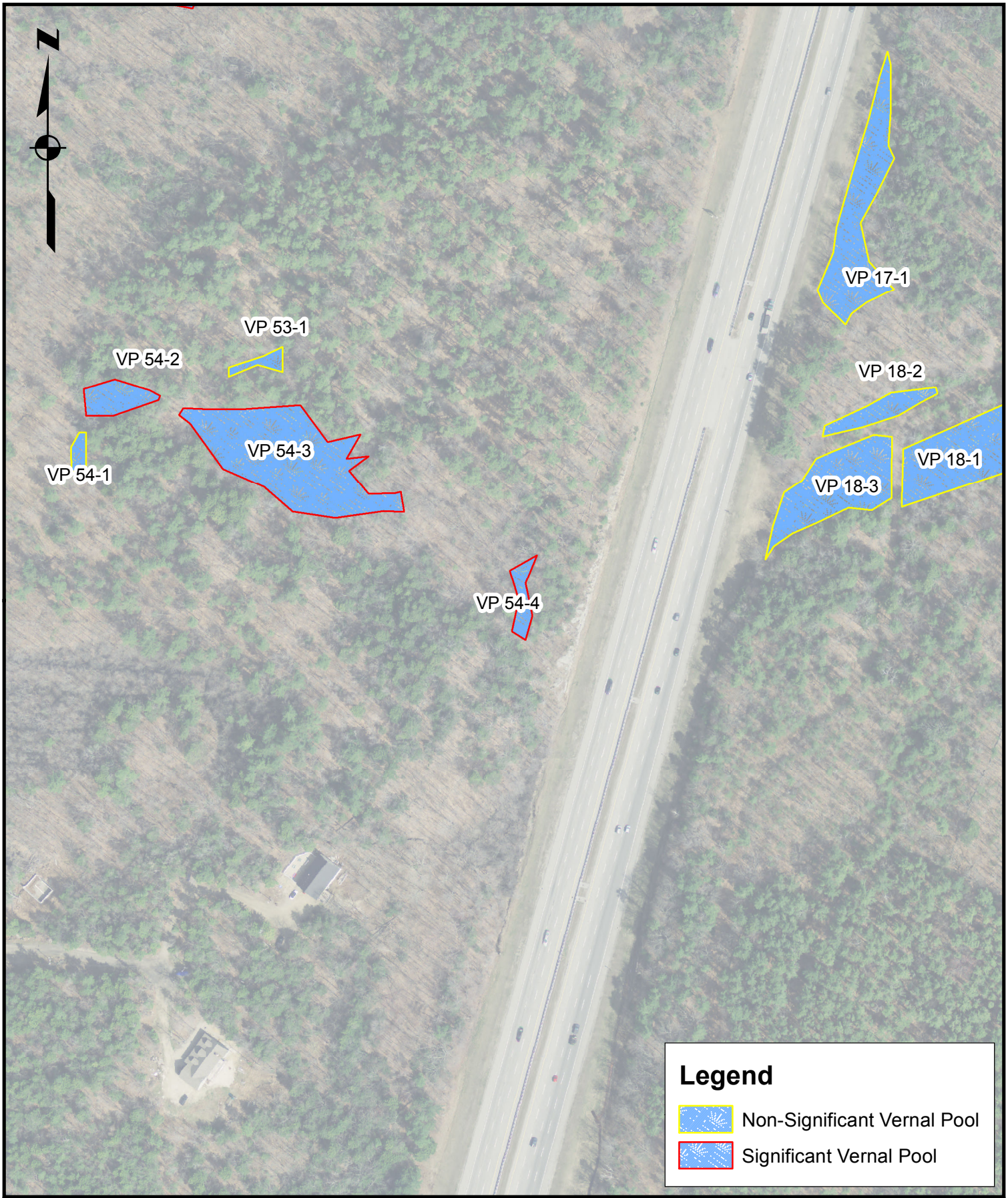
DATE: 05/12/16

LOCATION:
York Toll Plaza MM 8.8
York, Maine 03909

INFORMATION: Significant and Non-Significant Pools
Delineated 2016
York Parcels 2014
Imagery: Geolibrary 10/24/2012

14181 VP1 STI 8.5X11P.MXD

PROJECT NUMBER: 14181



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Tel. 207-200-2100
250 Goddard Rd. - Suite B
Lewiston, ME 40240
Tel. 207-783-5656

Vernal Pools
FOR: Maine Turnpike Authority

SCALE: 1 " = 200 '

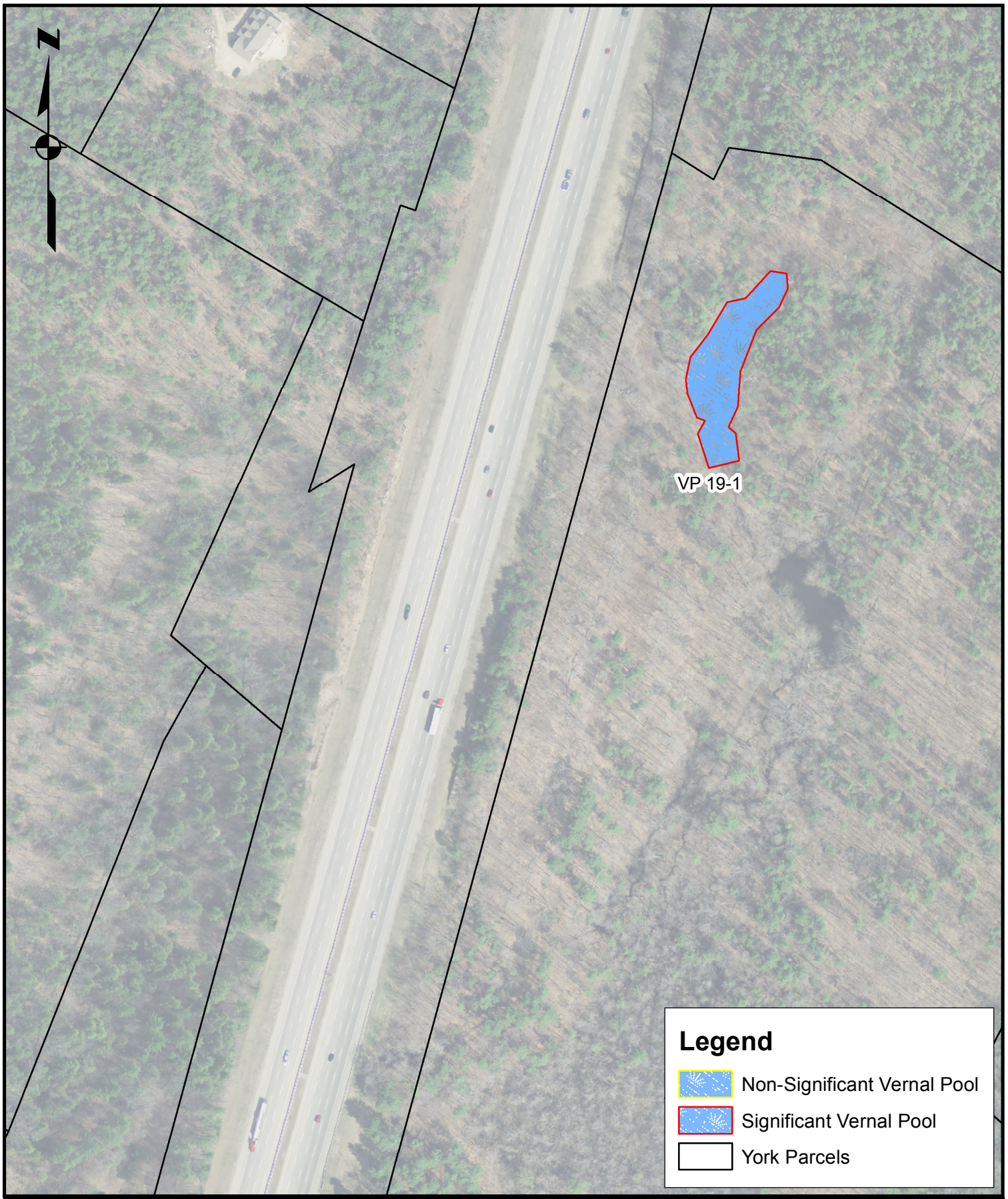
DATE: 05/12/16

LOCATION:
York Toll Plaza MM 8.8
York, Maine 03909

INFORMATION: Significant and Non-Significant Pools
Delineated 2016
York Parcels 2014
Imagery: Geolibrary 10/24/2012

14181 VP1 STI 8.5X11P.MXD

PROJECT NUMBER: 14181



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250 Goddard Rd. - Suite B
Lewiston, ME 40240
Tel. 207-783-5656

Vernal Pools
FOR: Maine Turnpike Authority

SCALE: 1 " = 200 '

DATE: 05/12/16

LOCATION:
York Toll Plaza MM 8.8
York, Maine 03909

INFORMATION: Significant and Non-Significant Pools
Delineated 2016
York Parcels 2014
Imagery: Geolibrary 10/24/2012

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APPENDIX 9D

Wetland and Vernal Pool Photographs

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Photo 1: View of culvert at inlet of Wetland 13



Photo 2: View of roadside ditch in Wetland 13



Photo 3: View of stream in Wetland 13 with turnpike in background



Photo 4: View of drainage swale in Wetland 12



Photo 5: View of non-significant vernal pool in Wetland 12



Photo 6: View of non-significant vernal pool in Wetland 56



Photo 7: View of Wetland 10, isolated forested wetland



Photo 8: View of non-significant vernal pool in Wetland 56



Photo 9: View of Wetland 56, forested wetland



Photo 10: View of non-significant vernal pool in Wetland 54



Photo 11: View of significant vernal pool in Wetland 54



Photo 12: View of significant vernal pool in Wetland 54



Photo 13: View of significant vernal pool in Wetland 54



Photo 14: View of non-significant vernal pool in Wetland 53



Photo 15: View of Wetland 9, forested wetland



Photo 16: View of 30-inch culvert at outlet of Wetland 9



Photo 17: View of Wetland 18, forested wetland



Photo 18: View of roadbed which dissects Wetland 18



Photo 19: View of non-significant vernal pool in Wetland 18



Photo 20: View of non-significant vernal pool in Wetland 18



Photo 21: View of non-significant vernal pool in Wetland 17



Photo 22: View of non-significant vernal pool in Wetland 17



Photo 23: View of wetland 16, forested wetland



Photo 24: View of non-significant vernal pool in Wetland 16



Photo 25: View of Wetland 15, forested wetland



Photo 26: View of 36-inch culvert at outlet of Wetland 15



Photo 27: View of Wetland 14, forested wetland



Photo 28: View of Wetland 26



Photo 29: View of Wetland 26



Photo 30: View of Culvert in Wetland 25



Photo 31: View of Wetland 25



Photo 1: View of Non-Significant Vernal Pool 12-1



Photo 2: Spotted Salamander Advanced Egg Mass in Vernal Pool 12-1



Photo 3: View of Significant Vernal Pool 13-1



Photo 4: Wood Frog Egg Masses in Vernal Pool 13-1



Photo 5: View of Spotted Salamander Egg Masses in Vernal Pool 13-1



Photo 6: View of Vernal Pool 17-1 with turnpike in background



Photo 7: View of Wood Frog Egg Mass in Vernal Pool 17-1



Photo 8: View of Non-Significant Vernal Pool 18-2



Photo 9: View of Wood Frog Egg Masses in Vernal Pool 18-2



Photo 10: View of Non-Significant Vernal Pool 18-1



Photo 11: View of Spotted Salamander Egg Mass in Vernal Pool 18-1



Photo 12: View of Non-Significant Vernal Pool 18-3



Photo 13: View of Spotted Salamander Egg Mass in Vernal Pool 18-3



Photo 14: View of Significant Vernal Pool 19-1



Photo 15: View of Spotted Salamander Egg Masses in Vernal Pool 19-1



Photo 16: View of Non-Significant Vernal Pool 53-1



Photo 17: View of Wood Frog Egg Mass in Vernal Pool 53-1



Photo 18: View of Non-Significant Vernal Pool 54-1



Photo 19: View of Spotted Salamander Egg Mass in Vernal Pool 54-1



Photo 20: View of Significant Vernal Pool 54-2



Photo 21: View of Spotted Salamander Egg Masses in Vernal Pool 54-2



Photo 22: View of Significant Vernal Pool 54-3



Photo 23: View of Spotted Salamander Egg Masses in Vernal Pool 54-3



Photo 24: View of Wood Frog Egg Masses in Vernal Pool 54-3



Photo 25: View of Significant Vernal Pool 54-4



Photo 26: View of Significant Vernal Pool 54-4



Photo 27: View of Significant Vernal Pool 56-1



Photo 28: View of Spotted Salamander Egg Masses in Vernal Pool 56-1



Photo 31: View of Wetland 9 ditch on edge of Turnpike



Photo 32: View of Spotted Salamander Egg Masses in Wetland 9 ditch



Photo 33: View of Culvert in Wetland 15



Photo 34: View of Spotted Salamander Egg Mass in Wetland 15 Plunge Pool

APPENDIX 9E

FEMA Flood Map

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JOINS PANEL 0010

ZONE X

ZONE A

CHASES POND

MIDDLE POND

ZONE A

ZONE X

ZONE X

ZONE A

Cape Neddick River

ZONE A

ZONE X

ZONE X

SCITUATE ROAD

CHASES POND ROAD

MAINE TURNPIKE (95)

SCITUATE ROAD

SCITUATE POND

ZONE A

ZONE X

HOOPER ROAD

HORN SWAMP ROAD

SHAW CREST ROAD

ELIZABETH LANE

Project Location

WHIPPOORWILL SWAMP

ZONE A

ZONE A

Cedar Hill Creek

ZONE X

ZONE A

SURREY TERRACE

ZONE X

ZONE X

SCITUATE ROAD

CHASES POND ROAD

PEBBLE LANE

OLD E. SCITUATE ROAD

ZONE X

ZONE X

BLUE STAR MEMORIAL HWY (1)

SECOND STREET

FIRST STREET

BLOCK STREET

HEMLOCK AVENUE

BEACON STREET

Bridges Swamp

ZONE A

STONEY RIDGE

EARLINE CIRCLE

GRANITE LINE

BLUE STONE LANE

OLD POST ROAD

LORRIN CIRCLE

BOULTER POND

ZONE A

FALL MEETING HOUSE ROAD

ZONE A

Cedar Hill Creek

ZONE A

Moulton Brook

Little River

ZONE A

MAINE TURNPIKE (95)

TOWN HOUSE ROAD

ZONE A

ZONE X

PERKINS DRIVE

OLD CHASES POND ROAD

RELIGIOUS SOCIETIES

JOINS PANEL 0024

JOINS PANEL 0026

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

UNDEVELOPED COASTAL BARRIERS*

Identified 1983 | Identified 1990 or Later | Otherwise Protected Areas identified 1991 or Later

* Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
- 513 — Base Flood Elevation Line Elevation in Feet**
- A — A — Cross Section Line
- 23 — 23 — Transect Line
- (EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone**
- RM7 × — Elevation Reference Mark
- M15 — River Mile

**Referenced to the National Geodetic Vertical Datum of 1929

NOTES TO USERS

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in the FIS report in conjunction with the data shown on this FIRM.

Elevation Reference Mark (ERM) elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

DIGITAL DATA AVAILABILITY: Digital files containing the thematic floodplain information shown on this map can be made available on CD-ROM by request. The files are currently archived in MicroStation design (DGN) file format referenced to the Universal Transverse Mercator (UTM) projection and the North American Datum of 1927 (NAD27). To obtain the digital files, send a written request to: Flood Insurance Information Specialists, 2977 Prosperity Avenue, Fairfax, Virginia 22031. Telephone (703) 876-0248, Fax (703) 876-0073.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for possible updated flood hazard information prior to use of this map for property purchase or construction purposes.

Coastal base flood elevations apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD), and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of special flood hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

NOTE: The coordinate system used for the production of this Flood Insurance Rate Map (FIRM) is Universal Transverse Mercator (UTM), North American Datum of 1927 (NAD27), Clarke 1866 spheroid. Differences in the datum and spheroid used in the production of FIRMs for adjacent communities may result in slight positional differences in map features at the community boundaries. These differences do not affect the accuracy of the information shown on the FIRM.

ATTENTION: Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, contact the National Geodetic Survey at the following address:

Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3202

BASE MAP SOURCES: For the stream lines planimetric base map files were provided in digital format by the State of Maine, Office of GIS. These files were compiled at a scale of 1:24,000 from U.S. Geological Survey 7.5-Minute Series Topographic Maps. Additional information may have been derived from other sources. Users of this FIRM should be aware that minor adjustments may have been made to specific base map features.

MAP REPOSITORY

York Town Planner's Office, 186 York Street, York, Maine 03909 (Maps available for reference only, not for distribution.)

INITIAL IDENTIFICATION:
JUNE 21, 1974
FLOOD HAZARD BOUNDARY MAP REVISIONS:
OCTOBER 22, 1976
FLOOD INSURANCE RATE MAP EFFECTIVE:
DECEMBER 15, 1983
FLOOD INSURANCE RATE MAP REVISIONS:

July 15, 1992 – to add undeveloped coastal barriers.

June 17, 2002 – to change base flood elevations, special flood hazard areas, and zone designations; to update map format; and the effects of wave action; to add roads and road names; to incorporate Primary Frontal Dune analysis; and to reflect revised shoreline.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE
500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
YORK,
MAINE
YORK COUNTY

PANEL 22 OF 32
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY - PANEL NUMBER
230159 0022 D

MAP REVISED:
JUNE 17, 2002

Federal Emergency Management Agency

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APPENDIX 9F

Vernal Pool Data Forms

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Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 12-1 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 38' 56.15" Latitude/Northing: N43° 10' 57.45"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/14/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☒ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ◉ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ◉ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

■ Maximum depth at survey: ◉ 0-12" (0-1 ft.) ○ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 70 ○ m ◉ ft Length: 100 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ◉ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☐ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☒ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ○ No inlet or outlet
- ◉ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/6/16, 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp) #			Confidence Level[1]			Egg Mass Maturity[2]			Tadpoles/Larvae Observed			Confidence Level[1]		
Wood Frog	0	0	0	3	3	3	---	---	---						
Spotted Salamander	9	14	3	3	3	3	F	A	A						
Blue-spotted Salamander	0	0	0	3	3	3	---	---	---						
Fairy Shrimp[3]	0	0	0	3	3	3									

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification* P	H	S	CL**	SPECIES	Method of Verification* P	H	S	CL**
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

( ) SVP ( ) Potential SVP (•) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ( ) does not meet biological criteria ( ) does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 13-1 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 38' 57.33" Latitude/Northing: N43° 11' 00.01"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 4/19/16

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☐ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☒ Other: Isolated Pool

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ○ Natural ○ Natural-Modified ◉ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

Dug pond

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ◉ Semi-permanent (drying partially in all years and completely in drought years)
- ○ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ○ 12-36" (1-3 ft.) ◉ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 80 ○ m ◉ ft Length: 275 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ◉ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☐ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☐ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☒ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/6/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	27	32		3	3		F	A							
Spotted Salamander	17	75		3	3		F	A							
Blue-spotted Salamander	0	0		3	3		---	---							
Fairy Shrimp[3]	1	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☒	2	Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

(•) SVP ( ) Potential SVP ( ) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Spotted turtle seen

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 17-1 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 38' 53.37" Latitude/Northing: N43° 10' 48.70"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/22/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☒ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ◉ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

Next to fill from turnpike

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ◉ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

* organic matter (peat/muck) shallow or restricted to deepest portion - 18"

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ◉ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 50 ○ m ◉ ft Length: 400 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ◉ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☒ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☒ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☐ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: Snapping Turtle

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed?_____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	29	29		3	2		A	H							
Spotted Salamander	15	7		3	3		F	A							
Blue-spotted Salamander	0	0		3	3		---	---							
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

( ) SVP ( ) Potential SVP (•) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Shallow Eutrophic, snapping turtle seen

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria. ◯ does not meet MDEP vernal pool criteria.

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 18-1 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 38' 51.31" Latitude/Northing: N43° 10' 44.68"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/22/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☐ Forested swamp
- ☒ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ◉ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ◉ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

Fed by culvert under water district road bed

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ◉ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 100 ○ m ◉ ft Length: _____ ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ◉ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☐ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☒ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☒ Sphagnum moss (anchored or suspended)
- ☒ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☒ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	0	0		3	3		---	---							
Spotted Salamander	4	4		3	3		M	A							
Blue-spotted Salamander	0	0		3	3		---	---							
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

( ) SVP ( ) Potential SVP (•) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 18-2 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 38' 52.82" Latitude/Northing: N43° 10' 45.39"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/22/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☐ Forested swamp
- ☒ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ◉ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ◉ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

Fed by culvert under water district road bed

■ Maximum depth at survey: ◉ 0-12" (0-1 ft.) ○ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 30 ○ m ◉ ft Length: 200 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ◉ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☐ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☒ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☒ Sphagnum moss (anchored or suspended)
- ☐ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☒ Other: Green frogs

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	11	13		3	3		A	H							
Spotted Salamander	0	0		3	3		---	---							
Blue-spotted Salamander	0	0		3	3		---	---							
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

( ) SVP ( ) Potential SVP (•) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 18-3 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 38' 53.91" Latitude/Northing: N43° 10' 44.13"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 4/29/16

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☒ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ○ Natural ◉ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

Dug Trench in Wetland

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ◉ Semi-permanent (drying partially in all years and completely in drought years)
- ○ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ◉ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 85 ○ m ◉ ft Length: 200 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ◉ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☐ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☐ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): Ditch

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed?_____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	0	0		3	3		---	---							
Spotted Salamander	0	8		2	3		---	A							
Blue-spotted Salamander	0	0		3	3		---	---							
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

( ) SVP ( ) Potential SVP (•) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 19-1 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: _____ Latitude/Northing: N43° 10' 30.26"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/22/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☐ Forested swamp
- ☒ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ○ Natural ○ Natural-Modified ◉ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

Appears to be excavated

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ◉ Semi-permanent (drying partially in all years and completely in drought years)
- ○ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ◉ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 70 ○ m ◉ ft Length: 300 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ◉ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☐ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☒ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☒ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☒ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ○ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ◉ Other or Unknown (explain): Ditch

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	0	0		3	3		---	---							
Spotted Salamander	109	120		3	3		F	A							
Blue-spotted Salamander	0	0		3	3		---	---							
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

(•) SVP ( ) Potential SVP ( ) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Large pool fed from ditch

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria.

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 53-1 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 39' 06.12" Latitude/Northing: N43° 10' 45.99"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/14/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- (•) Isolated depression
- ( ) Floodplain depression
- ( ) Pool associated with larger wetland complex
- ( ) Other: _____

■ Check all wetland types that best apply to this pool:

- [x] Forested swamp
- [ ] Shrub swamp
- [ ] Peatland (fen or bog)
- [ ] Emergent marsh
- [ ] Wet meadow
- [ ] Lake/Pond
- [ ] Abandoned beaver flowage
- [ ] Active beaver flowage
- [ ] Slow stream
- [ ] Floodplain overflow / oxbow
- [ ] Headwater seepage
- [ ] Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: (•) Natural ( ) Natural-Modified ( ) Unnatural ( ) Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ( ) Permanent
- ( ) Semi-permanent (drying partially in all years and completely in drought years)
- (•) Ephemeral (drying out completely in most years)
- ( ) Unknown

Explain:

■ Maximum depth at survey: ( ) 0-12" (0-1 ft.) (•) 12-36" (1-3 ft.) ( ) 36-60" (3-5 ft.) ( ) >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 15 ( ) m (•) ft Length: 85 ( ) m (•) ft

■ Predominate substrate in order of increasing hydroperiod:

- (•) Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ( ) Mineral soil (sphagnum moss present)
- ( ) Organic matter (peat/muck) shallow or restricted to deepest portion
- ( ) Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- [ ] Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- [ ] Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- [ ] Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- [ ] Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- [ ] Sphagnum moss (anchored or suspended)
- [ ] Wet site ferns (e.g. royal fern, marsh fern)
- [x] Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- [ ] Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- [ ] Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- [ ] Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- [ ] No vegetation in pool

■ Faunal indicators (check all that apply):

- [ ] Fish
- [ ] Bullfrog or Green Frog tadpoles
- [ ] Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- (•) No inlet or outlet
- ( ) Intermittent inlet or outlet
- ( ) Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ( ) Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	2	9		2	3		F	A							
Spotted Salamander	2	2		3	3		F	A							
Blue-spotted Salamander	0	0		3	3										
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

( ) SVP ( ) Potential SVP (•) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 54-1 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 39' 09.85" Latitude/Northing: N43° 10' 44.58"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/14/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☒ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ◉ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ◉ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

ledge 12"

■ Maximum depth at survey: ◉ 0-12" (0-1 ft.) ○ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 20 ○ m ◉ ft Length: 60 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ◉ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☒ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☐ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	0	0		3	3		---	---							
Spotted Salamander	4	4		3	3		F	A							
Blue-spotted Salamander	0	0		3	3		---	---							
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

( ) SVP ( ) Potential SVP (•) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 54-2 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 39' 08.95" Latitude/Northing: N43° 10' 45.45"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/14/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☒ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ◉ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ◉ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ◉ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 50 ○ m ◉ ft Length: 115 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ◉ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☒ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☐ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp) #			Confidence Level[1]			Egg Mass Maturity[2]			Tadpoles/Larvae Observed			Confidence Level[1]		
Wood Frog	4	0		3	3		M	---							
Spotted Salamander	45	38		3	2		F	A							
Blue-spotted Salamander	0	0		3	3										
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification* P	H	S	CL**	SPECIES	Method of Verification* P	H	S	CL**
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

(•) SVP ( ) Potential SVP ( ) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 54-3 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 39' 05.14" Latitude/Northing: N43° 10' 44.36"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/14/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☒ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ◉ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ◉ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

12- 36" in spring

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ◉ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 115 ○ m ◉ ft Length: 375 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ○ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ◉ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☒ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☒ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☒ Sphagnum moss (anchored or suspended)
- ☒ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	70	70		2	2		A	H							
Spotted Salamander	72	72		3	3		F	A							
Blue-spotted Salamander	0	0		3	3										
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

(•) SVP ( ) Potential SVP ( ) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 54-4 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York, Maine

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 39' 00.45" Latitude/Northing: N43° 10' 42.45"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/14/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☒ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ◉ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ◉ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

■ Maximum depth at survey: ○ 0-12" (0-1 ft.) ◉ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 20 ○ m ◉ ft Length: 110 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ◉ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☒ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☐ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☒ Wet site ferns (e.g. royal fern, marsh fern)
- ☐ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☐ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed? _____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	0	0		3	3										
Spotted Salamander	0	0		3	3										
Blue-spotted Salamander	0	0		3	3										
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

( ) SVP (•) Potential SVP ( ) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ◯ does not meet biological criteria ◯ does not meet MDEP vernal pool criteria

Comments:

Maine State Vernal Pool Assessment Form

INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP 56-1 **MDIFW Pool ID:** _____

1. PRIMARY OBSERVER INFORMATION

a. Observer name: Gary M. Fullerton

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: ◉ same as observer ○ other _____

b. Contact and credentials previously provided? ○ No (submit Addendum 1) ◉ Yes

c. Project Name: York Toll Plaza Relocation

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? ○ Yes ◉ No If no, was landowner permission obtained for survey? ◉ Yes ○ No

b. Landowner's contact information (required)

Name: Maine Turnpike Authority Phone: (207) 871-7771

Street Address: 2360 Congress Street City: Portland State: ME Zip: 04102

c. ☐ Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: York

Brief site directions to the pool (using mapped landmarks):

b. Mapping Requirements: At least 2 of the 3 must be submitted (check those submitted):

☐ USGS topographic map with pool clearly marked.

☒ Large scale aerial photograph with pool clearly marked.

☒ GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: W70° 39' 06.79" Latitude/Northing: N43° 10' 53.21"

Check Datum: ○ NAD27 ◉ NAD83 / WGS84 Coordinate system: State Plane

Check one:

○ GIS shapefile
- send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

○ The pool perimeter is delineated by multiple GPS points. (excellent)
- Include map or spreadsheet with coordinates.

◉ The above GPS point is at the center of the pool. (good)

○ The center of the pool is approximately _____ m ○ /ft ○ in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 10/14/15

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- ○ Isolated depression
- ○ Floodplain depression
- ◉ Pool associated with larger wetland complex
- ○ Other: _____

■ Check all wetland types that best apply to this pool:

- ☒ Forested swamp
- ☐ Shrub swamp
- ☐ Peatland (fen or bog)
- ☐ Emergent marsh
- ☐ Wet meadow
- ☐ Lake/Pond
- ☐ Abandoned beaver flowage
- ☐ Active beaver flowage
- ☐ Slow stream
- ☐ Floodplain overflow / oxbow
- ☐ Headwater seepage
- ☐ Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: ◉ Natural ○ Natural-Modified ○ Unnatural ○ Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- ○ Permanent
- ○ Semi-permanent (drying partially in all years and completely in drought years)
- ◉ Ephemeral (drying out completely in most years)
- ○ Unknown

Explain:

■ Maximum depth at survey: ◉ 0-12" (0-1 ft.) ○ 12-36" (1-3 ft.) ○ 36-60" (3-5 ft.) ○ >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 85 ○ m ◉ ft Length: 375 ○ m ◉ ft

■ Predominate substrate in order of increasing hydroperiod:

- ◉ Mineral soil (bare, leaf-litter bottom, or upland mosses present)
- ○ Mineral soil (sphagnum moss present)
- ○ Organic matter (peat/muck) shallow or restricted to deepest portion
- ○ Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- ☐ Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)
- ☐ Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern)
- ☒ Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern)
- ☒ Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle)
- ☐ Sphagnum moss (anchored or suspended)
- ☒ Wet site ferns (e.g. royal fern, marsh fern)
- ☒ Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly)
- ☒ Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes)
- ☐ Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
- ☐ Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)
- ☐ No vegetation in pool

■ Faunal indicators (check all that apply):

- ☐ Fish
- ☐ Bullfrog or Green Frog tadpoles
- ☐ Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- ◉ No inlet or outlet
- ○ Intermittent inlet or outlet
- ○ Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- ○ Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 4/19/16, 4/29/16

b. Indicator abundance criteria

- Was the entire pool surveyed for egg masses? (•) Yes ( ) No; what % of pool surveyed?_____
- For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae					
	#			Confidence Level[1]			Egg Mass Maturity[2]			Observed			Confidence Level[1]		
Wood Frog	0	0		3	3		---	---							
Spotted Salamander	9	20		2	3		F	A							
Blue-spotted Salamander	0	0		3	3		---	---							
Fairy Shrimp[3]	0	0		3	3										

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

- Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☒		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		Other:	☐	☐	☐	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

( ) SVP ( ) Potential SVP (•) Non Significant VP ( ) Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date:_____ Initials:_____

This pool is: ☐ **Significant** ☐ **Potentially Significant** but lacking critical data ☐ **Not Significant** due to: ( ) does not meet biological criteria ( ) does not meet MDEP vernal pool criteria

Comments:

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APPENDIX 9G

Stantec Acoustic Bat Survey

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Stantec

Memo

To:	Ralph Norwood Maine Turnpike Authority	From:	Trevor Peterson Stantec Consulting Services Inc.
File:	195601114	Date:	September 22, 2015

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine

INTRODUCTION

The Maine Turnpike Authority (MTA) retained Stantec Consulting Services Inc. (Stantec) to conduct an acoustic survey to determine the presence or probable absence of the federally threatened northern long-eared bat (*Myotis septentrionalis*) in potential habitat associated with the proposed Southern Toll Plaza in York, Maine (Project). The Project will include tree clearing along both sides of an approximately 7,200 foot (2.2 kilometers [km]) section of the Maine Turnpike (turnpike) at mile-marker 8.8 as well as within an approximately 25-acre area parcel located just west of this section of highway in York, Maine (Figure 1). A written study plan for acoustic surveys was provided to the U.S. Fish and Wildlife Service (USFWS) on 21 July 2015. For the purposes of these surveys, we assumed that all forested areas provide potential habitat for northern long-eared bats. This report summarizes methods and results of the acoustic surveys, which were conducted according to the USFWS 2015 Range-wide Indiana Bat Summer Survey Guidelines (USFWS Guidelines), which USFWS recommends be applied to northern long-eared bat surveys throughout the species' range.

METHODS

Stantec determined the appropriate number of acoustic survey sites based on the USFWS Guidelines, considering impacts to the opposite sides of the turnpike. We determined there to be potential removal of 1.5 km of forested habitat on the northbound side of the turnpike and 2.2 km of forested habitat on the southbound side of the turnpike (totaling 3.7 km) and approximately 25 acres of forested habitat associated with the non-linear portion of the Project. The USFWS Guidelines state that 2 detector nights are required to be sampled per 1 km of suitable summer habitat for linear projects and that 4 detector nights are required to be sampled per 123 acres of suitable summer habitat for non-linear. As such, we conducted surveys at 4 sites along the turnpike (2 on the northbound side and 2 on the southbound side) and 2 sites in the forested area west of the turnpike, each of which was surveyed for 2 nights (12 detector nights total; Figure 1). We selected survey site locations according to the criteria in the USFWS Guidelines, positioning detectors in potential flight corridors and other areas that could be suitable as northern long-eared bat foraging habitat. We photographed detectors at each survey site and recorded the location using a Garmin™ eTrex GPS unit. Appendix A includes photographs and descriptions of each survey site.

Stantec used full spectrum bat detectors (Wildlife Acoustics™ SM3BAT), each equipped with an SMM-U1 ultrasonic omnidirectional microphone, which were converted to directional with an SM3-horn attachment. We mounted detectors on temporary metal stakes and positioned the microphone at a 45-degree angle above horizontal at a height of approximately 1.5 meters (m) above ground. We programmed detectors to operate in "triggered .wav" mode using default trigger threshold settings recommended by the manufacturer, and set the detectors to operate from 30 minutes before sunset until 30 minutes after sunrise.

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine

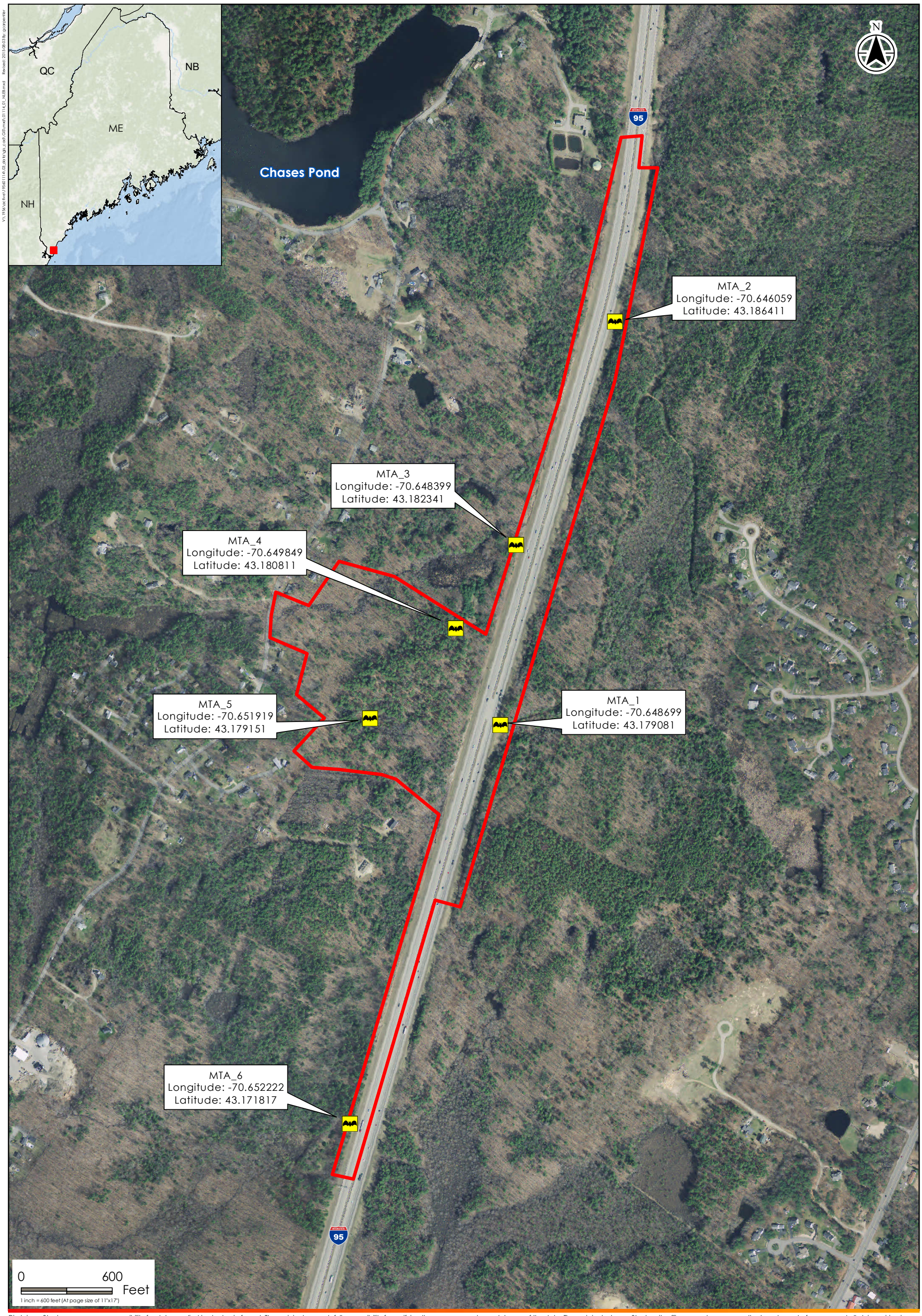
We left detectors in place until weather conditions met the parameters outlined in the USFWS Guidelines for 2 nights (the 2 nights do not need to be consecutive):

a) temperatures above 50°F (10°C) during the first 5 hours of survey period;
b) precipitation, including rain and/or fog, does not exceed 30 minutes or continue intermittently during the first 5 hours of the survey period; and
c) sustained wind speeds remain less than 9 miles/hour during the first 5 hours of the survey period.

We based weather observations on data from the nearest weather station (Cider Hill; KMEYORK3) in York, Maine.

Following the first 2 weather-appropriate nights of data collection, we inspected detectors in the field to confirm they were operating successfully (microphone "calibration test," battery voltage, system status log files). Trevor Peterson (resume in Appendix B) performed a coarse visual analysis of the data to confirm whether high frequency bats were recorded and then analyzed data using Kaleidoscope Pro Software 3.1.4B(classifier version 3.1.0, S/A: -1), which has been approved by the USFWS and is suitable for analyzing full-spectrum bat data collected by SM3BAT units[1]. We based presence or probable absence of northern long-eared bats on the maximum likelihood estimate (MLE) generated for each night, with an MLE of less than 0.05 indicating probable presence and an MLE greater than 0.05 indicating unlikely presence[2].

[1] Data were originally analyzed using Kaleidoscope classifier version 2.2.2, which was the approved version at the time the work scope was drafted. Subsequent to submission of the survey report in early August, the software manufacturer issued a notification that a bug was present in this version of the program, which may result in incorrect MLE calculations. We subsequently repeated analysis using the revised software/classifier versions, which have been approved by the USFWS.
[2] According to USFWS Guidelines, a maximum likelihood estimator (MLE) created by any of the approved acoustic identification programs at a given site on a given night resulting in less than 0.05 indicates probably presence of the species.



Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

195601114

Stantec
30 Park Drive
Topsham, ME USA 04086
Phone (207) 729-1199

Prepared by DLJ on 2015-07-21
Reviewed by TSP on 2015-07-21

01114_01_NLEB.mxd

Legend

- Acoustic Survey Location
- Approximate Project Area

Data Source

1. 2012 aerial imagery provided by the Maine Office of GIS (MEGIS).

Client/Project

Maine Turnpike Authority
Southern Toll Plaza
York, Maine

Figure No.

1

Title

Rare Bat Acoustic Survey Sites

8/3/2015

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine

RESULTS

Acoustic surveys occurred on the nights of 22 and 23 July 2015. Detectors were deployed in suitable locations within the Project area that met the criteria in the USFWS Guidelines (Table 1). Appendix C includes completed datasheets for each site. Detectors operated successfully for 2 nights at each site, yielding 12 detector nights for the survey. Kaleidoscope software did not indicate presence of northern long-eared bats at any sites based on MLE greater than 0.05 at all sites. A total of 5 individual call files were classified as northern long-eared bats at 3 of the sites, but nightly MLE were each greater than 0.05 for these sites, indicating unlikely presence of the species (Table 2). Following procedures in the USFWS Guidelines, because MLE estimates exceeded 0.05 for northern long-eared bats for each detector night, we did not perform any additional qualitative (visual) analysis of acoustic data.

Bat species for which Kaleidoscope software indicated presence (based on MLE < 0.05 during at least 1 night) at this Project included big brown bats (*Eptesicus fuscus*; n = 706), silver-haired bats (*Lasionycteris noctivagans*; n = 393), eastern red bats (*Lasiurus borealis*; n = 191), hoary bats (*Lasiurus cinereus*; n = 79), little brown bats (*Myotis lucifugus*; n = 83), and tri-colored bats (*Perimyotis subflavus*; n = 13).; n = 15). Kaleidoscope software also identified 15 files as eastern small-footed bats (*Myotis leibii*), although the MLE for each night was 1, indicating unlikely presence (Table 2).

Table 1. Survey site information for acoustic surveys at the MTA Southern Toll Plaza Project.

Site	Latitude	Longitude	County	Township	Start Time	Stop Time
MTA_1	43.179090°	-70.648700°	York	York	19:46	5:54
MTA_2	43.186420°	-70.646060°	York	York	19:46	5:54
MTA_3	43.182350°	-70.648400°	York	York	19:46	5:54
MTA_4	43.180820°	-70.649850°	York	York	19:46	5:54
MTA_5	43.179160°	-70.651920°	York	York	19:46	5:54
MTA_6	43.171826°	-70.652222°	York	York	19:46	5:54

Table 2. Number of files identified to species and maximum likelihood estimator (in parentheses) by Kaleidoscope Pro Software 3.1.4B (classifier version 3.1.0, S/A: -1) for acoustic survey at the MTA Southern Toll Plaza Project.

Site	Night	big brown bat	silver-haired bat	hoary bat	eastern red bat	eastern small-footed bat	northern long-eared bat	little brown bat	tri-colored bat	Total
MTA_1	7/22/2015	27 (0)	16 (0.071)	10 (0)	5 (< 0.001)	0 (1)	0 (1)	1 (0.803)	1 (0.344)	60
	7/23/2015	61 (0)	28 (0.007)	4 (0.061)	0 (1)	0 (1)	1 (0.154)	2 (0.013)	0 (1)	96
MTA_2	7/22/2015	43 (0)	13 (0.743)	7 (< 0.001)	19 (0)	0 (1)	0 (1)	0 (1)	0 (1)	82
	7/23/2015	32 (0)	11 (0.709)	8 (< 0.001)	12 (0)	0 (1)	0 (1)	0 (1)	1 (0.636)	64
MTA_3	7/22/2015	111 (0)	44 (0.002)	13 (< 0.001)	70 (0)	4 (1)	2 (0.718)	24 (< 0.001)	7 (0.044)	275
	7/23/2015	80 (0)	26 (0.457)	16 (0)	50 (0)	2 (1)	0 (1)	14 (0.002)	3 (0.501)	191
MTA_4	7/22/2015	84 (0)	30 (0.044)	1 (1)	0 (1)	4 (1)	2 (0.370)	24 (0)	0 (1)	145
	7/23/2015	68 (0)	23 (0.128)	0 (1)	1 (0.886)	3 (1)	0 (1)	6 (< 0.001)	0 (1)	101
MTA_5	7/22/2015	11 (0.031)	24 (0)	0 (1)	1 (0.288)	1 (1)	0 (1)	0 (1)	0 (1)	37
	7/23/2015	7 (0.477)	25 (0)	3 (0.012)	0 (1)	0 (1)	0 (1)	3 (0.001)	0 (1)	38
MTA_6	7/22/2015	62 (0)	49 (0)	9 (< 0.001)	14 (0)	0 (1)	0 (1)	6 (0.012)	0 (1)	140
	7/23/2015	120 (0)	104 (0)	8 (0.010)	19 (0)	1 (1)	0 (1)	3 (0.759)	1 (0.889)	256
Total		**706**	**393**	**79**	**191**	**15**	**5**	**83**	**13**	**1,485**

HABITAT SURVEY

The margin of the turnpike within the Project area is entirely forested beyond the approximately 15–20 m wide cleared area adjacent the breakdown lane. Dominant tree species include white pine (*Pinus strobus*), red oak (*Quercus rubra*), and red maple (*Acer rubrum*), with numerous trees exceeding 3" diameter breast height (DBH). Habitat assessment datasheets are included in Appendix C. The understory was relatively open throughout the Project area, although few flight corridors besides isolated openings and several small wetlands exist within the 25-acre forested portion of the Project.

CONCLUSIONS

The acoustic bat survey followed current USFWS Guidelines and occurred during nights with suitable weather conditions. Detectors collected data at the appropriate number of sites based on the extent of potential habitat within the Project area. Detectors functioned properly during the 12 detector nights, and bat activity occurred on both nights at all 6 detector sites surveyed. Kaleidoscope software identified a total of 1,485 bat passes. Although 5 of these passes were identified as northern long-eared bats by Kaleidoscope software, the software indicated unlikely presence of the species in the Project area based on MLE greater than 0.05 for each site per night. One other *Myotis* species in Maine (little brown bat) was determined to be present in the Project area, as were 5 additional species (big brown bat, silver-haired bat, hoary bat, eastern red bat, and tri-colored bat). Results regarding probable presence/absence of northern long-eared bats did not differ when data were subsequently re-analyzed using the latest available version of Kaleidoscope software, which corrected a bug present in the version of the program originally used to analyze the data.

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine

STANTEC CONSULTING SERVICES INC.

Trevor Peterson
Senior Wildlife Biologist
Phone: 207-406-5497
trevor.peterson@stantec.com

cc: Sara Zografos, Maine Turnpike Authority
Adam Gravel, Stantec Consulting Services Inc.
Jeff Simmons, Stantec Consulting Services Inc.

Attachments: Appendix A – Site Descriptions/Photographs
Appendix B – Trevor Peterson Resume
Appendix C – Site Datasheets

Stantec

September 22, 2015
Ralph Norwood

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine

APPENDIX A: SITE DESCRIPTIONS/PHOTOGRAPHS



MTA_1 was deployed in a small gap in the forest canopy along the northbound side of the Maine Turnpike, oriented parallel to the forested edge and away from the direction of oncoming traffic.



MTA_2 was deployed in a small gap in the forest canopy along the northbound side of the Maine Turnpike, oriented parallel to the forested edge and away from the direction of oncoming traffic.

Stantec

September 22, 2015
Ralph Norwood

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine



MTA_3 was deployed adjacent a small gap in the forest canopy along the southbound side of the Maine Turnpike, oriented parallel to the forested edge and away from the direction of oncoming traffic.

Stantec

September 22, 2015
Ralph Norwood

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine



MTA_4 was deployed in a small gap in the forest approximately 165 m from the edge of the Maine Turnpike in oak/pine woodland with a relatively open understory. The detector was oriented parallel to the edge of the gap.

Stantec

September 22, 2015
Ralph Norwood

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine



MTA_5 was oriented toward a small wetland/pool approximately 205 m from the edge of the Maine Turnpike, surrounded by oak/pine woodland with a relatively open understory.

Stantec

September 22, 2015
Ralph Norwood

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine



MTA_6 was deployed adjacent a small gap in the forest canopy along the southbound side of the Maine Turnpike, oriented parallel to the forested edge and away from the direction of oncoming traffic. A photo was not taken at the time of deployment. We accessed the site at a later date and deployed a stake and microphone to illustrate the orientation of the detector during the time of survey.

Stantec

September 22, 2015
Ralph Norwood

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine

APPENDIX B: TREVOR PETERSON RESUME

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

Mr. Peterson is a senior wildlife biologist and project manager responsible for performing wildlife research, developing ecological survey protocols, and assisting in ecological inventories, including wildlife population surveys, rare species surveys, habitat studies, and water quality monitoring surveys. He has played a leadership role in developing methods for ecological risk assessments for proposed wind projects and post-construction mortality surveys at operational wind farms throughout the eastern United States and has worked with wind companies to develop and implement site-specific avian and bat protection plans to minimize and mitigate potential impacts. Mr. Peterson serves as Stantec's technical lead for acoustic bat surveys, responsible for updating equipment, survey methods, and data analysis/reporting methods.

Mr. Peterson's previous project experience includes the design and implementation of a project documenting the effects of an unchecked population of introduced snowshoe hares on the regeneration and recruitment of trees in New Brunswick, Canada. He has conducted sample and data collection and performed autopsies on moose, wolf, and beaver; used telemetry equipment to locate den and rendezvous sites of radio collared wolves; and conducted many other wildlife surveys, including breeding bird, loon, and amphibian surveys. He also led efforts to identify and eradicate populations of exotic plants within the Isle Royale National Park.

PROFESSIONAL EXPERIENCE

- Stantec Consulting. 2007-present. Project Manager
- Woodlot Alternatives, Inc. 2003-2007. Project Manager

EDUCATION

Semester Program in Costa Rica, Tropical Field Biology, Environmental Studies, and Spanish, Duke University, Durham, North Carolina, 2000

AB, Biology/Environmental Studies, Summa cum Laude, Phi Beta Kappa, Bowdoin College, Brunswick, Maine, 2002

40-Hour Hazwoper Certification, OSHA, Topsham, Maine, 2005

OSHA 8-Hour HAZWOPER Refresher Certification, Topsham, Maine, 2012

Wilderness First Aid Certified, SOLO, Topsham, Maine, 2012

Heartsaver CPR Certified, SOLO, Topsham, Maine, 2012

MEMBERSHIPS

Secretary/Treasurer, The Wildlife Society, Maine

PROJECT EXPERIENCE

Natural Resource Services

Acoustic Bat Surveys along Proposed Road Corridors, Tennessee

Technical and field supervisor for acoustic bat surveys for the Tennessee Department of Transportation. Conducted field surveys in a variety of habitats within 67 kilometer-long segments of multiple potential highway corridors within a National Forest. Completed data analysis and prepared survey reports.

Gulf of Maine Avian/Bat Pilot Migration Project, Gulf of Maine

Senior Biologist. Developed and implemented survey techniques and data analysis framework for fall (2009-2011) avian and bat migration research survey along ~200 mile transect of New England coast from Kent Island, New Brunswick to Gloucester, MA, and extending over 20(+) miles offshore to Mt Desert Rock. Surveys included dual coastline/island x-band radar and concurrent acoustic bat surveys at dispersed island, coastal, and buoy locations. Project was supported by Stantec Consulting and included federal, state, and NGO partners.

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

Eastern Box Turtle Protection Plan, Construction Monitoring, and Relocation, Duxbury, Massachusetts

Mr. Peterson developed a protocol to protect box turtles during construction in compliance with MESA, and participated in fieldwork efforts, which included pre-construction searches, construction monitoring, turtle handling/relocation, and habitat management.

Blue-Spotted Salamander Surveys and Relocation, Reading, Massachusetts

Mr. Peterson developed and implemented a survey protocol to inventory, identify, and relocate blue and yellow-spotted salamanders from an upland area proposed for development. Coordinated communications with state wildlife agencies.

Diamondback Terrapin Habitat Assessment and Nesting Surveys, Massachusetts

Mr. Peterson developed survey protocols and conducted and assessment of suitable habitat features to evaluate mating and nesting activities of a newly discovered diamondback terrapin population at a former landfill proposed for mixed use development in southern Massachusetts.

Indiana Bat and Rare Bird Surveys at Proposed Wind Energy Project, Jefferson and Oswego Counties, New York

Mr. Peterson coordinated multiple years of habitat evaluations, acoustic bat surveys, and radio telemetry surveys for Indiana bats at a proposed wind project in northwestern New York. Mr. Peterson also coordinated and conducted field surveys for breeding birds and rare birds within the area.

Pre-construction Avian and Bat Surveys at Proposed Wind Energy Project, Texas

Mr. Peterson developed an innovative work scope to conduct a variety of field surveys focusing on assessing potential impacts to Mexican free-tailed bats and managed a variety of field surveys including nocturnal radar surveys, NEXRAD data analysis, acoustic bat monitoring, and visual night-vision surveys. Mr. Peterson also coordinated discussions between project developers, state wildlife agencies, and non-profit groups.

Pre-construction Avian and Bat Surveys at proposed New Creek Wind Energy Project, Grant County, West Virginia

Project Manager, Field Supervisor, Expert Witness. Developed protocols for bird and bat field surveys within proposed wind project. Coordinated field efforts, including breeding bird surveys, raptor surveys, bat mist-netting surveys, bat telemetry surveys, and acoustic bat surveys. Managed correspondence between the developer and state and federal wildlife agencies. Prepared survey reports, a site-specific bird and bat risk assessment, and direct testimony, all of which were presented at public hearings.

Spotted Turtle and Vernal Pool Monitoring on Greenbush Railroad, Southeastern Massachusetts

Project Manager, Field Team Leader, Field Technician. Managed a field crew responsible for monitoring the water quality, invertebrate diversity, amphibian populations, and plant communities within vernal pools located in a commuter rail corridor. Led efforts to document and track populations of spotted turtles within the same corridor. Assisted with development of amphibian/turtle crossing structures, and protocols for testing the effectiveness of these structures.

Avian and Bat Surveys at Laurel Mountain Wind Energy Project, Randolph and Barbour Counties, West Virginia

Project Manager, Field Supervisor, Expert Witness. Conducted bird and bat field surveys within proposed wind project. Coordinated field efforts, including breeding bird surveys, raptor surveys, bat mist-netting surveys, and acoustic bat surveys. Managed correspondence between the developer and state and federal wildlife agencies. Prepared survey reports, a site-specific bird and bat risk assessment, and direct testimony, all of which were presented at public hearings. Served as an expert witness on behalf of the developer. Designed and oversaw implementation of post-construction mortality and curtailment study. Worked with project representatives and agencies to develop a site-specific Avian and Bat Protection Plan.

** denotes projects completed with other firms*

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

Avian and Bat Surveys at Armenia Mountain Wind Energy Project, Tioga and Bradford Counties, Pennsylvania

Project Manager and Field Supervisor. Conducted bird and bat field surveys within proposed wind project. Coordinated field efforts, including breeding bird surveys, raptor surveys, bat mist-netting surveys, and acoustic bat surveys. Managed correspondence between the developer and state and federal wildlife agencies. Prepared survey reports and a site-specific bird and bat risk assessment for the project. Managed two years of post-construction monitoring according to Pennsylvania Game Commission protocols.

Post-construction Avian and Bat Mortality Monitoring at Forward and Lookout Wind Projects, Somerset County, Pennsylvania

As the Project Manager for post-construction bird and bat mortality surveys at two of the first operational wind projects to participate in Pennsylvania's Voluntary Cooperative Wind Energy agreement, Mr. Peterson developed survey work scopes, and coordinated fieldwork for multiple years of monitoring, including daily mortality surveys, acoustic bat surveys, and diurnal raptor surveys. Mr. Peterson also coordinated project-related agency communications with state and federal wildlife agencies.

Natural Community Surveys and Resource Inventory, Moosehead Lake Region, Maine

Mr. Peterson conducted natural community surveys and rare species surveys, classified natural communities, identified rare plants and animals, and evaluated potential wildlife habitat within parcels proposed for development and conservation within a large proposed development in Maine's north woods.

** denotes projects completed with other firms*

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

PUBLICATIONS

Peterson, T.S., S. Boyden, and K. Watrous. Comparison of Automated and Manual Identification Methods for Acoustic Bat Survey Datasets: Implications for Future Protocols. *Poster Presentation at the Northeast Bat Working Group Meeting: Albany, New York*, 2013.

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Pelletier, S.K., T.S. Peterson, and G.C. Kendrick. Understanding of the Current Knowledge of Offshore Wind and Wildlife Issues. *Presented at the NWCC Wind Wildlife Research Meeting VIII; Lakewood, Colorado*, 2010.

Trevor S. Peterson

Project Manager, Senior Wildlife Biologist

Giumarro, G.J., K.S. Watrous, T.S. Peterson, S.A. Boyden, M.J. Lacki, and J.S. Johnson. Seasonal and geographic trends in acoustic detection of tree-roosting bats. *Presented at the Windpower Conference and Exhibition, Dallas, Texas*, 2010.

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Lortie, J.P., G. Giumarro, R.D. Roy, and T.S. Peterson. Using ecological risk assessment to characterize risk to birds and bats at wind farms. *Presentation at the 14th Annual Conference of the Wildlife Society, Tucson, Arizona*, 2007.

Peterson, T.S., A. Uesugi, and J. Lichter. Tree recruitment limitation by introduced snowshoe hares, Lepus americanus, on Kent Island, New Brunswick. *Canadian Field Naturalist 119 (4). 569-572*, 2005.

Stantec

September 22, 2015
Ralph Norwood

Reference: Maine Turnpike Authority Southern Toll Plaza Rare Bat Acoustic Survey, York, Maine

APPENDIX C: ACOUSTIC SURVEY DATASHEETS

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: MTA York Southern toll — Date: 7/22/15

Township/Range/Section: York

Lat Long/UTM/ Zone: datasheet3 — Surveyor: TSP, TL, HW

Brief Project Description

MTA Southern toll/subdivision

Project Area

	Total Acres	Forest Acres	Open Acres
Project	25	25	—

	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing
Proposed Tree Removal (ac)	unknown	—	—

Vegetation Cover Types

Pre-Project	Post-Project
Oak/pine/maple w/ wkl. open understory	

Landscape within 5 mile radius

Flight corridors to other forested areas?

Yes

Describe Adjacent Properties (e.g. forested, grassland, commercial or residencial development, water sources)

forested areas w/ residential development

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

~2.3mi to Mt. Aganuticus Wildlife Management Area

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area
Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description

Sample Site No.(s): MTA - 1 MTA - 2

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
		—	—	
Pools/Ponds (# and size)		Open and accessible to bats?		N/A
Wetlands (approx. ac.)	Permanent	Seasonal		
	—	—		

Forest Resources at Sample Site

Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	4	3	2	
Dominant Species of Mature Trees	Oak / Maple / Birch / W. Pine			
% Trees w/ Exfoliating Bark	1			
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	2	5	1	
No. of Suitable Snags				

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR ~~INDIANA~~ BATS? NLEB Presence of trees > 3" DBH

Additional Comments:

Forest edge dense, interior understory 50% open
Adjacent to ☆

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations: understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): MTA_3 ~~NLEB~~ MTA_6

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
	—	—	—	
Pools/Ponds (# and size)	—	Open and accessible to bats?		N/A
		—		
Wetlands (approx. ac.)	Permanent	Seasonal		
	—	—		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	4	4	1	
Dominant Species of Mature Trees	oak, maple, white pine			
% Trees w/ Exfoliating Bark	1			
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	2	5	1	
No. of Suitable Snags		—		

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR ~~INDIANA~~ NLEB BATS? presence of trees > 3" DBH

Additional Comments:
Forest edge dense understory/shrub, interior relatively open.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations: understory/midstory/canopy; examples of potential suitable snags and live trees, water sources

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description

Sample Site No.(s): MTA-4

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: N/A
	—	—	—	
Pools/Ponds (# and size)	—	Open and accessible to bats?		
Wetlands (approx. ac.)	Permanent	Seasonal		

Forest Resources at Sample Site

Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	6	2	1	
Dominant Species of Mature Trees	white pine, red oak, red maple			
% Trees w/ Exfoliating Bark	1	1	1	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	2	5	1	
No. of Suitable Snags				

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR ~~INDIANA~~ NLEB BATS? trees > 3" DBH, several large trees w/ loose bark

Additional Comments:

open understory, rel. uniform forest type

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations: understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s). MTA-5

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
	—	—		
Pools/Ponds (# and size)	1 ~ 20x40m	Open and accessible to bats?		open/ponded pool w/ shrub vegetation
		N		
Wetlands (approx. ac.)	Permanent	Seasonal		

Forest Resources at Sample Site				
Closure/Density	Canopy (>50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	3	3	4	
Dominant Species of Mature Trees	White pine, red oak, red maple			
% Trees w/ Exfoliating Bark	1	1	—	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	2	3	1	
No. of Suitable Snags				

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR ~~INDIANA~~ NLEB BATS? pool w/ shrub _____

Additional Comments:
detector at edge of small pool

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations: understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

NLEB Presence/Absence Acoustic Survey Datasheet - Stantec

Project Name: MTA - York
Site ID: MTA - 1
Weather Station Provider: Weather Underground
Surveyor Initials: HW, TL
Latitude: 43.17909
Weather Station ID: KMEYORK3
Deployment Date: 7/22/15
Longitude: -70.64870

Sampling Location Specific Characteristics - Check all that apply

- [ ] Forest Canopy Opening
- [ ] Near water
- [ ] Recently logged with remaining potential roost trees
- [x] Road and/or stream corridor with open tree canopy or canopy height > 10m
- [x] Woodland edge
- [ ] Other - Describe _____

Additional Habitat Notes
Oak/Maple/Birch/W. Pine Forest at edge of Highway corridor & Med. open understory

Unit Specific Deployment Characteristics - Must meet all criteria

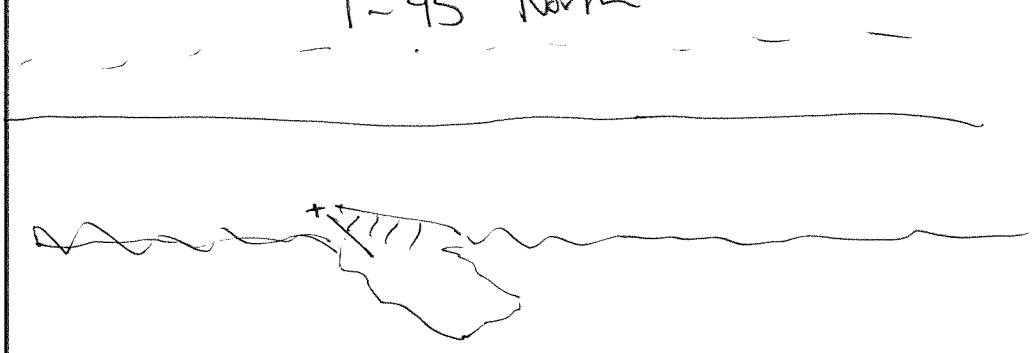
If any criteria are answered 'NO' justification is required

Y	N	
[x]	[ ]	>1.5m in any direction from vegetation or other obstructions
[x]	[ ]	Minimal or no vegetation within 10m in front of microphone
[x]	[ ]	Parallel to woodland edge
[x]	[ ]	>15m from known or suitable roosts
[x]	[ ]	>1.5m above ground level
[x]	[ ]	>200m from adjacent acoustic sampling location
[x]	[ ]	Below expected flight height

Unit Information

Make/Model: SM3 Bat
Data Division Ratio: -
Recording Schedule START: Sunset 19:45
Serial Number: D3121
Sensitivity: _____
Detection Range (m): _____
STOP: Sunrise
Housing/Weatherproofing description: _____

Site Sketch



Daily Survey Data

Sampling Night # 1 Survey Date 7/22/15

Y	N	
☐	☐	Microphone operating normally
☐	☐	Other unit operations normal
☒	☐	Nightly temperatures >50F for first 5 hours
☒	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☒	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Daily Survey Data

Sampling Night # 2 Survey Date 7/22/15

Y	N	
☐	☐	Microphone operating normally
☐	☐	Other unit operations normal
☒	☐	Nightly temperatures >50F for first 5 hours
☒	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☒	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
☐	☐	Microphone operating normally
☐	☐	Other unit operations normal
☐	☐	Nightly temperatures >50F for first 5 hours
☐	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☐	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
☐	☐	Microphone operating normally
☐	☐	Other unit operations normal
☐	☐	Nightly temperatures >50F for first 5 hours
☐	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☐	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Coarse Analysis

Biologist Initials TSP

Y	N	
☒	☐	Bats recorded
☒	☐	High frequency calls exist >35kHz

Additional Coarse Analysis Notes

Automated Analysis

Application Name Kaleidoscope Version 2.2.2
Output File Name idsummary.csv
Biologist Initials TSP

Night #	# of Calls	MLE	Additional Automated Analysis Notes
7/22	0	1	EPFU: 74
7/23	1	0.194	LABO: 1
			LACI: 16
			LANO: 51
			MYLU: 3

Application Name _____ Version _____
Output File Name _____
Biologist Initials _____

Night #	# of Calls	MLE	Additional Automated Analysis Notes

NLEB Presence/Absence Acoustic Survey Datasheet - Stantec

Project Name: MTA - York
Site ID: MTA - 2
Weather Station Provider: wx underground
Surveyor Initials: HW, TL
Latitude: 43.18642
Weather Station ID: KMEYORK3
Deployment Date: 7/22/15
Longitude: -70.64606

Sampling Location Specific Characteristics - Check all that apply

- [ ] Forest Canopy Opening
- [ ] Near water
- [ ] Recently logged with remaining potential roost trees
- [x] Road and/or stream corridor with open tree canopy or canopy height > 10m
- [x] Woodland edge
- [ ] Other - Describe _____

Additional Habitat Notes

Oak / Maple / Birch / W. Pine
Forest at edge of Highway Corridor

Med. open understory

Unit Specific Deployment Characteristics - Must meet all criteria

If any criteria are answered 'NO' justification is required

Y	N	
[x]	[ ]	>1.5m in any direction from vegetation or other obstructions
[x]	[ ]	Minimal or no vegetation within 10m in front of microphone
[x]	[ ]	Parallel to woodland edge
[x]	[ ]	>15m from known or suitable roosts
[x]	[ ]	>1.5m above ground level
[x]	[ ]	>200m from adjacent acoustic sampling location
[x]	[ ]	Below expected flight height

Unit Information

Make/Model: SM3 Bat
Data Division Ratio: –
Recording Schedule START: Sunset 19:45
Serial Number: 03111
Sensitivity: _____
Detection Range (m): _____
STOP: Sunrise
Housing/Weatherproofing description: _____

Site Sketch



Daily Survey Data

Sampling Night # 1 Survey Date 7/22/15

Y	N	
☑	☐	Microphone operating normally
☑	☐	Other unit operations normal
☑	☐	Nightly temperatures >50F for first 5 hours
☑	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☑	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

87 files

Daily Survey Data

Sampling Night # 2 Survey Date 7/23/15

Y	N	
☑	☐	Microphone operating normally
☑	☐	Other unit operations normal
☑	☐	Nightly temperatures >50F for first 5 hours
☑	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☑	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

73 files

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
☐	☐	Microphone operating normally
☐	☐	Other unit operations normal
☐	☐	Nightly temperatures >50F for first 5 hours
☐	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☐	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
☐	☐	Microphone operating normally
☐	☐	Other unit operations normal
☐	☐	Nightly temperatures >50F for first 5 hours
☐	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☐	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Coarse Analysis

Biologist Initials TSP

Y	N	
☒	☐	Bats recorded
☑	☐	High frequency calls exist >35kHz

Additional Coarse Analysis Notes

Automated Analysis

Application Name Kaleidoscope Version 2.2.2
Output File Name idsummary.csv
Biologist Initials TSP

Night #	# of Calls	MLE	Additional Automated Analysis Notes
7/22	0	–	EPFU: 51
7/23	0	–	LABO: 11
			LACI: 17
			LANO: 48

Application Name _____ Version _____
Output File Name _____
Biologist Initials _____

Night #	# of Calls	MLE	Additional Automated Analysis Notes

NLEB Presence/Absence Acoustic Survey Datasheet - Stantec

Project Name: MTA_YORK
Site ID: MTA_3
Weather Station Provider: weather underground
Surveyor Initials: TSP, HW, TL
Latitude: 43.18235
Weather Station ID: KMEYORK3
Deployment Date: 7/22/15
Longitude: -70.64840

Sampling Location Specific Characteristics - Check all that apply

- ☐ Forest Canopy Opening
- ☐ Near water
- ☐ Recently logged with remaining potential roost trees
- ☒ Road and/or stream corridor with open tree canopy or canopy height > 10m
- ☒ Woodland edge
- ☐ Other - Describe _____

Additional Habitat Notes: pine/oak/maple forest at edge of highway corridor... rel. open understory

Unit Specific Deployment Characteristics - Must meet all criteria

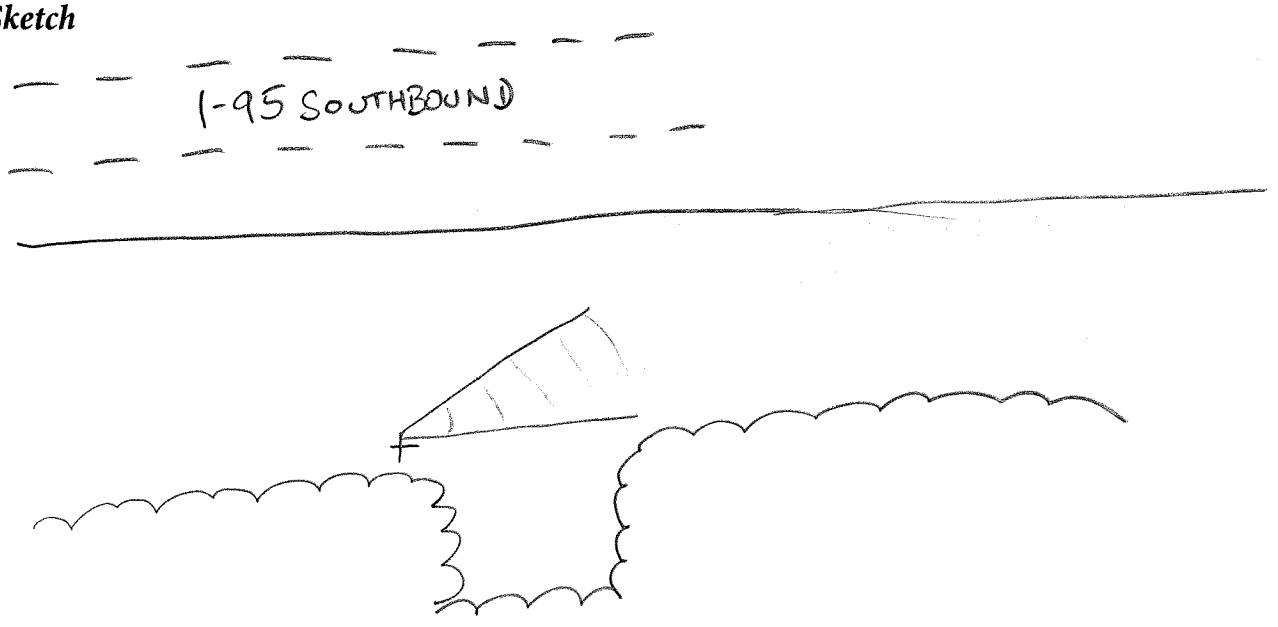
If any criteria are answered 'NO' justification is required

Y	N	
☒	☐	>1.5m in any direction from vegetation or other obstructions
☒	☐	Minimal or no vegetation within 10m in front of microphone
☒	☐	Parallel to woodland edge
☒	☐	>15m from known or suitable roosts
☒	☐	>1.5m above ground level
☒	☐	>200m from adjacent acoustic sampling location
☒	☐	Below expected flight height

Unit Information

Make/Model: SM3Bat
Data Division Ratio: –
Recording Schedule START: Sunset -30 (19:45)
Serial Number: 3123
Sensitivity: _____
Detection Range (m): _____
STOP: Sunrise +30
Housing/Weatherproofing description: directional horn

Site Sketch



Daily Survey Data

Sampling Night # 1 Survey Date 7/22/15

Y	N	
X		Microphone operating normally
X		Other unit operations normal
X		Nightly temperatures >50F for first 5 hours
X		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
X		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

283 files

Daily Survey Data

Sampling Night # 2 Survey Date 7/23/15

Y	N	
X		Microphone operating normally
X		Other unit operations normal
X		Nightly temperatures >50F for first 5 hours
X		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
X		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

195 files

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
		Microphone operating normally
		Other unit operations normal
		Nightly temperatures >50F for first 5 hours
		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
		Microphone operating normally
		Other unit operations normal
		Nightly temperatures >50F for first 5 hours
		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Coarse Analysis

Biologist Initials TSP

Y	N	
X		Bats recorded
X		High frequency calls exist >35kHz

Additional Coarse Analysis Notes

Automated Analysis

Application Name Kaleidascope 3 Version 2.2.2
Output File Name idsummary.csv
Biologist Initials TSP

Night #	# of Calls	MLE	Additional Automated Analysis Notes
7/22	3	0.154	EPFU: 152 MYLU: 25 LABO: 90 PESU: 2 LACI: 44 LANO: 95 MYLE: 5
7/23	1	0.641	

Application Name _____ Version _____
Output File Name _____
Biologist Initials _____

Night #	# of Calls	MLE	Additional Automated Analysis Notes

NLEB Presence/Absence Acoustic Survey Datasheet - Stantec

Project Name: MTA_YORK
Surveyor Initials: TP, HW, TL
Deployment Date: 7/22/15
Site ID: MTA_4
Latitude: 43.18082
Longitude: 70.64985
Weather Station Provider: weather underground
Weather Station ID: KMEYORK3

Sampling Location Specific Characteristics - Check all that apply

- [x] Forest Canopy Opening
- [ ] Near water
- [ ] Recently logged with remaining potential roost trees
- [ ] Road and/or stream corridor with open tree canopy or canopy height > 10m
- [x] Woodland edge
- [ ] Other - Describe _____

Additional Habitat Notes
understory gap in mature forest pine/oak/maple

Unit Specific Deployment Characteristics - Must meet all criteria

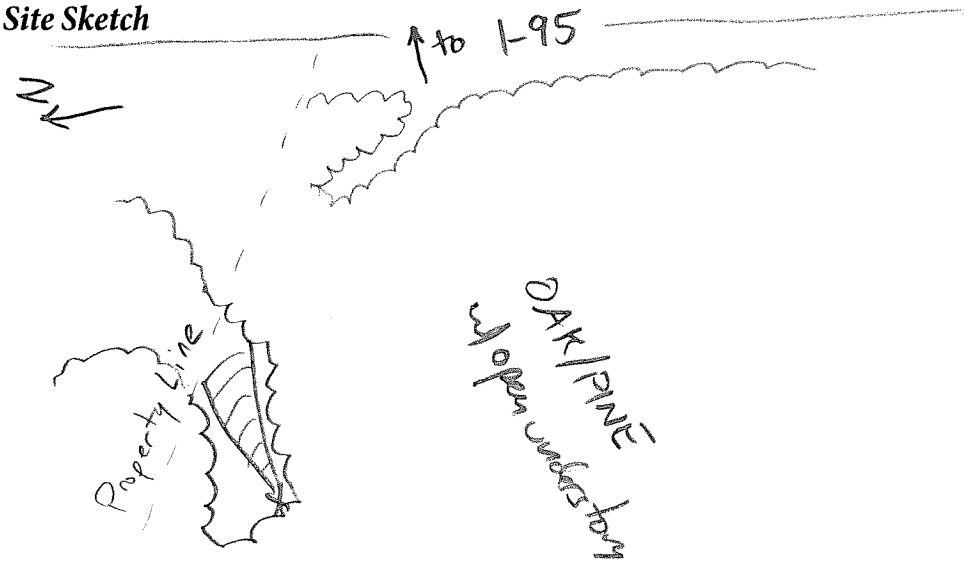
If any criteria are answered 'NO' justification is required

Y	N	
[x]	[ ]	>1.5m in any direction from vegetation or other obstructions
[x]	[ ]	Minimal or no vegetation within 10m in front of microphone
[x]	[ ]	Parallel to woodland edge
[x]	[ ]	>15m from known or suitable roosts
[x]	[ ]	>1.5m above ground level
[x]	[ ]	>200m from adjacent acoustic sampling location
[x]	[ ]	Below expected flight height

Unit Information

Make/Model: SM3Bat
Data Division Ratio: –
Recording Schedule START: Sunset-30
Serial Number: 3073
Sensitivity: –
Detection Range (m): _____
STOP: Sunrise+30
Housing/Weatherproofing description: directional horn

Site Sketch



Daily Survey Data

Sampling Night # 1 Survey Date 7/22/15

Y	N	
X		Microphone operating normally
X		Other unit operations normal
X		Nightly temperatures >50F for first 5 hours
X		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
X		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

175 files

Daily Survey Data

Sampling Night # 2 Survey Date 7/23/15

Y	N	
X		Microphone operating normally
X		Other unit operations normal
X		Nightly temperatures >50F for first 5 hours
X		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
X		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

116 files

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
		Microphone operating normally
		Other unit operations normal
		Nightly temperatures >50F for first 5 hours
		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
		Microphone operating normally
		Other unit operations normal
		Nightly temperatures >50F for first 5 hours
		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Coarse Analysis

Biologist Initials TSP

Y	N	
X		Bats recorded
X		High frequency calls exist >35kHz

Additional Coarse Analysis Notes

Automated Analysis

Application Name Kaleidoscope 3.0 Version 2.2.2
Output File Name idSummary.csv
Biologist Initials TSP

Night #	# of Calls	MLE	Additional Automated Analysis Notes
7/22	1	0.863	EPFU: 44 LACI: 2 LANO: 66 MYLE: 16 MYLU: 20
7/23	0	0.936	

Application Name _____ Version _____
Output File Name _____
Biologist Initials _____

Night #	# of Calls	MLE	Additional Automated Analysis Notes

NLEB Presence/Absence Acoustic Survey Datasheet - Stantec

Project Name: MTA-YORK
Site ID: MTA-5
Weather Station Provider: weather underground
Surveyor Initials: TSP, HW, TL
Latitude: 43.17916
Weather Station ID: KMEYORK3
Deployment Date: 7/22/15
Longitude: 70.65192

Sampling Location Specific Characteristics - Check all that apply

- [X] Forest Canopy Opening
- [X] Near water
- [ ] Recently logged with remaining potential roost trees
- [ ] Road and/or stream corridor with open tree canopy or canopy height > 10m
- [ ] Woodland edge
- [ ] Other - Describe

Additional Habitat Notes
wetland / pool in upland pine/oak/maple forest

Unit Specific Deployment Characteristics - Must meet all criteria

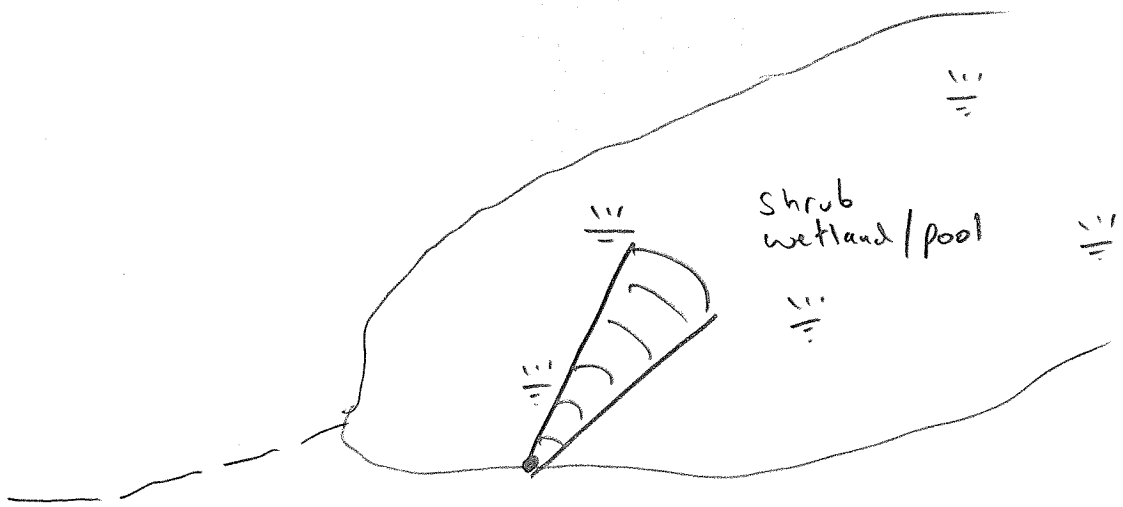
Y	N		*If any criteria are answered 'NO' justification is required*
[X]	[ ]	>1.5m in any direction from vegetation or other obstructions	
[X]	[ ]	Minimal or no vegetation within 10m in front of microphone	
[X]	[ ]	Parallel to woodland edge	
[X]	[ ]	>15m from known or suitable roosts	
[X]	[ ]	>1.5m above ground level	
[X]	[ ]	>200m from adjacent acoustic sampling location	
[X]	[ ]	Below expected flight height	

Unit Information

(19:45)

Make/Model: SM3Bat
Data Division Ratio: —
Recording Schedule START: sunset - 30
Serial Number: 3122
Sensitivity: —
Detection Range (m): ~12 m
STOP: Sunset + 30
Housing/Weatherproofing description: directional horn

Site Sketch



Daily Survey Data

Sampling Night # 1 Survey Date 7/22/15

Y	N	
☑	☐	Microphone operating normally
☑	☐	Other unit operations normal
☑	☐	Nightly temperatures >50F for first 5 hours
☑	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☑	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

43 files

Daily Survey Data

Sampling Night # 2 Survey Date 7/23/15

Y	N	
☑	☐	Microphone operating normally
☑	☐	Other unit operations normal
☑	☐	Nightly temperatures >50F for first 5 hours
☑	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☑	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

39 files

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
☐	☐	Microphone operating normally
☐	☐	Other unit operations normal
☐	☐	Nightly temperatures >50F for first 5 hours
☐	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☐	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
☐	☐	Microphone operating normally
☐	☐	Other unit operations normal
☐	☐	Nightly temperatures >50F for first 5 hours
☐	☐	No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
☐	☐	Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Coarse Analysis

Biologist Initials TSP

Y	N	
☒	☐	Bats recorded
☒	☐	High frequency calls exist >35kHz

Additional Coarse Analysis Notes

Automated Analysis

Application Name Kaleidoscope Version 2.2.2
Output File Name Id_summary.csv
Biologist Initials TSP

Night #	# of Calls	MLE	Additional Automated Analysis Notes
7/22	0	–	EPFU: 29
7/23	0	–	LACI: 5
			LANO: 19
			MYLE: 2

Application Name _____ Version _____
Output File Name _____
Biologist Initials _____

Night #	# of Calls	MLE	Additional Automated Analysis Notes

NLEB Presence/Absence Acoustic Survey Datasheet - Stantec

Project Name: MTA York
Site ID: MTA-6
Weather Station Provider: WX underground
Surveyor Initials: HW, TL
Latitude: 43.17179
Weather Station ID: KMEYORK3
Deployment Date: 7/22/15
Longitude: -70.65242

Sampling Location Specific Characteristics - Check all that apply

- [ ] Forest Canopy Opening
- [ ] Near water
- [ ] Recently logged with remaining potential roost trees
- [x] Road and/or stream corridor with open tree canopy or canopy height > 10m
- [x] Woodland edge
- [ ] Other - Describe _____

Additional Habitat Notes
Pine/Spruce/Oak/Maple forest at edge of Highway corridor
rel. open understory

Unit Specific Deployment Characteristics - Must meet all criteria

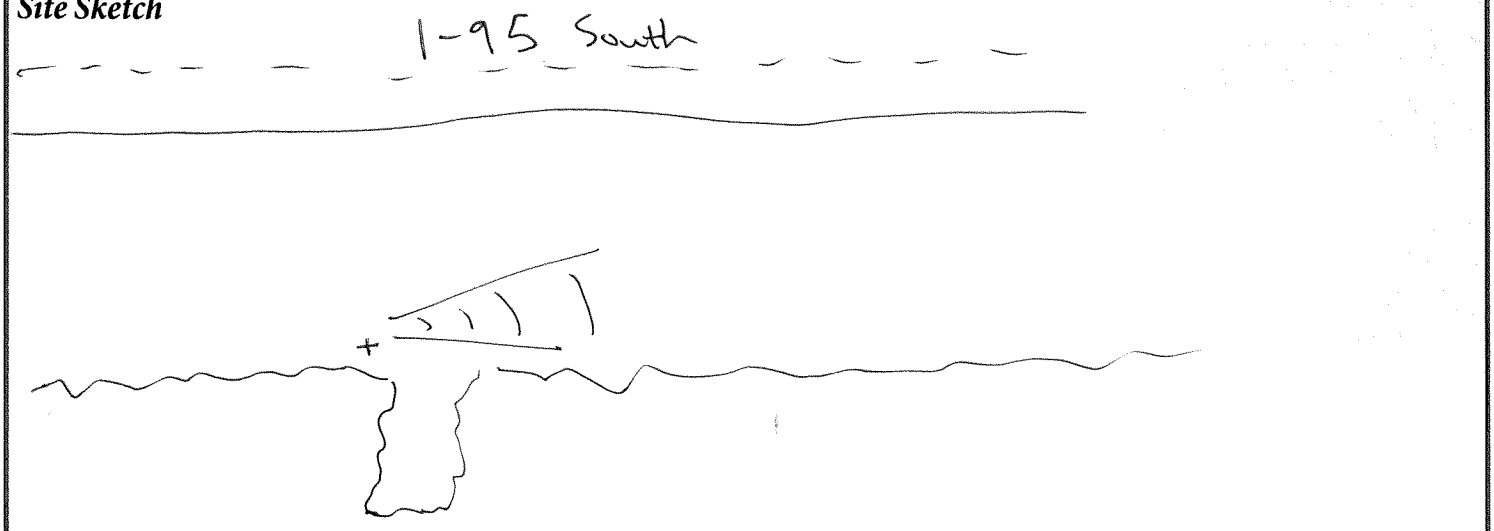
If any criteria are answered 'NO' justification is required

Y	N	
[x]	[ ]	>1.5m in any direction from vegetation or other obstructions
[x]	[ ]	Minimal or no vegetation within 10m in front of microphone
[x]	[ ]	Parallel to woodland edge
[x]	[ ]	>15m from known or suitable roosts
[x]	[ ]	>1.5m above ground level
[x]	[ ]	>200m from adjacent acoustic sampling location
[x]	[ ]	Below expected flight height

Unit Information

Make/Model: SM3 Bat
Data Division Ratio: -
Recording Schedule START: Sunset 19:45
Serial Number: 03116
Sensitivity: _____
Detection Range (m): _____
STOP: Sunrise + 30
Housing/Weatherproofing description: directed horn

Site Sketch



Daily Survey Data

Sampling Night # 1 Survey Date 7/22/15

Y	N	
X		Microphone operating normally
X		Other unit operations normal
X		Nightly temperatures >50F for first 5 hours
X		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
X		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

143 files

Daily Survey Data

Sampling Night # 2 Survey Date 7/23/15

Y	N	
X		Microphone operating normally
X		Other unit operations normal
X		Nightly temperatures >50F for first 5 hours
X		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
X		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

258 files

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
		Microphone operating normally
		Other unit operations normal
		Nightly temperatures >50F for first 5 hours
		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Daily Survey Data

Sampling Night # _____ Survey Date _____

Y	N	
		Microphone operating normally
		Other unit operations normal
		Nightly temperatures >50F for first 5 hours
		No fog/rain that exceeds 30 minutes or continues intermittently for first 5 hours
		Sustained wind speeds <9mph for first 5 hours

Additional Survey Notes

Coarse Analysis

Biologist Initials TSP

Y	N	
X		Bats recorded
X		High frequency calls exist >35kHz

Additional Coarse Analysis Notes

Automated Analysis

Application Name Kaleidoscope Version 2.2.2
Output File Name idsummary.csv
Biologist Initials TSP

Night #	# of Calls	MLE
7/22	0	1
7/23	1	0.309

Additional Automated Analysis Notes

EPFU: 141 MYLE: 1
LABO: 19 MYLU: 3
LACI: 33
LANO: 173

Application Name _____ Version _____
Output File Name _____
Biologist Initials _____

Night #	# of Calls	MLE

Additional Automated Analysis Notes

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APPENDIX 9H

New England Cottontail Pellet Survey

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York Toll Plaza New England
Cottontail Pellet Survey

July 2010

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ATTACHMENT A – WORK PLAN HNTB YORK TOLL PLAZA NEW ENGLAND COTTONTAIL PROPOSAL

ATTACHMENT B – DATASHEETS

York Toll Plaza New England Cottontail Pellet Survey

1.0 INTRODUCTION

A New England Cottontail (NEC) pellet survey was conducted by Normandeau Associates (Normandeau) at the York Toll Plaza Replacement Study Area (Mile Post 7.3 on I-95 in Maine) on May 17 and 27, 2010. The survey was conducted using a protocol (Attachment A) approved by the Maine Department of Inland Fisheries and Wildlife (MDIFW), in two locations of potentially suitable habitat within the study area. Maine Department of Inland Fisheries and Wildlife identified one of the potential habitat locations during a field reconnaissance of potential plaza sites in early 2010, and recommended further investigation for the presence of NEC. In southern Maine, two species of Leporids are present; the New England Cottontail (*Sylvilagus transitionalis*) and the Snowshoe Hare (*Lepus americanus*). Since the fecal pellets of these two species are difficult to differentiate by sight, they are more typically identified by DNA analysis. This procedure is most successful using fresh pellets, as DNA degrades quickly, especially when exposed to heat and moisture. Pellet collection is typically conducted after a recent snowfall, as tracks and pellets are most visible, pellets lying on the snow's surface are generally fresh, and the cold conditions preserve the DNA. Snow was absent at the time of this survey, but the protocol for the habitat evaluation and pellet search was otherwise fully implemented. While no evidence of cottontails was observed in the field, the absence of New England Cottontail sign based on one survey with no snow conditions may not be considered conclusive evidence of cottontail absence from the project area.

2.0 METHODS

The general project area containing potentially suitable NEC habitat at MP 7.3 was identified by MDIFW. Using aerial photographs, Normandeau determined that about four acres of habitat west of the Turnpike (Study Area 1) within this general project area contained a well-developed shrubby layer that had the potential to have the high stem densities required by NEC and was appropriate for a pellet survey. A two acre area to the east of the Turnpike (Study Area 2) also appeared to have to have suitable shrub habitat, based on the aerial photos. Additionally, a small area located at northbound MP 8.7 was briefly inspected for suitable habitat and NEC sign, after an archeological surveyor reported seeing potential Leporid pellets at that location.

In Study Area 1, transects were laid out to intensively cover approximately 50% of the survey area, which was approximately 1,500 feet long measured along the Turnpike. Fifty transects were established and spaced every 20 feet perpendicular to the roadway. Each transect was approximately 10 feet wide, and varied in length from 50 feet to 300 feet. A team of two Normandeau wildlife biologists conducted the survey, which consisted of walking approximately five feet apart along each transect through the areas of suitable habitat, and visually searching for NEC fecal pellets, browse, and trails. A small area of cattail marsh which contained deep standing water was omitted from the survey (Figure 1). The location of the beginning and end of each transect was recorded using Global Positioning Survey (GPS) with sub-meter accuracy. In Study Area 2, the woody stem density was lower and a meander survey, as opposed to a structured transect survey, was conducted. The habitat was characterized using a standard data form in six locations in Study Area 1 and at one location in Study Area 2. Locations where the data forms were completed were recorded using GPS and photographed.

3.0 RESULTS

The total transect length was surveyed in Study Area 1 was approximately 11,000 linear feet, and the location of the beginning and end of each transect is depicted in Figure 1. Seven of the initial fifty transects were not surveyed due to presence of deep (> 12.0") standing water which rendered then unsuitable for NEC pellet searches. Additionally the locations where the seven habitat characterization forms were completed are also depicted in Figure 1. Photos of the points are presented in Figures 2-7, and the completed forms are attached (Attachment B).

Animal sign: No Leporid pellets, browse scars, or trails were observed during the survey in either Study Area 1 or 2, or in the additional search area to the north of the toll plaza at Mile 8.7. Deer sign (browse, pellet groups, trails) was abundant in Study Areas 1 and 2, and a few Canid (dog or coyote) tracks were also observed in Study Area 1.

Habitat and Habitat Suitability: Herbaceous ground cover was generally dense (80-95%) throughout both Study Areas, but the density of woody stems was generally below (35-80%) what NEC require, as the overstory was relatively mature in most locations. Some areas with sufficiently high densities of woody stems were present, but these were patchy and relatively small. There were some small areas of high density woody stems north of the study area at MP 8.7 associated with a forested wetland, but pools of deeper standing water limited the amount of suitable habitat at this location as well. Preferred browse species (e.g., blackberry, viburnum, low bush blueberry) were present in all locations, but at low densities. Based on these observations, much of the habitat does not currently appear ideal for NEC.

Summary: Although the habitat suitability for NEC appeared limited and no cottontail signs (trails, browse, pellets) were observed, Normandeau cannot conclusively state that there are no cottontails in the survey area. Negative findings do not conclusively indicate a lack of presence, and it should be noted that the dense ground cover and lack of snow significantly restricted the surveyor's ability to detect objects as small as a NEC pellet. However, based on the lack of indicators and limited habitat suitability, the survey areas likely do not support NEC.



Figure 4. Site characterization , Study Area 1 - Plot 3



Figure 5. Site characterization , Study Area 1 - Plot 4

ATTACHMENT A

Work Plan HNTB York Toll Plaza
New England Cottontail Proposal

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  - Sign of other non-lagomorph species and determination about the level of predation Using the predation index on the datasheet (1 = no sign of predators, 2 = some sign of predators evident, e.g. tracks, 3 = heavy predator evidence).
  - Rabbit-clipped twigs (identified by a clean, 45o cut)
  - Pellets –location coordinates, collection vial numbers, time
  - Photo numbers
- Once pellets are identified, photograph at the pellet collection site and take photos towards the 4 cardinal directions. Mark the location with a piece of labeled flagging tape and take GPS coordinates of the location.

Pellet Collection

- Use disposable sterile latex gloves and place 6-10 pellets in a unique vial (however if you can only find ONE pellet, please collect it!); try to keep snow out of the vial but avoid rubbing the pellet as it may remove DNA.
- Attempt to restrict collection for each vial to an area approximately 10 x 10ft or smaller to minimize the number of individuals represented in each vial (ideally, one rabbit per vial).
- If multiple collections are made from a patch (into separate vials), collection points should be separated by at least 50-100 m.
- Label each vial with the date, site name, initials, coordinate, and the vial number (if more than one vial is collected at that site). If more than one vial of pellets is collected within one site, label it sequentially in the space on the datasheet and number it sequentially (e.g., Toll Plaza shrub swamp vial #1, Toll Plaza shrub swamp vial #2).
- Because DNA can degrade quickly if not frozen, return the vial(s) to a cooler upon returning to your vehicle and deposit in a freezer as soon as possible.

Equipment List

-Datasheets and clipboard
-Sterile vials and gloves
-GPS unit
-Ruler for measuring tracks
-Pencils
-Fine point marker
-Photos or field guide with tracks, habitat
-Ziploc bags
-Cooler to store the vials
-Flagging tape
-Camera
-Map of site
-Watch/timekeeping device
-Warm, sturdy clothing and waterproof footwear

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Site Characteristic Observations

Site name:_____
Date:_____

Vegetation

Estimate % of area in each vegetation form in habitat outlined above and note dominant species if possible (may equal >100%)

____% Regenerating trees
Species 1:_____
Species 2:_____
Species 3:_____

____% Shrubland
Species 1:_____
Species 2:_____
Species 3:_____

____% Old field (>50%grass/herbs)
Species 1:_____
Species 2:_____
Species 3:_____

____% Invasives
Species 1:_____
Species 2:_____
Species 3:_____

Overall Site Rank

Check the apparent suitability of the site for New England cottontail *regardless if evidence was found or not*

☐ Excellent
High quality habitat and large size. Highly suitable for New England cottontail. >20 acres

☐ Good
Moderate quality habitat and large size, or high quality habitat but moderate to small size. 10-20 acres

☐ Fair
Moderate quality habitat and small size, or very patchy spread out habitat. 5-10 acres

☐ Poor
Sparse habitat, too young or too old, unlikely to support New England cottontail.

☐ No suitable habitat
No habitat due to development, mature forest only, etc.

Habitat Type

(check all that apply)
☐ Mature forest
☐ Wetland :_____
☐ Riparian
☐ Regenerating clearcut
☐ Coastal shrubland
☐ Inland shrubland
☐ Old field
☐ Hedgerow Habitat
☐ Other:_____

Land Use

(check all that apply)
☐ Gas line Right of Way
☐ Powerline Right of Way
☐ Railroad
☐ Developed, completely
☐ Developed, partly
☐ Roadside
☐ Gravel pit
☐ Residential
☐ Agriculture
☐ Other:_____

Physical Structures

(check all that apply)
☐ Animal den (fox, woodchuck)
☐ Old foundation
☐ Brush pile
☐ Wood pile
☐ Cellar hole
☐ Stone wall
☐ Culvert
☐ Other:_____

Did you observe rabbit tracks leading into or out of any of these physical structures?
_____
_____
_____

Comments:_____
_____
_____

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Plot 1 Photos 1-4 SAB LEC

Site Characteristic Observations

Site name: York Toll Plaza
Date: 5/17/10

Vegetation
Estimate % of area in each vegetation form in habitat outlined above and note dominant species if possible (may equal >100%)

>5 % Regenerating trees
Species 1: pinus strobus
Species 2:
Species 3:

35 % Shrubland
Species 1: Rhamnus cathartica
Species 2: Ilex ver
Species 3: Lonicera / Spiraea

100% Old field (>50% grass/herbs)
Species 1: Calamagrostis
Species 2: Equisetum
Species 3: Caltha
onoclea carex spp.

50-100% Invasives
Species 1: Rhamnus
Species 2: Lonicera
Species 3: Phalaris ??

Overall Site Rank
Check the apparent suitability of the site for New England cottontail *regardless if evidence was found or not*

- ☐ Excellent
  High quality habitat and large size. Highly suitable for New England cottontail. >20 acres
- ☐ Good
  Moderate quality habitat and large size, or high quality habitat but moderate to small size. 10-20 acres
- ☒ Fair but wet
  Moderate quality habitat and small size, or very patchy spread out habitat. 5-10 acres
- ☐ Poor
  Sparse habitat. too young or too old, unlikely to support New England cottontail.
- ☐ No suitable habitat
  No habitat due to development, mature forest only, etc.

Habitat Type
(check all that apply)
- ☐ Mature forest
- ☒ Wetland: PFO/SS/EM
- ☐ Riparian
- ☐ Regenerating clearcut
- ☐ Coastal shrubland
- ☐ Inland shrubland
- ☐ Old field
- ☐ Hedgerow Habitat
- ☐ Other:

Land Use
(check all that apply)
- ☐ Gas line Right of Way
- ☐ Powerline Right of Way
- ☐ Railroad
- ☐ Developed, completely
- ☐ Developed, partly
- ☒ Roadside
- ☐ Gravel pit
- ☐ Residential
- ☐ Agriculture
- ☐ Other: undeveloped

Physical Structures
(check all that apply)
- ☐ Animal den (fox, woodchuck)
- ☐ Old foundation
- ☐ Brush pile NONE
- ☐ Wood pile
- ☐ Cellar hole
- ☐ Stone wall
- ☐ Culvert
- ☐ Other:

Did you observe rabbit tracks leading into or out of any of these physical structures?

NO

Comments: North(west) end, Southbound lanes wetland PFO/SS/EM - equitable mix

2

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SAB
LEE

Plot 3 Photos after the photo of SAB

Site Characteristic Observations

Site name: York Toll Plaza
Date: 5/12/10

Vegetation

Estimate % of area in each vegetation form in habitat outlined above and note dominant species if possible (may equal >100%)

25 % Regenerating trees (secnd growth)
- Species 1: Red maple
- Species 2: grey birch
- Species 3:

75 % ~~Shrubland~~ (SS wetlands)
- Species 1: Ilex
- Species 2: Lyonia
- Species 3:

80 % ~~Old field~~ (>50% grass/herbs) (herbaceous)
- Species 1: Carex crenita *
- Species 2: Sensitive fern
- Species 3: equisetum

lots of Poison ivy - some locations Sphagnum hummocks

___ % Invasives
- Species 1:
- Species 2:
- Species 3:

Habitat Type

(check all that apply)
- ☐ Mature forest
- ☒ Wetland: SS
- ☐ Riparian
- ☐ Regenerating clearcut
- ☐ Coastal shrubland
- ☐ Inland shrubland
- ☐ Old field
- ☐ Hedgerow Habitat
- ☐ Other:

Land Use

(check all that apply)
- ☐ Gas line Right of Way
- ☐ Powerline Right of Way
- ☐ Railroad
- ☐ Developed, completely
- ☐ Developed, partly
- ☐ Roadside
- ☐ Gravel pit
- ☐ Residential
- ☐ Agriculture
- ☐ Other: Undeveloped land abutting highway ROW

Physical Structures

(check all that apply)
- ☐ Animal den (fox, woodchuck)
- ☐ Old foundation
- ☐ Brush pile
- ☐ Wood pile
- ☐ Cellar hole N/A
- ☐ Stone wall
- ☐ Culvert
- ☐ Other:

Did you observe rabbit tracks leading into or out of any of these physical structures?

ND

Overall Site Rank

Check the apparent suitability of the site for New England cottontail *regardless if evidence was found or not*

- ☐ Excellent
  High quality habitat and large size. Highly suitable for New England cottontail. >20 acres
- ☐ Good
  Moderate quality habitat and large size, or high quality habitat but moderate to small size. 10-20 acres
- ☐ Fair
  Moderate quality habitat and small size, or very patchy spread out habitat. 5-10 acres
- ☒ Poor (Very wet)
  Sparse habitat, too young or too old, unlikely to support New England cottontail.
- ☐ No suitable habitat
  No habitat due to development, mature forest only, etc.

Comments: South bound lanes, South end
there are 2 types of wetlands at the
South end, PFO and a SS with ~25% tree cover

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Site Characteristic Observations

Site name: Data Point 5
Date: 5/17/10

Vegetation
Estimate % of area in each vegetation form in habitat outlined above and note dominant species if possible (may equal >100%)

60 % Regenerating trees
Species 1: Pop tremuloides
Species 2: Acer rubrum
Species 3: Betula populifolia

40 % Shrubland
Species 1: Spirea latifolia
Species 2: Viburnum dentatum
Species 3: Sambucus/Lonicera

90 % Old field (>50% grass/herbs)
Species 1: Carex (not counted)
Species 2: Phalaris arundinacea
Species 3: Typha

< 5 % Invasives
Species 1: Lonicera
Species 2: _____
Species 3: _____

Habitat Type
(check all that apply)
- ☐ Mature forest
- ☒ Wetland: PFO1/em1
- ☐ Riparian
- ☐ Regenerating clearcut
- ☐ Coastal shrubland
- ☐ Inland shrubland
- ☐ Old field
- ☐ Hedgerow Habitat
- ☐ Other: _____

Land Use
(check all that apply)
- ☐ Gas line Right of Way
- ☐ Powerline Right of Way
- ☐ Railroad
- ☐ Developed, completely
- ☐ Developed, partly
- ☒ Roadside
- ☐ Gravel pit
- ☐ Residential
- ☐ Agriculture
- ☒ Other: + undevel. land

Overall Site Rank
Check the apparent suitability of the site for New England cottontail *regardless if evidence was found or not*

- ☐ Excellent
  High quality habitat and large size. Highly suitable for New England cottontail. >20 acres
- ☐ Good
  Moderate quality habitat and large size, or high quality habitat but moderate to small size. 10-20 acres
- ☐ Fair
  Moderate quality habitat and small size, or very patchy spread out habitat. 5-10 acres
- ☒ Poor
  Sparse habitat, too young or too old, unlikely to support New England cottontail.
- ☐ No suitable habitat
  No habitat due to development, mature forest only, etc.

Physical Structures
(check all that apply)
- ☐ Animal den (fox, woodchuck)
- ☐ Old foundation
- ☐ Brush pile
- ☐ Wood pile
- ☐ Cellar hole
- ☐ Stone wall
- ☐ Culvert
- ☒ Other: Streams

Did you observe rabbit tracks leading into or out of any of these physical structures?

NO

Comments: Photos

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

Veg Plot 7

SAB
Skc

Site Characteristic Observations

Site name: York Toll Plaza West
Date: 5/27/2010

Vegetation

Estimate % of area in each vegetation form in habitat outlined above and note dominant species if possible (may equal >100%)

Second Growth

50 % ~~Regenerating trees~~
- Species 1: Red maple 90%
- Species 2: birch 5%
- Species 3: Ash 5%

80 % Shrubland
- Species 1: Mulberry 70%
- Species 2: High bush 20%
- Species 3: Alder 10%

98 % Old field (>50% grass/herbs)
- Species 1: RLG 70%
- Species 2: Horsetail 40%
- Species 3: Spirea 20%

___ % Invasives
- Species 1: None noted
- Species 2: _____
- Species 3: _____

Habitat Type

(check all that apply) second growth

- [x] ~~Mature forest~~
- [x] Wetland: SS/PFO
- [ ] Riparian
- [ ] Regenerating clearcut
- [ ] Coastal shrubland
- [ ] Inland shrubland
- [ ] Old field
- [ ] Hedgerow Habitat
- [ ] Other: _____

Land Use

(check all that apply)

- [ ] Gas line Right of Way
- [ ] Powerline Right of Way
- [ ] Railroad
- [ ] Developed, completely
- [ ] Developed, partly
- [x] Roadside, ROW
- [ ] Gravel pit
- [ ] Residential
- [ ] Agriculture
- [ ] Other: adjacent undeveloped land

Overall Site Rank

Check the apparent suitability of the site for New England cottontail *regardless if evidence was found or not*

- [ ] Excellent
  High quality habitat and large size. Highly suitable for New England cottontail. >20 acres
- [ ] Good
  Moderate quality habitat and large size, or high quality habitat but moderate to small size. 10-20 acres
- [ ] Fair
  Moderate quality habitat and small size, or very patchy spread out habitat. 5-10 acres
- [x] Poor
  Sparse habitat, too young or too old, unlikely to support New England cottontail.
- [ ] No suitable habitat
  No habitat due to development, mature forest only, etc.

Physical Structures

(check all that apply) N/A

- [ ] Animal den (fox, woodchuck)
- [ ] Old foundation
- [ ] Brush pile
- [ ] Wood pile
- [ ] Cellar hole
- [ ] Stone wall
- [ ] Culvert
- [ ] Other: _____

Did you observe rabbit tracks leading into or out of any of these physical structures?

N/A

Comments: Some areas of very dense stems, but over all, stem density to low to provide good habitat

2

APPENDIX 9I

Agency Correspondence

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November 13, 2014
14181

Ms. Lisa St. Hilaire
Maine Natural Areas Program
93 State House Station
Augusta, ME 04333-0933

Maine Natural Areas Program Review
Maine Turnpike Authority, Corridor Study for Toll Plaza

Dear Ms. St. Hilaire:

Sebago Technics, Inc. has been retained by the Maine Turnpike Authority (MTA) to assist with an environmental corridor study for a section of the Maine Turnpike. The study is part of a larger planning assessment that Jacobs Engineering has recently undertaken for the Southern Maine Toll Plaza in York. The York Toll Plaza was constructed in 1969 and surpassed its useful design life due to traffic, operational and structural deficiencies.

During the past several years, the MTA has initiated a program to evaluate the feasibility for a new Toll Plaza within an identified corridor of the Turnpike that includes the existing Toll Plaza (mile marker 7.3) and an area extending northerly of the York Plaza to mile marker 10.4. In addition the area between mile marker 12.7 and 13.7 was also identified for a potential toll plaza.

As we conduct the planning study, we would appreciate the Maine Natural Areas Program's review of the study corridor for the identification rare and endangered plants, rare natural communities and ecosystems. If you have any questions, please do not hesitate to contact me.

Sincerely,

SEBAGO TECHNICS, INC.



Owens A. McCullough, P.E., LEED-AP
Vice President - Engineering & Project Development

OAM/llg
Enc.

cc: Ralph Norwood, P.E., PTOE - MTA
Rod Emery, P.E – Jacobs Engineering

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
93 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0093

PAUL R. LEPAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

November 18, 2014

Owens McCullough
Sebago Technics
75 John Roberts Road, Suite 1A
South Portland, ME 04106

Re: Rare and exemplary botanical features in proximity to: Maine Turnpike Authority, Corridor Study for Toll Plaza, York, Maine

Dear Mr. McCullough:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request received November 18, 2014 for information on the presence of rare or unique botanical features documented from the vicinity of the project in York, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife (MDIFW), 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are a number of botanical features within the 500 meter study corridor for the toll plaza. Please refer to the attached maps, table below, and shapefile included in the response. A majority of these features occur within large wetland systems and require maintenance of the hydrology of these wetlands for future persistence. Also note that one of the rare plant species (Spicebush) in the Little River Tributary Swamp is host to a State Rare butterfly, the Spicebush Swallowtail (*Papilio Troilus*, Special Concern) at this location. Please contact us for additional information about the locations and ecology of the rare plants if any of the planning options will intersect or otherwise encroach upon their habitats. Contact MDIFW for more information on the habitat needs of the Spicebush Swallowtail.

Feature	State Status	State Rank	Global Rank	Occurrence Rank	Notes
Sweet Pepper-bush, *Clethra alnifolia*	SC	S2	G5	BC Good to Fair	Chases Pond South
Smooth Winterberry Holly, *Ilex laevigata*	SC	S3	G5	D Poor	Chases Pond South
Sweet Pepper-bush, *Clethra alnifolia*	SC	S2	G5	B Good	Chases Pond

MAINE NATURAL AREAS PROGRAM
MOLLY DOCHERTY, DIRECTOR

PHONE: (207) 287-8044
FAX: (207) 287-8040
TTY: (207) 287-2213

Spicebush, *Lindera benzoin*	SC	S3	G5	B Good	Little River Tributary Swamp
Sweet Pepper-bush, *Clethra alnifolia*	SC	S2	G5	B Good	Little River Tributary Swamp
Featherfoil, *Hottonia inflata*	T	S2	G4	E Extant	York Fish and Game Club

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

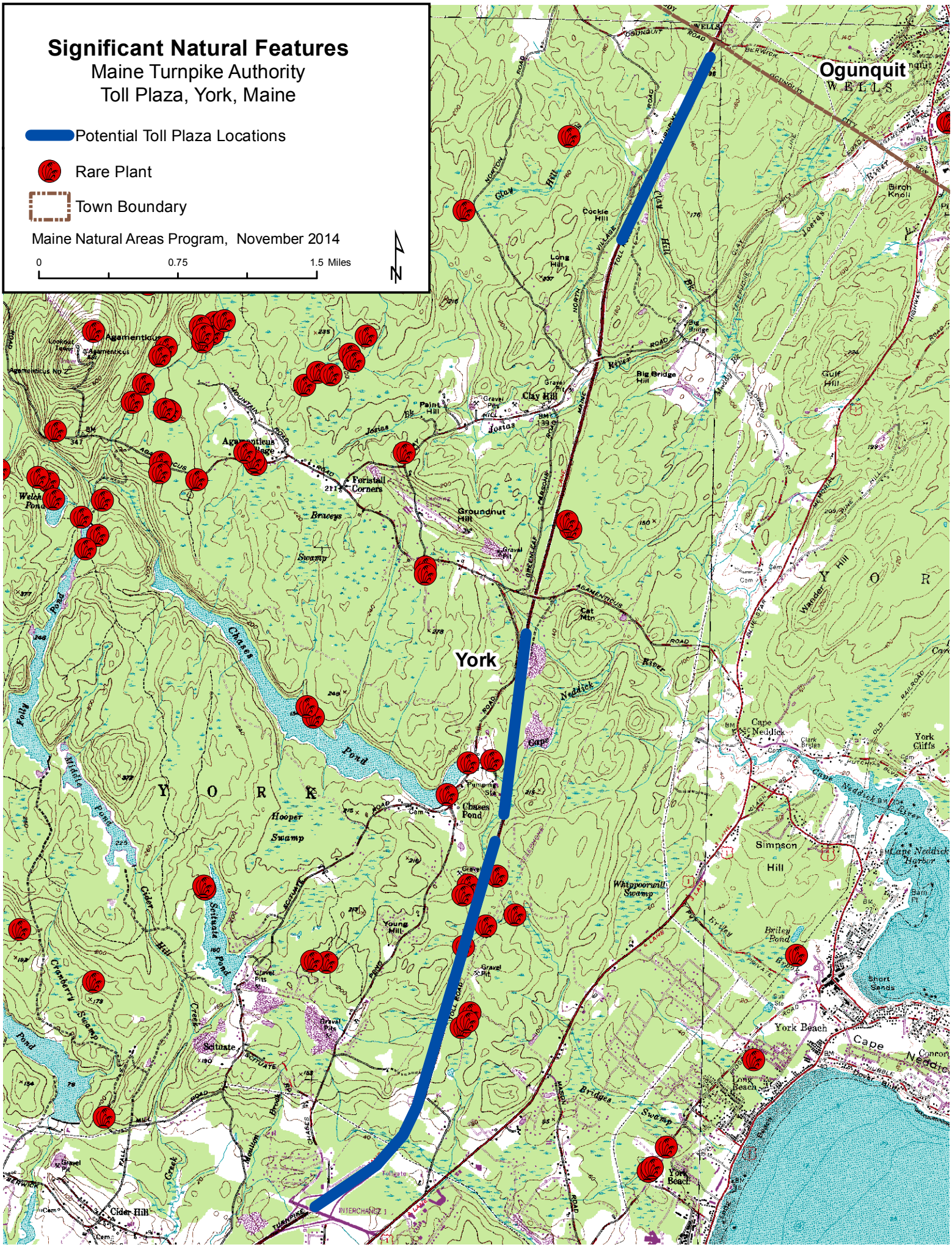
The Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for our services.

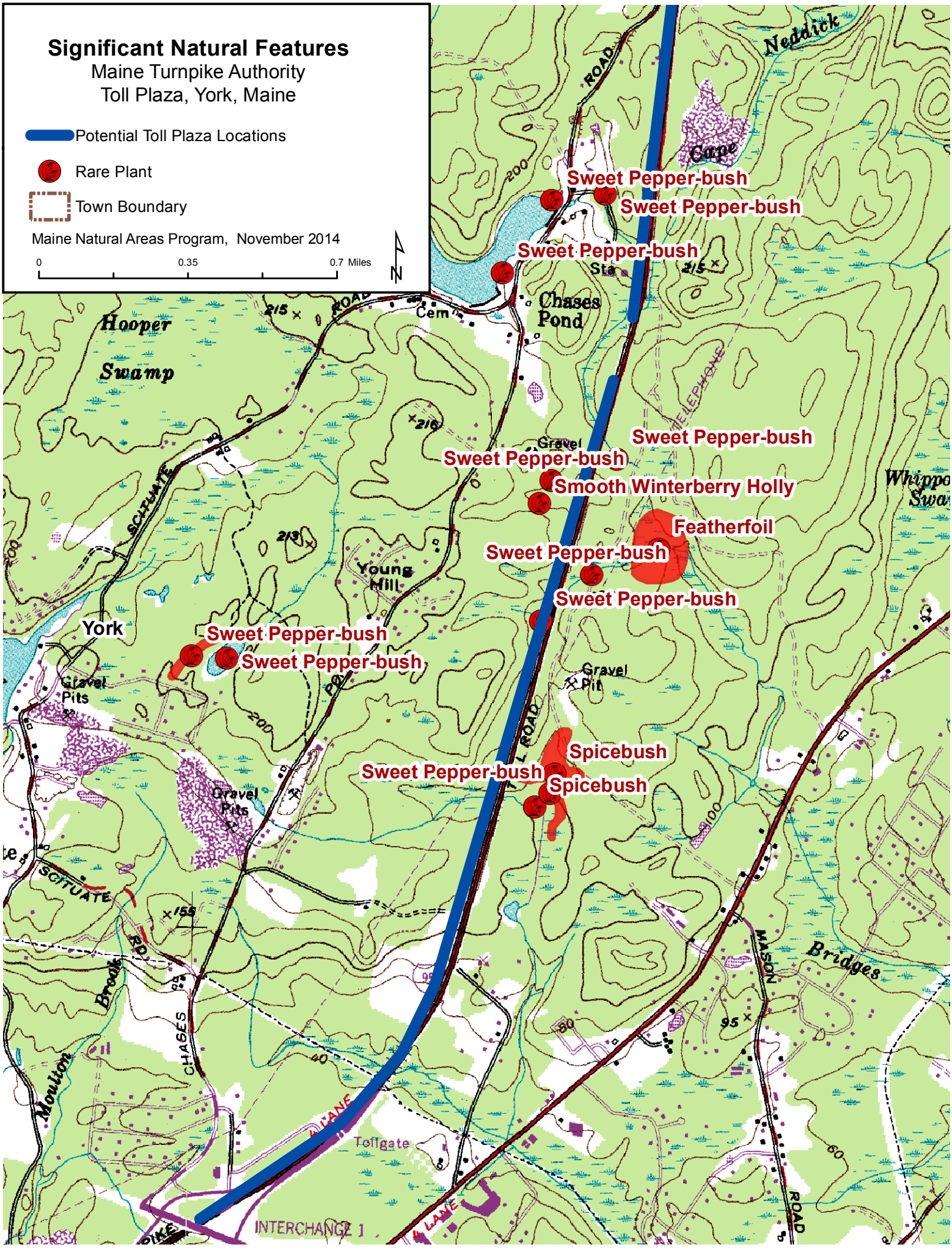
Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

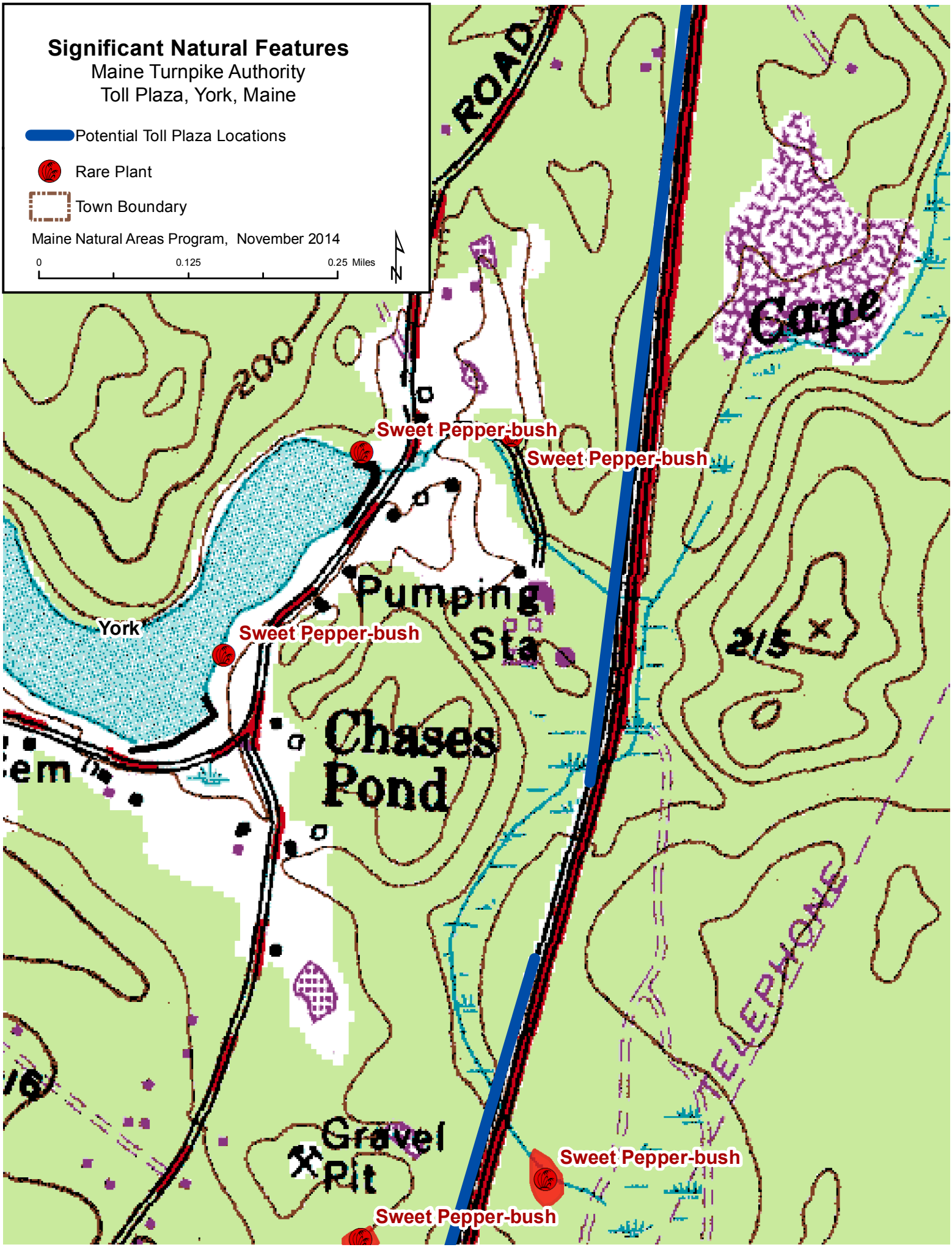
Sincerely,

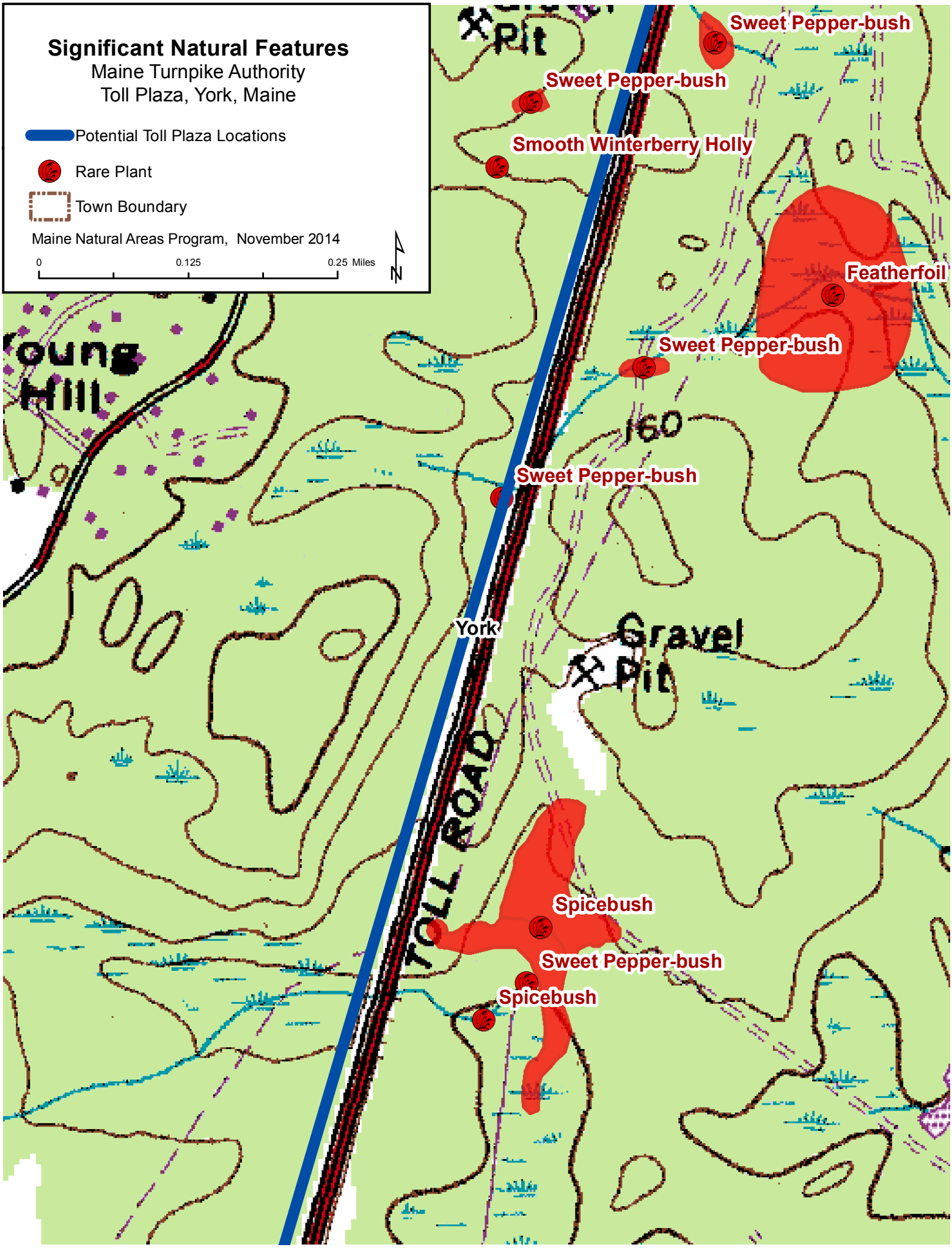
Don Cameron
Ecologist
Maine Natural Areas Program
207-287-8041
don.s.cameron@maine.gov

Enclosures


Significant Natural Features
Maine Turnpike Authority
Toll Plaza, York, Maine
Potential Toll Plaza Locations
Rare Plant
Town Boundary
Maine Natural Areas Program, November 2014
0
0.75
1.5 Miles
N
Ogunquit
York
Agamenticus
Foristall Corners
Groundnut Hill
Clay Hill
Big Bridge Hill
Cockle Hill
Long Hill
Gulf Hill
Birch Knoll
Cape Neddick
York Cliffs
Simpson Hill
Whippoorwill Swamp
Briley Pond
Short Sands
York Beach
Long Beach
Chases Pond
Hooper Swamp
Young Hill
Scituate
Cider Hill
Welch Pond
Cape Neddick Harbor
Cape Neddick River
Bridges Swamp
Cranberry Swamp
Folly Pond
Middle Pond
Cider Hill Creek
Mountain Road
Agamenticus Village
Paint Hill
Cat Mtn
Wander Hill
Y O R K
Y O R
INTERCHANGE 1


Significant Natural Features
Maine Turnpike Authority
Toll Plaza, York, Maine
Potential Toll Plaza Locations
Rare Plant
Town Boundary
Maine Natural Areas Program, November 2014
0
0.35
0.7 Miles
N
Sweet Pepper-bush
Sweet Pepper-bush
Sweet Pepper-bush
Sweet Pepper-bush
Sweet Pepper-bush
Smooth Winterberry Holly
Featherfoil
Sweet Pepper-bush
Sweet Pepper-bush
Sweet Pepper-bush
Sweet Pepper-bush
Spicebush
Sweet Pepper-bush
Spicebush
Neddick
Cape
Chases Pond
Hooper Swamp
Young Hill
York
Gravel Pits
Gravel Pit
Gravel Pits
Bridges
Moulton Brook
Tollgate
INTERCHANGE 1
SCITUATE
CHASES
MASON
ROAD
TELEPHONE


Significant Natural Features
Maine Turnpike Authority
Toll Plaza, York, Maine
Potential Toll Plaza Locations
Rare Plant
Town Boundary
Maine Natural Areas Program, November 2014
0
0.125
0.25 Miles
N
ROAD
200
Cape
Sweet Pepper-bush
Sweet Pepper-bush
Pumping Sta
York
Sweet Pepper-bush
215
Chases Pond
TELEPHONE
Gravel Pit
Sweet Pepper-bush
Sweet Pepper-bush


Significant Natural Features
Maine Turnpike Authority
Toll Plaza, York, Maine
Potential Toll Plaza Locations
Rare Plant
Town Boundary
Maine Natural Areas Program, November 2014
0
0.125
0.25 Miles
N
Sweet Pepper-bush
Sweet Pepper-bush
Smooth Winterberry Holly
Featherfoil
Sweet Pepper-bush
160
Sweet Pepper-bush
York
Gravel Pit
TOLL ROAD
Spicebush
Sweet Pepper-bush
Spicebush

STATE RARITY RANKS

S1 Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.

S2 Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

S3 Rare in Maine (20-100 occurrences).

S4 Apparently secure in Maine.

S5 Demonstrably secure in Maine.

SU Under consideration for assigning rarity status; more information needed on threats or distribution.

SNR Not yet ranked.

SNA Rank not applicable.

S#? Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

G1 Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.

G2 Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

G3 Globally rare (20-100 occurrences).

G4 Apparently secure globally.

G5 Demonstrably secure globally.

GNR Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

E ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.

T THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.

PE Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
http://www.maine.gov/dacf/mnap

February 18, 2016
14181

Ms. Lisa St. Hilaire
Maine Natural Areas Program
93 State House Station
Augusta, ME 04333-0933

Maine Natural Areas Program Review
Maine Turnpike Authority, Corridor Study for Toll Plaza

Dear Ms. St. Hilaire:

Sebago Technics, Inc. has been retained by the Maine Turnpike Authority (MTA) to assist with the environmental permitting for the proposed York Toll Plaza Relocation. The MTA has identified a new toll plaza location based upon the results of a comprehensive corridor study that was recently completed. The location selected is in the vicinity of mile 8.2 to mile 9.4 with the new toll plaza being located at mile 8.8.

We are in the process of preparing agency applications to include a MDEP Natural Resources Permit Application and US Army Corp of Engineers 404 permit application and would request an updated review of the project area for the identification rare and endangered plants, rare natural communities and ecosystems. If you have any questions, please do not hesitate to contact me.

Sincerely,

SEBAGO TECHNICS, INC.

Owens A. McCullough, P.E., LEED-AP
Vice President - Engineering & Project Development

OAM/llg
Enc.

cc: Ralph Norwood, P.E., PTOE – MTA
Sarah Zografos, Planner/Agency Liaison
Rod Emery, P.E – Jacobs Engineering

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
93 STATE HOUSE STATION
AUGUSTA, MAINE 04333

PAUL R. LEPAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

March 7, 2016

Owens McCullough
Sebago Technics
75 John Roberts Road, Suite 1A
South Portland, ME 04106

Via email: omccullough@sebagotechnics.com

Re: Rare and exemplary botanical features in proximity to: Project 14181, Maine Turnpike Authority, Corridor Study for Toll Plaza, Mile 8.8, York, Maine

Dear Mr. McCullough:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request received February 23, 2016 for information on the presence of rare or unique botanical features documented from the vicinity of the project in York, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, the proposed project is near several mapped botanical features: Featherfoil, Smooth Winterberry Holly, Spicebush, and Sweet Pepper-bush. Provided the limit of disturbed area to either side of the proposed toll plaza is as shown in yellow and green on the map sent with the request for review, MNAP has no concerns. Should the footprint of the project change, or access be planned near any of the mapped features, please contact MNAP for further recommendations. Please refer to the table and map below.

Feature	State Status	State Rank	Global Rank	Occurrence Rank	Site
Featherfoil *Hottonia inflata*	T	S1	G4	H Historical	York Fish & Game Club Last obs 1994
Smooth Winterberry-holly *Ilex laevigata*	SC	S3	G5	D Poor	Chases Pond South
Spicebush *Lindera benzoin*	SC	S3	G5	B Good	Little River Tributary Swamp
Sweet Pepper-bush *Clethra alnifolia*	SC	S2	G5	BC Good to Fair	Chases Pond South

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-8044
FAX: (207) 287-8040
WWW.MAINE.GOV/DACF/MNAP

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

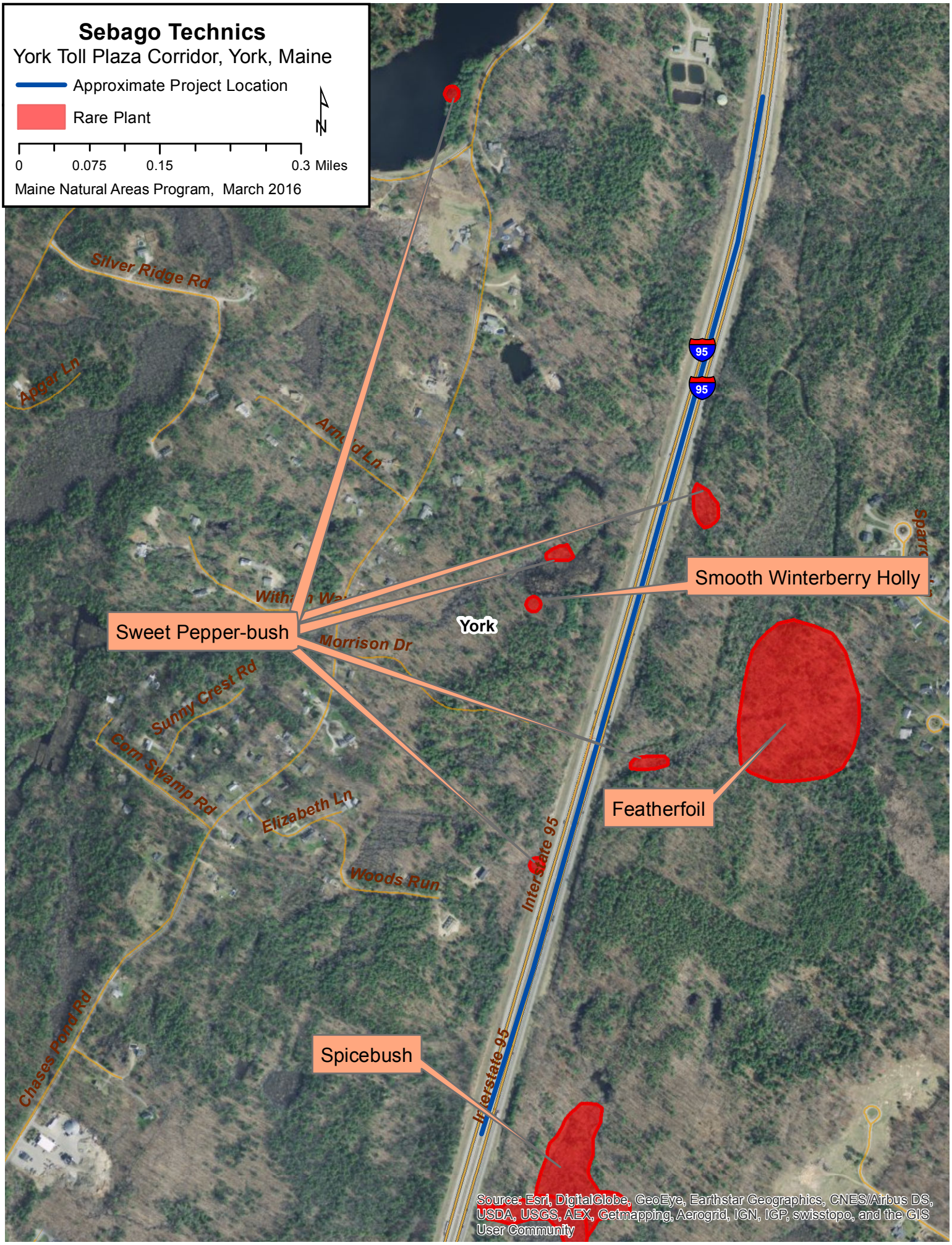
The Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Don Cameron | Ecologist | Maine Natural Areas Program
207-287-8041 | don.s.cameron@maine.gov


Sebago Technics
York Toll Plaza Corridor, York, Maine
Approximate Project Location
Rare Plant
N
0
0.075
0.15
0.3 Miles
Maine Natural Areas Program, March 2016
Silver Ridge Rd
Apgar Ln
Arnold Ln
Morrison Dr
Sunny Crest Rd
Corn Swamp Rd
Elizabeth Ln
Woods Run
Chases Pond Rd
Interstate 95
95
95
York
Sweet Pepper-bush
Smooth Winterberry Holly
Featherfoil
Spicebush
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

STATE RARITY RANKS

S1 Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.

S2 Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

S3 Rare in Maine (20-100 occurrences).

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S5 Demonstrably secure in Maine.

SU Under consideration for assigning rarity status; more information needed on threats or distribution.

SNR Not yet ranked.

SNA Rank not applicable.

S#? Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

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GLOBAL RARITY RANKS

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G2 Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

G3 Globally rare (20-100 occurrences).

G4 Apparently secure globally.

G5 Demonstrably secure globally.

GNR Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

E ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.

T THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.

PE Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
http://www.maine.gov/dacf/mnap

November 13, 2014
14181

Bethany Atkins
Maine Department of Inland Fisheries & Wildlife
41 State House Station
284 State Street
Augusta, ME 04333-0041

Maine Department of Inland Fisheries and Wildlife
Maine Turnpike Authority, Corridor Study for Toll Plaza

Dear Ms. Atkins:

Sebago Technics, Inc. has been retained by the Maine Turnpike Authority (MTA) to assist with an environmental corridor study for a section of the Maine Turnpike. The study is part of a larger planning assessment that Jacobs Engineering has recently undertaken for the Southern Maine Toll Plaza in York. The York Toll Plaza was constructed in 1969 and surpassed its useful design life due to traffic, operational and structural deficiencies.

During the past several years, the MTA has initiated a program to evaluate the feasibility for a new Toll Plaza within an identified corridor of the Turnpike that includes the existing Toll Plaza (mile marker 7.3) and an area extending northerly of the York Plaza to mile marker 10.4. In addition the area between mile marker 12.7 and 13.7 was also identified for a potential toll plaza.

As we conduct the planning study, we would appreciate IF&W's review of the study corridor for the identification of endangered or critical fisheries or wildlife habitats. If you have any questions, please do not hesitate to contact me.

Sincerely,

SEBAGO TECHNICS, INC.

Owens A. McCullough, P.E., LEED-AP
Vice President – Engineering & Project Development

OAM/llg
Enc.

cc: Ralph Norwood, P.E., PTOE - MTA
Rod Emery, P.E – Jacobs Engineering

PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

CHANDLER E. WOODCOCK
COMMISSIONER

December 18, 2014

Owens McCullough
Sebago Technics
75 John Roberts Road, Suite 1A
South Portland, ME 04106-6963

RE: Information Request - MTA York Plaza, York

Dear Owens:

Per your request received November 19, 2014, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and fisheries habitat concerns within the vicinity of the *MTA York Plaza Project* in York.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Several state-listed Endangered, Threatened, and Special Concern Species have been documented in the project search area. These species include one mammal (New England Cottontail, Endangered); four reptiles (Blanding's Turtle, Endangered; Spotted Turtle, Threatened; Wood Turtle, Special Concern; and Eastern Ribbon Snake, Special Concern); three fish species (Redfin Pickerel, Endangered; Swamp Darter, Threatened; and American eel, Special Concern); and one invertebrate (Spicebush Swallowtail, Special Concern). We strongly recommend that your project be designed to avoid habitats for these species. In addition, Endangered and Threatened species are protected under Maine's Endangered Species Act (MESA), and as such are afforded special protection by the State. Specifically, §12808 of the MESA prohibits any party from actions that Take (kill) or Harass (injure or disrupt normal behavioral patterns) a state Endangered or Threatened species. We strongly recommend that you work closely with MDIFW Region A wildlife biologists in Gray (207-657-2345), as well as MDIFW's species specialists in our Bangor office (Derek Yorks, 207-941-4475 and Phillip deMaynadier, 207- 941-4239).

Significant Wildlife Habitat

<u>Inland Waterfowl and Wading Bird Habitats</u>

This project intersects or appears to be immediately adjacent to Inland Waterfowl and Wading Bird Habitats (IWWHs). These habitats provide important breeding, feeding, migration, staging, and wintering habitat for waterfowl and wading bird species. High and moderate value IWWHs within the

study area includes both the wetland complex and a 250-foot upland zone. We recommend that these resources be avoided, including no clearing within the 250-foot undisturbed buffer from the wetland edge. Please work closely with MDIFW Region A wildlife biologists in Gray (207-657-2345) to discuss avoidance and minimizations efforts during Project design.

Significant Vernal Pools

Significant Vernal Pools, Significant Wildlife Habitats under Maine's Natural Resources Protection Act, have been mapped within the project area. A comprehensive statewide inventory for Significant Vernal Pools, however, has not been completed. Surveys for vernal pools in the project boundary will need to be conducted prior to final project design to determine whether there are Significant Vernal Pools present. Once surveys are completed, our Department will need to verify vernal pool data sheets prior to final determination of significance.

Fisheries Habitat Concerns

Without details, it is difficult to know what impacts your project may have on the mapped streams within the search area, including the three fish species of concern (Redfin Pickerel, Endangered; Swamp Darter, Threatened; and American eel, Special Concern) that are also documented in the review area. That being said, MDIFW makes the following general recommendations as they pertain to streams.

We recommend that a 100-foot undisturbed vegetated buffer be maintained along these streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining buffers along coldwater fisheries is critical to the protection of water temperatures, water quality, and inputs of coarse woody debris necessary to support conditions required by brook trout. Any work on existing stream crossings should be designed to provide adequate fish passage. We encourage you to contact our Region A Fisheries staff (207-657-2345) for crossing design recommendations that best maintain fish passage. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts to stream habitat. In addition, we recommend that any necessary instream work or work within 100 feet of streams occur between July 15 and October 1. Finally, as previously stated the Redfin Pickerel and Swamp Darter are protected under MESA, and as such are afforded special protection by the State.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,



John Perry
Environmental Review Coordinator

MTA Toll Plaza Mile 8.8 site Pre-Application Review

Township: York

Project: MTA Toll Plaza

Date: November 13, 2015

MDIFW Review Staff: Derek Yorks, Cory Stearns, Phillip deMaynadier, and John Perry

This letter provides initial comments and recommendations for pre-application review of the proposed Maine Turnpike Authority (MTA) toll plaza located at mile 8.8 in York.

Following a visit to the site where MDIFW biologists Cory Stearns (Region A) and Derek Yorks (Research and Assessment Section, Bangor) joined representatives from the MTA, DEP, and Sebago Technics, MDIFW has identified the following jurisdictional concerns and recommendations for priority species and habitats. State-listed species (Spotted Turtle) are protected under the Maine Endangered Species Act (MESA) from take (killing) and harassment (injury or significant disruption of normal behavioral patterns). MDIFW has the legal mandate to enforce MESA under 12 M.R.S. 12805. Significant Wildlife Habitats (Significant Vernal Pools and Inland Waterfowl and Wading Bird Habitats), and habitat for rare or endangered species are protected by the Natural Resources Protection Act (NRPA) and/or the State's Site Location Law (Chapter 375, Protection of Wildlife and Fisheries).

1) **Significant Vernal Pools (SVPs)**: Three Potential SVPs eligible for protection under NRPA have been identified on site. The current project design should avoid most impacts to the two westernmost pools. A planned access road will lead to some fragmentation of these pools, but given that traffic on this access road will be limited to the vehicles of toll booth and facility maintenance workers it is MDIFW's opinion that wildlife movements among these pools will not be significantly impacted and thus no additional mitigation measures are recommended.

   The third potentially SVP is the closest of the three to the turnpike (located within the "Maine Turnpike Authority 7 Morrison Drive" lot where it borders the Turnpike ROW). It is MDIFW's opinion that this pool could be negatively impacted by additional loss of forested habitat within 250 ft. of the pool, as well as potential alteration to its hydrology should the ledge at the pools eastern side be disturbed and affect the water table.

2) **Spotted turtles and ribbon snakes**: A population of spotted turtles (Threatened) and a population of ribbon snakes (Special Concern) were previously documented at an emergent wetland immediately adjacent to the project area to the west of the turnpike. Both of these species likely travel to multiple wetlands on site and the vernal pool complex immediately north of this wetland is likely utilized by these populations. The

documented spotted turtle/ribbon snake wetland is hydrologically connected to the vernal pool complex by way of a seasonal outlet stream which has been channeled into a ditch where it parallels the turnpike (flowing north) and becomes a natural stream again (flowing west) and connects to the vernal pool complex. It is MDIFW's opinion that maintaining hydrologic connectivity is critical to the persistence of spotted turtles and ribbon snakes at this location. Maintaining connectivity is especially important given the proposed loss of some forested buffers around wetlands used by these populations, with additional noise and disturbance at the site potentially altering patterns of habitat use and migratory pathways between wetlands.

Additionally, new evidence of a breeding population of spotted turtles within the project area on the east side of the turnpike was documented during the 8/28/2015 site visit when a spotted turtle nest was discovered next to the 36-inch culvert on this side of the turnpike. The nest contained 2 eggs that had been destroyed by mowing equipment as well as 2 potentially viable eggs. MDIFW collected the 2 seemingly viable eggs for incubation and at the present time just one of these eggs has hatched (on 9/14/2015). The female turtle likely emerged to nest from the ditch at the culvert outlet and may inhabit any or all of the wetlands close to the culvert inlet on this side of the turnpike. A number of these wetlands will be directly impacted by the project, which in turn will have potential adverse impacts on the local spotted turtle population.

3) **New England Cottontail (NEC)**: NEC has not been documented at the site and no evidence of their presence was found during the site visit. However, review polygons occur about a mile to the north and to the south of the project site. NEC require early successional habitat, such as thick shrubs or young trees. Large highways (e.g., the turnpike) have been shown to inhibit NEC dispersal, but roadside habitat can facilitate dispersal across the landscape (i.e., they rarely successfully cross large highways, but more commonly move along them.) The project area on the western side has a very limited amount of early successional habitat. The edge of the SVP and the other wetlands does have some shrubby cover, but these areas will not be directly impacted by the project. On the eastern side there is some shrubby vegetation within the construction zone, primarily associated with the wetlands. Disturbance to the shrubby wetland adjacent to where the spotted turtle nest was found is the most likely place on site for an impact to NEC to occur (if they are present). MDIFW is planning to do snow-tracking surveys for New England and eastern cottontails (a non-native species that was recently detected a few miles away) in York this winter to determine the status of both species in the town. MDIFW recommends including this site as part of that effort to more definitively determine if NEC will be impacted by this project.

In summary, MDIFW finds that current project plans will likely adversely impact populations of spotted turtles and ribbon snakes because of a) direct impacts to suitable wetland habitat and forested buffers at the project site and b) indirect impacts by way of increased noise, lights, and vibration that may alter the use and functionality of available habitat.

More specifically, the emergent marsh where spotted turtle and ribbon snake have been documented will be impacted by the construction of the toll plaza because; 1) the forested buffer within 250 feet of the wetland will be further degraded; 2) the outlet stream (including the ditched portion) will be altered -- a stream that provides a hydrologic connection to wetlands that are likely spotted turtle habitat directly to the east of the wetland; and 3) additional noise, lights, and vibration from the toll plaza that likely will degrade habitat suitability for the resident spotted turtle population.

Several wetlands onsite that will be directly impacted by the project (filled entirely, partially, or altered) appear to be suitable spotted turtle and ribbon snake habitat, which includes wetlands on both the east and west sides of the turnpike. Several wetlands close to the newly documented spotted turtle nest will be filled either entirely or partially, wetlands that likely serve as habitat to the local spotted turtle population.

MDIFW recommends the following measures to mitigate negative impacts to spotted turtles, ribbon snakes, New England cottontail, and other vernal pool-associated wildlife at the site:

A) **Installation of a wildlife passage and exclusionary fencing at the north end of the site:** We recommend that the 36-inch concrete culvert that currently facilitates the flow of a small stream at the north end of the project area be replaced by a large box culvert or a bridge that will facilitate a more natural stream channel and provide stream bank habitat allowing rare turtles and snakes (and other aquatic and terrestrial species) to move safely beneath the turnpike. The general design of this structure should allow for high light levels which may ideally be achieved by the construction of two parallel bridges or box culverts (one for northbound and one for southbound). Importantly this design will allow light to enter an area in the median strip between the north and southbound lanes. Exclusionary fencing should be used on both sides of the turnpike in conjunction with the crossing structure to funnel wildlife and prevent additional road mortality. Currently, MDIFW recommends that this fencing be installed around the toll collection facility itself and extending northward roughly to the project boundary. Additional rare turtle and snake surveys in the Spring of 2016 by MDIFW are required to better inform whether the exclusionary fencing should be extended further south of the proposed toll collection facility.

B) **Reduced road salt application and maintenance of forested buffer for access road:** We recommend that the toll booth access road be a no-salt or low-salt road to maintain optimal water quality for pool breeding amphibians. Road salt has been shown to be detrimental to amphibian development where it collects in pools as runoff. Because the

access road is a low-traffic roadway where vehicles will be travelling at low speeds it can be safely maintained in winter months using little or no road salt.

C) **NEC habitat mitigation:** Installing a large box culvert or bridge (as suggested to mitigate for turtle impacts) so that there is a dry zone for cottontails and other terrestrial wildlife to pass under the turnpike would facilitate dispersal across the landscape. This would have the benefit of increasing gene flow between populations on opposing sides of the turnpike, and increase the likelihood that dispersing NEC from one side of the turnpike colonize suitable habitat on the other side. Maintaining shrub habitat along the exclusionary fence and elsewhere in the turnpike ROW would facilitate NEC dispersal along the highway, and to the crossing structure.

MDIFW appreciates the efforts of Sebago Technics and the Maine Turnpike Authority to cooperate on this pre-application review. We are confident that with the recommended modifications and mitigation above the proposed development will not have significant adverse impacts to Maine's fish and wildlife resources. Please contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

John Perry

Environmental Review Coordinator

February 3, 2016

Dear Sara,

Thank you for the opportunity for meeting and the subsequent site visit to the MTA York Toll Plaza Project area this past December. It was very helpful for our staff to see the site and especially some of the conceptual mitigation and preservation options. We are pleased and encouraged by the open discussions that have taken place and hope to continue a productive relationship as your project moves forward.

Based on our staff's assessment of the possible mitigation opportunities following our observations and conversations during the site visit, MDIFW offers the following recommended mitigation and enhancement strategies, in order of preference, for the MTA York Toll Plaza Project:

I. Habitat Preservation and Connectivity Option 1:

As discussed during the meeting and site visit, while the Morrison Property could be suitable as a mitigation opportunity, we are more interested in identifying areas to preserve within the area of the "Corn Swamp" located between Chases Pond Road and Scituate Road. This is the largest (relatively) unfragmented block of habitat known to provide habitat for Spotted Turtles, Blanding's Turtles, and Ribbon Snakes in close proximity to the mile 8.8 Toll project. Additional land preservation in this area could complement existing conservation parcels held in the area by York Land Trust and York Water District and help to prevent further development from converting and fragmenting existing high value turtle habitat.

Along with the habitat preservation component, and as briefly discussed during our December field trip, MDIFW is interested in having MTA potentially cooperate in the implementation of exclusionary fencing and a wildlife crossing structure along Route 236 in Eliot (see attached map). MDIFW has identified a causeway along a stretch of Route 236 that is causing mortality for several species of turtles, including both State-listed Blanding's and Spotted Turtles, State Endangered New England Cottontail, Brown Snakes (Special Concern), and other more common species. MDIFW has been working with MaineDOT to 1) secure funding to eliminate the risk to listed species (i.e. exclusionary fencing) and 2) replace the existing drainage structure with a larger wildlife crossing structure, similar in nature to what was proposed for a crossing structure near the site of the proposed toll plaza. Based on several years of data, MDIFW believes this location is causing the highest mortality of listed turtles in Maine. MDIFW is still working on a detailed fencing and wildlife passage design in cooperation with MDOT, but a preliminary estimate of the cost for complete project implementation (materials and labor) is approximately $400,000.

II. Habitat Preservation and Connectivity Option 2:

Through researching the last round of grant proposals to the Maine Natural Resource Conservation Program (MNRCP; aka Maine's In-Lieu Fee Program) MDIFW has identified several unfunded high priority mitigation parcels located in the greater Mount Agamenticus ecological focus area (straddling the towns of York, Wells, and South Berwick). These parcels have willing sellers, completed market assessments, and motivated buyers in the form of the York land Trust and/or Great Works land Trust. Furthermore, the parcels contain suitable habitat, and in some cases documented use, by state-listed turtles and other species of conservation concern. It is MDIFW's opinion that the collective protection of three of these parcel projects (see attached maps) would achieve greater wildlife mitigation values than the Morrison parcel, and potentially at a significantly lower expense to MTA. The three projects

collectively amount to approximately 119 acres with a combined (unfunded) request to MNRCP of approximately $508,000.

Alternatively, and of approximately equal mitigation value to the three parcel projects above (as regards rare turtles and potentially New England Cottontail), is a project known as the Rams Head Farm, a 220 acre unfragmented forested parcel that borders the Mount Agamenticus focus area, which is highly vulnerable to development with significant road frontage on Clay Hill Road (see attached map). This parcel is currently one of the York Land Trust's highest priorities for protection, and with an assessed value of $850,000 a mitigation contribution similar to that estimated above (approximately $500,000) would likely make the project a success for the YLT, which has only raised a small portion of the required funding.

III. Habitat Preservation and Connectivity Option 3:

This option includes using the Morrison Property as the preservation parcel as well as cooperation with MDIFW in funding and implementing the Route 236 causeway exclusionary fencing and crossing structure described above.

IV. Habitat Preservation and Connectivity Option 4:

This option includes using the Morrison Property as the preservation parcel as well as replacing the Chases Pond Road culvert (assuming full cooperation by the Town of York) with a wildlife crossing structure and exclusionary fencing, as discussed at the December meeting and site visit.

While MDIFW agrees that the Morrison Property offers some habitat mitigation value for priority wildlife species, the projects described in Options 1 and 2 above are considered much more valuable based on their known habitat value, location, risk of development, and documented use by listed species. Conceivably, as a previously permitted subdivision some or all of the lots in the Morrison Property could be sold and the funds used by MTA to purchase these other parcels at a potentially lower total cost than what the MTA paid for the Morrison property.

Please let us know when it is convenient to discuss the details of these options further. We look forward to working with you as your project develops and are encouraged with the MTA's willingness to discuss opportunities to both mitigate and enhance the priority wildlife habitat values potentially affected by the MTA Mile 8.8 Toll project.

January 25, 2016

To: John Perry, Maine Inland Fisheries and Wildlife
From: Sara Zografos, Maine Turnpike Authority

CC: Phillip deMaynadier, Maine Inland Fisheries and Wildlife
Derek Yorks, Maine Inland Fisheries and Wildlife
Cory Stearns, Maine Inland Fisheries and Wildlife
Robert Green, Maine Department of Environmental Protection
Peter Mills, Maine Turnpike Authority
Ralph Norwood, Maine Turnpike Authority
Kevin Slattery, HNTB

Subject: Inter-Agency Site Visit on December 17, 2015

On December 17, 2015, staff from Maine IF&W, DEP and the Turnpike met to discuss how to protect and enhance wildlife habitat near the York Toll. We began by examining mapped overviews of both sides of the turnpike in the range between Mile 7 and Mile 10 including areas well outside the Turnpike's right of way.

While the impetus for the review is to develop mitigations for construction of a toll plaza at Mile 8.8, the project in its entirety, including the recovery of land near the old plaza, presents broad opportunities to preserve and improve habitat. The common goal of all three agencies is to implement a series of practical measures to protect and enhance living conditions for endangered or threatened species, including New England cottontail, ribbon snake, and spotted turtle. From the Turnpike's perspective, protected habitat is an ideal use for land close to an Interstate highway.

One goal is to enhance connectivity among divided animal populations, for example, by up-grading existing culverts under the turnpike or other roadways to better accommodate animal passage. To replace the existing slant culvert at Mile 9.1 would be costly and not clearly effective. On the other hand, enhancing passage through the box culverts of the Cape Neddick River at Mile 9.5 would be relatively easy. It may be appropriate first to determine whether the habitat at either end of the passage has value for the species we are concerned about. A third opportunity is to replace the culvert under Chases Pond Road that discharges the outfall from Corn Swamp Bog into the subdivision land purchased by the Turnpike. Chases Pond Road itself is owned and controlled by the town of York.

The toll project creates substantial opportunities to reclaim and preserve habitat near the highway. When the old plaza is torn down, several acres of pavement will be removed adjacent to existing wetlands with possibilities for creating new permanent habitat. Also suitable for conservation is the Turnpike's 32.8 acre undeveloped subdivision containing vernal pools and wetlands. The Turnpike might sell some of the property or otherwise provide funds to purchase habitat in other locations with higher benefits for protected species. Off site connectivity enhancements are also possible.

After office discussion, we visited several sites including: the Cape Neddick River box culverts at Mile 9.5; the intended new toll site at Mile 8.8 on the west side; the Turnpike's eight-lot subdivision off Chases Pond Road; and the area of the existing toll facility near Mile 7.3.

All three agencies hope to collaborate in designing effective, practical enhancements for wildlife habitat in York.

Below is a bulleted list of discussion items followed by annotated photos taken during the site visit.

Existing plaza

- Discussed what form of habitat should be created in the area where pavement will be removed. Creating shrub cover for New England cottontail may be appropriate particularly since wetland based cover will survive longer without becoming forest.
- Inspected the culvert end at the Little River on the East side of the existing plaza. It appears impractical to excavate and replace the culvert and there is uncertainty about the value of habitat on either side.
- Discussed adding exclusionary fencing to block wildlife from attempting to cross up and over the turnpike and to channel wildlife to existing culvert crossings.

MTA subdivision

- Possibility of retaining the lots as undeveloped forested open space, vernal pools, and wetland.
- The possible access drive to the utility building appears OK. It is not planned for high use and will not likely cause adverse wildlife effects on vernal pool species during migrations.
- Minimize use of deicing salt to protect adjacent wetlands and vernal pools near access drive.
- Possibly sell off lots closer to Chases Pond Road to generate revenue for other preservation opportunities in the area.
- MTA could fund the purchase of larger, higher value, and more remote parcels for conservation.

Mainline connectivity

- A new wildlife crossing to provide a connection beneath the mainline is costly and uncertain of success. Funds for connection might better be used for other purposes.
- Possible retrofit of the nearby Cape Neddick double box culvert adding an upland shelf with exclusionary fencing-- after additional survey by IF&W.
- Exclusionary fencing and wildlife funneling possibly from new plaza location to Cape Neddick River box culvert. Fence design envisioned to be similar to that in Richmond--using hardware cloth attached to low height chain link fence with wing ends.

Vernal Pool at location mile 8.8

- Exclusionary and funneling fences
- Avoid under-draining the vernal pool by maintaining bedrock between the pool and the proposed plaza lanes.

Off-site connectivity

- Chases Pond Road culvert replacement to allow wildlife an under-road passage and eliminate the hanging downstream culvert end. Include funneling fences to direct wildlife to the culvert.

November 25, 2015

From: Peter Mills, Executive Director, Maine Turnpike
To: Commissioner Chandler Woodcock and John Perry, Environmental Review Coordinator

Thank you for meeting with us on November 13 and for sharing your conclusion that a toll plaza can be built at mile 8.8 with no significant impact to Maine wildlife if mitigations are adopted.

It is our sense that this project creates opportunities not just to mitigate but to enhance wildlife habitat – to make improvements for which we may need your guidance. For our site visit on December 17, we suggest the following agenda:

The larger environment

We should start with a brief overview of both sides of the Turnpike from mile 7 to mile 10. Much of the land adjacent to the Turnpike from the York traffic ramp north to the Cape Neddick River is wooded, open and undeveloped. Some of the owners of large tracts are the York Water District, the York Land Trust, the Maine Turnpike, and descendants of farmers who have retained family land as woodlots and open space.

There are significant opportunities in this area to preserve or enhance habitat for protected species. Habitat preservation is an ideal use for land in the vicinity of an interstate highway.

Reclamation of the existing toll site

$7M of this $40M toll replacement project will be used to decommission the old plaza at mile 7.3, remove approximately three acres of pavement, and reclaim the ground. The land could be re-constructed as wetland, as cottontail habitat, or as terrain for a variety of other purposes. This is a major opportunity for habitat reclamation.

The Morrison subdivision

In 2014, the Turnpike paid $975,000 to the Morrison family for a 32.8 acre subdivision on the west side of mile 8.7. Although the Turnpike needs only a sliver of the land, we were not able to buy at arms' length anything less than the entire eight-lot subdivision. The Turnpike now owns the property with a plan to sell off six or seven of the house lots after retaining a right of way and the small lot that we need next to the highway for a toll office and parking area.

The Morrison land contains significant wetlands that are part of the outfall from Corn Swamp Bog through a culvert that passes under Chase's Pond Road. Adjoining to the north is another wetland owned intact by the neighbor Karin Prichard.

It seems evident that housing starts are the biggest threat to the loss of wetland and animal habitat in York County. The Turnpike's purchase of the Morrison subdivision has so far curtailed such losses on this property. If a case can be made for preserving these wetlands and the adjoining woods, we are willing to discuss an option to retain the land in perpetuity as permanent wildlife habitat.

This will be costly to the Turnpike but we are willing to present a plan to the Turnpike Board if the environmental benefits outweigh the costs. A long term owner might be the York Land Trust with whom we have corresponded. The trust owns other easements in this vicinity on the east side of the highway.

The Third Vernal Pool

The vernal pool closest to the highway is potentially impacted by the preliminary design layout that we have used for site selection purposes. Although the design as sketched may not impinge directly on the pool itself, the pool sits behind a thick section of ledge that would need to be partially removed if the sketch plan were implemented. In final design, it may be possible to reduce or eliminate such an impact. A discussion with our engineering staff is called for.

Wildlife passage

You have suggested converting a 36" culvert at mile 9.1 to a wildlife passage suitable for turtles, snakes, small amphibians and possibly rabbits and other animals. The cost of such a passage would be on the order of $500,000 if it were constructed as a component of the larger project.

Because the culvert crosses the highway at an angle and ends on each side of the road at the toe of the highway slope, it is longer than is necessary to get from one side of the road to the other. If building a new passage perpendicular to the highway at an alternative site would be more beneficial, then we should discuss how to optimize its location and construction.

During our field inspection, we should also look at other crossings that already exist. There are several culverts in the area including two large box culverts at mile 9.5 for the Cape Neddick River which is the outflow for Chase's Pond. The Cape Neddick box culverts rarely have much water in them except during extreme flood conditions. The attached photo shows them during spring runoff with just a few inches of water. Installing a dry shelf would not be difficult.

Mapping and studies

Before our meeting on December 17, we will examine our files to see if we have any studies or reports in addition to the cottontail report from Normandeau that Sara recently sent you. If IF&W will share with us your studies and mapping for this region, it will be appreciated. This will assist us in determining how best to deal with wetland and habitat issues. To avoid disclosing information to poachers, we will keep all such material in confidence under such constraints as you may require.

Some proposals to mitigate, preserve or improve nearby habitat could be expensive. We need to make sure that whatever we do is reasonable and cost-effective.

Conclusion

This project may not be one that places the owner in the conventional posture of having to mitigate for material harm. On the contrary, it presents significant opportunities to reclaim, preserve and enhance wildlife habitat -- in essence, to make things better than we found them. As examples:

1. Removing three acres of impervious pavement at mile 7.3 and reclaiming the associated wetlands will create new habitat next to large wetlands that already exist.

2. The aggregate environmental benefits are substantial for converting to Open Road Tolling (ORT) and for re-locating to a drier site at mile 8.8 on a more level stretch of road. Although you have mentioned that "noise, lights and vibration" at the new toll plaza may degrade nearby habitat, Open Road Tolling eliminates most of these impacts. 85% of trucks and two-thirds of all traffic pay electronically and will simply continue along the existing highway at the new site as they do at present. Only cash payers need to stop.

At the old site near mile 7.3, where all traffic presently must stop or slow down to 10 mph, the noise, air emissions and lighting associated with the plaza itself will be eliminated. Southbound trucks will no longer need to Jake brake down a hill as they approach and northbound trucks will no longer be accelerating through the gears as they climb the hill after departure. This will benefit nearby home owners as well as any wildlife on the adjoining reclaimed and undeveloped land.

3. If the Turnpike board agrees to do so, taking the Morrison subdivision off the market and preserving 30 acres of land for wildlife habitat creates an environmental opportunity that would have been lost by now had the Turnpike not intervened.

4. Mobilizing for the upcoming construction allows us to consider either creating a new wildlife passage or improving existing corridors (e.g. the Cape Neddick box culverts) to link divided animal populations and enhance their range.

Peter Mills
207 858 6400 cell

Sara has sent you:

1. A map of the proposed plaza at mile 8.8 and the adjoining subdivision the Turnpike bought in 2014.
2. A survey done by Normandeau in 2010 that found no evidence of cottontail in the areas examined.

Attached with this memo are:

3. A tax map of the region from mile 7 to mile 10 showing tracts of open land.
4. A map showing the York Water District pipeline.
5. An exchange of emails with the York Land Trust.
6. A photo of box culverts for the Cape Neddick River at mile 9.5.

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APPENDIX 10

SUMMARY RIGHT TITLE OF INTEREST AND LIST OF ABUTTERS

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PUBLIC NOTICE FILING AND CERTIFICATION

Department Rules, Chapter 2, require an applicant to provide public notice for all Tier 2, Tier 3 and individual Natural Resources Protect Act projects. In the notice, the applicant must describe the proposed activity and where it is located. **"Abutter"** for the purposes of the notice provision means any person who owns property that is BOTH (1) adjoining and (2) within one mile of the delineated project boundary, including owners of property directly across a public or private right of way.

1. **Newspaper:** You must publish the Notice of Intent to File in a newspaper circulated in the area where the activity is located. The notice must appear in the newspaper within 30 days prior to the filing of the application with the Department. You may use the attached Notice of Intent to File form, or one containing identical information, for newspaper publication and certified mailing.

2. **Abutting Property Owners:** You must send a copy of the Notice of Intent to File by certified mail to the owners of the property abutting the activity. Their names and addresses can be obtained from the town tax maps or local officials. They must receive notice within 30 days prior to the filing of the application with the Department.

3. **Municipal Office:** You must send a copy of the Notice of Intent to File and a **duplicate of the entire application** to the Municipal Office.

ATTACH a list of the names and addresses of the owners of abutting property.

CERTIFICATION

By signing below, the applicant or authorized agent certifies that:

5. A Notice of Intent to File was published in a newspaper circulated in the area where the project site is located within 30 days prior to filing the application;
6. A certified mailing of the Notice of Intent to File was sent to all abutters within 30 days of the filing of the application;
7. A certified mailing of the Notice of Intent to File, and a duplicate copy of the application was sent to the town office of the municipality in which the project is located; and
8. Provided notice of and held a public informational meeting, if required, in accordance with Chapter 2, Rules Concerning the Processing of Applications, Section 13, prior to filing the application. Notice of the meeting was sent by certified mail to abutters and to the town office of the municipality in which the project is located at least ten days prior to the meeting. Notice of the meeting was also published once in a newspaper circulated in the area where the project site is located at least seven days prior to the meeting.

The Public Informational Meeting was held on October 5, 2016 in York Maine.

Approximately 52 members of the public attended the Public Informational Meeting.

Peter Mills — 10-17-16

Signature of Applicant or authorized agent — Date

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Abutters				
Owner	Owner Address	Assessing ID	Address	City
Town of York	186 York Street York, ME 03909	222-178	179 Chases Pond Road	York, 03909
Earl K. Hanson	169 Scituate Road York, ME 03909	221-254	60 Old East Scituate Road	York, 03909
Verizon Wireless	PO BOX 2549 Addison, TX 75001	222-189-002	49 New Town Road	York, 03909
Victoria and Jeffrey Carr	3 Woods Run York, ME 03909	222-168	3 Woods Run	York, 03909
Curtis Clark Jr &Jennifer Lapointe	4 Woods Run York, ME 03909	222-166	4 Woods Run	York, 03909
Maine Turnpike Authority	2360 Congress Street Portland, ME 04102	222-145	1 Morrison Drive	York, 03909
Maine Turnpike Authority	2360 Congress Street Portland, ME 04102	222-158	2 Morrison Drive	York, 03909
Maine Turnpike Authority	2360 Congress Street Portland, ME 04102	222-146	3 Morrison Drive	York, 03909
Maine Turnpike Authority	2360 Congress Street Portland, ME 04102	222-156	4 Morrison Drive	York, 03909
Maine Turnpike Authority	2360 Congress Street Portland, ME 04102	222-148	5 Morrison Drive	York, 03909
Maine Turnpike Authority	2360 Congress Street Portland, ME 04102	222-154	6 Morrison Drive	York, 03909
Maine Turnpike Authority	2360 Congress Street Portland, ME 04102	222-150	7 Morisson Drive	York, 03909
Maine Turnpike Authority	2360 Congress Street Portland, ME 04102	222-152	8 Morrison Drive	York, 03909
Witham Darin	171 Chases Pond Road York, ME 03909	222-151	171 Chases Pond Road	York, 03909
William A. IV & Radka Meader	173 Chases Pond Road York, ME 03909	222-149	173 Chases Pond Road	York, 03909
Harry O. IV & Caleigh Pollard	36 Franklin Street Waterville, ME 04901	222-147	175 Chases Pond Road	York, 03909
James & Joanna Rutherford	191 Chases Pond Road York, ME 03909	222-143	191 Chases Pond Road	York, 03909
Gordon Jr & Karen Fog	193 Chases Pond Road York, ME 03909	222-141	193 Chases Pond Road	York, 03909
Scott & Mary Collier	195 Chases Pond Road York, ME 03909	222-139	195 Chases Pond Road	York, 03909
Malcom & Carole Andrews	197 Chases Pond Road York, ME 03909	222-137	197 Chases Pond Road	York, 03909
Carl & Mary Ann Corsello	201 Chases Pond Road York, ME 03909	222-135	201 Chases Pond Road	York, 03909
Karen & James Prichard	205 Chases Pond Road York, ME 03909	223-065	205 Chases Pond Road	York, 03909
Karen & James Prichard	205 Chases Pond Road York, ME 03909	222-133	207 Chases Pond Road	York, 03909
Gladys Rushlow	PO BOX 174 York, ME03909	223-049	265 Chases Pond Road	York, 03909
York Water District	PO BOX 447 York, ME 03909	223-045	273 Chases Pond Road	York, 03909
York Water District	PO BOX 447 York, ME 03909	134-050-002	948 US Route 1	York, 03909
York Water District	PO BOX 447 York, ME 03909	222-193	5 Near Turnpike	York, 03909
Elizabeth & Wayne Trafton	13 Danville Rd Kingston, NH 03848	223-141	4 Near Turnpike	York, 03909

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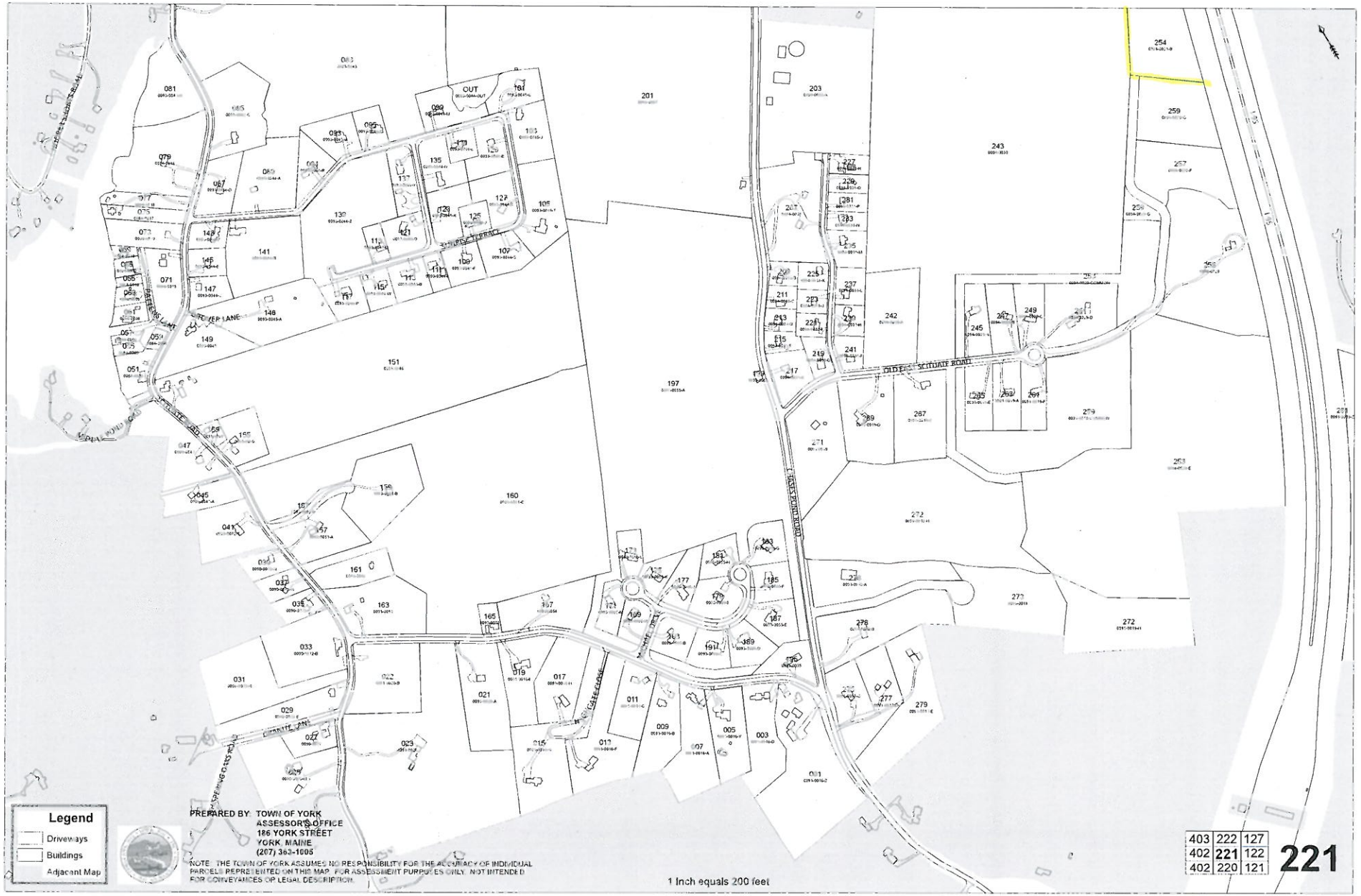
Legend
Driveways
Buildings
Adjacent Map
PREPARED BY: TOWN OF YORK
ASSESSOR'S OFFICE
186 YORK STREET
YORK, MAINE
(207) 363-1005
NOTE: THE TOWN OF YORK ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF INDIVIDUAL PARCELS REPRESENTED ON THIS MAP. FOR ASSESSMENT PURPOSES ONLY. NOT INTENDED FOR CONVEYANCES OR LEGAL DESCRIPTION.
1 Inch equals 200 feet
403 222 127
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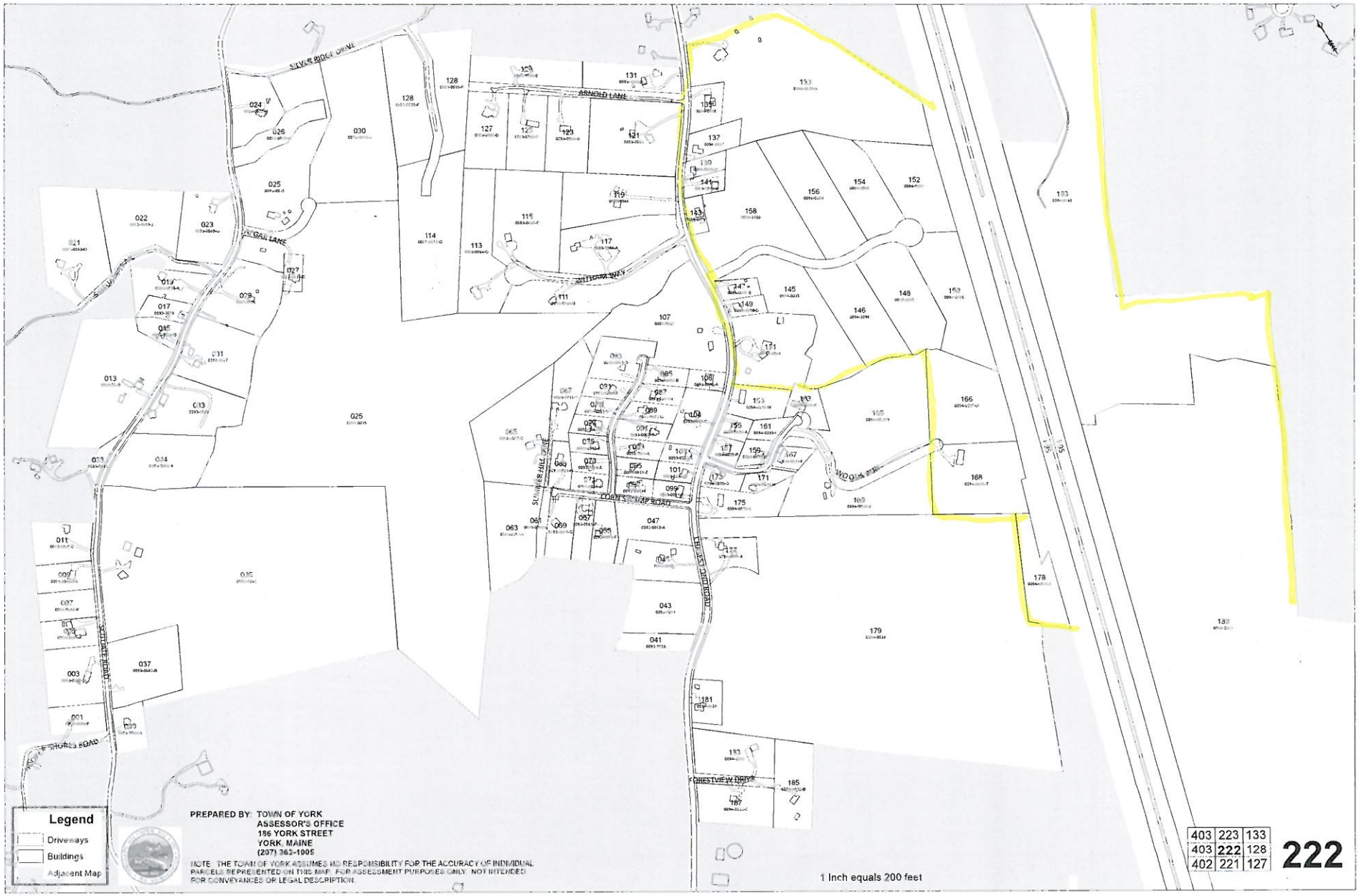
402 220 121
221


SILVER RIDGE DRIVE
ARNOLD LANE
CORN SHOP ROAD
SUMMER HILL DRIVE
FORESTVIEW DRIVE
Legend
Driveways
Buildings
Adjacent Map
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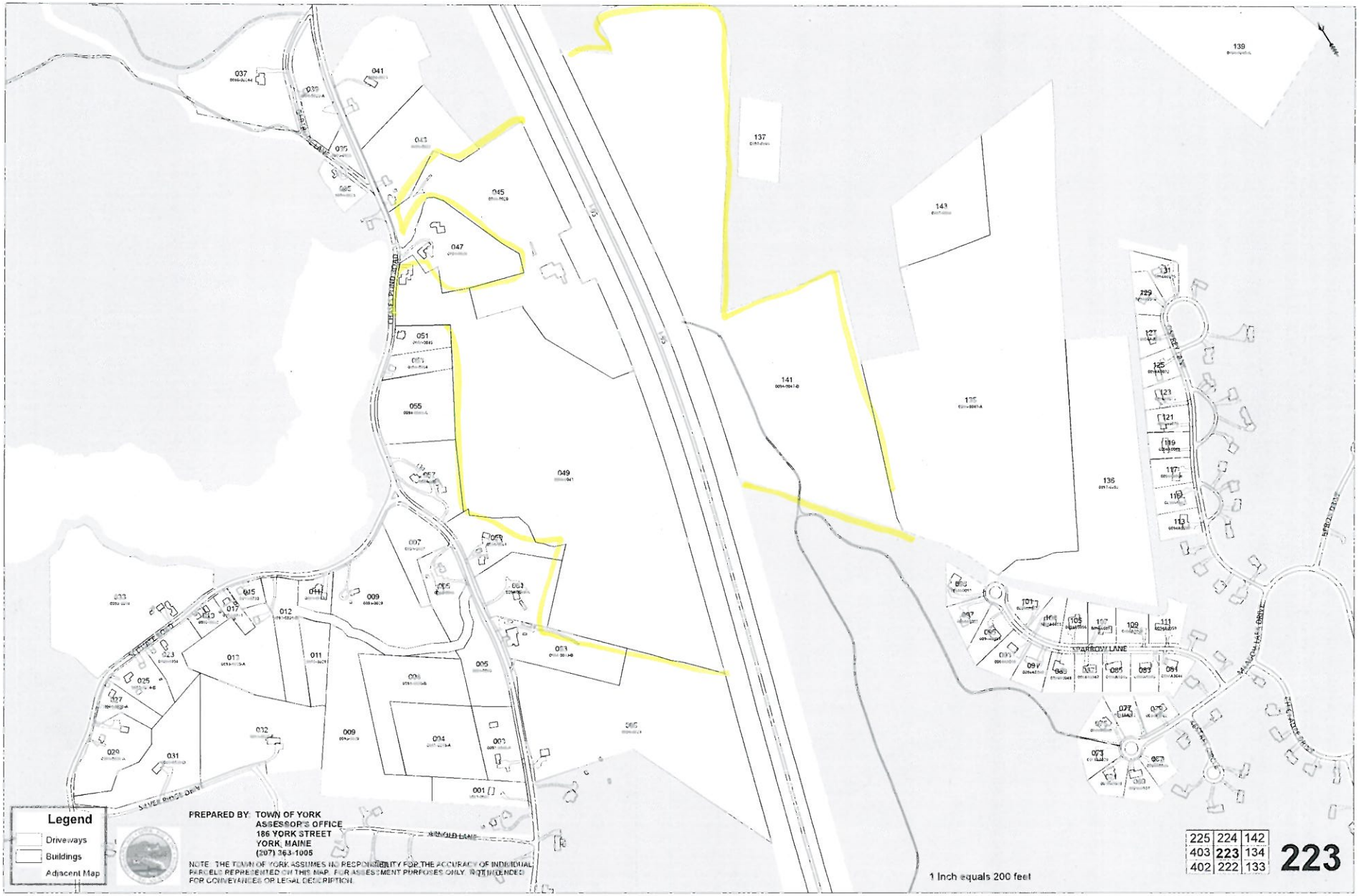
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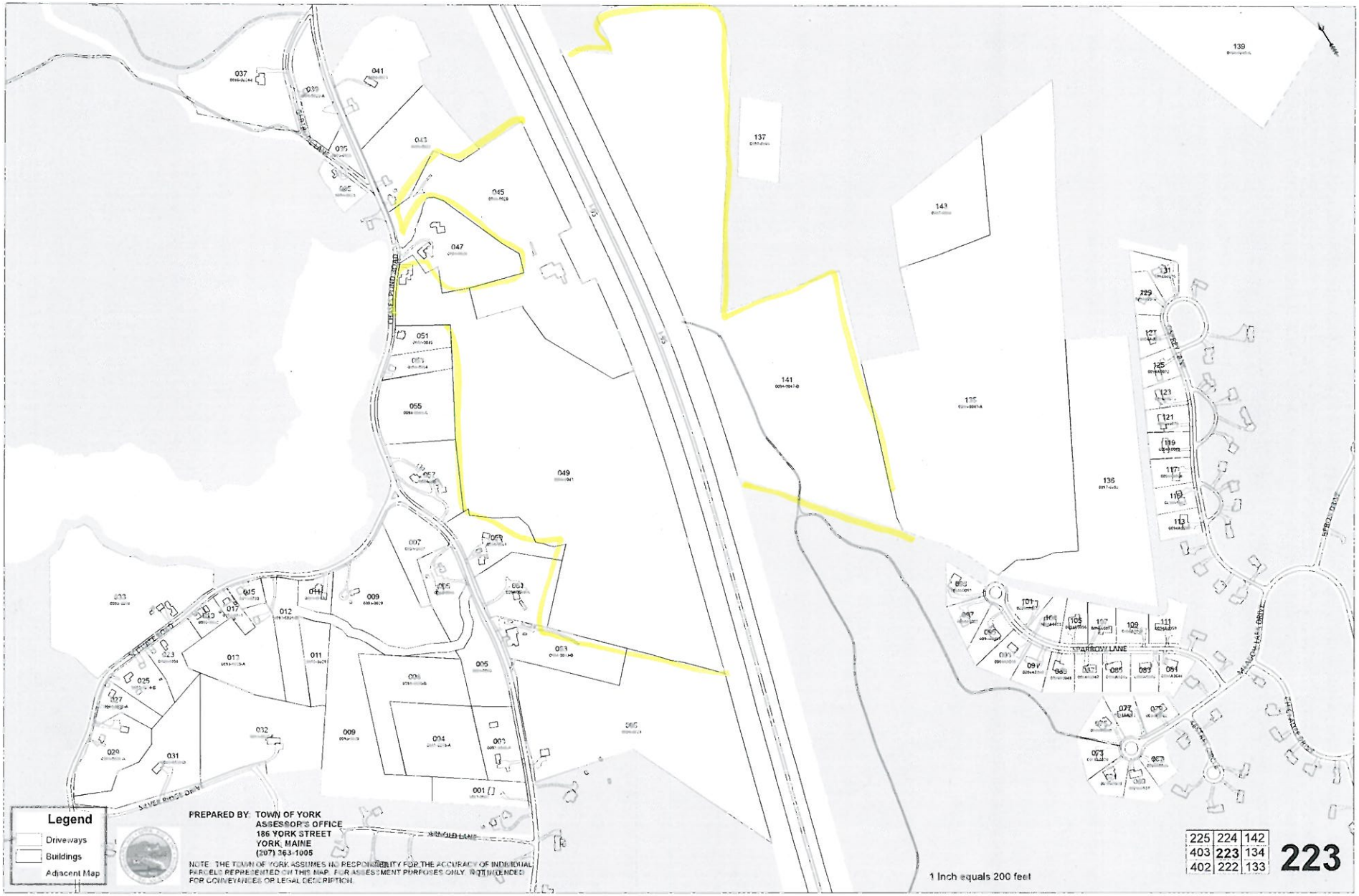
1 Inch equals 200 feet
SPARROW LANE
225 224 142
403 223 134
402 222 133
223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Driveways
Buildings
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1 Inch equals 200 feet
SPARROW LANE
225 224 142
403 223 134
402 222 133
223


Legend
Driveways
Buildings
Adjacent Map
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YORK, MAINE
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1 Inch equals 100 feet
US ROUTE 1
ROGERS ROAD
DEWEY ROAD
FERET CIRCLE
223 142 141
223 134 135
222 133 132
134

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(4)

Maine Turnpike Authority
York Toll Plaza Replacement Project
October 5, 2016
7PM

NAME	ADDRESS	EMAIL/PHONE
Carl Corsello	201 Chases Pond Rd, York	carl.corsello@gmail.com 408-2999
[illegible]	Pine Hill Rd Cape Neddick ME	
Robert Green	342 North St #209 Saco, ME 04072	budgeesdad@yahoo.com 571-4399
Todd Frederick	591 Cider Hill Road York	TFreder2@Maine.rr.com

(10)

Maine Turnpike Authority
York Toll Plaza
October 5, 2016
7PM

NAME	ADDRESS	EMAIL/PHONE
MARTHA DONNELL	4 SUNNY CREST YORK RD	rdonnell@maine.rr.com
WINDOL C WEAVER	4 HEAVELS WAY	WW63@AOL.COM.
Joan Marsh + Jarvis	19 Stage Neck RD York Harbor	
Robert Palmer	126 Fieldstone Estates Rd	
RICHARD BILLEN		
CHARLES STEEDMAN	2 CLARKS LANE YORK HARBOR	csteedma@maine.rr.com
Bobbie McGann	1 RIVERMOUTH RD YORK HARBOR	destiny03911@yahoo.com
Steve Burns	York Town Hall	sburns@yorkmaine.org
Denise Johnson	N. Village Rd. Cape Neddick	denise@agamenticus.org

(10)

Maine Turnpike Authority
York Toll Plaza Replacement Project
October 5, 2016
7PM

NAME	ADDRESS	EMAIL/PHONE
CAROL & LOU POTVIN	YORK 114 FERNALD AVE	blclow@AOL.COM 207 363 2317
Jim Clifford	12 Smith Field Lane	jcliffo2@maine.rr.com 207-363-5082
Herb Perry	1434 Tatnic Rd, Wells	herbperry1042@gmail.com
Rena Little	2 Pine Mountain Rd. C.N.	
Jackie Grant	2 Witham Way, York	jackie@seaglassvillage.com
Kinley Gregg	P.O. Box 415 (Lindsay Road)	
Wendy Dick Bilden	PO Box 1440	DICK BILDEN@YAHOO.COM
Lydia Blume	P.O. Box 1738 York Beach ME 03910	lydiablum@gmail.com
JON SPEERS	P.O. BOX 41, YORK HARBOR, ME. 03911	jonathanspeers@yahoo.com

(10)

Maine Turnpike Authority
York Toll Plaza
October 5, 2016
7PM

NAME	ADDRESS	EMAIL/PHONE
Kathleen Loane DAVID LOANE	275 CHASES POND RD./YORK	363-5766
Norma Clark	147 Chase's Pond Rd York	363-5558
Michael C. Walker	271 CHASES POND RD YORK	351-3189
Todd Bezo	021 Chases Pond R York	—
Eric + Kristina Young	16 Sparrow Lane York Me	Kyoungeblue water mtg.com oarweed1eyahoo.com
DEAN LESSARD	25 LONG BEACH AVE	DLESSARD@YORKMAINE.ORG
Mike ESTES	4 Carrie Lynn Lane York	207-351-5801
Kelly Dignam	2 Cider Hill Creek Lane York	Kdignam@maine.rr.com 363 8213
Maryann Corsello	201 Chases Pond Rd, York	363-5810 maryann.corsello@gmail.com

(10)

Maine Turnpike Authority
York Toll Plaza
October 5, 2016
7PM

NAME	ADDRESS	EMAIL/PHONE
Curtis Clark	147 Chases Pond Rd York	363-5558
Vicki Carr	3 Woods Run York	363-5914
Rebecca L Linney	6 Peregrine Way Cape Neddick ME	361-2345
David L. Linney	" " " " "	361-1300
Kellis Willard	50 Orchard Farm Rd	351-8585
Barbara Matthews	319 Chases Pond Rd York	351-8695
Peter McGuire	Portland PRESS HERALD	791-6325
Amy Catling	55 Meadowlark Dr York	251-0633
Daughter Tom Vanesse	13 Norwood Ave York	207 361 3122

(7)

Maine Turnpike Authority
York Toll Plaza Replacement Project
October 5, 2016
7PM

NAME	ADDRESS	EMAIL/PHONE
PETER Smith	3 KESTREL CIRCLE YORK	PRSMITH@MAINE.RR.COM
Patty Hymanson	34 High Pine Rd York	patty.hymanson@aol.com
Stephen Kosacz	38 Groundnut Hill Rd Cape Neddick	stephen@auto-works.com
Paula Potvin	34 Greenleaf Parson's Rd Cape Neddick	~~Paula~~ PDanville@maine.rr.com
Scott Collin	195 Chases Pond Rd	
Pete Mantell	9 Scott Ave	petemantell.yorkhdbrep@gmail.com
Tan Wolcl	38 Groundnut Hill Cape Neddick	Tannye@auto-works.com

OBITUARIES/NEWS

Pamela MacBride Colgate



EXETER, N.H. - Pamela MacBride Colgate, 85, artist and homemaker, of Exeter, N.H., passed away Saturday, Sept. 17, 2016 following several years of illnesses.

Pam, born Pamela Fairfax MacBride, daughter of Burt and Elise MacBride, was born Oct. 8, 1930, in New Rochelle, New York.

Mrs. Colgate graduated from Ashley Hall, Charleston, South Carolina and the Parsons School of Design in New York. She was on the art staff of Conde Nast Publications, including Vogue Magazine for two and half years. As an artist, Pam is best known for her work in pencil, oil and watercolor.

Her love of all things antique, particularly American Colonial, moved her to restore the 1734 Recompense Thomas home of Ridgebury, Connecticut in the 1970s. She found God through St. Paul's of Darien, Connecticut, under the teaching and leadership of Everett (Terry) Fullam.

Pamela and her husband, Austen, who predeceased her, retired to the Riverwoods Retirement Community in New Hampshire where she resided for the last 10 years of her life.

She is survived by her children, Bruce and Sarah; and her grandchildren, Nakita, Jessica, Jeremiah and Daniel.

Graveside services will be held at 11 a.m. Saturday, Oct. 22, at the First Parish Cemetery in York, Maine. Brewitt Funeral Home, 14 Pine St., Exeter, N.H. is handling arrangements. For more information, please visit www.brewittfuneralhome.com.

Katharine Varrell Lord



YORK - Katharine Varrell Lord, 93, of York, died Sunday, Sept. 18, 2016, at Sentry Hill.

Kathy was born Sept. 15, 1923, in Cambridge, Mass., the daughter of the late Harry M. and Laura Johnson Varrell.

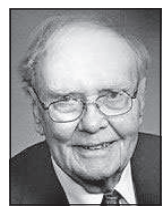
She received her bachelor's degree from Smith College. In 1947, she married Dr. Robert M. Lord Jr., and they lived most of their 51 years of married life in Providence, R.I., where they were members of the Agawam Hunt. Kathy volunteered at the Animal Rescue League and played bridge at the Bridge Club of Rhode Island and in tournaments in New England.

Kathy and her husband spent summers in York Harbor, where her parents owned and operated the Yorkshire Inn. An avid tennis and bridge player, Kathy was a lifelong member of the York Harbor Reading Room and York Golf and Tennis. She and her husband were also members of the Agamenticus Yacht Club and enjoyed boating throughout the York Harbor area. Kathy loved the York Harbor Beach and the Sea Urchin.

Survivors include a daughter, Frances Lord Niles; a son and daughter-in-law, William Aborn Lord and Judith Perry; and three grandchildren, Augusta, Sam and Toby Niles.

Burial will be private. Expressions of sympathy may be made in Mrs. Lord's name to the York Harbor Reading Room Foundation, P.O. Box 66, York Harbor, ME 03911, or to the York Public Library, 15 Long Sands Road, York, ME 03909. Visit www.lucaseatonfuneralhome.com.

Roger F. Paul



VANDALIA, OHIO - Roger F. Paul, 97, of Brookville, Ohio, originally from York Beach, Maine, went home to be with the Lord on Wednesday, Sept. 21, 2016 at Stone Spring of Vandalia, Ohio, following a brief illness.

He was a U.S. Navy veteran of World War II, and was present in Tokyo Bay for the signing of the surrender of Japan. He retired from NCR and was a longtime member of the Brookville Church of the Brethren and the Cape Neddick Baptist Church.

He was preceded in death by his wife, Louise Z. (Dixon) Paul; a brother, John N. Paul; sisters, Dorcas Frost and Barbara Paul; and a great-grandson, Nolan Ule.

Roger is survived by four sons and daughters-in-law, John (Linda) Paul, Gene (Sharon) Paul, David (Teena) Paul and Brian (Cindi) Paul; grandchildren, Rebecca (Aaron) Hacker, Elisabeth (Ryan) Ule, Matthew Paul, Ryan (Amanda) Paul, Nathan Paul, Christina Paul, Nichole Maynard and Crystal Maynard; 11 great-grandchildren; and numerous other relatives and friends.

A funeral service will be held at 11:30 a.m. Saturday, Oct. 1, in the Lucas & Eaton Funeral Home, 91 Long Sands Road, York, Maine, with an hour of visitation from 10:30 to 11:30 a.m. prior to the service. Burial will follow in the First Parish Cemetery. Memorial contributions may be made to the Cape Neddick Baptist Church or the York Senior Center. Visit www.lucaseatonfuneralhome.com.

Get the latest local news, sports and events online at yorkweekly.com.

LETTERS TO THE EDITOR

Should we close the firearms 'loophole'?

To the Editor:

What is a loophole? According to the internet it is an ambiguity or inadequacy in the law or a set of rules. I am hearing a lot about Question 3 on the Maine ballot this season. Question 3 seeks to close the "loophole" which allows private citizens to buy and sell firearms between themselves with no federal background check. The law currently mandates that licensed firearms dealers do a federal background check whenever they sell a firearm. The folks who are pushing Question 3 say it will require folks who aren't related, to go to a licensed firearms dealer to have them do the then required federal check. They say this will close the "loophole." Let me see. Right now I can lend, sell or buy a firearm from anyone in Maine. I don't have to arrange for us to meet at a firearms dealer and pay a fee to do this. This would end under the new law. One of the strongest arguments being made is that Maine firearms are being bought at gun shows by "bad people" and then taken out of state and used in crimes. You would think by the way they are pushing this law that we the citizens of Maine are to blame for what "bad people" are doing. Let's get back to the definition of the "loophole" for a minute. Isn't it possible that when the original law was enacted mandating that licensed firearms dealers conduct background checks that private citizens were exempted on purpose? Doesn't this seem more likely? Why should Maine care if two friends want to swap guns or someone in Rumford, Maine sells his dad's old shotgun to someone in Bangor. What this describes is two presumably honest citizens conducting fair trade. And if someone wants to find a rare or inexpensive gun or to see one, why should we care if they want to get together and market the sale at a gun show. Isn't that the same way small farms market crops at farmer's markets? I am a little tired of being limited because of what someone else might do. Can we please stop limiting my freedoms because of what "bad people" do? Next thing you know they will be outlawing large sugary drinks because some people drink them and get fat. Wait a minute. They just tried to do that in New York didn't they? Hmmmm. Guess what. These are the same people trying to get you to vote yes on Question 3. Sorry, I don't think the law in Maine has a loophole. I think it works fine as it is. Keep your New York politics out of Maine we are doing just fine without it. I am definitely voting no on Question 3 this fall and encourage everyone to do the same. Now give me the biggest Slurpee you have while I enjoy living in the best state in the Union.

Don Langille
York

Reelect Hymanson

To the Editor:

We elected Patty Hymanson to serve as our state representative, District 4, tending to the needs of the residents of York West of Route 95, parts of Sanford, Wells and all of Ogunquit. With her competence, conscience and an understanding heart she has performed the tasks involved in those duties admirably.

Her passion and devotion to issues regarding health and human services know no bounds, and through her efforts there has already been significant progress on many important issues. Her experience for so many years as a physician has been invaluable in assessing the many needs in our communities.

It is significant that it has always been her desire to help people, and as our state representative she has made the utmost of the opportunities offered with that office. The results of those efforts are outstanding. Her reputation for ability and fairness are renowned.

Patty's first term has proved that she possesses all the necessary qualifications, learning, patience, experience, a fine personality, and of course ability. She will serve well in a second term and bring credit and great satisfaction to our community. Make sure that we all vote to reelect Patty Hymanson.

Gwyneth Wykes
York

'Enthusiastic' support for Blume

To the Editor:

I am writing to express my sincere and enthusiastic support for Lydia Blume's reelection as my state representative. I volunteered for Lydia's campaign this summer, as a driver, while she visited neighborhoods around York with the purpose of meeting her constituents and hearing their concerns.

Sure I could tell you about Lydia's background in environmental studies and business. Or how she established and co-chaired the bi-partisan Coastal Caucus to focus on what is important to Maine Coastal Communities to help keep this vibrant sector of our local economy healthy and flourishing (LD 1254, LD 427, LD 1503). Her support of veterans causes is also significant and admirable (LD 1081, LD 1524). Great, great things for our state.

But what impressed me most about Lydia was watching her interact with the people she met on our drive-arounds. She truly listened. She quickly grasped what was important to each of them. On occasion, she was greeted with significant anger and hostility from members of the opposing camp. Every time this happened, I was awed by Lydia's ability to chill the negative energy, to de-escalate the hostility, and turn the conversation around. Each time, within about five minutes, I found myself listening to an entirely different conversation than the one that had started: One that was important and addressed the constituent's concerns, but was low-key and positive. One that resulted in mutual respect, not enmity. Even the tones and volumes of the voices changed to embrace a reasonable, intelligent, and respectful exchange. As I watched this happen over and over again, my admiration for Lydia Blume grew. I thought, what a perfect quality in a state rep.

In our current election, I believe this quality of Lydia's is more important, indeed more crucial, than ever. Her ability to listen, to calm, to find a common unity and move forward in a positive way, are exactly what our state and our country need. And we need it now more than ever. That is why Lydia Blume wholeheartedly gets my vote.

Sincerely,

Jennifer Hoover
York

■ More letters, A7, A9-10

HAP MOORE
ANTIQUES - AUCTIONS

We Will Assess and Market

Your Old Coins, Currency and Stamps

To a Nation of Advanced Collectors

Through Our Annual Fall Auction.

Call Us For a No Cost Assessment.

♦ Appraising, Purchasing & Auctioning Estates, Old Households, Collections & Single Items
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The Goodwin Building ♦ 611 Route One P.O. Box 16
♦ York, ME 03909 ♦ (207) 363-6373 ♦ ME Lic. AU694
PM-00219812

LEGAL NOTICE

The Maine Turnpike Authority will be holding a Public Informational Meeting to discuss the environmental impacts of the relocation of the York Toll Plaza in York Maine. The meeting will be held at 7pm on October 5th, 2016 at the Maine Turnpike Maintenance Facility at 10 Spur Road, York Maine. For further information please visit the Maine Turnpike Authority's website at www.maineturnpike.com or call 207-871-7771. PM-00231721

RCH PAVING
Winter is Coming! Don't Wait!
Last Minute Paving Available
No Job Too Small
In Business Since 1988
5% off for Veterans!
603-742-0053
PM-00226705

Legal Notice
Notice of Public Hearing
Town of York - Board of Selectmen
Monday, October 3, 2016
7:00 PM
York Public Library

The York Board of Selectmen will conduct a Public Hearing on Monday, October 3, 2016 at 7:00PM regarding proposed Long Beach Avenue Road Improvements.

Any questions or comments will be welcome at the hearing, and written comments may be submitted in advance to the Town Manager's Office.

The Proposed Plans are available to view in the Town Manager's Office at the Town Hall and on the Town's web page (www.yorkmaine.org).
PM-00231740

2016 READERS' CHOICE 1ST PLACE
Thank you for voting us Best Oil Company!
Fielding's Oil & Propane Co.
Local Owned Company
NOW DELIVERING
PROPANE GAS
1.39⁹ /Gallon First Fill
Free Gas Leak Safety Check and Propane Tank Swap
CALL TODAY!
York / Sanford (207) 363-9900
Biddeford / Saco (207) 283-6633
Price subject to change.
PM-00223530

Legal Notice
Agenda
York Historic District Commission
Wednesday, October 5, 2016
5:30 PM
York Public Library

Public Comment
Review Minutes
• September 7, 2016
New Business
•DLJ Group, LLC, 464 US Route 1, Map & Lot 0048-0025. Demolition delay per Section 12.17.2 of the York Zoning Ordinance.
• Shoreline Construction, 750 York Street, Map & Lot 0040-0061. Demolition delay per Section 12.17.2 of the York Zoning Ordinance.
• Robert Palmer, 192 York Street, Map & Lot 0050-0043. Exterior renovations to a building in the Historic District.
Old Business
• Historic District expansion discussion and creation of new districts.
• Update on York Water District, 200 Mountain Road, Map & Lot 0096-0039.
Other Business
• Scott Hastings, Assistant Town Planner – Budget discussion
Adjournment
PM-00231405

community FAITH directory

BAPTIST
OGUNQUIT BAPTIST CHURCH
157 Shore Road
Ogunquit, ME
(207) 646-2160
www.ogunquitbaptistchurch.org
Sundays 9:30am
"A Beacon of His Light to the World"

OLD CATHOLIC
ST. FRANCIS OF ASSISI
952 Post Road (Route 1)
Wells, ME
(207) 251-9751
stfranciswellsme.org
Sundays 9:00am
"Ancient Faith - Welcoming and Inclusive Church - Serving the Modern World"

CONGREGATIONAL, UCC
UNION CONGREGATIONAL CHURCH
18 Church Street
York Beach, ME
www.ybcc.org
Sundays 10:00am
"God is still speaking"

UNITED CHURCH OF CHRIST
FIRST PARISH CHURCH
180 York Street
York, ME
(207) 363-3758
www.firstparishyork.net
Sundays 9:30am
"A Fellowship Celebrating Christ and Serving All"

Included in your listing should be Name, Address, Phone, Web Address, Worship Hours and A Short One-Liner.
For directory information, or to list your church, call
TINA RITTER at (603) 570-2122 or
tritter@seacoastonline.com
PM-00231407

OBITUARIES/NEWS

Cassandra Nicole Aspen



PORTSMOUTH — Cassandra Nicole Aspen, 26, of Portsmouth, N.H., passed away on Wednesday, September 21, 2016, after a long struggle with addiction.

Cassandra was born in Portsmouth and graduated from Portsmouth High School class of 2008. Attended Fisher College in Boston and graduated with an associate's degree in Fashion Merchandising in 2010.

Cassandra was a beautiful vibrant young woman who lit up any room with her smile. She had a funny side to her that you instantly discovered once you spent time with her. Her roommates at The Granada House found this out very quickly. She is loved by many and is missed terribly by her family.

We always knew Cassandra's life could be cut short. Cremation, burial and her story being told was discussed on a few occasions with her. Cassandra was cremated and there will be no services at this time by our family for her. We also agreed that her story would be told.

Her wish for those who are struggling with addiction, seek out help, learn to love yourself because life is so worth living and to keep fighting the fight! And those that have a loved one struggling with addiction help them. It is true they are the only ones that can do this but they will need your love and support during this lifelong struggle and journey.

Cassandra leaves behind her beloved cat Baby. Mother Stacy Shea, step father Peter Brown, his son Benjamin Brown and wife Brianna Brown, step daughter Darcy Gallucci her husband Matt and daughters Eva and Mazie, Brothers Derek S. Aspen (best friend also), Gunnery Sgt Shawn Moulton wife Megan (Flagg) Moulton and their children Emery and Avery, three special cousins Natascha Danielle Millar (Shea) and her son Van, Annika Aspen and her family, Liza Sager (Aspen) and her family, Father Kenneth Aspen, Cathy Clark her daughter's and their families, also three closest friends: Nikki Bouley, Adam Sinisgalli and Christina Regan. Predeceased by her Grandmother Edna Shea and Uncle John Paul Shea.

Patricia 'Pam' Ann Card

BRENTWOOD, Calif. — Patricia "Pam" Ann (Downing) Card, age 80, died Thursday, September 1, 2016, at her home in Brentwood, Calif. Born in Portsmouth, N.H., on September 17, 1935, she was the daughter of the late Wesley P. and Ida E. (Little) Downing and was a graduate of Portsmouth High School and Lasell College in Newton, Mass. Her older siblings were Robert F. Downing and Jane Elizabeth Coward.

She married Louis C. Card on August 21, 1955, at the North Congregational Church in Portsmouth, N.H. They were married for more than 50 years before Louis died in March, 2006.

She was employed by the Portsmouth Naval Shipyard in the Submarine Maintenance Engineering Planning & Procurement Department. She retired after more than 30 years of service.

Before moving to Calif., she resided in Kittery, Maine, and also at Sentry Hill Retirement Community in York, Maine. In 2012, she moved to Northern California to be near her family.

Favorites in Pam's life included long lunches (always including wine and dessert), music, cruises, reading, animals, getting manicures and talking with people.

Pam is survived by niece Diana Sloneker, and her husband Scott, of Antioch, Calif.; nephew Robert Downing and his wife Jean Fogarty of Portland, Oreg.; nephew James Downing and his wife Gloria of Clayton, Calif.; nephew John Coward and his wife Jerilyn of Concord, Calif.; niece Susan Keeney and husband Steve of Grass Valley, Calif.; nephew Robert Coward and his wife Denise of Grass Valley, Calif. and several great nieces and nephews and their children too.

SERVICES: Graveside services will occur at the Central Cemetery in Rye, N.H., on October 3, 2016, at 10:30 a.m. A private family memorial will be held in California.

In lieu of flowers, memorial contributions may be made to: ARF: Animal Rescue: 2890 Mitchell Drive, Walnut Creek, CALIF., 94598 or, Bektash Shriners Hospital, P.O. Box 4086, Concord, N.H., 03302,(189 Pembroke Rd., Concord, N.H., 033020).

Barbara Jane Sharman

LOVELAND, Colo. — Barbara Jane Sharman, 68, of Loveland, passed away on Tuesday, September 20, 2016, at her home, surrounded by the love of her family in Loveland, Colo. Barbara was born in Portsmouth, N.H., to Frank and Emma (Bolduc) Sharman on November 1, 1947.

She graduated from Dover High in New Hampshire. She has lived in the Loveland, Colo., area for 15 years. Two of her biggest loves were family and her two cats Bitz and Taco. Her hobbies included quilting, knitting and spending time with her friends.

Barbara is preceded in death by her parents Frank and Emma (Bolduc) Sharman of N.H., two brothers, Frank L. Sharman of Vermont, Bradley D. Sharman of N.H., two sisters, Dolores M. Richards of N.H., and Joyce A. Spicer of Mass.

Barbara is survived by three sons, Darryl Bergeron of Windsor, Colo., Shawn Bergeron of Fort Collins, Colo., Cary Bergeron and his wife Denise of Loveland, Colo., one daughter, Monique Guerreo and her husband Rob of Fort Collins, Colo. Five grandchildren and three great grandchildren. One sister, Nancy Perez and her husband Hector of Odum, Ga. One aunt, Elsie Burbank and her husband John of N.H.

The family of Barbara wishes to extend our sincere thanks to the multitude of support from the community at Harvest Point and Pathways Hospice.

SERVICES: Memorial services were held at 11 a.m., Tuesday, September 27, at Harvest Pointe, 4895 Lucerne, Loveland, Colo., 80538, with David Viegut of Viegut Funeral Home officiating. Go to www.viegutfuneralhome.com for condolences.

George S. Masten



STRATHAM — George S. Masten, 83, Stratham, died peacefully on Saturday, September 24, 2016, after a long illness. He served proudly as a Staff Sergeant with the U.S. Marine Corps, in both the Korean and Vietnam wars, with over 14 years of military service. He was the recipient of the Purple Heart.

George was a friend to many and supported local veterans' causes. Hampton residents who attended national remembrances and parades may remember George as the honor guard commander for more than 25 years representing Hampton's American Legion Post 35.

Born in Watertown, N.Y., November 9, 1932, George was the son of the late Edward and Cecile Masten. He graduated from Amherst High School in Amherst, N.H., in 1950. He attended the University of New Hampshire before joining the Marines. After leaving the service he worked as a plumbing mechanic in the commercial and residential pool business.

George leaves his sister, Mary Louise Benson of Sunnyvale, Calif., his three children, Jill Iuliano of Waltham, Mass., Lisa Masten of Newington, Conn., and Jeffrey Masten of Durham, N.C., and seven grandchildren. He also leaves many decades' long military brethren, Marine, Army, Air Force, Navy or Coast Guard, from Maine to California, who sadly say goodbye to a beloved veteran compatriot.

The family would like to thank his many friends and local veterans who supported George during his illness. A very special thanks to David and Susan Marinelli, Jane DeCourcy, John Barvernik, Joseph Kutt and his caregiver Josephine Annis.

SERVICES: Visiting hours will be from 2-3:30 p.m., Friday, September 30, 2016, at the Remick & Gendron Funeral Home-Crematory, 811 Lafayette Road, Hampton, followed by a graveside service at 4 p.m., at Center Cemetery, Post Road, North Hampton. Relatives and friends are respectfully invited. In lieu of flowers, please donate to the Hampton American Legion Post 35, 69 High St., Hampton, N.H., 03842. Please visit www.Remick-Gendron.com to view George's memorial website, sign his tribute wall or for directions.

IN BRIEF

Mom of man shot by police

CLAREMONT, N.H. — The mother of a 25-year-old Claremont man who died after he was shot in a confrontation with police says her son had struggled with depression and she believes the officers did "the best they could to help him."

The attorney general's office is investigating the death of Cody Lafont.

Police responded to a 911 call to the home early Sunday. Autopsy results released Tuesday say he was shot three times in the chest. The attorney general's office hasn't said how many officers were involved.

Tracy McEachern, Lafont's mother, tells WCAX-TV (http://bit.ly/2dzmEyo) her son had called 911 before. She described it as a cry for help.

— *The Associated Press*

HAMPTON

Post 35 remembers the ultimate 'Marine's Marine'

By Max Sullivan
msullivan@seacoastonline.com

HAMPTON – American Legion Post 35 lost what friends called a "Marine's Marine" and a beloved comrade last week as U.S. Marine Staff Sgt. George Masten died after a long battle with cancer.

Masten, 83, of Stratham, died Saturday, Sept. 24 at approximately 4 a.m. In addition to serving in both the Korean and Vietnam wars, he led Post 35's firing squad for the past 25 years as it fired out to the ocean at Hampton Beach from the Lady of the Sea Marine Memorial.

Masten's wake will take place from 2 to 3:30 p.m. Friday at Remick & Gendron Funeral Home on Route 1 in Hampton. His gravesite service will then take place at 4 p.m. at the cemetery on Post Road the same day.

Masten was mourned this week by those who knew him, more using the term "Marine's Marine" to describe him. Friends said he not only had the gruff, tough exterior to earn him the title, but he was a dedicated friend to his fellow legion members. He was heavily involved with Post 35 and was instrumental in establishing the Global War on Terrorism monument in 2006.

Ralph Fatello, former Post 35 commander and also a former Marine and Vietnam veteran, said Masten was the reason he joined the post in the 1980s. He was with Masten the day before he died.

"He was a gruff, ornery old Marine, but he was like a teddy bear inside," said Fatello this week. "He was the sweetest man that I think I ever met."

Masten, an Amherst native, served in Korea from 1952 to 1953, joining the Marines when he was 18 years old. He went home unharmed from the war, but in 1967, when an opportunity to go to Vietnam came, he went back to the Far East to fight.

Funeral Home DIRECTORY

DOVER
Purdy Funeral Service
655 Central Avenue
Dover, NH 03820
(603) 742-1017
www.purdyfuneralservice.com

DOVER
Tasker Funeral Home
Garrison City Crematory
621 Central Avenue
Dover, NH 03820
(603) 742-4961
www.taskerfh.com

EXETER
Brewitt Funeral Home
14 Pine Street
Exeter, NH 03833
(603) 772-3554
www.brewittfuneralhome.com

EXETER
Stockbridge Funeral Home
141 Epping Road
Exeter, NH 03833
(603) 772-0400
www.stockbridgefh.com

FARMINGTON
Peaslee Funeral Home
24 Central Street
Farmington, NH 03835
(603) 755-3535
www.peasleefuneralhome.com

NEWMARKET
Kent & Pelczar Funeral Home
77 Exeter Street
Newmarket, NH 03857
(603) 659-3344
www.kentandpelczarfh.com

PORTSMOUTH
J. Verne Wood Funeral Home
84 Broad Street
Portsmouth, NH 03801
(603) 436-1702
www.jvwoodfuneralhome.com

ROCHESTER
R.M. Edgerly & Son Funeral Home
86 South Main Street
Rochester, NH 03867
(603) 332-0230
www.edgerlyfh.com

ROCHESTER
H.J. Grondin & Son Funeral Home
176 North Main Street
Rochester, NH 03867
(603) 332-1563
www.grondinfuneralhome.com

SOUTH BERWICK, ME
McIntire McCooey Funeral Home
301 Main Street
South Berwick, ME 03908
(207) 384-2373
www.mcintiremccooey.com

For directory information contact Tina Ritter at
(603) 570-2122 or tritter@seacoastonline.com
The following should be included in your listing :
Name | Address | Phone | Web Address

PM-00218949

PLEASE RECYCLE THIS PAPER

LEGAL NOTICE

The Maine Turnpike Authority will be holding a Public Informational Meeting to discuss the environmental impacts of the relocation of the York Toll Plaza in York Maine. The meeting will be held at 7pm on October 5th, 2016 at the Maine Turnpike Maintenance Facility at 10 Spur Road, York Maine. For further information please visit the Maine Turnpike Authority's website at www.maineturnpike.com or call 207-871-7771. PM-00231721

LEGAL NOTICE
RYE BEACH VILLAGE DISTRICT
830 Central Road
PO Box 442
Rye Beach, NH 03871

PM-00231713

PUBLIC NOTICE

BOARD OF ADJUSTMENT

NOTICE IS HEREBY GIVEN that the Rye Beach Board of Adjustment will meet on Tuesday, October 4, 2016 at 7:00 p.m. at the RBVD Office, 830 Central Road, Rye Beach, NH, to consider the following application:

1. To re-hear the petition of Sea Acres Realty Trust, Graham Bunce, Trustee, 338 High Street, Hampton, NH 03842, for property located at 80 Causeway Road, Rye Beach, NH, tax map 002/080, requesting variances in order to construct a single family home, septic system, driveway, retaining walls and associated site improvements. Variances requested:

> Section 4, Article 4.2 [Front setback: 40' required, 29' requested]
> Section 4, Article 4.2 [Side setback: 25' required, 22.6' requested]
> Section 8, Articles 8.3.4.A(1) [to allow a structure in the tidal buffer]
> Section 8, Articles 8.3.4.B.1 [to allow surface alteration in the tidal buffer]
> Section 8, Articles 8.3.4.B.5(B)2 [to allow the removal of trees greater than 4.5' in diameter (19) in the tidal buffer]

2. Other business.

Persons with disabilities may request that this meeting be relocated to a handicapped accessible facility by speaking with Frank Drake, Commissioner, 603-380-5403, at least 48 hours in advance of the meeting.

Legal Notice
KITTERY PORT AUTHORITY
PUBLIC HEARINGS NOTICE

The Kittery Port Authority will hold a public hearing on Thursday, October 6, 2016, at 6:00 p.m. in the Council Chambers, 200 Rogers Road, to consider the following application: Douglas and Louise Basnett, 37 Mill Pond Road, Kittery Maine, to construct an additional 10'x20' float to an existing pier and float system on Spruce Creek. Application information is available for public inspection between 8:00 am to 6:00 pm Monday thru Thursday at the Planning and Development Department located in Town Hall. To request a reasonable accommodation for this meeting please contact staff at (207) 475-1323 or (207) 475-1307. PM-00231798

Legal Notice
NEW CASTLE HISTORIC DISTRICT COMMISSION
PUBLIC HEARING

Notice is hereby given that that there will be three public hearings and two work sessions with the New Castle Historic District Commission on Thursday, October 6, 2016, at the Town Hall at 7pm:

1.Applicants Philip & Diane Llewellyn, for property at 12 Main Street to build a 6'X8' storage shed with cedar clapboards. Map 18 Lot 64-1

2.Applicant Karen Fay for 108 Main Street, Unit 3 to install a 5'X13' ground posted deck on second floor with full glass French style door and third floor full window casement. Map 18 Lot 1

3. Applicant ASJ Palmer LLC for property located at 41 Oliver Street to build a 8'X10' shed and back deck and move propane tank. Map 16 Lot 26

Work Sessions: (1) 36 Piscataqua Street, Map 18 Lot 30; (2) 3 Walbach Street, Map 18 Lot 56.

Plans may be reviewed at the Town Hall during office hours. Person(s) interested or affected by the plans may attend in person or by counsel or by writing to the Historic Commission and if affected by the plans may state their views. Per New Castle Zoning Ordinance Section 9.3.5 (a.b.c) - Activities requiring review.

Rodney Rowland, Chairman
New Castle Historic Commission
PM-00231899

Name_MapBlkLot_BookPage

EARL HANSON
WHIPPOORWILL HOMEOWNERS ASSOC
ELIZABETH TRAFTON
LEROY PLAISTED HRS
MATTHEW E HUTCHINS
GLADYS RUSHLOW
JAMES & SANDRA CHILDS
PHYLLIS & EARL HANSON
HANNAFORD BROTHERS CO.
YORK WATER DISTRICT MAP
LAURA CHILDS LIFE ESTATE
TOWN OF YORK
KAREN & JAMES PRICHARD
EARL HANSON
AMERICAN LEGION
VICTORIA CARR
CURTIS CLARK
CENTRAL MAINE POWER COMPANY
EAGLE DIAGNOSTICS & REPAIR LLC
MAINE COURT FACILITIES AUTHORITY
WILLIAM C FERRIN
EVERETT R KEEN
ALBERT J & ANDREA M UMINA
ROBERT E & NORMA I AMES
KENNETH R & WENDY M KEEN
HENRY J RUCH HRS
JEREMY D & PATRICIA L MELANSON
HENRY C. BROWN
ALYSSA M GARVEY & ADAM M PIERCE
CURTIS W & NORMA CLARK
ELDREDGE LUMBER & HARDWARE INC
HEIDI & EDWARD BAILEY
MALCOLM & CAROLE ANDREWS
MARY & SCOTT COLLIER
GORDON F & KAREN A FOGG
JAMES R & JOANNE RUTHERFORD
HARRY & CALEIGH POLLARD
MICHELLE B WILSON
DARIN F WITHAM
N/F JOHN & JEANINE MEANS MAP 094 LOT 035-K 7992/12
ROBIN M GREENE
JOHN & JEANINIE MEANS
NEIL & BEVERLY RAMSDELL
DAVID F JR & JACQUELINE M GRANT
ROBYN A & ROBERT W THOMPSON
ROGER R & ANN L STIRK

Maine Turnpike Authority

2360 Congress Street
Portland, Maine 04102

Daniel E. Wathen, Augusta, Chairman
Robert D. Stone, Auburn, Vice Chairman
Michael J. Cianchette, Cumberland
Bryan P. Cutchen, West Gardiner
John E. Dority, Augusta
Freeman R. Goodrich, Wells
Karen S. Doyle, Chief Financial Officer MaineDOT, Ex-Officio

Peter Mills, Executive Director
Douglas Davidson, Chief Financial Officer & Treasurer
Peter S. Merfeld, P.E., Chief Operations Officer
Jonathan Arey, Secretary & General Counsel

September 23, 2016

Robert and Norma Ames
56 PLAISTED RD
YORK, ME 03909

Dear Mr. and Mrs. Ames,

On October 5, the Maine Turnpike Authority will hold a public informational meeting in preparation for applying for a Tier 3 permit under Maine's Natural Resources Protection Act. The purpose of the permit is to relocate the York Toll Plaza to mile 8.8 on the turnpike. For the same project, the MTA will also file a Notice of Intent under its General Permit issued under the Site Location of Development Act.

The application will be processed under the Natural Resources Protection Act, 38 M.R.S.A. 480-A, et. Seq. and its associated regulations and under a General Permit issued to the Maine Turnpike Authority on February 29, 2016, by the DEP under the Site Location of Development Act pursuant to 38 M.R.S.A. 486-B.

The purpose of the meeting is for the Turnpike to inform the public about the project and its anticipated environmental impacts and to educate the public about opportunities to provide comment to the Department of Environmental Protection during the application process.

The meeting will be held October 5, 2016, at 7pm at the Turnpike's York Maintenance Facility at 10 Spur Road, York Maine. The facility is on the west side of the Turnpike near Exit 7.

Sara Zografos
Maine Turnpike Authority
2360 Congress St
Portland Maine 04102
207-871-7771

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Douglas Davidson, Chief Financial Officer & Treasurer
Peter S. Merfeld, P.E., Chief Operations Officer
Jonathan Arey, Secretary & General Counsel

September 23, 2016

HENRY BROWN
205 S MYRTLE AVE
NEW SMYRNA, FL 32168

Dear HENRY BROWN,

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September 23, 2016

HARRY AND CALEIGH POLLARD
36 FRANKLIN STREET
WATERVILLE, ME 04901

Dear HARRY AND CALEIGH POLLARD,
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September 23, 2016

EAGLE DIAGNOSTICS & REPAIR LLC
8 OLD CHASES POND ROAD
YORK, ME 03909

Dear EAGLE DIAGNOSTICS & REPAIR LLC,

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Portland Maine 04102
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Jonathan Arey, Secretary & General Counsel

September 23, 2016

CHARLES P CHILDS JR TRUSTEE
2 NEW TOWN ROAD
YORK, ME 03909

Dear CHARLES P CHILDS JR TRUSTEE,

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September 23, 2016

SANDRA CHILDS
2 OLD CHASES POND ROAD
YORK, ME 03909

Dear SANDRA CHILDS,

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Jonathan Arey, Secretary & General Counsel

September 23, 2016

WHIPPOORWILL HOMEOWNERS ASSOC
529 US ROUTE 1 SUITE 101
YORK, ME 03909

Dear WHIPPOORWILL HOMEOWNERS ASSOC,

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Karen S. Doyle, Chief Financial Officer MaineDOT, Ex-Officio

Peter Mills, Executive Director
Douglas Davidson, Chief Financial Officer & Treasurer
Peter S. Merfeld, P.E., Chief Operations Officer
Jonathan Arey, Secretary & General Counsel

September 23, 2016

WILLIAM C/CONSTANCE R FERRIN TRUSTEES
54 PLAISTED ROAD
YORK, ME 03909

Dear FERRIN WILLIAM C/CONSTANCE R FERRIN TRUSTEES,

On October 5, the Maine Turnpike Authority will hold a public informational meeting in preparation for applying for a Tier 3 permit under Maine's Natural Resources Protection Act. The purpose of the permit is to relocate the York Toll Plaza to mile 8.8 on the turnpike. For the same project, the MTA will also file a Notice of Intent under its General Permit issued under the Site Location of Development Act.

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The meeting will be held October 5, 2016, at 7pm at the Turnpike's York Maintenance Facility at 10 Spur Road, York Maine. The facility is on the west side of the Turnpike near Exit 7.

Sara Zografos
Maine Turnpike Authority
2360 Congress St
Portland Maine 04102
207-871-7771

Maine Turnpike Authority

2360 Congress Street
Portland, Maine 04102

Daniel E. Wathen, Augusta, Chairman
Robert D. Stone, Auburn, Vice Chairman
Michael J. Cianchette, Cumberland
Bryan P. Cutchen, West Gardiner
John E. Dority, Augusta
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Peter S. Merfeld, P.E., Chief Operations Officer
Jonathan Arey, Secretary & General Counsel

September 23, 2016

SCOTT AND MARY COLLIER
195 CHASES POND RD
YORK, ME 03909

Dear SCOTT AND MARY COLLIER,
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Peter S. Merfeld, P.E., Chief Operations Officer
Jonathan Arey, Secretary & General Counsel

September 23, 2016

ALBERT AND ANDREA M UMINA TRUSTEES
16 CAUGHEY STREET
WALTHAM, MA 02451

Dear ALBERT AND ANDREA M UMINA TRUSTEES,

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September 23, 2016

JAMES AND KAREN A PRICHARD TRUSTEES
205 CHASES POND ROAD
YORK, ME 03909

Dear JAMES AND KAREN A PRICHARD TRUSTEES,

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Jonathan Arey, Secretary & General Counsel

September 23, 2016

ELDREDGE LUMBER & HARDWARE INC
PO BOX 69
CAPE NEDDICK, ME 03902

Dear ELDREDGE LUMBER & HARDWARE INC,

On October 5, the Maine Turnpike Authority will hold a public informational meeting in preparation for applying for a Tier 3 permit under Maine's Natural Resources Protection Act. The purpose of the permit is to relocate the York Toll Plaza to mile 8.8 on the turnpike. For the same project, the MTA will also file a Notice of Intent under its General Permit issued under the Site Location of Development Act.

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Peter S. Merfeld, P.E., Chief Operations Officer
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September 23, 2016

MICHELE M DESOTO
5A HORTON STREET
NEWBURYPORT, MA 01950

Dear MICHELE M DESOTO,

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Peter S. Merfeld, P.E., Chief Operations Officer
Jonathan Arey, Secretary & General Counsel

September 23, 2016

KENNETH R KEEN
5 NORTH STREET
YORK, ME 03909

Dear KENNETH R KEEN,

On October 5, the Maine Turnpike Authority will hold a public informational meeting in preparation for applying for a Tier 3 permit under Maine's Natural Resources Protection Act. The purpose of the permit is to relocate the York Toll Plaza to mile 8.8 on the turnpike. For the same project, the MTA will also file a Notice of Intent under its General Permit issued under the Site Location of Development Act.

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207-871-7771

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Jonathan Arey, Secretary & General Counsel

September 23, 2016

DENISE S WILFORD
C/O EARL B SMITH JR
YORK, ME 03909

Dear DENISE S WILFORD,

On October 5, the Maine Turnpike Authority will hold a public informational meeting in preparation for applying for a Tier 3 permit under Maine's Natural Resources Protection Act. The purpose of the permit is to relocate the York Toll Plaza to mile 8.8 on the turnpike. For the same project, the MTA will also file a Notice of Intent under its General Permit issued under the Site Location of Development Act.

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Peter S. Merfeld, P.E., Chief Operations Officer
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September 23, 2016

NEIL AND BEVERLY RAMSDELL
170 CHASES POND RD
YORK, ME 03909

Dear NEIL AND BEVERLY RAMSDELL,

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Peter S. Merfeld, P.E., Chief Operations Officer
Jonathan Arey, Secretary & General Counsel

September 23, 2016

GLADYS RUSHLOW
PO BOX 174
YORK, ME 03909

Dear GLADYS RUSHLOW,

On October 5, the Maine Turnpike Authority will hold a public informational meeting in preparation for applying for a Tier 3 permit under Maine's Natural Resources Protection Act. The purpose of the permit is to relocate the York Toll Plaza to mile 8.8 on the turnpike. For the same project, the MTA will also file a Notice of Intent under its General Permit issued under the Site Location of Development Act.
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Portland Maine 04102
207-871-7771

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September 23, 2016

JAMES R III AND JOANNE RUTHERFORD
191 CHASES POND RD
YORK, ME 03909

Dear JAMES R III AND JOANNE RUTHERFORD,

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September 23, 2016

GORDON AND KAREN A FOGG
193 CHASES POND RD
YORK, ME 03909

Dear GORDON AND KAREN A FOGG,

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September 23, 2016

HANNAFORD BROS CO
PO BOX 1000
PORTLAND, ME 04101

Dear HANNAFORD BROS CO,

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September 23, 2016

MICHELLE B WILSON
175 OLD POST ROAD
YORK, ME 03909

Dear MICHELLE B WILSON,

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September 23, 2016

MALCOLM ANDCAROLE ANDREWS
197 CHASES POND RD
YORK, ME 03909

Dear MALCOLM ANDCAROLE ANDREWS,

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DARIN WITHAM
171 CHASES POND RD
YORK, ME 03909

Dear DARIN WITHAM,
On October 5, the Maine Turnpike Authority will hold a public informational meeting in preparation for applying for a Tier 3 permit under Maine's Natural Resources Protection Act. The purpose of the permit is to relocate the York Toll Plaza to mile 8.8 on the turnpike. For the same project, the MTA will also file a Notice of Intent under its General Permit issued under the Site Location of Development Act.
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TOWN OF YORK
186 YORK STREET
YORK, ME 03909

Dear TOWN OF YORK,

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Maine Turnpike Authority
2360 Congress St
Portland Maine 04102
207-871-7771

Maine Turnpike Authority

2360 Congress Street
Portland, Maine 04102

Daniel E. Wathen, Augusta, Chairman
Robert D. Stone, Auburn, Vice Chairman
Michael J. Cianchette, Cumberland
Bryan P. Cutchen, West Gardiner
John E. Dority, Augusta
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Karen S. Doyle, Chief Financial Officer MaineDOT, Ex-Officio

Peter Mills, Executive Director
Douglas Davidson, Chief Financial Officer & Treasurer
Peter S. Merfeld, P.E., Chief Operations Officer
Jonathan Arey, Secretary & General Counsel

September 23, 2016

YORK WATER DISTRICT
PO BOX 447
YORK, ME 03909

Dear YORK WATER DISTRICT,

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September 23, 2016

MAINE COURT FACILITIES AUTHORITY
PO BOX 2268
AUGUSTA, ME 04330

Dear MAINE COURT FACILITIES AUTHORITY,
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September 23, 2016

CENTRAL MAINE POWER CO
70 FARM VIEW DRIVE
NEW GLOUCESTER, ME 04260

Dear CENTRAL MAINE POWER CO,
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September 23, 2016

ROBYN AND ROBERT THOMPSON
1 WITHAM WAY
YORK, ME 03909

Dear ROBYN AND ROBERT THOMPSON
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September 23, 2016

DAVID AND JACQUELINE M GRANT
2 WITHAM WAY
YORK, ME 03909

Dear DAVID AND JACQUELINE M GRANT,

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September 23, 2016

HENRY J RUCH HRS
8 ALPINE DR
SANFORD, ME 04073

Dear HENRY J RUCH HRS
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September 23, 2016

EARL K HANSON
169 SCITUATE ROAD
YORK, ME 03909

Dear EARL K HANSON,

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September 23, 2016

ELIZABETH TRAFTON HRS
13 DANVILLE RD
KINGSTON, NH 03848

Dear ELIZABETH TRAFTON HRS,
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September 23, 2016

VICTORIA AND JEFFREY M CARR
3 WOODS RUN
YORK, ME 03909

Dear VICTORIA AND JEFFREY M CARR,
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September 23, 2016

CURTIS W CLARK JR
4 WOODS RUN
YORK, ME 03909

Dear CURTIS W CLARK JR,
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CURTIS AND NORMA CLARK
147 CHASES POND ROAD
YORK, ME 03909

Dear CURTIS AND NORMA CLARK,

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JEREMY AND PATRICIA L MELANSON
20 MOORE STREET
KITTERY, ME 03904

Dear JEREMY AND PATRICIA L MELANSON,
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MATTHEW E HUTCHINS
PO BOX 640
YORK, ME 03909

Dear MATTHEW E HUTCHINS,

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ALYSSA M GARVEY
PO BOX 172
YORK, ME 03909

Dear ALYSSA M GARVEY,

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Portland Maine 04102
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APPENDIX 11

Historical Architectural Reconnaissance Survey

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TECHNICAL REPORT

HISTORIC ARCHITECTURAL RECONNAISSANCE SURVEY YORK TOLL PLAZA PROJECT

York, York County, Maine

Virginia H. Adams
Carey L. Jones
Quinn R. Stuart

Prepared for:

HNTB Corporation
31 St. James Avenue, Suite 3000
Boston, MA 02116

Prepared by:

PAL
210 Lonsdale Avenue
Pawtucket, Rhode Island 02860

PAL Report No. 2484

September 2010

PAL Publications

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Dana M. Richardi/Jane Miller

GIS SPECIALIST
Jane Miller

GRAPHIC DESIGN/PAGE LAYOUT SPECIALISTS
Alytheia M. Laughlin/Gail M. Van Dyke

EDITOR
Ken Alber

SUMMARY

Name of Survey:	York Toll Plaza Architectural Reconnaissance Survey
Location:	York, York County, Maine
Sponsoring Agency or Group:	Maine Turnpike Authority (MTA)
Survey Dates:	May 5, 2010 to September 2010
Name of Surveyor:	PAL, Inc. 210 Lonsdale Avenue Pawtucket, RI 02860
Level of Survey:	Reconnaissance
Area Surveyed:	A one-half mile radius study area (2,944 acres in size) from the project area location, resulting in an Area of Potential Effect of one-quarter mile.
Areas of Potential Effect:	Direct Effect: 126 acres Indirect Effect: 1,420 acres
Number of Properties Surveyed:	The York Toll Plaza Architectural Reconnaissance Survey identified one historic district listed in the National Register of Historic Places, 21 previously surveyed properties, and four new individual resources.

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INTRODUCTION

This report presents the results of a historic architectural reconnaissance survey conducted for the proposed York Toll Plaza Project (Project) located in York, York County, Maine (Figure 1). The purpose of the survey was to identify historic architectural properties within the Project's Area of Potential Effect (APE) and to provide information to the Project proponent, the Maine Turnpike Authority (MTA), and to the Maine Historic Preservation Commission (MHPC) regarding the potential for direct and/or indirect effects from the proposed Project.

Project Description

The MTA is evaluating alternatives for rehabilitation, reconstruction, or relocation of the existing York Toll Plaza, a 17-lane toll plaza (Figure 2). This structure is approximately 7 miles north of the New Hampshire border and is the southernmost toll plaza on the Maine Turnpike (Interstate 95). The volume of traffic has tripled since it opened in 1969 and it currently suffers from numerous operational and structural deficiencies, and is an increasing safety concern. The existing toll plaza has seven southbound and 10 northbound lanes and is approximately 400 feet in width (Photograph 1).

Three alternatives for replacing the toll plaza are currently under consideration. The new structures would have increased capacity with Open Road Tolling (ORT). The name of each alternative indicates the number of miles it is located along the Maine Turnpike. The first, Location 7.3 Option 4A, would construct a new 19-lane toll plaza with three ORT lanes in each direction, four northbound and five southbound cash lanes, and two ramp lanes in each direction (Figures 2 and 3). It would be immediately to the north of the existing toll plaza and have a total width of 439 feet. Under the other two alternatives, Location 8.7 and Location 9.1, the new toll plaza would be 335 feet in width with six ORT lanes in the center aisles flanked by four northbound and five southbound cash lanes (Figures 4-7). All three alternatives would include a new support building and employee parking lot adjacent to the southbound lanes.

Project Location and Setting

The York Toll Plaza Project is located within the first 10 miles of the Maine Turnpike. The MTA is a quasi-state agency created by the Maine Legislature in 1941 to construct, manage, and operate a 109-mile toll highway from Kittery to Augusta. The Maine Turnpike, completed in 1947, was the first superhighway in New England and the second built in America after the Pennsylvania Turnpike. The American Society of Civil Engineers designated it a Historic Civil Engineering Landmark in 1999. It is not listed in the National Register of Historic Places (National Register), as Interstate Route 95 is exempt from consideration under Section 106 according to the Advisory Council on Historic Preservation's (ACHP) "Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System" (ACHP 2005). This agreement between the Federal Highway Administration (FHWA) and the ACHP states that "all federal agencies are exempt from the Section 106 requirement of taking into account the effects of their undertakings on the Interstate Highway System" (ACHP 2005:11931). However federal agencies are still "responsible for considering the effects of its undertakings on other historic properties that are not components of the Interstate Highway System" (ACHP 2005:11931). The exemption stipulates that certain exceptional or nationally significant elements of the Interstate Highway System designated by the FHWA are excluded from the exemption. The Maine Turnpike is not listed under this exclusion (FWHA 2006).

The Project is located within the town of York near a mixed residential and commercial area. The majority of the commercial development is located along the Blue Star Memorial Highway (Route 1) and is primarily modern, single-story stores set back by parking lots and older residences converted to business use. The businesses cater to tourists with gas stations, antique stores, and convenience stores being the primary types. The houses in the area are mostly a mix of early-nineteenth- to early-twentieth-century architectural styles. They tend to be sited on large lots, a distance from the road, and surrounded by dense vegetation. There is also one municipal building: the York District Courthouse, a contemporary building located on Chases Pond Road. The Maine Turnpike and The Blue Star Memorial Highway (Route 1) are the main thoroughfares in the area. The remaining are winding, paved, two-lane roads. There are no major natural features in the surrounding area; however Chases Pond, a large reservoir, is nearby.

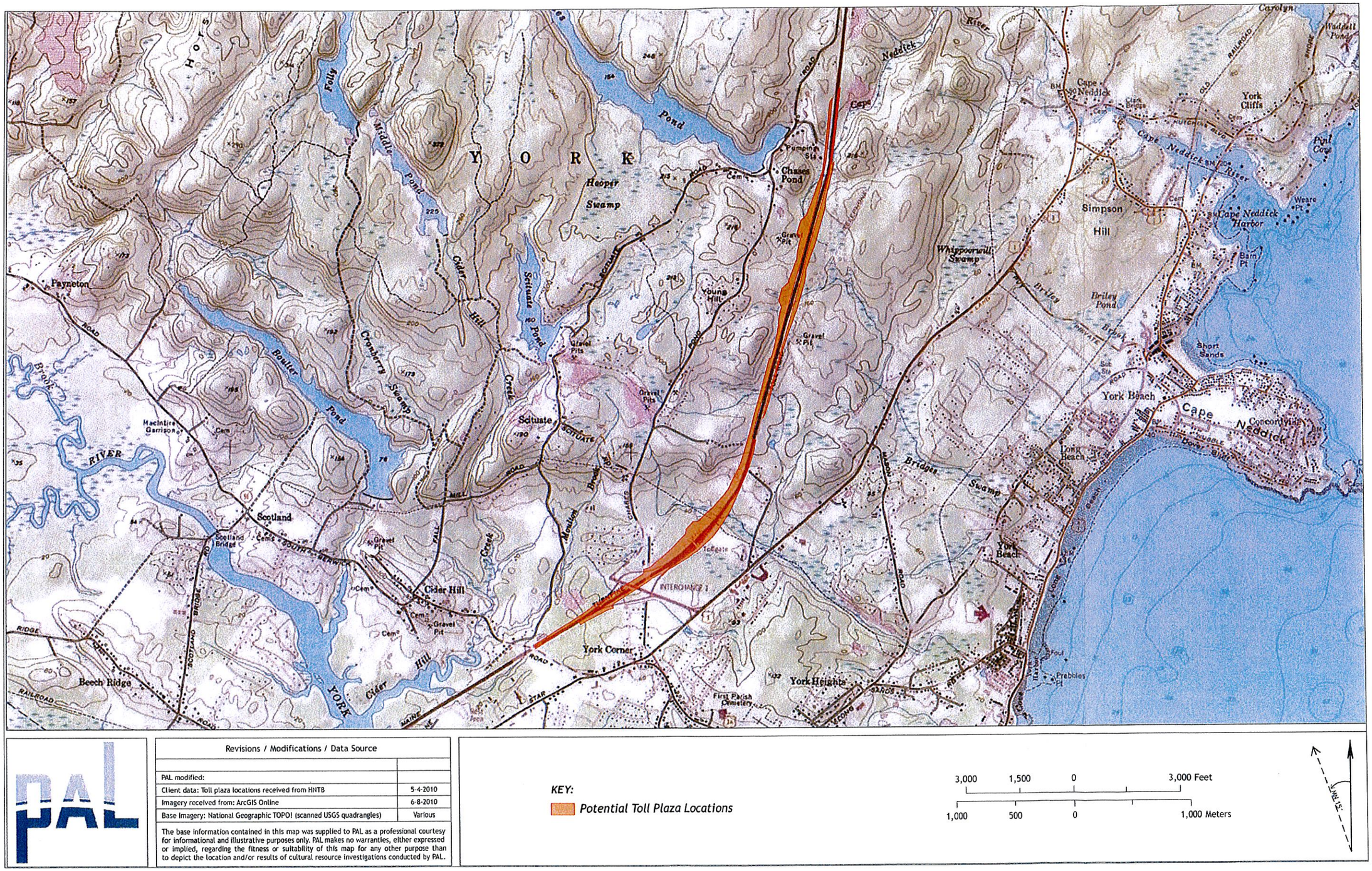


Figure 1. York Toll Plaza Project Location on the York Harbor USGS Quad, 7.5 minute series.

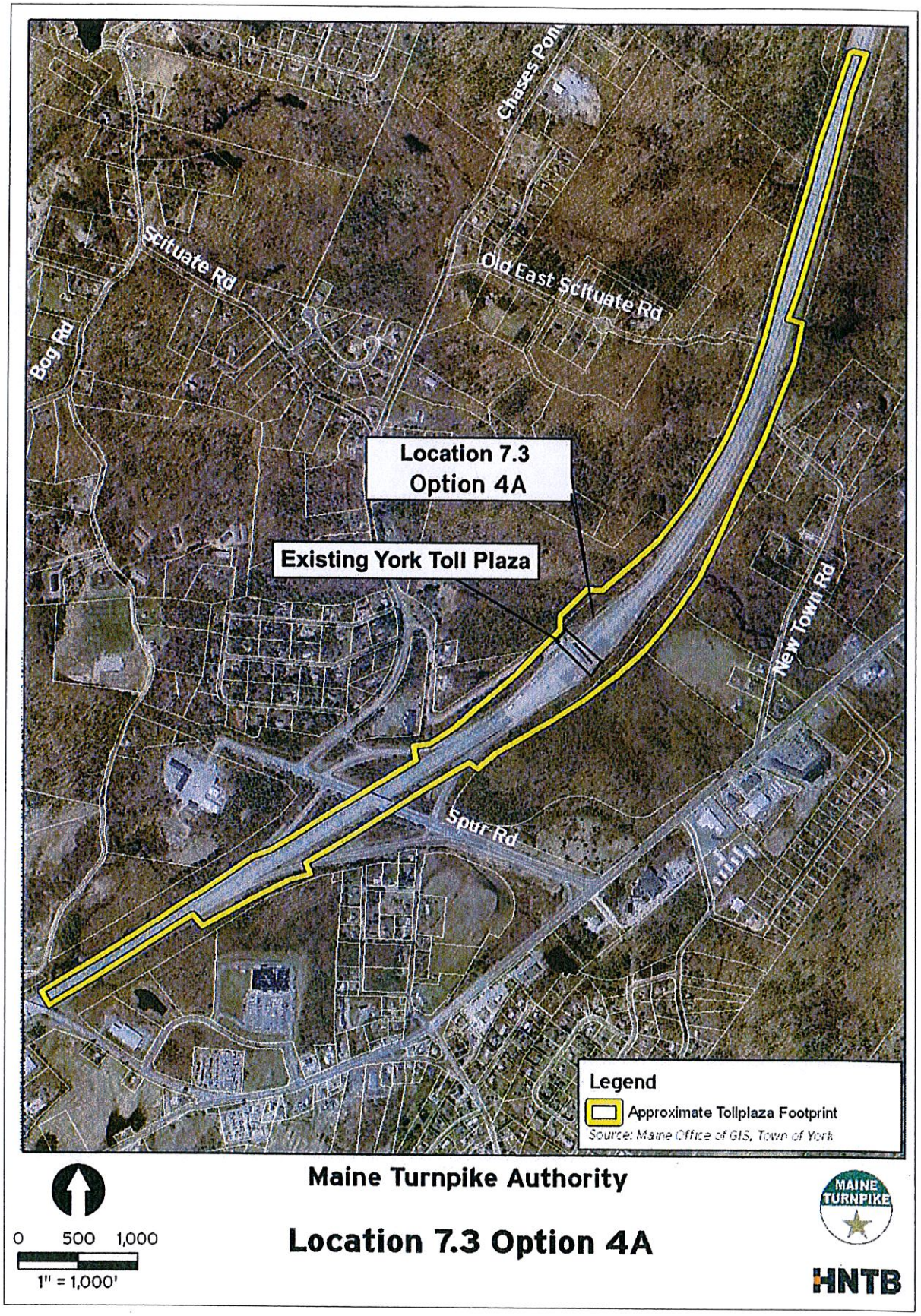
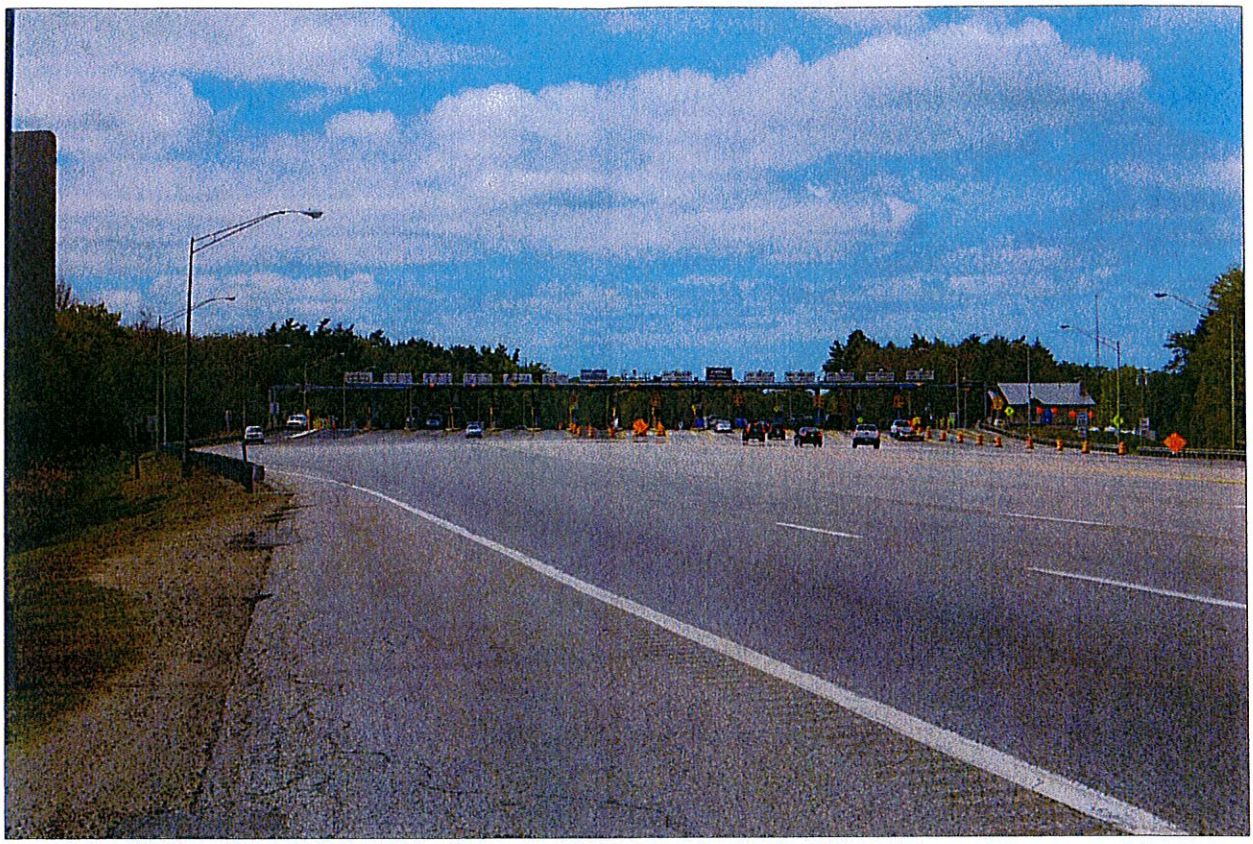


Figure 2. Location of the Existing York Toll Plaza and Location 7.3 Option 4A.



Photograph 1. Existing York Toll Plaza, view south along Maine Turnpike (Interstate 95).

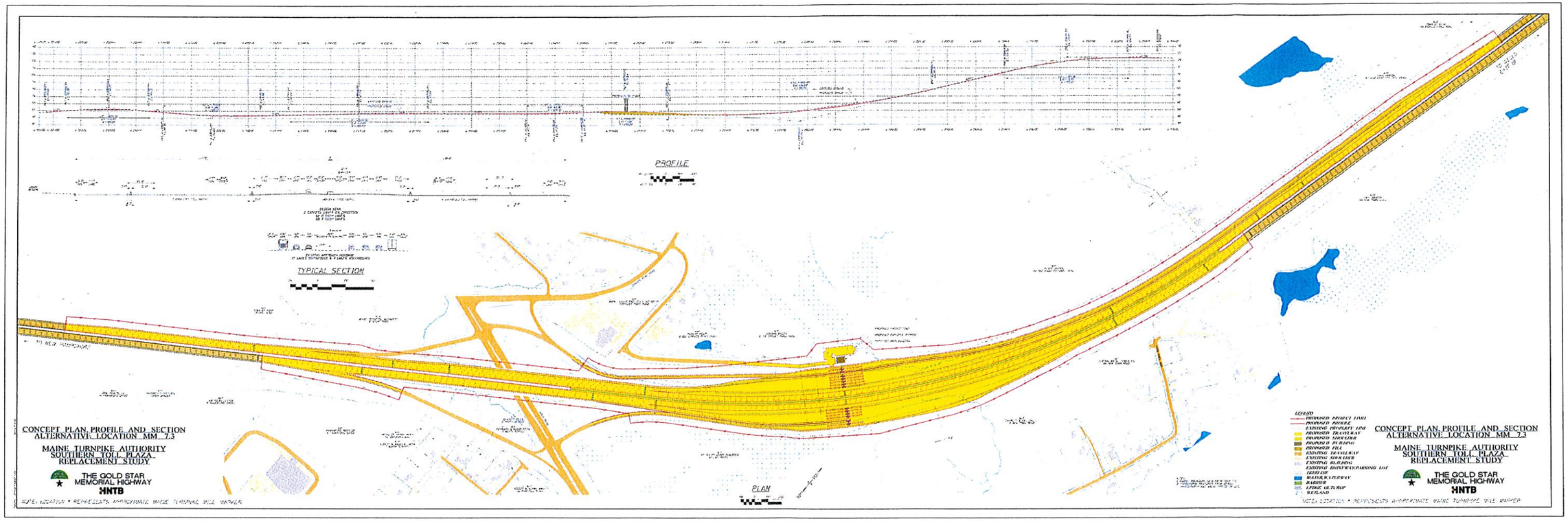


Figure 3. Concept Plan, Profile, and Section for Location 7.3 Option 4A.

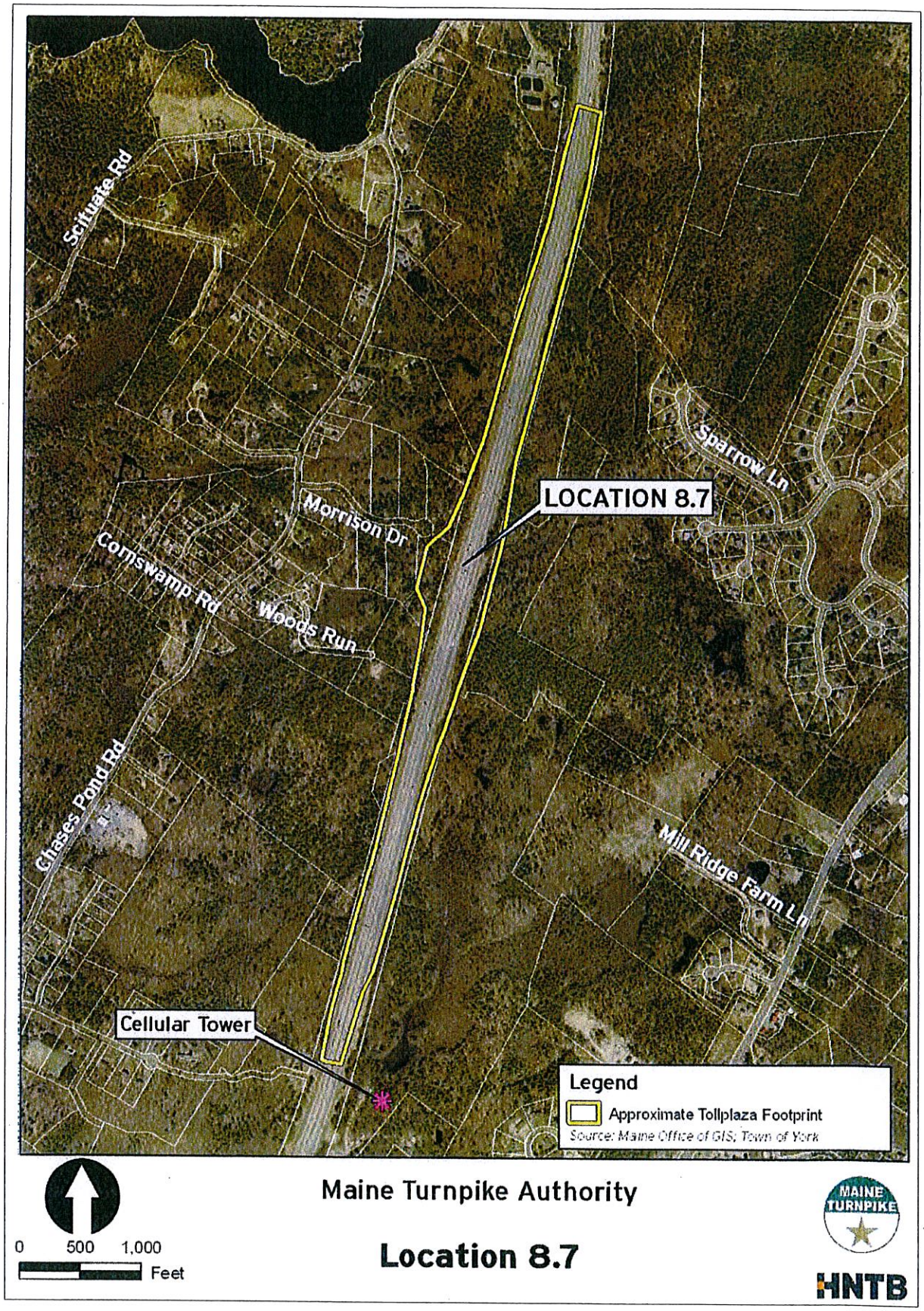


Figure 4. York Toll Plaza, Location 8.7.

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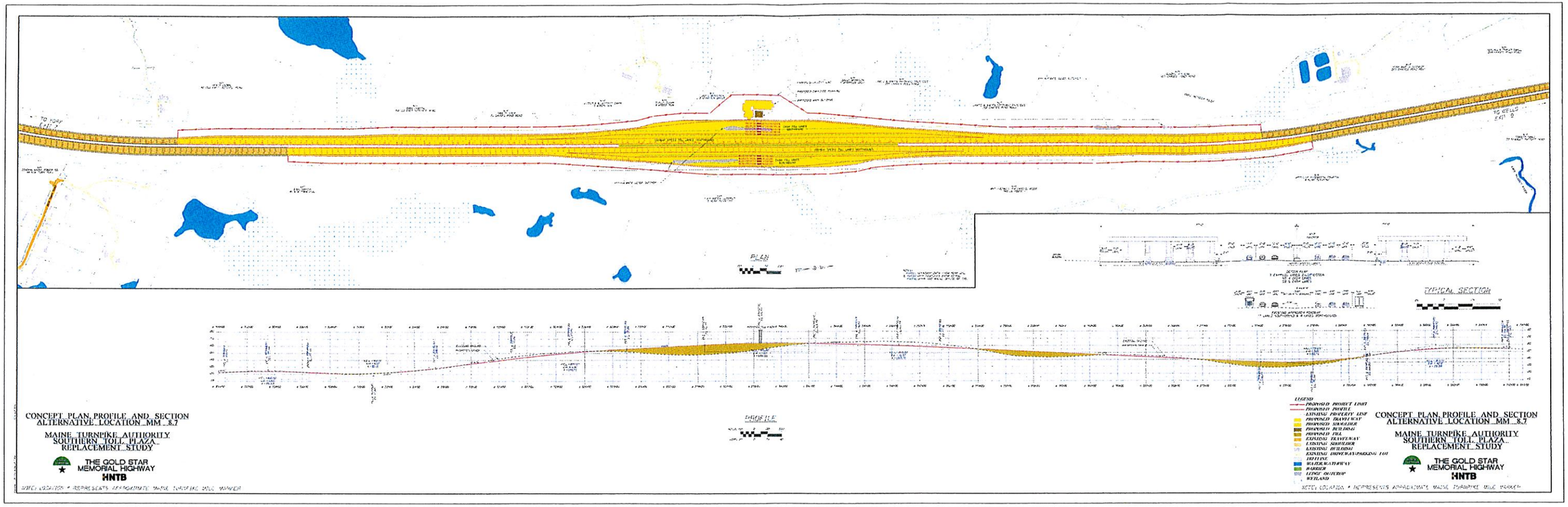

Figure 5. Concept Plan, Profile, and Section for Location 8.7.

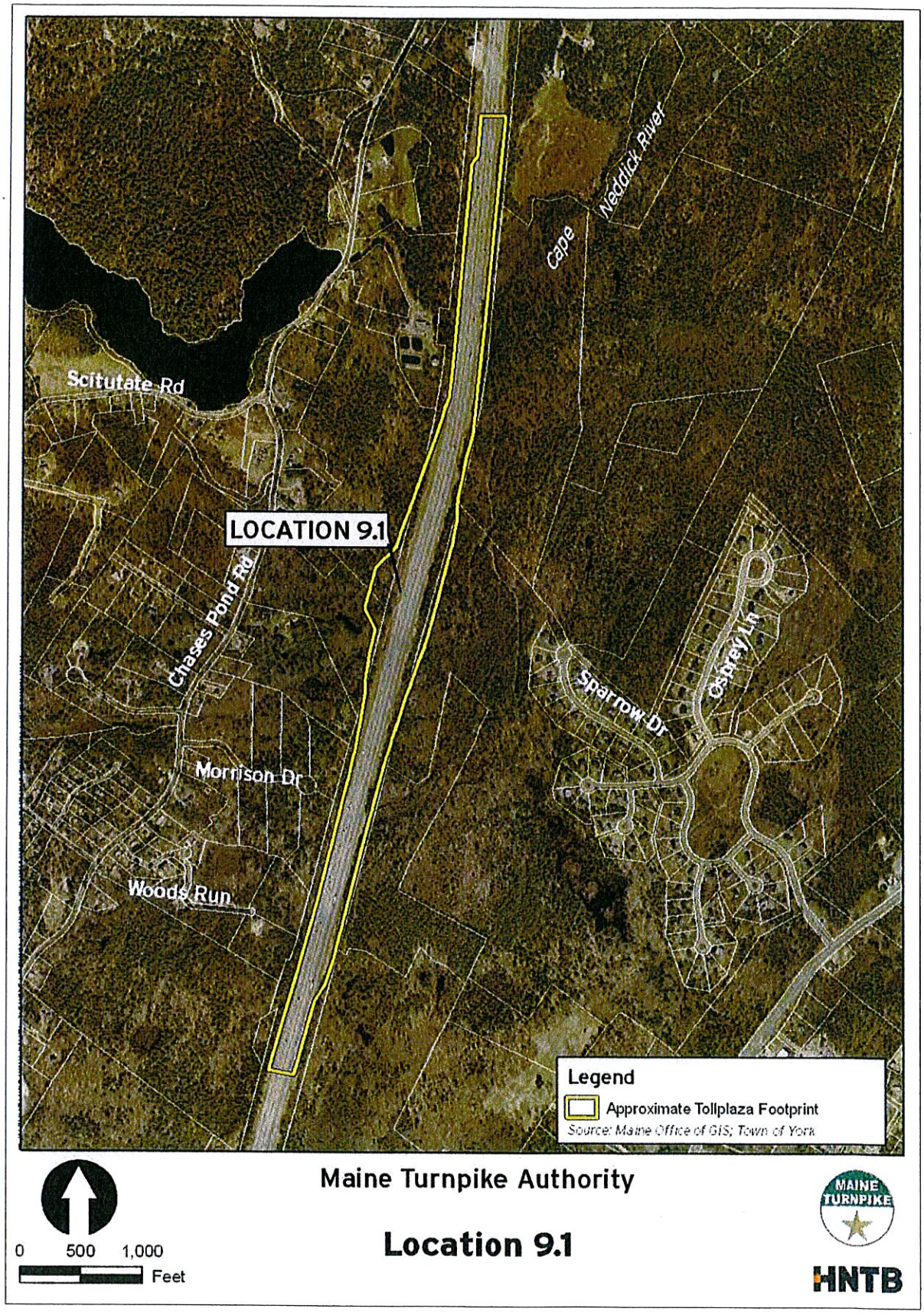

Figure 6. York Toll Plaza, Location 9.1.

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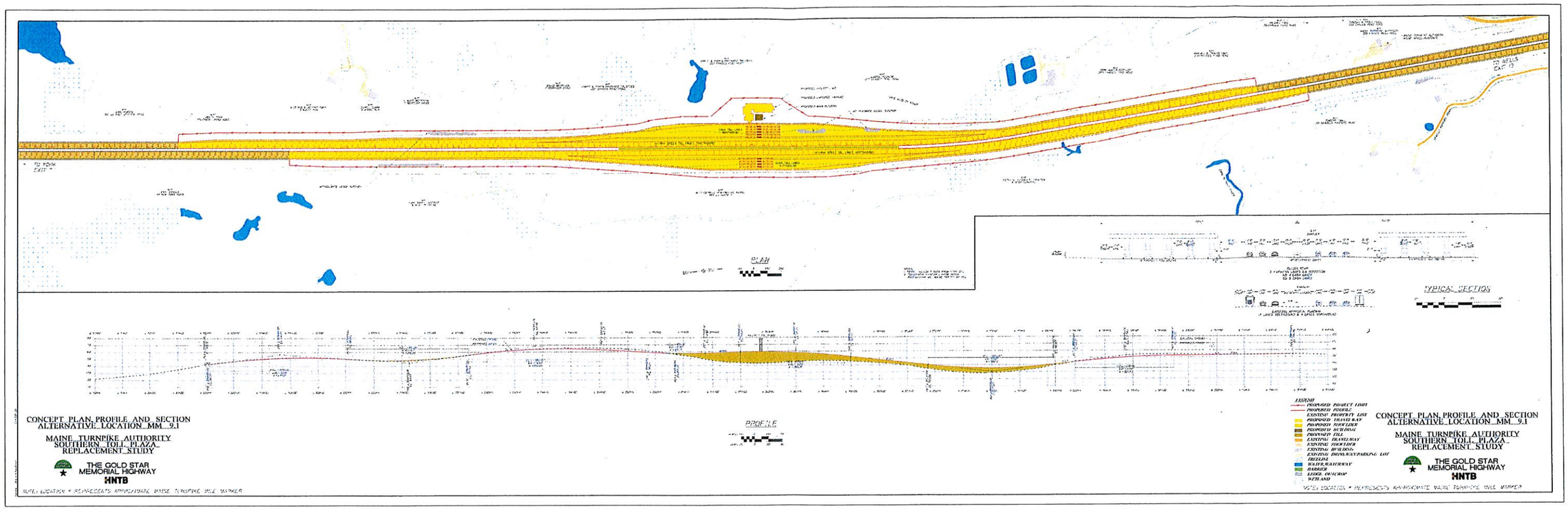


Figure 7. Concept Plan, Profile, and Section for Location 9.1.

METHODOLOGY

The methodology for the architectural reconnaissance survey was designed to identify all aboveground historic properties, including districts, buildings, structures, objects, and sites within the Project APE (see below) that are listed, eligible, or potentially eligible for listing in the National Register. The survey was conducted in accordance with the standards and guidelines established in the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation*, as amended (48 FR 44716), the MHPC's *Above Ground Cultural Resources Survey Manual, Guidelines for Identification: Architecture and Cultural Landscapes, Section 106 Specific* (MHPC 2006), the National Park Service's (NPS) *National Register Bulletin No. 24, Guidelines for Local Survey: A Basis for Preservation Planning* (NPS 1985), and the NPS's *National Register Bulletin No. 15, How to Apply the National Register Criteria for Evaluation* (NPS 1997).

Survey Boundaries

The initial York Toll Plaza architectural reconnaissance survey area included all the land and features within a one-half mile radius (2,944 acres) of the proposed alternatives. This one-half mile area was based on a preliminary review of existing maps used to determine the area of potential visibility. PAL drove the entire survey area and based on field observations, determined that many locations within this area would be blocked by existing vegetation. The field observations and current USGS and aerial maps were used to determine the indirect APE (described below).

Area of Potential Effect

The APE is defined in regulations governing Section 106 of the National Historic Preservation Act as the "geographic area or areas within which an undertaking may directly or indirectly cause changes in the character of or use of historic properties, if any such properties exist" (36 CFR 800.1(d)). Typically there are multiple APEs since effects to historic properties can be caused by either a physical taking (direct impacts) or by the introduction of environmental impacts (indirect impacts). The direct impact APE is the geographic area in which properties would be affected by construction activities, including a property taking or physical modification of a historic property. The indirect impact APE consists of a larger area where visual, auditory, air quality, vibration, and/or other types of environmental impacts, might affect the qualities for which a historic property is eligible for or listed in the National Register.

The direct effect APE for the York Toll Plaza Project is an approximately 126-acre area corresponding to the proposed project limits for all three alternatives (Figure 8). This area includes any locations where the existing right-of-way would be expanded to accommodate the toll plaza lanes and related buildings and structures.

For the York Toll Plaza architectural reconnaissance survey, potential indirect effects on historic properties were determined to be visual in nature. As such, the indirect effects APE includes areas where the new toll plaza might be visible. In order to determine these locations, PAL indicated on the survey base map which roads did and did not have views of the Project alternatives. Based on field observations, the indirect effects APE was determined to be generally within a one-quarter mile of the Project corridor, an area 1,420 acres in size (see Figure 8).

Research, Fieldwork, and Analysis

Prior to beginning survey fieldwork, PAL conducted research to identify all previously surveyed properties within or adjacent to the Project area that are listed or eligible for listing in the National Register or have been recorded as part of MHPC's Maine State Survey Program. PAL initiated this search by using the National Register Information System (NRIS), an on-line database maintained by the NPS. Following the NRIS search, PAL conducted a visit to the MHPC to review and obtain copies of all National Register forms, relevant town files, and inventory forms for all properties within the initial survey boundaries. The National Register eligibility status of each surveyed property was noted if the property had been previously evaluated for listing in the National Register. Copies of National Register nomination forms for listed properties and inventory forms for previously identified properties in the APE are in Appendix A and Appendix B.

Fieldwork for the reconnaissance survey was conducted by two PAL architectural historians on May 10, 2010. The fieldwork involved the identification of all properties within the APE that were at least 50 years old or included in previous inventories. Information regarding the view sheds from recorded properties toward the Project area was noted during the fieldwork. Each identified property was photographed with black-and-white film using a 35mm SLR camera for documentation purposes and with a high-resolution digital camera. Data regarding the current condition and significant characteristics of each resource was recorded, and the information on the inventory forms for previously surveyed properties was verified. In compliance with the MHPC's survey methodology, unique sets of information were collected for individual buildings, barns, and farmsteads. All identified properties were mapped in the field on USGS base maps or detailed aerial images. Site plans depicting farmsteads or other complexes with multiple resources were hand drawn on survey forms.

PAL drove all accessible public roads within the study area. All properties that met the criteria for inclusion in the survey and were visible from public rights-of-way were recorded. To ensure that no properties were overlooked, PAL made notes on the base maps during the survey, indicating which roads had been covered and which buildings were less than 50 years old. PAL entered the survey data into a database following the completion of the fieldwork. The database was then used to generate MHPC reconnaissance-level survey inventory forms for each of the surveyed properties within the APE (Appendix C). Based on the condition, integrity, materials, approximate age, design, and setting of the identified resources observed in the field, PAL made a preliminary assessment regarding the potential National Register eligibility of each property. The preliminary eligibility evaluation of each property and an assessment of potential effects of the Project alternatives on these properties are included in the Recommendations section of this report.



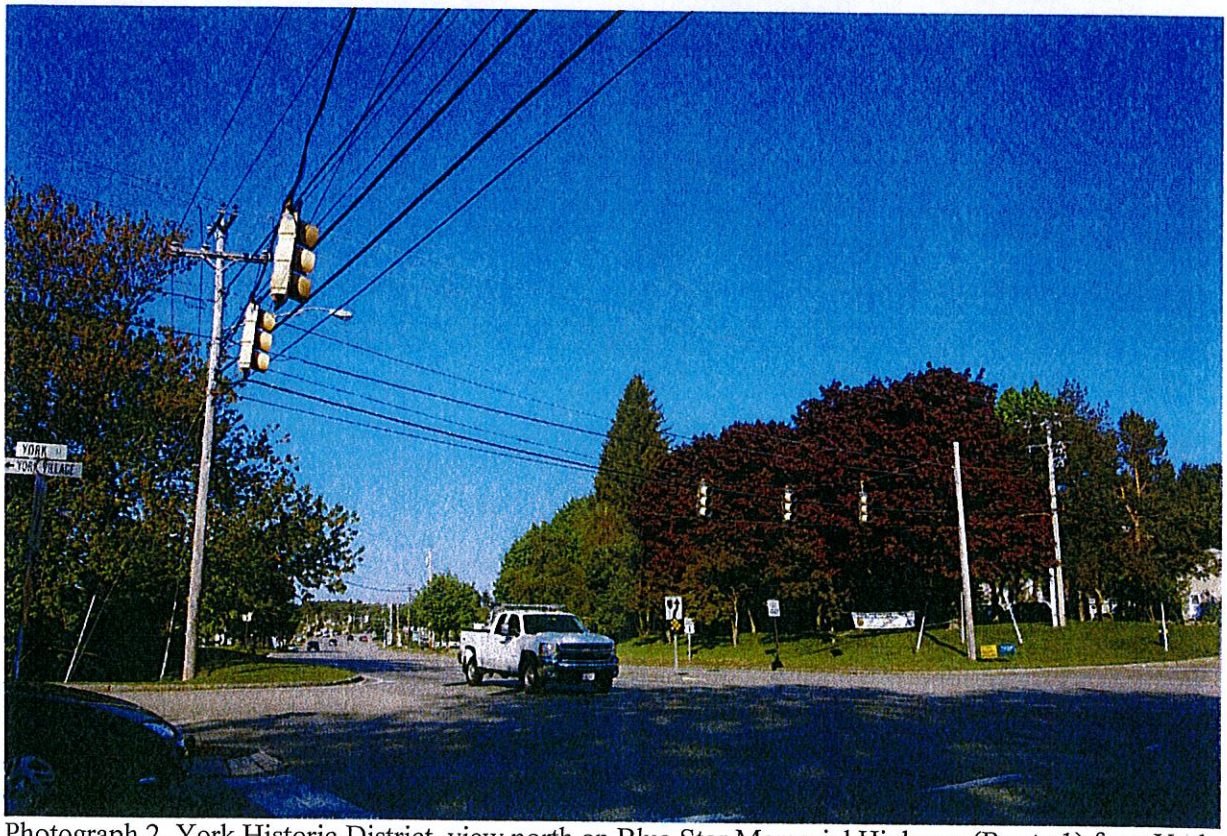
Figure 8. Area of Potential Effects for the York Toll Plaza Project.

Properties Listed in or Determined Eligible for Listing in the National Register

The preliminary research indentified one property in the indirect APE that is listed in the National Register: the York Historic District. A copy of the National Register nomination form for this resource is attached as Appendix A. There is one individual property in the indirect APE, a farmstead at 24 New Town Road (Survey Map No. 5), evaluated as potentially eligible for listing in the National Register by MHPC. The location of all identified properties is shown on Figure 9 at two scales (Figure 9a, and Figure 9b, Back Pocket).

York Historic District

The York Historic District is located in the Town of York, southeast of the Project alternatives, along the York River (see Figures 9a and 9b). It encompasses approximately 1,700 acres and is comprised of three villages, York Village, York Corner, and York Harbor. The settlement of this district began in the early seventeenth century in York Village, expanded into York Corner and then York Harbor. The district is densely populated, primarily along York Street, with intact eighteenth- and nineteenth-century vernacular residences, as well as several institutional, religious, and commercial structures like the York Public Library, George Marshall Store, and First Church Parish. The section of the historic district that lies within the Project APE, a portion of York Corner, has been altered and lost its integrity (Photograph 2). The original road network has been reconfigured and there are multiple intrusions into the area. The historic district is significant under National Register Criterion A for its associations with the development of the English Colonies, the Town of York, and the State of Maine and Criterion C as an example of an intact eighteenth- and nineteenth-century coastal New England town (Kelly 1973).



Photograph 2. York Historic District, view north on Blue Star Memorial Highway (Route 1) from York Corner.

Farmstead, 24 New Town Road

The Farmstead at 24 New Town Road (Survey Map No.5) is located on the west side of the road, approximately 0.35 miles east of Location 7.3 Option 4A, in a heavily wooded area (Photograph 3, see Figures 9a and 9b). The property includes a house and shop that are placed close to the road on a partially cleared lot. The house was constructed ca. 1780 in the Federal style and faces east. This two story house is rectangular in form, clad in wood clapboard and topped by a steeply pitched side gable roof. The facade is five bays wide and has a central entrance. The asphalt shingle roof has gable returns and a brick center chimney. A one-story enclosed side porch is attached to the south elevation. Other appendages include a small one-and-one-half story ell on the west (rear) elevation. The house is well maintained and in good condition. The MHPC determined the property eligible in 2003.



Photograph 3. Farmstead, 24 New Town Road, York.

A one-and-one-half story detached shop is located south of the house and is oriented parallel to the road. It is rectangular in form, sits on a field stone foundation, is clad in wood shingles, and has a corrugated metal front gable roof. Openings are minimal and include a hinged, wood, double door and a small gable window on the facade and south (rear) elevation and two double-hung two-over-two windows on the east elevation. The west elevation is not visible from the street. The shop is in fair condition.

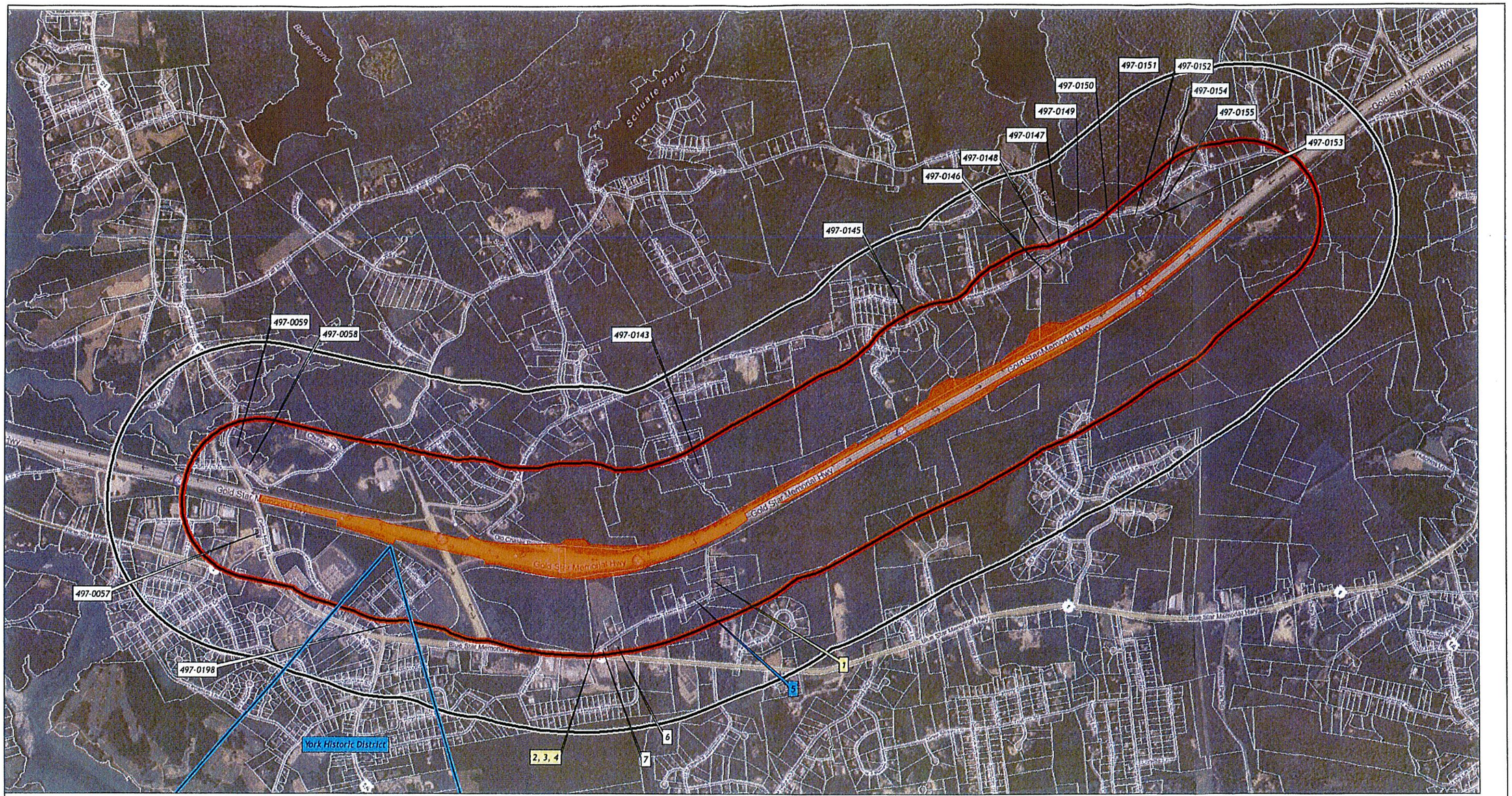


Figure 9a. York Toll Plaza Survey Base Map.

Previously Inventoried Properties

There are 21 properties within the indirect APE that were previously documented with MHPC inventory forms (see Figures 9a and 9b). These resources are primarily residential buildings. The majority have been assigned MHPC Inventory numbers and most of them have not been evaluated by the MHPC for National Register listing.

All of the previously documented properties were revisited and photographed by the PAL survey team to determine if any changes had occurred. Minor changes to these properties are indicated on the survey forms. The survey revealed that one property (MPHC No. 497-0058) was demolished.

Copies of the survey forms for the previously inventoried properties and a summary table (Table B-1) that lists them is included in Appendix B. New survey forms prepared by PAL to provide additional and/or corrected information for the previously inventoried properties are included in Appendix B.

Properties Identified During the Historic Architectural Reconnaissance Survey

Number of Buildings/Structures Recorded and Property Types

The reconnaissance survey of the indirect impact APE identified one cemetery and one farmstead with a house and a barn that were at least 50 years old and retained a portion of their original physical appearance (see Figures 9a and 9b). Copies of the reconnaissance level MHPC inventory forms and Table C-1 which summarizes these properties are attached as Appendix C.

RECOMMENDATIONS

National Register Evaluation

All properties identified during the survey were evaluated in accordance with the National Register Criteria for Evaluation. The criteria are defined by the NPS as follows:

Properties eligible for inclusion in the National Register are those whose qualities of significance in American history, architecture, archaeology, engineering, and culture are present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association; and

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or may be likely to yield information important in prehistory or history.

Properties Recommended as Potentially Eligible for Listing in the National Register

PAL did not identify any properties in the indirect APE that meet the National Register Eligibility Criteria for Evaluation. In general, the individual properties evaluated as ineligible for the National Register lack architectural significance or apparent significant historical associations. A large number of the properties have lost architectural integrity due to alterations and/or additions, removal of original architectural ornament, replacement of original materials, and replacement of original windows and doors. PAL therefore does not recommend any properties in the indirect APE as potentially eligible for listing in the National Register.

ASSESSMENT OF PROJECT EFFECTS

The framework used for assessing the preliminary effects of the York Toll Plaza Project on historic properties was that established by the regulations governing Section 106 of the National Historic Preservation Act. In conducting the assessment, the criteria of adverse effect was applied to each of the properties identified in the survey as listed or eligible for listing in the National Register. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (36 CFR 800.5(a)(1)).

In assessing the potential effects of the Project on historic properties, PAL utilized conceptual project maps and observations made during the reconnaissance survey. Based on the nature and location of the Project alternatives, potential effects were determined to be those caused by construction activities (direct effects) and the visual impact of the new toll plaza structure (indirect effects).

Direct Effects

The anticipated direct effect APE was established to encompass all Project-related construction activities, including land acquisition, and the area where the toll plaza will be located. There are no historic properties within the direct effect APE. Therefore, the proposed Project alternatives will have no direct effects on aboveground historic properties.

Indirect Effects

As described in the Methodology section, the indirect effect APE was established to include the area where the Project has the potential to cause visual effects on properties that are listed in or evaluated as potentially eligible for listing in the National Register. Any other indirect effects, such as noise and air quality, are encompassed within the visual/indirect effect APE.

The sections of the Maine Turnpike for the proposed toll plaza locations are lined with dense, evergreen vegetation (Photographs 4 and 5). This vegetation blocks views from nearby streets and properties to the highway right-of-way. The surrounding area is also densely vegetated with a mix of deciduous and evergreen trees. The road network is generally winding and does not allow for long distance views. While project plans are not yet finalized, it is anticipated that neither of the historic properties identified during the reconnaissance survey will have views to the Project alternatives.

The following is a summary of the individual resources' visual relationship to the project location. Photographs illustrating the view to the project location from each resource are provided below.

York Historic District

The York Historic District is in close proximity to Location 7.3 Option 4A. The area closest to this alternative is along Blue Star Memorial Parkway/Route 1. There are no views of the existing toll plaza or the alternative locations from this roadway (Photograph 6). There are also no views to the Project alternatives from York Street, the main thoroughfare through the district (Photograph 7).



Photograph 4. Location 8.7, view south on the Maine Turnpike (Interstate 95).



Photograph 5. Location 9.1, view south on the Maine Turnpike (Interstate 95).



Photograph 6. View toward the existing toll plaza and Location 7.3, Option 4A from the York Historic District at a distance of approximately one-quarter mile.



Photograph 7. View toward the existing toll plaza and Location 7.3, Option 4A from the York Avenue at a distance of approximately one-half mile.

Farmstead, 24 New Town Road (Survey Map. No. 5)

The Farmstead at 24 New Town Road is located approximately 0.35 miles from Location Location 7.3 Option 4A. It is near a sharp bend in New Town Road and is surrounded by dense vegetation (Photograph 8). Based on current Project plans, the existing road network and the dense vegetation will block any views of the Project alternatives from this property.



Photograph 8. View of the dense vegetation surrounding the Farmstead at 24 New Town Road, York.

Summary Recommendations

PAL did not evaluate any new properties in the York Toll Plaza APE as potentially eligible for listing in the National Register and recommends that no additional survey or research is necessary for this Project.

PAL recommends that the Project, as currently proposed, would have **no effect** on historic architectural properties and no further work is necessary. PAL further recommends that if the final Project plans are significantly different than what is currently proposed, an additional survey and effects assessment may be necessary.

REFERENCES

Advisory Council on Historic Preservation (ACHP)

2005 Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System. *Federal Register* 70(46):11928–11931.

Federal Highway Administration (FHWA)

2006 Final List of Nationally and Exceptionally Significant Features of the Federal Interstate Highway System. Retrieved July 14, 2009 from the world wide web: http://www.environment.fhwa.dot.gov/histpres/final_task4ListFinal.pdf.

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1973 *York Historic District National Register of Historic Places Nomination Form*, On file at the Maine Historic Preservation Commission, York, ME.

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2006 *Above Ground Cultural Resources Survey Manual, Guidelines for Identification: Architecture and Cultural Landscapes, Section 106 Specific*. Maine Historic Preservation Commission, Augusta, ME.

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1983 *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 Fed. Reg. 44716-42, Sept. 29, 1983). National Park Service, United States Department of the Interior, Washington, D.C.

1985 *National Register Bulletin No. 24, Guidelines for Local Survey: A Basis for Preservation Planning*. National Park Service, United States Department of the Interior, Washington, D.C.

1997 *National Register Bulletin No. 15, How to Apply the National Register Criteria for Evaluation*. National Park Service, United States Department of the Interior, Washington, D.C.

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1956 Topographic Map, Little Bigelow Mountain and Bingham Maine Quadrangle, 15 Minute Series. Retrieved June 2009 from University of New Hampshire Diamond Library, Documents Department and Data Center: http://docs.unh.edu/nhtopos/SmyrnaMills.htm.

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APPENDIX A

NATIONAL REGISTER NOMINATION FORMS FOR NATIONAL REGISTER LISTED PROPERTIES WITHIN THE YORK TOLL PLAZA APE

Hon. Peter N. Kyros

Form 10-300
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY – NOMINATION FORM

(Type all entries – complete applicable sections)

STATE: Maine
COUNTY: York
FOR NPS USE ONLY
ENTRY NUMBER | DATE

SEE INSTRUCTIONS

1. NAME

COMMON: York
AND/OR HISTORIC: Agamenticus; Bristol; Gorgeana; York

2. LOCATION

STREET AND NUMBER: Various
CITY OR TOWN: York
STATE: Maine | CODE: 23 | COUNTY: York | CODE: 031

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
☒ District ☐ Building ☐ Site ☐ Structure ☐ Object	☐ Public ☐ Private ☒ Both Public Acquisition: ☐ In Process ☐ Being Considered	☒ Occupied ☐ Unoccupied ☐ Preservation work in progress	Yes: ☐ Restricted ☒ Unrestricted ☐ No

PRESENT USE (Check One or More as Appropriate)

☐ Agricultural	☒ Government	☒ Park	☐ Transportation	☐ Comments
☒ Commercial	☐ Industrial	☒ Private Residence	☐ Other (Specify)	
☒ Educational	☐ Military	☒ Religious		
☐ Entertainment	☒ Museum	☐ Scientific		

4. OWNER OF PROPERTY

OWNER'S NAME: Various
STREET AND NUMBER:
CITY OR TOWN: | STATE: | CODE:
STATE: Maine

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC: York County Courthouse
STREET AND NUMBER:
CITY OR TOWN: Alfred | STATE: Maine | CODE: 23
COUNTY: York

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY: York Historical & Improvement Society Survey
DATE OF SURVEY: ☐ Federal ☐ State ☐ County ☒ Local
DEPOSITORY FOR SURVEY RECORDS: York Historical & Improvement Society
STREET AND NUMBER:
CITY OR TOWN: York | STATE: Maine | CODE: 23

FOR NPS USE ONLY
ENTRY NUMBER | DATE

7 DESCRIPTION

CONDITION	(Check One)					
	☐ Excellent	☒ Good	☐ Fair	☐ Deteriorated	☐ Ruins	☐ Unexposed
	(Check One)		(Check One)			
	☐ Altered	☒ Unaltered	☐ Moved	☒ Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (If known) PHYSICAL APPEARANCE

The York Historic District is situated in the extreme corner of southwestern Maine along the banks of the York River. The district actually comprises three distinct village areas; York Corner, York Village and York Harbor.

York Village is the oldest of the three, its history being that of the 17th and 18th centuries. York Corner is situated on U.S. Route 1 and its history is mainly 18th century. York Harbor is architecturally an 18th and 19th century area. It was this area that became the 19th century tourist attraction. These three tightly knit communities form an architectural and chronological history of York. Each area could stand by itself as a district but when cemented together they form a sweeping panorama of one of the most historically significant areas in our nation.

The York Historic District is described and bounded as follows: Beginning at a point northwest of York Corner and south of the Maine Turnpike, which point is at the intersection of Latitude 43°09'13" and Longitude 70°40'06"; thence in a southeasterly direction to a point at the intersection of York Street and Roaring Rock Road, which point is at the intersection of Latitude 43°08'26" and Longtitude 70°37'43"; thence in a southerly direction to a point in York Harbor east of Western Point, which point is at the intersection of Latitude 43°07'38" and Longitude 70°37'50"; thence westerly crossing Harris Island and Indian Pond to a point on the Bartlett Road, which point is at the intersection of Latitude 43°07'47" and Longitude 70°40'10"; thence northerly to the point of beginning.

The above described boundaries encompass an area of 1700± acres of

(See Continuation Sheet)

SEE INSTRUCTIONS

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Maine	
COUNTY	
York	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries)

7. DESCRIPTION

high ground, tidal flats and water.

HISTORIC BUILDINGS WITHIN THE YORK HISTORIC DISTRICT

1. Lewis & Jonathan Bane House
   Route 1

2. Bragdon Farm (Dr. John Swett House)
   Route 1
   Built ca. 1720

3. House
   Route 1

4. Daniel Simpson House
   Route 1-A Turn off
   Built in 1780

5. Lieut. Daniel Simpson House
   York Street
   Scituate Mens Row
   Built in 1720

6. Brig Gen. Jotham Moulton House
   York Street
   Scituate Mens Row

7. Jeremiah Moulton House
   York Street
   Scituate Mens Row

8. Charles Bane House
   York Street
   Scituate Mens Row
   Built in 1815

9. Joseph Banks House
   York Street
   Scituate Mens Row
   Built in 1696

10. Abraham Preble House (Green Dragon Inn)
    York Street
    Scituate Mens Row
    Built in 1692

(See Continuation Sheet)

GPO 921-724

7. DESCRIPTION 3

11. York Public Library
York Street
Built in 1922

12. First Parish Church Parsonage
York Street
Built in 1861

13. First Parish Church
York Street
Built in 1747 by the First Parish Church, oldest religious society in Maine

14. First Parish Church Cemetery
York Street

15. York Town Hall
York Street
Originally built in 1734
Rebuilt in 1811

16. Benjamin Stone Tavern (Dr. Alexander Bulman House)
York Street
Built in 1719

17. Coventry Hall
Longsands Road
Built in 1794 by Judge David Sewall

18. Woodbridge Tavern
Longsands Road
Built in 1719

19. Powder House
York Street
Built in 1812

20. John Kingsbury House
York Street
Built in 1730

21. Old Gaol
York Street
Built in 1719 by order of the General Court of Massachusetts.

(See Continuation Sheet)

GPO 921-724

7. DESCRIPTION

Oldest English public building in the United States. It is a National Historic Landmark.

22. Emerson Wilcox Tavern
York Street
Built in 1740 by George Ingraham

23. Old Burying Ground and Village Green
The Green was a Revolutionary War Muster Site.

24. Jefferds Tavern
Lindsay Road and York Street
Built in 1750 by Capt. Samuel Jefferds.
Moved to its present site from Wells, Maine in 1942 and restored.

25. Old Schoolhouse
Lindsay Road
Built in 1745
National Register - April 2, 1973

26. Eastman House
Lindsay Road
Built in 1727 by Hugh Holman

27. Nicholas Sewall House
Lindsay Road
Built in 1719 by Nicholas Sewall

28. Capt. Daniel Bragdon House
Lindsay Road
Moved to its present site in 1747 by Capt. Daniel Bragdon.

29. Gen. Jeremiah McIntire House
Indian Trail
Built in 1737 by Gen. John Harmon

30. Job Lyman House
Indian Trail
Built in 1785 by Job Lyman

31. Mrs. O. Perkins House
Lindsay Road and Indian Trail

32. Matthew Lindsay Tavern (Stephen Lovejoy House)

(See Continuation Sheet)

7. DESCRIPTION 5

Lindsay Road
Built in 1751

33. Samuel Lindsay House
Lindsay Road
Built in 1794 - date based on chimney board found 15 years ago and dated 1793

34. George Marshall Store
Lindsay Road
Built in 1867

35. John Hancock Warehouse and Wharf
Lindsay Road
Built in 1787

36. Maximillian Tenney House
Lindsay Road
Built in 1746

37. Sewall's Bridge
Organug Road
Present bridge is a reconstruction (minus the drawbridge portion) of the first wooden pile bridge erected in the new world in 1761.

38. Elizabeth Perkins House
South Side Road
Built in 1730 by Capt. Joseph Holt

39. Elder Joseph Holt House
Seabury Road
Built in 1717

40. Old Southside Cemetery (Beech Hill Cemetery)
South Side Road

41. Lasdell-Elmore House (Raynes House)
Built in 1716

42. Judge Jonathan Sayward House
Off Route 1-A
Built in 1719 by Noah Peck

43. Richard Keating House

(See Continuation Sheet)

7. DESCRIPTION

York River
Built in 1782

44. Job Wells House (James Donnell House)
York Street
Built in 1755 and moved from the Isles of Shoals during the early years of the Revolutionary War.

45. Nathaniel Preble House
York Street
Built in 1751

46. Old Varrell House (Daniel Dill House)
York Street
Built in 1752

47. ~~Joseph Tappan House~~
~~Varrell Lane~~
~~Built in 1754~~ burned 1/14/80

48. Samuel Donnell Garrison & Tavern
Route 1-A
Built ca. 1700

✓ 49. Sea Urchin Bathhouses
York Harbor Beach
Built ca. 1900

✓ 50. Hillcroft Inn (Colligan Inn)
York Street
Built ca. 1870

✓ 51. York Harbor Reading Room
York Street
Built 1910

✓ 52. Hubbard Red Cottage
York Street
Built in 1885, oldest of the summer cottages in York Harbor.

✓ 53. Episcopal Stone Church
York Street
Built in 1901

(See Continuation Sheet)

GPO 921-734

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Maine	
COUNTY	
York	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries)

7. DESCRIPTION 7

54. Milbury House
York Street & Norwood Farms Road

55. House
York Street & Woodbridge Road

56. George H. Donnell House
Woodbridge Road
Built ca. 1770; moved from the Isles of Shoals during the Revolutionary War.

GPO 921.724

8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

☐ Pre-Columbian	☐ 16th Century	☒ 18th Century	☒ 20th Century
☐ 15th Century	☒ 17th Century	☒ 19th Century	

SPECIFIC DATE(S) (If Applicable and Known)

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

Aboriginal	☒ Education	☒ Political	☐ Urban Planning
☐ Prehistoric	☒ Engineering	☒ Religion/Philosophy	☐ Other (Specify)
☐ Historic	☒ Industry	☐ Science	
☐ Agriculture	☐ Invention	☐ Sculpture	
☒ Architecture	☐ Landscape Architecture	☐ Social/Humanitarian	
☐ Art	☐ Literature	☐ Theater	
☒ Commerce	☐ Military	☐ Transportation	
☐ Communications	☐ Music		
☐ Conservation			

STATEMENT OF SIGNIFICANCE

The Town of York was formed from the land granted to Sir Ferdinando Gorges by the Plymouth Council in 1622. Gorges' grant was east of the Piscataqua River.

Edward Godfrey and Col. Walter Norton were the first two settlers of York, arriving there ca. 1630 and established the settlement upon a previously cultivated Indian settlement. A plague in 1616 had decimated the Indian population of what is now the Eastern United States.

A patent of 24,000 acres was granted to the inhabitants with Edward Godfrey as their first governor. The settlement was called, by this time, Agamenticus. The other original settler of York, Col. Walter Norton, was killed in 1633 by Indians on the Connecticut River.

In 1641 the charter of Agamenticus was rewritten by Gorges and Agamenticus became Gorgeana. Gorges had great dreams of Gorgeana becoming capitol of all English colonies. All this, however, depended upon the victory of Charles I in his struggle with Parliament. Charles I, of course, was beheaded and the victorious Parliament was more sympathetic to the Massachusetts Bay Colony.

Around 1640, more settlers came to increase the small population at York. In 1642 four settlers came from Scituate, Massachusetts and were

(See Continuation Sheet)

SEE INSTRUCTIONS

8. SIGNIFICANCE 2

granted land on what is now York Street. To this day however, this section of York Street is known as Scituate Mens Row.

Economically the little colony was prosperous. Fishing, grain and cattle raising were the main sources of profit for the settlers. A mill had been built as early as 1634 on Old Mill Creek but this first mill was gone by 1677. Other mills had replaced it and the settlers from about 1650 on went into the production of barrel staves and clapboards for export to France, Spain and West Indies. The nearest grist mill available to the settlers was on the Piscataqua and at times their grain was even shipped to Boston to be ground into flour.

In 1652 Massachusetts took over the Province of Maine. Whether this was done illegally or not, it was to become a blessing. During the Indian Wars to come, Massachusetts was obliged to defend the settlements on the Maine coast. With this takeover, Gorgeana was reduced to the status of a town and renamed York. It did, however, remain the county seat of Yorkshire, meaning at that time the whole of Maine.

The Indian Wars began in 1675 with King Phillip's War. On September 25 of that year, Cape Neddick Village, in the present day Town of York, was nearly wiped out by Indians. Two years later on April 7, 1677 seven York men were killed while clearing land.

In 1688 war again broke out with the Indians and only York escaped the wrath of the Indians. On January 25, 1692 however, York was subject to a massive attack. Many houses were burned, many of the citizens were killed

(See Continuation Sheet)

8. SIGNIFICANCE

and many captives were marched off to Canada. Some of these captives were returned to their own people several years later. The Treaty of Utrecht in 1713 ended this period of warfare known as Queen Anne's War.

With the end of this war came a period of building and rebuilding in York. New roads, houses, wharves, warehouses, mills and lumber yards were springing up. Along with this economic growth came the need for new land to be placed under cultivation. In 1732 much of the inner commons, held by the town, was divided and allotted to the settlers. The outer commons was parceled out in 1750 so that by 1755 all of the common lands were in private hands.

Shipbuilding was another economic venture entered into by the citizens of York. It had certainly been well under way by 1730 when the 60 ton sloop "The Marys" was built. As early as 1685 however, Samuel Banks had built a brigantine at Cape Neddick.

In 1714 the first store was opened in York by Mrs. Phoebe Tanner who sold goods out of her home. This store was located next to the site of the present library.

By 1761 the population was beginning to overwhelm Samuel Sewall's ferry over the York River. The town appropriated funds and the first bridge in York was constructed. The original bridge was a drawbridge. The present bridge is a replica without the drawbridge section.

With the Indian Wars far behind and the Town of York in an era of

(See Continuation Sheet)

8. SIGNIFICANCE 4

economic prosperity, the war clouds were again seen on the horizon. These war clouds were coming from Europe and the colonies including York would be drawn into the fray.

In 1745 men of York were among the first to volunteer for duty during the seige of Louisbourg. The men of York fought valiantly during the Seven Years War or French and Indian War which was concluded by the Treaty of Paris in 1763. This war gave the English dominion over all of the French colonies in North America.

It was because of these wars that York lost many of its young men. Many were killed but others who had traveled and seen new areas settled these areas. Many towns to the east of York such as Penobscot, Bath, Boothbay and Sullivan were settled by York men.

The men of York fought bravely and served their country in our Revolution even though the war was fought and concluded far from the Town of York. The citizens of York, in their town meetings, had always voted in favor of every act of the Sons of Liberty and The Continental Congress.

The War of 1812 saw many York men go into service. At York, cannon emplacements were raised on Fort Hill on Stage Neck. No record has ever been found however, that any action with the English took place at York.

After Maine became a state in 1820 and York lost its designation as county seat in 1832, the Town of York declined for a time. Newer areas of settlement were opening up in the west and Maine was no longer the eastern

(See Continuation Sheet)

8. SIGNIFICANCE 5

frontier. York became just another small Maine town with nothing to distinguish it from its neighbors except its ancient history and its contribution to the whole United States as an early leader.

After 1837, conditions improved slightly but then came the Civil War. The men of York took up arms as their grandfathers and great-grandfathers had done before them. These men also fought bravely and many died for their country.

Even before the Civil War ended, York began to enter a new era in its history. At first, phenomenon began unnoticed. Summer visitors began to come to York and board at local farmhouses. A back to the land and back to nature movement had begun. Soon there were more visitors than the local people could put up in their houses. Hotels were built to accommodate this overflow. In the 1880's steamers made daily stops at York Harbor and York Beach.

This tourist industry which began during the Civil War has continued to the present day. It has become one of the greatest sources of income for the Town of York as well as the whole State of Maine.

The significance of the Town of York cannot be overestimated. This significance could rest upon its history alone, not only its importance to the State of Maine, but the early history of York is the early history of this nation. The Town of York, especially York Village and York Harbor, remain in essentially the same condition as they did in the 18th and 19th

(See Continuation Sheet)

GPO 923-724

8. SIGNIFICANCE 6

centuries. The 17th century appearance of York has, of course, been changed.

Architecturally York is a surviving late 17th and 18th century town. Its buildings are not great mansions but are the homes of the pioneers of this country. These homes and also the public buildings are in a remarkable state of preservation because of the work of local people who realize their proud history and the contributions of their ancestors to the history of this country.

9. MAJOR BIBLIDGRAPHICAL REFERENCES

Banks, Charles Edward. History of York, Maine. Baltimore: Regional Publishing Co., 1967.

Ernst, George. New England Miniature. Freeport, Maine: The Bond Wheelwright Co., 1961.

Strawberry Banke, Inc. Architecture near the Piscataqua. Portsmouth, N.H.: Strawberry Banke Print Shop, 1964.

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY

CORNER	LATITUDE Degrees	Minutes	Seconds	LONGITUDE Degrees	Minutes	Seconds
NW	43°	09'	13"	70°	40'	06"
NE	43°	08'	26"	70°	37'	43"
SE	43°	07'	38"	70°	37'	50"
SW	43°	07'	47"	70°	40'	10"

OR

LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES

LATITUDE Degrees	Minutes	Seconds	LONGITUDE Degrees	Minutes	Seconds
°	'	"	°	'	"

APPROXIMATE ACREAGE OF NOMINATED PROPERTY:

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

11. FORM PREPARED BY

NAME AND TITLE:
Richard D. Kelly

ORGANIZATION
Maine Historic Preservation Commission

DATE
April, 1973

STREET AND NUMBER:
31 Western Avenue

CITY OR TOWN:
Augusta

STATE
Maine

CODE
23

12. STATE LIAISON OFFICER CERTIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☐ State ☐ Local ☐

Name _____

Title _____

Date _____

NATIONAL REGISTER VERIFICATION

I hereby certify that this property is included in the National Register.

_____
Chief, Office of Archeology and Historic Preservation

Date _____

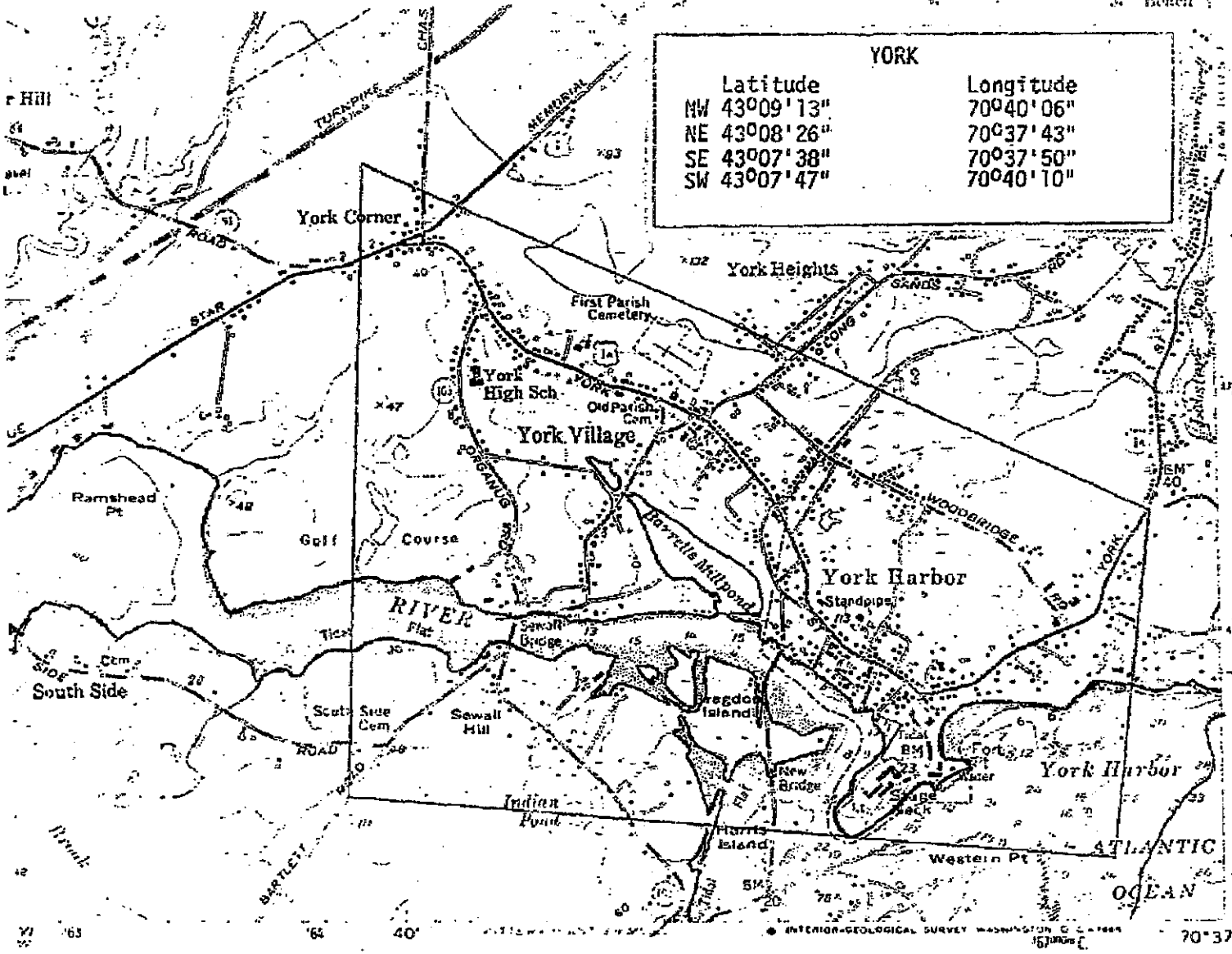
ATTEST:

_____
Keeper of The National Register

Date _____

GPO 901.087

SEE INSTRUCTIONS



YORK HARBOR, ME.

NW/4 YORK 15' QUADRANGLE

Old Stone Store
York Village
York Harbor
Stonewall Kitchen
Sewall Bridge
Old Schoolhouse
First Parish Cemetery
Old Burying Ground
Fort Lane
Fort Hill
Woodbridge
Mountain
Scituate
Creek
Pond
Gravel Pit
Gravel
Chase
Memorial Bridge
Toll Road
Highway
Ridge
Road
Brook
Marsh
Beach
Point
Hill
Site
Cem.
Ch.
Sch.
Bridge
Ledge
Rocks
Trail
Path
Tower
Spring
Well
Dam
Station
Church
Cemetery
Library
Hospital
Golf Course
Campground
Picnic Area
Boat Launch
Parking
Trailer
Mobile Home
Airport
Runway
Helipad
Lighthouse
Monument
Flagpole
Fence
Wall
Bridge
Culvert
Tunnel
Railroad
Power Line
Pipeline
Contour
Elevation
Benchmark
Triangulation
Survey
Boundary
Property
Lot
Block
Subdivision
Development
Zoning
Flood
Wetland
Marsh
Swamp
Bog
Meadow
Forest
Woods
Trees
Shrubs
Grass
Lawn
Garden
Orchard
Vineyard
Farm
Barn
Silo
Stable
Coop
Pen
Kennel
Aviary
Aquarium
Zoo
Museum
Gallery
Theater
Cinema
Stadium
Arena
Gymnasium
Pool
Court
Field
Track
Course
Range
Park
Playground
Picnic
Camping
Fishing
Hunting
Boating
Swimming
Skiing
Golfing
Tennis
Basketball
Baseball
Football
Soccer
Hockey
Volleyball
Badminton
Archery
Shooting
Riding
Hiking
Biking
Walking
Running
Jogging
Exercise
Fitness
Health
Medical
Dental
Optical
Veterinary
Pharmacy
Drugstore
Hospital
Clinic
Laboratory
Research
Education
School
College
University
Library
Museum
Gallery
Theater
Cinema
Stadium
Arena
Gymnasium
Pool
Court
Field
Track
Course
Range
Park
Playground
Picnic
Camping
Fishing
Hunting
Boating
Swimming
Skiing
Golfing
Tennis
Basketball
Baseball
Football
Soccer
Hockey
Volleyball
Badminton
Archery
Shooting
Riding
Hiking
Biking
Walking
Running
Jogging
Exercise
Fitness
Health
Medical
Dental
Optical
Veterinary
Pharmacy
Drugstore
Hospital
Clinic
Laboratory
Research
Education
School
College
University
3.4 MI. TO U.S. 1

APPENDIX B

SURVEY FORMS FOR PREVIOUSLY IDENTIFIED PROPERTIES WITHIN THE YORK TOLL PLAZA APE

Table B-1. Previously Surveyed Properties in the York Toll Plaza APE.

MHPC No./Survey Map No.	Address	Date Recorded	Property Type	Notes/Comments
497-0057	20 Cider Hill Road, York	12/1/1994	Residence	
497-0058	30 Bog Road, York	10/31/1994	Residence	Property demolished as of 5/10/2010.
497-0059	57 Cider Hill Road, York	10/26/1994	Farmstead	Additional forms created for this property.
497-0143	36 Old East Scituate Road, York	11/1994	Residence	
497-0145	170 Chases Pond Road, York	11/1994	Residence	
497-0146	221 Chases Pond Road, York	11/1994	Residence	
497-0147	231 Chases Pond Road, York	11/1994	Farmstead	Additional forms created for this property.
497-0148	228 Chases Pond Road, York	11/1994	Farmstead	Additional forms created for this property.
497-0149	265 Chases Pond Road, York	11/1994	Residence	
497-0150	257 Chases Pond Road, York	11/1994	Residence	
497-0151	261 Chases Pond Road, York	11/1994	Residence	
497-0152	267 Chases Pond Road, York	11/1994	Residence	
497-0153	271 Chases Pond Road, York	11/1994	Residence	
497-0154	275 Chases Pond Road, York	11/1994	Residence	
497-0155	275 Chases Pond Road, York	11/1994	Barn	
497-0198	9 Plaisted Road, York	12/1994	Residence	
5	24 New Town Road, York	6/30/2003	Farmstead	Additional forms created for this property (see Survey Map Numbers 8 & 9).
6	650 Blue Star Memorial Highway, US Route 1, York	1/6/2009	Residence	
7	646 Blue Star Memorial Highway, US Route 1, York	1/6/2009	Commercial	
8	24 New Town Road, York	6/30/2003	Residence	
9	24 New Town Road, York	6/30/2003	Barn	

1980 JMA

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497.0057
Survey Map Name YORK TOLL PLAZ

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 20 CIDER HILL ROAD

4. TOWN: YORK 5. COUNTY: YORK

6. DATE RECORDED: 12/1/94 7. SURVEYOR: RUSSELL WILCOX

8. OWNER NAME: B+P FRANKLIN ADDRESS: 20 CIDER HILL ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE	___	COMMERCIAL/TRADE	___	FUNERARY	___
MULTI-FAMILY	___	GOVERNMENTAL	___	EDUCATION	___	HEALTH CARE	___
INDUSTRY	___	RELIGIOUS	___	HOTEL	___	LANDSCAPE	___
TRANSPORTATION	___	DEFENSE	___	SUMMER COTTAGE/CAMP	___	SOCIAL	___
RECREATION/CULTURE	___	UNKNOWN	___				
OTHER	___						

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	✓	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	___		

12. OTHER STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	___		

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ✓ 2 STORY ___ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ✓ 4 BAY ___ 5 BAY ___ MORE THAN 5 (W>H)

15. APPENDAGES: SIDE ELL ✓ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ✓ PORCH ___ TOWER ___
CUPOLA ___ BAY WINDOW ___



12-35
SW

16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR___ 1/2 CAPE___ CENTRAL HALL ✓ SIDE HALL___ BACK HALL___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ✓ INTERIOR FRONT/REAR ___ CENTER ___ INTERIOR END ___
EXTERIOR ✓ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ___ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ✓
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ✓ GRANITE ___
ORNAMENTAL CONC. BLOCK ___ OTHER _____

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ___ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ✓
OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ___ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ___ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: _____ QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE NW SE SW

NHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 9 1995 PHOTO FILE #: _____
NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: NPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM NPSLTWFK.FRM

16 Sp
1/2 Mile

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0058
Survey Map Name YORK JOLL PLAZ.

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 30 BOG ROAD

demolished

4. TOWN: YORK 5. COUNTY: YORK

6. DATE RECORDED: 10/31/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: C+P MOULTON ADDRESS: 30 BOG ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE	✓	COMMERCIAL/TRADE		FUNERARY	
MULTI-FAMILY		GOVERNMENTAL		EDUCATION		HEALTH CARE	
INDUSTRY		RELIGIOUS		HOTEL		LANDSCAPE	
TRANSPORTATION		DEFENSE		SUMMER COTTAGE/CAMP		SOCIAL	
RECREATION/CULTURE		UNKNOWN					
OTHER							

10. CONDITION: GOOD ___ FAIR ✓ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL	✓	STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER			

12. OTHER STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL	✓	SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER			

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ___ 2 STORY ___ 2 1/2 STORY ✓
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ✓ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL___ REAR ELL✓ FRONT___ ADDED STORIES___ SHED___ DORMERS___ PORCH___ TOWER___
CUPOLA___ BAY WINDOW___



3-23

16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR ✓ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER ___

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER ___

19. CHIMNEY PLACEMENT: INTERIOR ✓ INTERIOR FRONT/(REAR) ___ CENTER ✓ INTERIOR END ___
EXTERIOR ___ OTHER ORIGINAL CENTER CHIMNEY REPLACED

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER ___

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ___ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ___
GRANITE ___ ASBESTOS ✓ TERRA COTTA ___ OTHER ___

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ✓
ORNAMENTAL CONC. BLOCK ___ OTHER ___

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ✓ BARN (DETACHED) ___ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER NUMEROUS SHEDS - POOR CONDITION

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: ___ 26. ESTIMATED DATE OF CONSTRUCTION: ___

27. DATE MAJOR ADDITIONS/ALTERATIONS: ___

28. ARCHITECT: ___ 29. CONTRACTOR (NOTE IF SAME AS 28): ___

30. ORIGINAL OWNER: ___

31. SUBSEQUENT SIGNIFICANT OWNER: ___ DATES: ___

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER ___

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: ___

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: ___

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: ___
39. UTM NORTHING: ___ 40. UTM EASTING: ___
41. FACADE DIRECTION (CIRCLE ONE): N (S) E W NE NW SE SW

NMPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 0 1995 PHOTO FILE #: ___
NR STATUS: L ___ ND ___ E ___ NE ___ ND ___ REVIEWER ___
DATA SOURCE: NPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM HPSL7WFK.FRM

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0059
Survey Map Name YORK TOWN PLAN

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 57 CIDER HILL ROAD

4. TOWN: YORK 5. COUNTY: YORK

6. DATE RECORDED: 10/26/84 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: B.T.R. FLITZ ADDRESS: 57 CIDER HILL ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE	___	COMMERCIAL/TRADE	___	FUNERARY	___
MULTI-FAMILY	___	GOVERNMENTAL	___	EDUCATION	___	HEALTH CARE	___
INDUSTRY	___	RELIGIOUS	___	HOTEL	___	LANDSCAPE	___
TRANSPORTATION	___	DEFENSE	___	SUMMER COTTAGE/CAMP	___	SOCIAL	___
RECREATION/CULTURE	___	UNKNOWN	___				
OTHER	___						

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL	✓	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	___		

12. OTHER STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	___		

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ___ 2 STORY ___ 2 1/2 STORY ✓
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ✓ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL___ REAR ELL✓ FRONT___ ADDED STORIES___ SHED___ DORMERS___ PORCH___ TOWER___
CUPOLA___ BAY WINDOW___ ELL POORLY INTEGRATED



N
3-24 ↑

16. PORCH: ATTACHED ✓ ENGAGED ___ ONE STORY ✓ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR ✓ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ___ CENTER ✓ INTERIOR END ___
EXTERIOR ___ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ✓ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ___
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ✓
ORNAMENTAL CONC. BLOCK ___ OTHER _____

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ✓ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: 1970s (ORIGINAL SIDE & REAR ELLS DEMOLISHED AND REPLACED)

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE NW (SE) SW

NHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN - 9 1995 PHOTO FILE #: _____
NR STATUS: L ___ ND ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: NPF ___ CLG ___ RRC ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM HPSL7WFK.FRM

SURVEY MAP NO. 497-0059

SURVEY MAP NAME YORK TOLL PLAZA

MHPC USE ONLY

497-0059 hfs

INVENTORY NO

MAINE HISTORIC PRESERVATION COMMISSION

Historic Farmstead Survey Cover Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 57 Cider Hill Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:

48. PRIMARY USE (PRESENT):

☑ RESIDENTIAL ☐ ANIMAL HUSBANDRY ☐ AGRICULTURE ☐ MIXED USE ☐ OTHER

49. FARM ACREAGE: 1.4 50. NUMBER OF STRUCTURES AND SITES ON FARM (INCLUDING HOUSE): 2

51. INVENTORY NUMBERS FOR SURVEYED BUILDINGS: 497-0059a

52. LIST ANY STRUCTURE OR SITE NOT INDIVIDUALLY RECORDED ON A SURVEY FORM.

PLEASE ASSIGN EACH STRUCTURE OR SITE A LETTER AND LABEL ON SKETCH MAP ON BACK AND PHOTOGRAPH. INCLUDE ALL EXISTING STRUCTURES - SUCH AS COOPS, PIT SILOS, BEE HIVES, GARAGES, STONE WALLS, PRIVIES AND COTTAGES - AND NOTE ANY THAT HAVE BEEN REMOVED OVER THE YEARS (FOUNDATION HOLES).

A. Non-contributing Garage

HISTORICAL DATA

53. HISTORICAL USE:

53. DOCUMENTED DATE OF CONSTRUCTION: 54. ESTIMATED DATE OF CONSTRUCTION: ca. 1760

55. DATE MAJOR ADDITIONS/ALTERATIONS:

56. ORIGINAL OWNER:

57. CULTURAL/ETHNIC AFFILIATION:

☐ ENGLISH ☐ FRENCH ACADIAN ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
☐ EAST EUROPEAN ☐ IRISH OTHER

58. COMMENT/SOURCES:

59. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION

60. HAS THE SAME FAMILY FARMED THIS PROPERTY FOR MORE THAN 100 YEARS? 61. BEGINNING WHEN?

ENVIRONMENTAL DATA

62. SITE INTEGRITY: ☑ ORIGINAL ☐ MOVED DATE MOVED
63. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
64. QUADRANGLE MAP USED: York Harbor QUADRANGLE NO. 43070-B6-TF-024
65. UTM NORTHING: 4778886 66. UTM EASTING: 0363511
67. FACADE DIRECTION: ☐ N ☐ S ☐ E ☐ W ☐ NE ☐ NW ☑ SE ☐ SW

MHPC USE ONLY

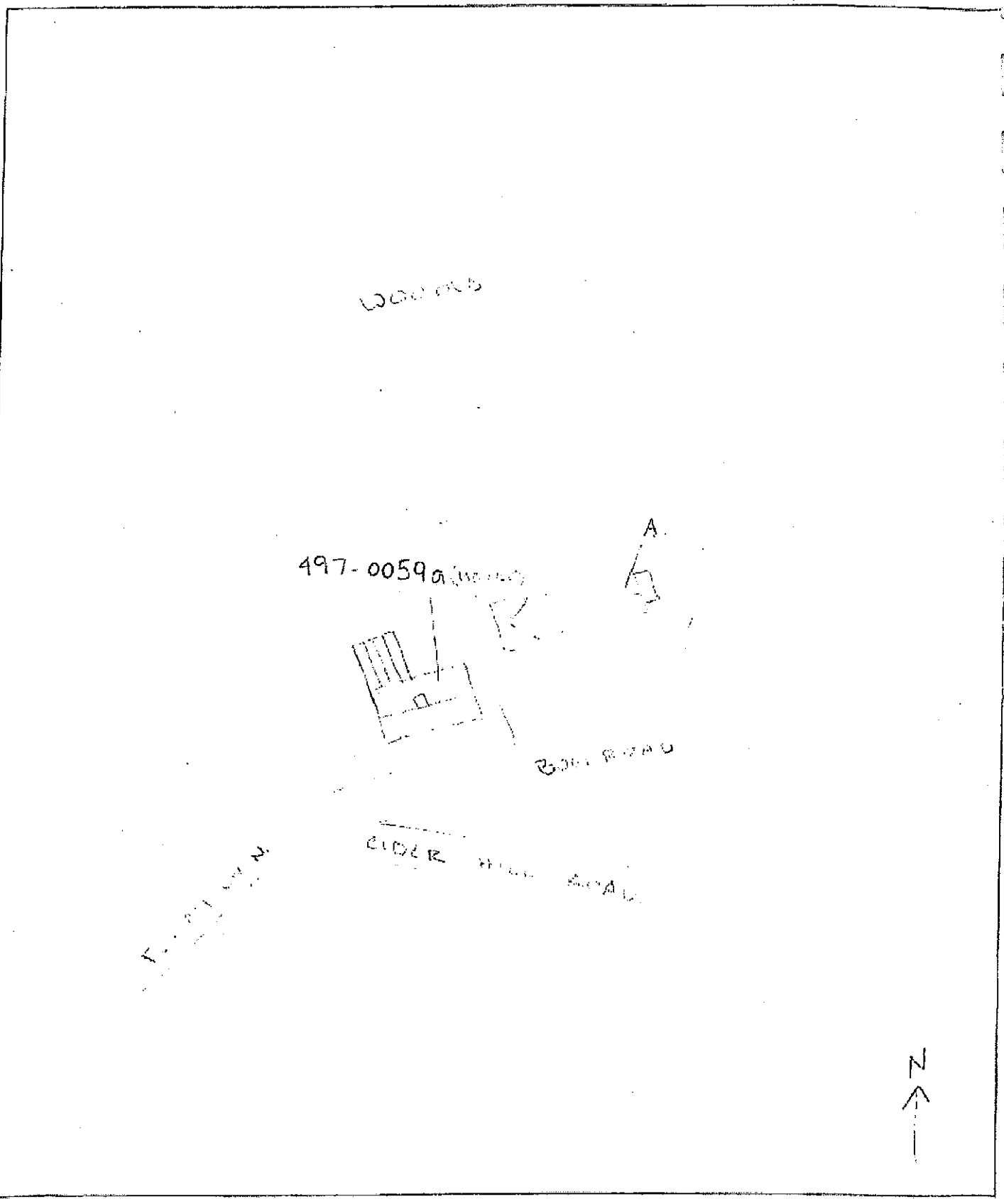
DATE ENTERED IN INVENTORY: PHOTO FILE #

NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER

DATA SOURCE: ___HPF ___CLG ___R/C ___ STAFF ___STATE SURVEY OTHER ___ LEVEL OF SURVEY ___R ___I

SITE PLAN:

SKETCH MAP: THIS MAP SHOULD SHOW THE FARM AS SEEN LOOKING DOWN AT IT. IDENTIFY ALL STRUCTURES AND SITES WITH LETTERS, CORRESPONDING TO THOSE LISTED ON PAGE ONE. LABEL OTHER LANDSCAPE FEATURES SUCH AS STONE WALLS, FENCING, ORCHARDS, WOOD LOTS AND FIELDS. PLEASE INDICATE NORTH WITH AN ARROW. SCALE MAY BE APPROXIMATE.



Please return completed form to: Maine Historic Preservation Commission, 55 Capitol Street, SHS 65, Augusta, Maine 04333

MHPC USE ONLY
497-0059
INVENTORY NO.

SURVEY MAP NO. 497-0059
SURVEY MAP NAME YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form
Continuation Sheet

PROPERTY NAME:

TOWN: YORK

COUNTY: YORK

SURVEYOR: PAL

DATE: 05/10/2010

DATA FIELDS (From Survey Forms): PHOTOGRAPH



SURVEY MAP NO 497-0059

SURVEY MAP NAME YORK TOWN MAP

MHPC USE ONLY

497-0059

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 57 Cider Hill Road

4. TOWN: York

5. COUNTY: York County

6. DATE RECORDED: 5/10/2010

7. SURVEYOR: PAL

8. OWNER NAME: _____

ADDRESS: _____

9. PRIMARY USE (PRESENT):

- [x] SINGLE FAMILY
- [ ] MULTI-FAMILY
- [ ] INDUSTRY
- [ ] TRANSPORTATION
- [ ] RECREATION/CULTURE
- [ ] AGRICULTURE
- [ ] GOVERNMENTAL
- [ ] RELIGIOUS
- [ ] DEFENSE
- [ ] UNKNOWN
- [ ] COMMERCIAL/TRADE
- [ ] EDUCATION
- [ ] HOTEL
- [ ] SUMMER COTTAGE/CAMP
- [ ] FUNERARY
- [ ] HEALTH CARE
- [ ] LANDSCAPE
- [ ] SOCIAL

OTHER _____

10. CONDITION: [x] GOOD [ ] FAIR [ ] POOR [ ] DESTROYED, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

- [ ] COLONIAL
- [x] FEDERAL
- [ ] GREEK REVIVAL
- [ ] GOTHIC REVIVAL
- [ ] ITALIANATE
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] QUEEN ANNE
- [ ] SHINGLE STYLE
- [ ] R. ROMANESQUE
- [ ] ROMANESQUE
- [ ] HIGH VIC. GOTHIC
- [ ] NEO-CLASSICAL REV.
- [ ] RENAISSANCE REV.
- [ ] 19TH/20TH C. REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] BUNGALOW
- [ ] FOUR SQUARE
- [ ] ART DECO
- [ ] INTERNATIONAL
- [ ] RANCH
- [ ] VERNACULAR

OTHER _____

12. OTHER STYLISTIC CATEGORY:

- [ ] COLONIAL
- [ ] FEDERAL
- [ ] GREEK REVIVAL
- [ ] GOTHIC REVIVAL
- [ ] ITALIANATE
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] QUEEN ANNE
- [ ] SHINGLE STYLE
- [ ] R. ROMANESQUE
- [ ] ROMANESQUE
- [ ] HIGH VIC. GOTHIC
- [ ] NEO-CLASSICAL REV.
- [ ] RENAISSANCE REV.
- [ ] 19TH/20TH C. REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] BUNGALOW
- [ ] FOUR SQUARE
- [ ] ART DECO
- [ ] INTERNATIONAL
- [ ] RANCH
- [ ] VERNACULAR

OTHER _____

13. HEIGHT:

- [ ] 1 STORY
- [ ] 1 1/2 STORY
- [x] 2 STORY
- [ ] 2 1/2 STORY
- [ ] 3 STORY
- [ ] 4 STORY
- [ ] 5 STORY
- [ ] OVER 5 (_____)

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):

- [ ] 1 BAY
- [ ] 2 BAY
- [ ] 3 BAY
- [ ] 4 BAY
- [x] 5 BAY
- [ ] MORE THAN 5 (_____)

15. APPENDAGES:

- [x] SIDE ELL
- [ ] DORMERS
- [x] REAR ELL
- [ ] PORCH
- [ ] FRONT TOWER
- [ ] ADDED STORIES
- [ ] CUPOLA
- [ ] SHED
- [ ] BAY WINDOW

PHOTOGRAPH



16. PORCH:
☐ ATTACHED ☐ FULL WIDTH ☐ ENGAGED ☐ WRAPAROUND ☐ ONE STORY ☐ SLEEPING PORCH ☐ MORE THAN ONE STORY ☐ SECONDARY PORCH

17. PLAN:
☐ HALL AND PARLOR ☐ BACK HALL ☐ 1/2 CAPE ☐ IRREGULAR ☐ CENTRAL HALL ☐ SIDE HALL
OTHER RECTANGULAR

18. PRIMARY STRUCTURAL SYSTEM:
☐ TIMBER FRAME ☐ CONCRETE ☐ BRACED FRAME ☐ STEEL ☐ BRICK ☐ LOG ☐ STONE ☐ PLANK WALL ☐ BALLOON FRAME ☐ PLATFORM FRAME
☑ FRAME CONSTRUCTION-TYPE UNKNOWN
OTHER

19. CHIMNEY PLACEMENT:
☐ INTERIOR ☐ INTERIOR FRONT/REAR ☐ CENTER ☐ INTERIOR END ☐ EXTERIOR
OTHER

20. ROOF CONFIGURATION
☑ GABLE SIDE ☐ GAMBREL ☐ COMPOUND ☐ GABLE FRONT ☐ PARAPET GABLE ☐ HIP ☐ SHED ☐ MANSARD ☐ CROSS ☐ FLAT ☐ GABLE
OTHER

21 ROOF MATERIAL: ☑ WOOD ☐ METAL ☐ TILE ☐ SLATE ☐ ASPHALT ☐ ASBESTOS

22. EXTERIOR WALL MATERIALS
☑ CLAPBOARD ☐ LOG ☐ GRANITE ☐ BRICK ☐ PRESSED METAL ☐ ASBESTOS ☐ FLUSH SHEATING ☐ CONCRETE ☐ TERRA COTTA ☐ WOOD SHINGLE ☐ STUCCO ☐ BOARD AND BATTEN ☐ STONE ☐ ASPHALT ☐ ALUMINUM/VINYL
OTHER

23. FOUNDATION MATERIALS:
☐ FIELDSTONE ☐ BRICK ☐ WOOD ☐ CONCRETE ☑ GRANITE ☐ ORNAMENTAL CONC. BLOCK
OTHER

24. OUTBUILDINGS/FEATURES:
☐ CARRIAGE HOUSE ☐ BARN (DETACHED) ☑ GARAGE ☐ FENCE OR WALL ☐ FORMAL GARDEN ☐ CEMETERY ☐ LANDSCAPE/PLANT MAT. ☐ BARN (CONNECTED) ☐ ARCHAEOLOGICAL SITE
OTHER

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: 1760

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR: _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION:
☐ ENGLISH ☐ EAST EUROPEAN ☐ FRENCH ACADIAN ☐ IRISH ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
OTHER

33. HISTORIC CONTEXT(S):
☐ COMMERCE ☐ RELIGION ☐ ART, LIT SCIENCE ☐ INDUSTRY ☐ CIVIC AFFAIRS ☐ SOCIAL ☐ TRANSPORTATION ☐ RECREATION ☐ AGRICULTURE ☐ HABITATION ☐ MILITARY ☐ EDUCATION

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ☑ ORIGINAL ☑ MOVED DATE MOVED: _____
37. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: 43070-B6-TF-024
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION: ☐ N ☐ S ☐ E ☑ W ☐ NE ☐ NW ☐ SE ☐ SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: _____ PHOTO FILE # _____
NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: ___HPF ___CLG ___R/C ___STAFF ___STATE SURVEY OTHER _____ LEVEL OF SURVEY ___R ___
ASSOCIATED INVENTORY NUMBERS: _____

1759 V MHC

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0148
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 36 OLD EAST SCITUATE ROAD

4. TOWN: York 5. COUNTY: York

6. DATE RECORDED: 4/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: MICHAUD/KLICKERBOX ADDRESS: 120 KINGS CROFT CLERK HILL NJ 08034

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE	___	COMMERCIAL/TRADE	___	FUNERARY	___
MULTI-FAMILY	___	GOVERNMENTAL	___	EDUCATION	___	HEALTH CARE	___
INDUSTRY	___	RELIGIOUS	___	HOTEL	___	LANDSCAPE	___
TRANSPORTATION	___	DEFENSE	___	SUMMER COTTAGE/CAMP	___	SOCIAL	___
RECREATION/CULTURE	___	UNKNOWN	___				

OTHER _____

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL	LEAN 1½	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___				

OTHER _____

12. OTHER STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	✓	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___				

OTHER _____

13. HEIGHT: 1 STORY ✓ OLDEST 1 1/2 STORY ___ 2 STORY ___ 2 1/2 STORY ✓
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ✓ 5 BAY ✓ MORE THAN 5 (___) ___
@ FRONT 1½ @ REAR

15. APPENDAGES: SIDE ELL ✓ REAR ELL ✓ FRONT___ ADDED STORIES___ SHED___ DORMERS___ PORCH___ TOWER___
CUPOLA___ BAY WINDOW___

PHOTOGRAPH:



11-20 S

16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR RIGHT ✓ 1/2 CAPE LEFT ✓ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER ___

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ✓ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ___ OTHER ___

19. CHIMNEY PLACEMENT: INTERIOR @ EAST ✓ INTERIOR FRONT/REAR ___ CENTER @ W ✓ INTERIOR END ___
EXTERIOR ___ OTHER ___

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER ___

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ✓ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUM(NUM/VINYL ___
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER ___

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ✓
ORNAMENTAL CONC. BLOCK ___ OTHER ___

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ___ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ✓
OTHER ___

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: ___ 26. ESTIMATED DATE OF CONSTRUCTION: ___

27. DATE MAJOR ADDITIONS/ALTERATIONS: ___

28. ARCHITECT: ___ 29. CONTRACTOR (NOTE IF SAME AS 28): ___

30. ORIGINAL OWNER: ___

31. SUBSEQUENT SIGNIFICANT OWNER: ___ DATES: ___

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER ___

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: ___

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: ___

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: USGS Vienna QUADRANGLE #: ___
39. UTM NORTHING: ___ 40. UTM EASTING: ___
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE (NW) SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 1 2 1995 PHOTO FILE #: ___
NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER ___
DATA SOURCE: HPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM HPSL7WFK.FRM

1667

NHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0145
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 170 CHASES POND ROAD

4. TOWN: YORK 5. COUNTY: YORK

6. DATE RECORDED: 11/84 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: LEO RAMSDELL ADDRESS: 170 CHASES POND ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE		COMMERCIAL/TRADE		FUNERARY	
MULTI-FAMILY		GOVERNMENTAL		EDUCATION		HEALTH CARE	
INDUSTRY		RELIGIOUS		HOTEL		LANDSCAPE	
TRANSPORTATION		DEFENSE		SUMMER COTTAGE/CAMP		SOCIAL	
RECREATION/CULTURE		UNKNOWN					
OTHER							

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER	VERNACULAR		

12. OTHER STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER			

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ✓ 2 STORY ___ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ✓ 4 BAY ___ 5 BAY ___ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ✓ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ___ PORCH ✓ TOWER ___
CUPOLA ___ BAY WINDOW ___

PHOTOGRAPH:



10-18
SW

16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ✓

17. PLAN: HALL AND PARLOR ✓ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ✓ CENTER ___ INTERIOR END ___
EXTERIOR ___ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ✓ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ___
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ✓ BRICK ✓ WOOD ___ CONCRETE ___ GRANITE ___
~~CINDERBLOCK~~ CONC. BLOCK ✓ OTHER _____

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ✓ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ✓ RURAL/BUILT UP ___ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: _____ QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S (E) W NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 12 1995 PHOTO FILE #: _____
NR STATUS: L ___ HD ___ E ___ NE ___ MD ___ REVIEWER _____
DATA SOURCE: MPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM MPSL7WFK.FRM

1668 V MA

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0146
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 221 CHASES POND ROAD

4. TOWN: YORK 5. COUNTY: YORK

6. DATE RECORDED: 11/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: C.C. DIXON ADDRESS: P.O. BOX 342 YORK

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE	___	COMMERCIAL/TRADE	___	FUNERARY	___
MULTI-FAMILY	___	GOVERNMENTAL	___	EDUCATION	___	HEALTH CARE	___
INDUSTRY	___	RELIGIOUS	___	HOTEL	___	LANDSCAPE	___
TRANSPORTATION	___	DEFENSE	___	SUMMER COTTAGE/CAMP	___	SOCIAL	___
RECREATION/CULTURE	___	UNKNOWN	___				
OTHER	___						

10. CONDITION: GOOD ___ FAIR ___ POOR ✓ DESTROYED ___, DATE _____
SOME TREE DAMAGE

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	✓
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	___		

12. OTHER STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	✓	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	___		

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ✓ 2 STORY ___ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ .5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ✓ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ___ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ✓ PORCH ✓ TOWER ___
CUPOLA ___ BAY WINDOW ___



10/20
W

16. PORCH: ATTACHED ___ ENGAGED ✓ ONE STORY ✓ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR ✓ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ✓ CENTER ___ INTERIOR END ___
EXTERIOR ___ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ___ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ___
GRANITE ___ ASBESTOS ✓ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ___
ORNAMENTAL CONC. BLOCK ✓ OTHER _____

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ✓ BARN (DETACHED) ___ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ✓
OTHER _____ SHED

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: York Haven QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E (W) NE NW SE SW

NHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 12 1995 PHOTO FILE #: _____
NR STATUS: L ___ ND ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: HPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM HPSL7WFK.FRM

1669 ✓ MRC

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0147
Survey Map Name YORK JOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): ____

2. PROPERTY NAME (OTHER): ____

3. STREET ADDRESS: 231 CHASES POND ROAD

4. TOWN: YORK 5. COUNTY: YORK

6. DATE RECORDED: 11/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: L. PATSTOR ADDRESS: 231 CHASES POND ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY ✓	AGRICULTURE ___	COMMERCIAL/TRADE ___	FUNERARY ___
MULTI-FAMILY ___	GOVERNMENTAL ___	EDUCATION ___	HEALTH CARE ___
INDUSTRY ___	RELIGIOUS ___	HOTEL ___	LANDSCAPE ___
TRANSPORTATION ___	DEFENSE ___	SUMMER COTTAGE/CAMP ___	SOCIAL ___
RECREATION/CULTURE ___	UNKNOWN ___		
OTHER ___			

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE ___

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL ___	STICK STYLE ___	COLONIAL REV. ___	FEDERAL ___
RENAISSANCE REV. ___	GREEK REVIVAL ___	SHINGLE STYLE ___	BUNGALOW ___
ROMANESQUE ___	19TH/20TH C. REV. ___	R. ROMANESQUE ___	ITALIANATE ___
NEO-CLASSIC. REV. ___	SECOND EMPIRE ___	QUEEN ANNE ___	GOTHIC ___
HIGH VIC. GOTHIC ___	ARTS & CRAFTS ___	OTHER CAPE	

12. OTHER STYLISTIC CATEGORY:

COLONIAL ___	STICK STYLE ___	COLONIAL REV. ___	FEDERAL ___
RENAISSANCE REV. ___	GREEK REVIVAL ✓	SHINGLE STYLE ___	BUNGALOW ___
ROMANESQUE ___	19TH/20TH C. REV. ___	R. ROMANESQUE ___	ITALIANATE ___
NEO-CLASSIC. REV. ___	SECOND EMPIRE ___	QUEEN ANNE ___	GOTHIC ___
HIGH VIC. GOTHIC ___	ARTS & CRAFTS ___	OTHER TRIM & EAT + WINDOWS	

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ✓ 2 STORY ___ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ✓ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ___ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ✓ PORCH ___ TOWER ___
CUPOLA ___ BAY WINDOW ___



16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR ✓ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ___ CENTER ✓ INTERIOR END ___
EXTERIOR ___ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ___ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ✓
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ___
ORNAMENTAL CONC. BLOCK ✓ OTHER Cast Concrete Ashlar

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ✓ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER Sheds

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: Penic Mansion QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 1 2 1995 PHOTO FILE #: _____
NR STATUS: L ___ HD ___ E ___ NE ___ SD ___ REVIEWER _____
DATA SOURCE: HPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM HPSL2WFK.FRM

SURVEY MAP NO. 497-0147

SURVEY MAP NAME YORK TOLL PLAZA

MHPC USE ONLY

497-0147 wfs

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION

Historic Farmstead Survey Cover Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 231 Chases Pond Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:

48. PRIMARY USE (PRESENT):

☑ RESIDENTIAL ☐ ANIMAL HUSBANDRY ☐ AGRICULTURE ☐ MIXED USE ☐ OTHER

49. FARM ACREAGE: 2.4 50. NUMBER OF STRUCTURES AND SITES ON FARM (INCLUDING HOUSE): 3

51. INVENTORY NUMBERS FOR SURVEYED BUILDINGS: 497-0147a, 497-0147b

52. LIST ANY STRUCTURE OR SITE NOT INDIVIDUALLY RECORDED ON A SURVEY FORM.
PLEASE ASSIGN EACH STRUCTURE OR SITE A LETTER AND LABEL ON SKETCH MAP ON BACK AND PHOTOGRAPH. INCLUDE ALL EXISTING STRUCTURES - SUCH AS COOPS, PIT SILOS, BEE HIVES, GARAGES, STONE WALLS, PRIVIES AND COTTAGES - AND NOTE ANY THAT HAVE BEEN REMOVED OVER THE YEARS (FOUNDATION HOLES).

A. Non-contributing Garage

HISTORICAL DATA

53. HISTORICAL USE:

53. DOCUMENTED DATE OF CONSTRUCTION: 54. ESTIMATED DATE OF CONSTRUCTION: ca. 1900

55. DATE MAJOR ADDITIONS/ALTERATIONS:

56. ORIGINAL OWNER:

57. CULTURAL/ETHNIC AFFILIATION:

☐ ENGLISH ☐ FRENCH ACADIAN ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
☐ EAST EUROPEAN ☐ IRISH OTHER

58. COMMENT/SOURCES:

59. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION

60. HAS THE SAME FAMILY FARMED THIS PROPERTY FOR MORE THAN 100 YEARS? 61. BEGINNING WHEN?

ENVIRONMENTAL DATA

62. SITE INTEGRITY: ☑ ORIGINAL ☐ MOVED DATE MOVED
63. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
64. QUADRANGLE MAP USED: York Harbor QUADRANGLE NO. 43070-B6-TF-024
65. UTM NORTHING: 4782675 66. UTM EASTING: 0365789
67. FACADE DIRECTION: ☐ N ☐ S ☐ E ☐ W ☐ NE ☑ NW ☐ SE ☐ SW

MHPC USE ONLY

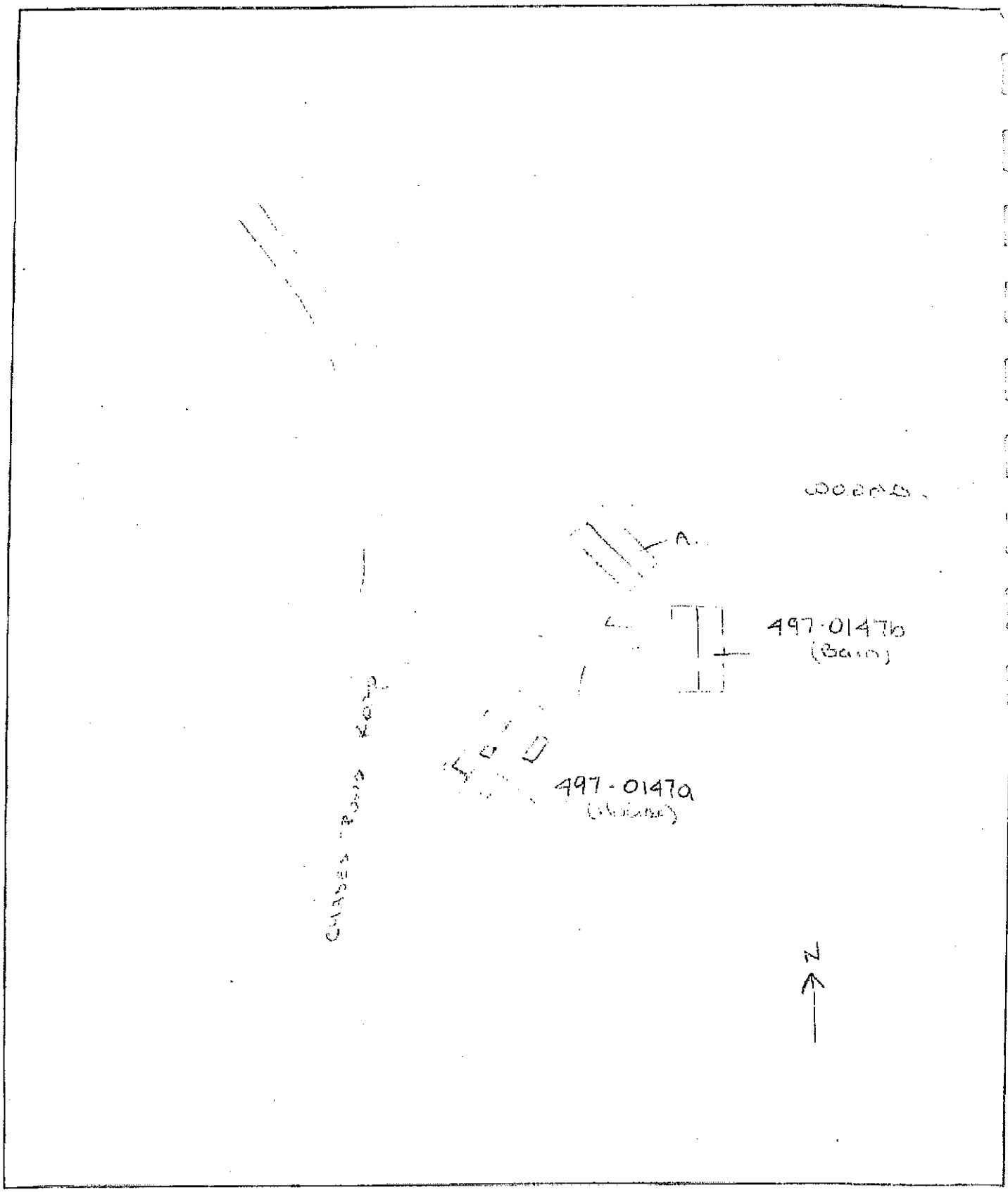
DATE ENTERED IN INVENTORY: PHOTO FILE #

NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER

DATA SOURCE: ___HPF ___CLG ___R/C ___STAFF ___STATE SURVEY OTHER ___ LEVEL OF SURVEY ___R ___I

SITE PLAN:

SKETCH MAP: THIS MAP SHOULD SHOW THE FARM AS SEEN LOOKING DOWN AT IT. IDENTIFY ALL STRUCTURES AND SITES WITH LETTERS, CORRESPONDING TO THOSE LISTED ON PAGE ONE. LABEL OTHER LANDSCAPE FEATURES SUCH AS STONE WALLS, FENCING, ORCHARDS, WOOD LOTS AND FIELDS. PLEASE INDICATE NORTH WITH AN ARROW. SCALE MAY BE APPROXIMATE.



MHPC USE ONLY
497-0147 hfs

INVENTORY NO.

SURVEY MAP NO. 497-0147
SURVEY MAP NAME YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form
Continuation Sheet

PROPERTY NAME:

TOWN: YORK

COUNTY: YORK

SURVEYOR: PAL

DATE: 05/10/2010

DATA FIELDS (From Survey Forms): PHOTOGRAPH



SURVEY MAP NO 497-0147

SURVEY MAP NAME YORK TOWN PLAZA

MHPC USE ONLY

497-0147a

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION

Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 231 Chases Pond Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:
9. PRIMARY USE (PRESENT):
- [x] SINGLE FAMILY
- [ ] MULTI-FAMILY
- [ ] INDUSTRY
- [ ] TRANSPORTATION
- [ ] RECREATION/CULTURE
- [ ] AGRICULTURE
- [ ] GOVERNMENTAL
- [ ] RELIGIOUS
- [ ] DEFENSE
- [ ] UNKNOWN
- [ ] COMMERCIAL/TRADE
- [ ] EDUCATION
- [ ] HOTEL
- [ ] SUMMER COTTAGE/CAMP
- [ ] FUNERARY
- [ ] HEALTH CARE
- [ ] LANDSCAPE
- [ ] SOCIAL

OTHER

10. CONDITION: [ ] GOOD [x] FAIR [ ] POOR [ ] DESTROYED, DATE

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:
- [ ] COLONIAL
- [ ] FEDERAL
- [ ] GREEK REVIVAL
- [ ] GOTHIC REVIVAL
- [ ] ITALIANATE
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] QUEEN ANNE
- [ ] SHINGLE STYLE
- [ ] R. ROMANESQUE
- [ ] ROMANESQUE
- [ ] HIGH VIC. GOTHIC
- [ ] NEO-CLASSICAL REV.
- [ ] RENAISSANCE REV.
- [ ] 19TH/20TH C. REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] BUNGALOW
- [ ] FOUR SQUARE
- [ ] ART DECO
- [ ] INTERNATIONAL
- [ ] RANCH
- [x] VERNACULAR

OTHER

12. OTHER STYLISTIC CATEGORY:
- [ ] COLONIAL
- [ ] FEDERAL
- [ ] GREEK REVIVAL
- [ ] GOTHIC REVIVAL
- [ ] ITALIANATE
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] QUEEN ANNE
- [ ] SHINGLE STYLE
- [ ] R. ROMANESQUE
- [ ] ROMANESQUE
- [ ] HIGH VIC. GOTHIC
- [ ] NEO-CLASSICAL REV.
- [ ] RENAISSANCE REV.
- [ ] 19TH/20TH C. REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] BUNGALOW
- [ ] FOUR SQUARE
- [ ] ART DECO
- [ ] INTERNATIONAL
- [ ] RANCH
- [ ] VERNACULAR

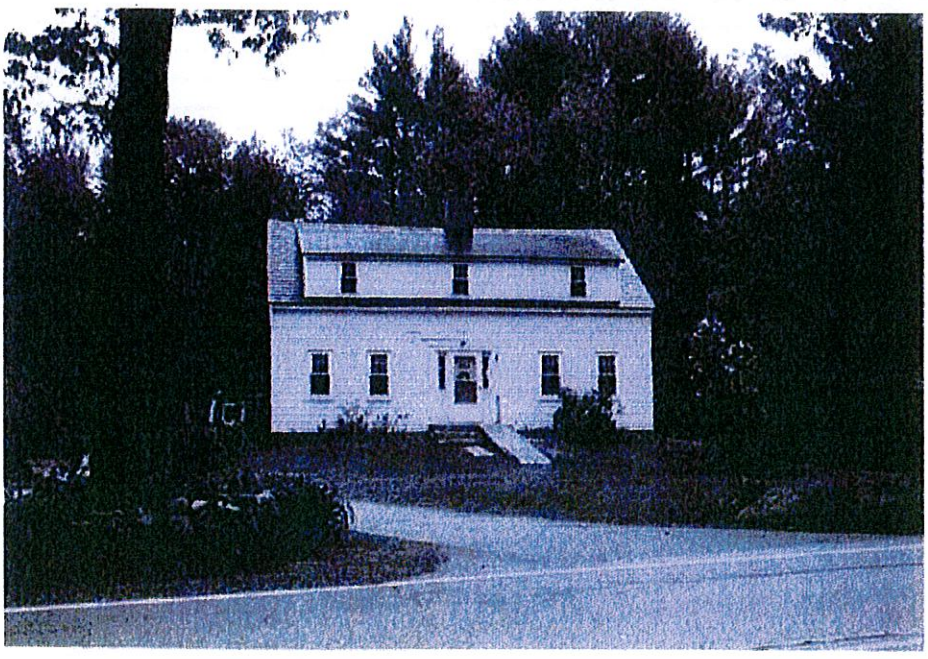
OTHER

13. HEIGHT:
- [ ] 1 STORY
- [ ] 1 1/2 STORY
- [ ] 2 STORY
- [ ] 2 1/2 STORY
- [ ] 3 STORY
- [ ] 4 STORY
- [ ] 5 STORY
- [ ] OVER 5 (_____)

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
- [ ] 1 BAY
- [ ] 2 BAY
- [ ] 3 BAY
- [ ] 4 BAY
- [x] 5 BAY
- [ ] MORE THAN 5 (_____)

15 APPENDAGES
- [ ] SIDE ELL
- [x] DORMERS
- [ ] REAR ELL
- [ ] PORCH
- [ ] FRONT TOWER
- [ ] ADDED STORIES
- [ ] CUPOLA
- [ ] SHED
- [ ] BAY WINDOW

PHOTOGRAPH



16. PORCH:
☐ ATTACHED ☐ ENGAGED ☐ ONE STORY ☐ MORE THAN ONE STORY
☐ FULL WIDTH ☐ WRAPAROUND ☐ SLEEPING PORCH ☐ SECONDARY PORCH

17. PLAN:
☐ HALL AND PARLOR ☐ 1/2 CAPE ☐ CENTRAL HALL ☐ SIDE HALL
☐ BACK HALL ☐ IRREGULAR
OTHER RECTANGULAR

18. PRIMARY STRUCTURAL SYSTEM:
☐ TIMBER FRAME ☐ BRACED FRAME ☐ BRICK ☐ STONE ☐ BALLOON FRAME
☐ CONCRETE ☐ STEEL ☐ LOG ☐ PLANK WALL ☐ PLATFORM FRAME
☑ FRAME CONSTRUCTION-TYPE UNKNOWN
OTHER

19. CHIMNEY PLACEMENT:
☑ INTERIOR ☐ INTERIOR FRONT/REAR ☐ CENTER ☐ INTERIOR END ☐ EXTERIOR
OTHER

20. ROOF CONFIGURATION
☑ GABLE SIDE ☐ GABLE FRONT ☐ HIP ☐ MANSARD ☐ FLAT
☐ GAMBREL ☐ PARAPET GABLE ☐ SHED ☐ CROSS ☐ GABLE
☐ COMPOUND
OTHER

21. ROOF MATERIAL: ☐ WOOD ☐ METAL ☐ TILE ☐ SLATE ☑ ASPHALT ☐ ASBESTOS

22. EXTERIOR WALL MATERIALS:
☐ CLAPBOARD ☐ BRICK ☐ FLUSH SHEATING ☐ WOOD SHINGLE ☐ STONE
☐ LOG ☐ PRESSED METAL ☐ CONCRETE ☐ STUCCO ☐ ASPHALT
☐ GRANITE ☐ ASBESTOS ☐ TERRA COTTA ☐ BOARD AND BATTEN ☑ ALUMINUM/VINYL
OTHER

23. FOUNDATION MATERIALS:
☐ FIELDSTONE ☐ BRICK ☐ WOOD ☐ CONCRETE ☑ GRANITE ☐ ORNAMENTAL CONC. BLOCK
OTHER

24. OUTBUILDINGS/FEATURES:
☐ CARRIAGE HOUSE ☐ FENCE OR WALL ☐ CEMETERY ☐ BARN (CONNECTED)
☑ BARN (DETACHED) ☐ FORMAL GARDEN ☐ LANDSCAPE/PLANT MAT. ☐ ARCHAEOLOGICAL SITE
☑ GARAGE
OTHER

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: c. 1900

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR: _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION:
☐ ENGLISH ☐ FRENCH ACADIAN ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
☐ EAST EUROPEAN ☐ IRISH
OTHER

33. HISTORIC CONTEXT(S):
☐ COMMERCE ☐ INDUSTRY ☐ TRANSPORTATION ☐ AGRICULTURE ☐ MILITARY
☐ RELIGION ☐ CIVIC AFFAIRS ☐ RECREATION ☐ HABITATION ☐ EDUCATION
☐ ART, LIT SCIENCE ☐ SOCIAL

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ☑ ORIGINAL ☐ MOVED DATE MOVED: _____
37. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: 43070-B6-TF-024
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION: ☐ N ☐ S ☐ E ☐ W ☐ NE ☑ NW ☐ SE ☐ SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: _____ PHOTO FILE # _____
NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: ___HPF ___CLG ___R/C ___STAFF ___STATE SURVEY OTHER _____ LEVEL OF SURVEY ___R ___I
ASSOCIATED INVENTORY NUMBERS: _____

MHPC USE ONLY

497-0147b

INVENTORY NO.

SURVEY MAP NO. 497-0147

SURVEY MAP NAME YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION

Historic Barn/Agricultural Structure Survey Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 231 Chases Pond Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:

73. PRIMARY USE (HISTORIC):

- [x] BARN, MIXED USE
- [ ] SILO
- [ ] HOP HOUSE
- [ ] GREENHOUSE
- [ ] SMOKE HOUSE
- [ ] ANIMAL SHED (TYPE)
- [ ] HAY BARN
- [ ] MILK HOUSE
- [ ] SPRING/WELL HOUSE
- [ ] WAGON SHED
- [ ] POTATO BARN
- [ ] DAIRY BARN
- [ ] CIDER HOUSE
- [ ] POULTRY BARN
- [ ] WORKER HOUSING
- [ ] CORN CRIB
- [ ] OTHER
- [ ] STABLE/LIVERY
- [ ] SUGAR SHACK
- [ ] CHICKEN COOP
- [ ] ICE HOUSE
- [ ] PIGGERY

ARCHITECTURAL DATA

74. PRIMARY STYLISTIC CATEGORY:

- [ ] COLONIAL
- [ ] GREEK REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] SHINGLE STYLE
- [ ] ITALIANATE
- [ ] HIGH VIC. GOTHIC
- [ ] FEDERAL
- [ ] 19TH/20TH C. REVIVAL
- [ ] BUNGALOW
- [ ] OTHER
- [ ] QUEEN ANNE
- [ ] GOTHIC REVIVAL
- [x] VERNACULAR

75. HEIGHT:

- [ ] 1 STORY
- [x] 1 1/2 STORY
- [ ] 2 STORY
- [ ] 2 1/2 STORY
- [ ] 3 STORY
- [ ] 4 STORY
- [ ] OVER 4 (0)

76. PLAN:

- [ ] ENGLISH
- [ ] CONNECTED
- [ ] NEW ENGLAND
- [x] DETACHED
- [ ] ROUND
- [ ] BANK BARN
- [x] OTHER Rectangular

77. PRIMARY STRUCTURAL SYSTEM:

- [ ] HAND-HEWN
- [ ] LOG
- [ ] SAWN HEAVY TIMBERS
- [ ] CONCRETE
- [ ] STUD CONSTRUCTION
- [x] OTHER Unknown
- [ ] STONE
- [ ] BRICK

78. EXTERIOR SIDING:

- [x] CLAPBOARD
- [ ] ALUMINUM/VINYL
- [ ] OTHER
- [ ] WOOD SHINGLE
- [ ] STONE
- [ ] ASPHALT
- [ ] BRICK
- [ ] CONCRETE
- [ ] CORRUGATED METAL

79. ROOF CONFIGURATION:

- [x] GABLE SIDE
- [ ] OTHER
- [ ] GABLE FRONT
- [ ] MONITOR
- [ ] GAMBREL
- [ ] HIP
- [ ] SHED

80. ROOF MATERIAL:

- [ ] WOOD
- [ ] OTHER
- [ ] METAL
- [ ] SLATE
- [x] ASPHALT
- [ ] ASBESTOS

81. FOUNDATION MATERIAL:

- [ ] FIELDSTONE
- [ ] BRICK
- [ ] CONCRETE
- [ ] GRANITE
- [x] OTHER Not Visible

82. DOCUMENTED DATE OF CONSTRUCTION

84. ESTIMATED DATE OF CONSTRUCTION: ca. 1900

PHOTOGRAPH

FRAMING CROSS SECTION

SKETCH FRAMING OF ONE TRANSVERSE SECTION (BENT) OF BARN AND ONE LATERAL SECTION (EAVE WALL) OF STRUCTURE. LABEL EACH SKETCH TO SHOW CARDINAL DIRECTION.



MHPC USE ONLY

DATE ENTERED IN INVENTORY:_____ PHOTO FILE #_____

NR STATUS: L ____ HD ____ E ____ NE ____ ND ____ REVIEWER _____

DATA SOURCE: ____HPF ____CLG ____R/C ____ STAFF ____STATE SURVEY OTHER _____ LEVEL OF SURVE __R __I

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0148
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 228 CHASES POND ROAD

4. TOWN: York 5. COUNTY: York

6. DATE RECORDED: 11/94 7. SURVEYOR: RUSSELL WILKINS

8. OWNER NAME: C Whitham ADDRESS: 228 CHASES POND ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE		COMMERCIAL/TRADE		FUNERARY	
MULTI-FAMILY		GOVERNMENTAL		EDUCATION		HEALTH CARE	
INDUSTRY		RELIGIOUS		HOTEL		LANDSCAPE	
TRANSPORTATION		DEFENSE		SUMMER COTTAGE/CAMP		SOCIAL	
RECREATION/CULTURE		UNKNOWN					
OTHER							

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.	✓	FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER			

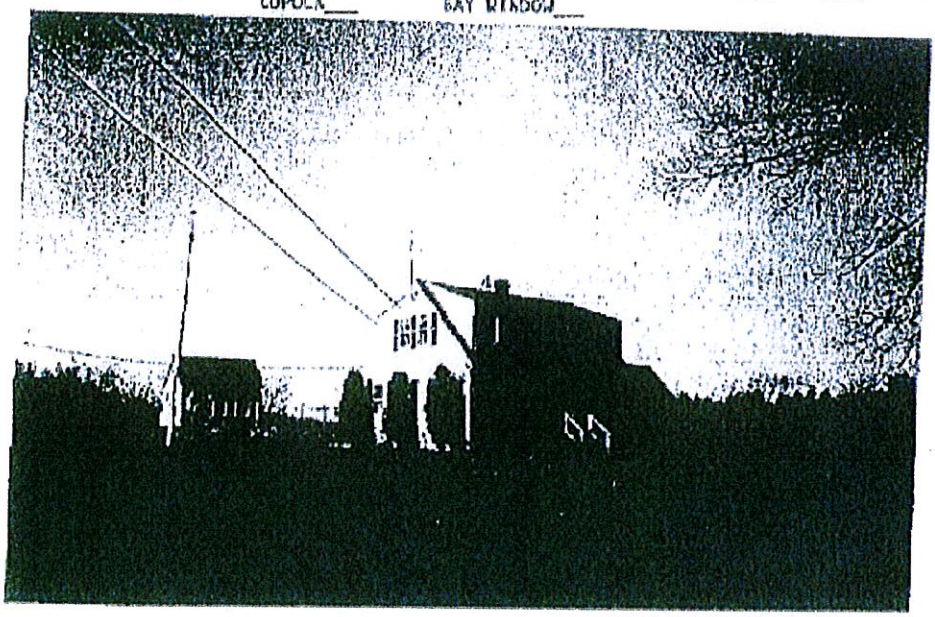
12. OTHER STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	✓
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER	B.		

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ✓ 2 STORY ___ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ✓ 4 BAY ___ 5 BAY ___ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ✓ REAR ELL ___ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ✓ PORCH ___ TOWER ___
CUPOLA ___ BAY WINDOW ___



11-0 NW

16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR ✓ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ✓ CENTER ___ INTERIOR END ___
EXTERIOR ___ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ✓ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ___
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ✓ GRANITE ___
ORNAMENTAL CONC. BLOCK ___ OTHER _____

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ✓ FORNAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER SHED

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S (E) W NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 12 1995 PHOTO FILE #: _____
NR STATUS: L ___ ND ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: HPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM MPSL7WFK.FRM

SURVEY MAP NO. 497-0148

SURVEY MAP NAME YORK TOLL PLAZA

MHPC USE ONLY

497-0148 hfs

INVENTORY NO

MAINE HISTORIC PRESERVATION COMMISSION

Historic Farmstead Survey Cover Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 228 Chases Pond Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:
48. PRIMARY USE (PRESENT):

☑ RESIDENTIAL ☐ ANIMAL HUSBANDRY ☐ AGRICULTURE ☐ MIXED USE ☐ OTHER

49. FARM ACREAGE: 4.2 50. NUMBER OF STRUCTURES AND SITES ON FARM (INCLUDING HOUSE): 3

51. INVENTORY NUMBERS FOR SURVEYED BUILDINGS: 497-0148a, 497-0148b

52. LIST ANY STRUCTURE OR SITE NOT INDIVIDUALLY RECORDED ON A SURVEY FORM

PLEASE ASSIGN EACH STRUCTURE OR SITE A LETTER AND LABEL ON SKETCH MAP ON BACK AND PHOTOGRAPH. INCLUDE ALL EXISTING STRUCTURES - SUCH AS COOPS, PIT SILOS, BEE HIVES, GARAGES, STONE WALLS, PRIVIES AND COTTAGES - AND NOTE ANY THAT HAVE BEEN REMOVED OVER THE YEARS (FOUNDATION HOLES).

A. Non-Contributing Shed

HISTORICAL DATA

53. HISTORICAL USE:

53. DOCUMENTED DATE OF CONSTRUCTION: 54. ESTIMATED DATE OF CONSTRUCTION: ca. 1900

55. DATE MAJOR ADDITIONS/ALTERATIONS:

56. ORIGINAL OWNER:

57. CULTURAL/ETHNIC AFFILIATION

☐ ENGLISH ☐ FRENCH ACADIAN ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
☐ EAST EUROPEAN ☐ IRISH OTHER

58. COMMENT/SOURCES:

59. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION

60. HAS THE SAME FAMILY FARMED THIS PROPERTY FOR MORE THAN 100 YEARS? 61. BEGINNING WHEN?

ENVIRONMENTAL DATA

62. SITE INTEGRITY: ☑ ORIGINAL ☐ MOVED DATE MOVED
63. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
64. QUADRANGLE MAP USED: York Harbor QUADRANGLE NO. 43070-B6-TF-024
65. UTM NORTHING: 4782699 66. UTM EASTING: 0365721
67. FACADE DIRECTION: ☐ N ☐ S ☑ E ☐ W ☐ NE ☐ NW ☐ SE ☐ SW

MHPC USE ONLY

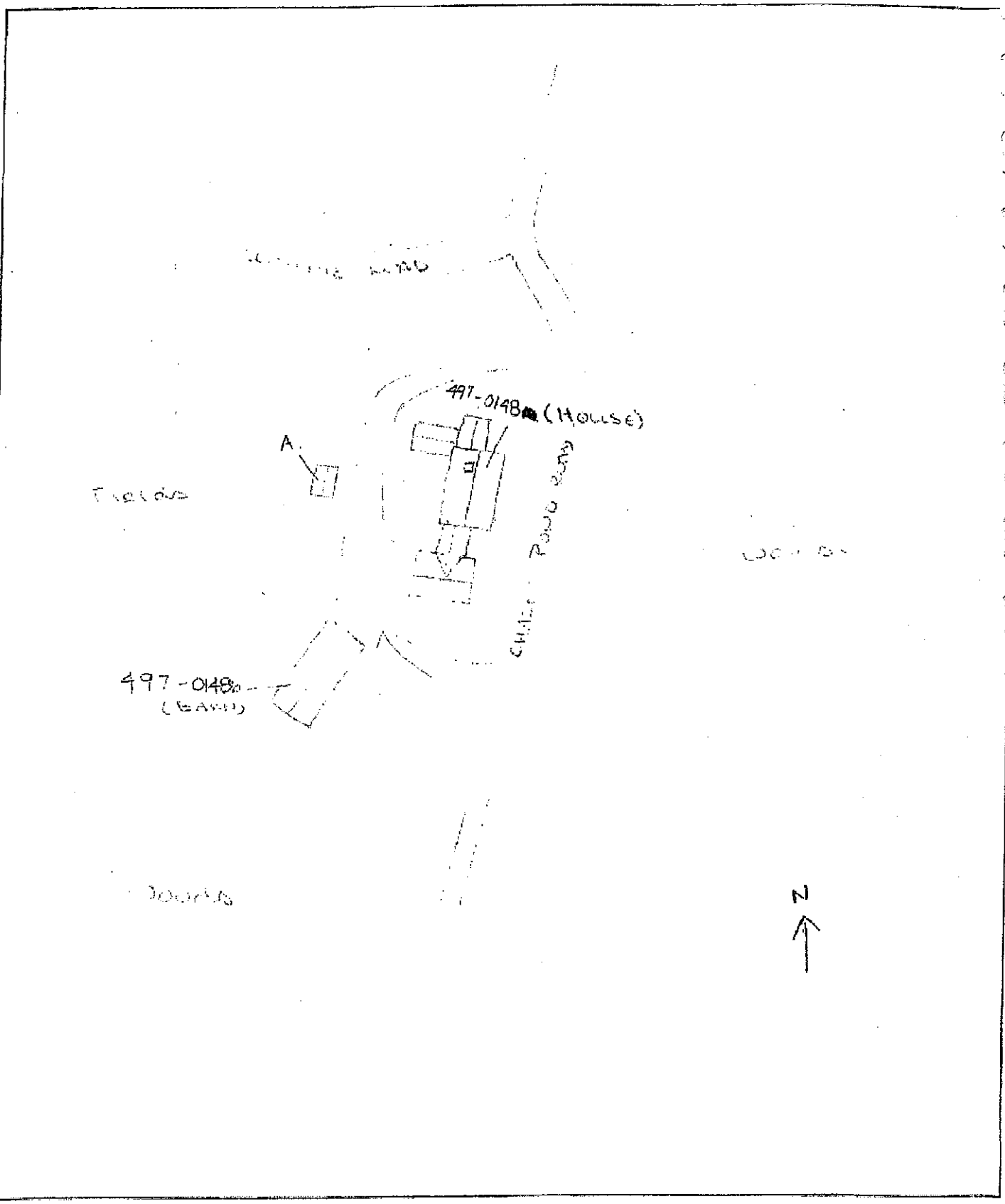
DATE ENTERED IN INVENTORY: PHOTO FILE #

NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER

DATA SOURCE: ___HPF ___CLG ___R/C ___STAFF ___STATE SURVEY OTHER ___ LEVEL OF SURVEY ___R ___I

SITE PLAN:

SKETCH MAP: THIS MAP SHOULD SHOW THE FARM AS SEEN LOOKING DOWN AT IT. IDENTIFY ALL STRUCTURES AND SITES WITH LETTERS, CORRESPONDING TO THOSE LISTED ON PAGE ONE. LABEL OTHER LANDSCAPE FEATURES SUCH AS STONE WALLS, FENCING, ORCHARDS, WOOD LOTS AND FIELDS. PLEASE INDICATE NORTH WITH AN ARROW. SCALE MAY BE APPROXIMATE.



Please return completed form to: Maine Historic Preservation Commission, 55 Capitol Street, SHS 65, Augusta, Maine 04333

MHPC USE ONLY
497-0148
INVENTORY NO.

SURVEY MAP NO. 497-0148
SURVEY MAP NAME YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form
Continuation Sheet

PROPERTY NAME:

TOWN: YORK

COUNTY: YORK

SURVEYOR: PAL

DATE: 05/10/2010

DATA FIELDS (From Survey Forms): PHOTOGRAPH



SURVEY MAP NO. 497-0148

SURVEY MAP NAME York Toll Plaza

MHPC USE ONLY

497-0148

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 228 Chases Pond Road

4. TOWN: York

5. COUNTY: York County

6. DATE RECORDED: 5/10/2010

7. SURVEYOR: PAL

8. OWNER NAME: _____ ADDRESS: _____

9. PRIMARY USE (PRESENT):

- [x] SINGLE FAMILY
- [ ] MULTI-FAMILY
- [ ] INDUSTRY
- [ ] TRANSPORTATION
- [ ] RECREATION/CULTURE
- [ ] AGRICULTURE
- [ ] GOVERNMENTAL
- [ ] RELIGIOUS
- [ ] DEFENSE
- [ ] UNKNOWN
- [ ] COMMERCIAL/TRADE
- [ ] EDUCATION
- [ ] HOTEL
- [ ] SUMMER COTTAGE/CAMP
- [ ] FUNERARY
- [ ] HEALTH CARE
- [ ] LANDSCAPE
- [ ] SOCIAL

OTHER _____

10. CONDITION: [x] GOOD [ ] FAIR [ ] POOR [ ] DESTROYED, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

- [ ] COLONIAL
- [ ] FEDERAL
- [ ] GREEK REVIVAL
- [ ] GOTHIC REVIVAL
- [ ] ITALIANATE
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] QUEEN ANNE
- [ ] SHINGLE STYLE
- [ ] R. ROMANESQUE
- [ ] ROMANESQUE
- [ ] HIGH VIC. GOTHIC
- [ ] NEO-CLASSICAL REV.
- [ ] RENAISSANCE REV.
- [ ] 19TH/20TH C. REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] BUNGALOW
- [ ] FOUR SQUARE
- [ ] ART DECO
- [ ] INTERNATIONAL
- [ ] RANCH
- [x] VERNACULAR

OTHER _____

12. OTHER STYLISTIC CATEGORY:

- [ ] COLONIAL
- [ ] FEDERAL
- [ ] GREEK REVIVAL
- [ ] GOTHIC REVIVAL
- [ ] ITALIANATE
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] QUEEN ANNE
- [ ] SHINGLE STYLE
- [ ] R. ROMANESQUE
- [ ] ROMANESQUE
- [ ] HIGH VIC. GOTHIC
- [ ] NEO-CLASSICAL REV.
- [ ] RENAISSANCE REV.
- [ ] 19TH/20TH C. REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] BUNGALOW
- [ ] FOUR SQUARE
- [ ] ART DECO
- [ ] INTERNATIONAL
- [ ] RANCH
- [ ] VERNACULAR

OTHER _____

13. HEIGHT:

- [ ] 1 STORY
- [x] 1 1/2 STORY
- [ ] 2 STORY
- [ ] 2 1/2 STORY
- [ ] 3 STORY
- [ ] 4 STORY
- [ ] 5 STORY
- [ ] OVER 5 (_____)

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):

- [ ] 1 BAY
- [ ] 2 BAY
- [x] 3 BAY
- [ ] 4 BAY
- [ ] 5 BAY
- [ ] MORE THAN 5 (_____)

15. APPENDAGES:

- [x] SIDE ELL
- [x] DORMERS
- [ ] REAR ELL
- [ ] PORCH
- [ ] FRONT TOWER
- [ ] ADDED STORIES
- [ ] CUPOLA
- [ ] SHED
- [ ] BAY WINDOW

PHOTOGRAPH



MHPC USE ONLY

497-0148b

INVENTORY NO.

SURVEY MAP NO. 497-0148

SURVEY MAP NAME YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Barn/Agricultural Structure Survey Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 228 Chases Pond Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:

73. PRIMARY USE (HISTORIC):

- ☐ BARN, MIXED USE
- ☐ SILO
- ☐ HOP HOUSE
- ☐ GREENHOUSE
- ☐ SMOKE HOUSE
- ☐ ANIMAL SHED (TYPE)
- ☐ HAY BARN
- ☐ MILK HOUSE
- ☐ SPRING/WELL HOUSE
- ☐ WAGON SHED
- ☐ POTATO BARN
- ☐ DAIRY BARN
- ☐ CIDER HOUSE
- ☐ POULTRY BARN
- ☐ WORKER HOUSING
- ☐ CORN CRIB
- ☐ OTHER Shop
- ☐ STABLE/LIVERY
- ☐ SUGAR SHACK
- ☐ CHICKEN COOP
- ☐ ICE HOUSE
- ☐ PIGGERY

ARCHITECTURAL DATA

74. PRIMARY STYLISTIC CATEGORY:

- ☐ COLONIAL
- ☐ GREEK REVIVAL
- ☐ ARTS AND CRAFTS
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ SHINGLE STYLE
- ☐ ITALIANATE
- ☐ HIGH VIC. GOTHIC
- ☐ FEDERAL
- ☐ 19TH/20TH C. REVIVAL
- ☐ BUNGALOW
- ☐ OTHER
- ☐ QUEEN ANNE
- ☐ GOTHIC REVIVAL
- ☑ VERNACULAR

75. HEIGHT:

☐ 1 STORY ☑ 1 1/2 STORY ☐ 2 STORY ☐ 2 1/2 STORY ☐ 3 STORY ☐ 4 STORY ☐ OVER 4 (0)

76. PLAN:

- ☐ ENGLISH
- ☐ CONNECTED
- ☐ NEW ENGLAND
- ☑ DETACHED
- ☐ ROUND
- ☐ BANK BARN
- ☑ OTHER Rectangular

77. PRIMARY STRUCTURAL SYSTEM:

- ☐ HAND-HEWN
- ☐ LOG
- ☐ SAWN HEAVY TIMBERS
- ☐ CONCRETE
- ☐ STUD CONSTRUCTION
- ☑ OTHER Unknown
- ☐ STONE
- ☐ BRICK

78. EXTERIOR SIDING:

- ☐ CLAPBOARD
- ☐ ALUMINUM/VINYL
- ☐ OTHER
- ☑ WOOD SHINGLE
- ☐ STONE
- ☐ ASPHALT
- ☐ BRICK
- ☐ CONCRETE
- ☐ CORRUGATED METAL

79. ROOF CONFIGURATION:

- ☑ GABLE SIDE
- ☐ OTHER
- ☐ GABLE FRONT
- ☐ MONITOR
- ☐ GAMBREL
- ☐ HIP
- ☐ SHED

80. ROOF MATERIAL:

- ☐ WOOD
- ☐ OTHER
- ☐ METAL
- ☐ SLATE
- ☑ ASPHALT
- ☐ ASBESTOS

81. FOUNDATION MATERIAL:

☐ FIELDSTONE ☐ BRICK ☐ CONCRETE ☐ GRANITE ☑ OTHER Not Visible

82. DOCUMENTED DATE OF CONSTRUCTION

84. ESTIMATED DATE OF CONSTRUCTION: ca. 1900

PHOTOGRAPH

FRAMING CROSS SECTION

SKETCH FRAMING OF ONE TRANSVERSE SECTION (BENT) OF BARN AND ONE LATERAL SECTION (EAVE WALL) OF STRUCTURE. LABEL EACH SKETCH TO SHOW CARDINAL DIRECTION.



MHPC USE ONLY

DATE ENTERED IN INVENTORY:_____ PHOTO FILE #_____

NR STATUS: L ____ HD ____ E ____ NE ____ ND ____ REVIEWER _____

DATA SOURCE: ____HPF ____CLG ____R/C ____STAFF ____STATE SURVEY OTHER _____ LEVEL OF SURVE __R __I

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0149
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 265 CHASES POND ROAD

4. TOWN: YORK 5. COUNTY: YORK

6. DATE RECORDED: 4/24 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: GLADYS BUSHNELL ADDRESS: 265 CHASES POND ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE		COMMERCIAL/TRADE		FUNERARY	
MULTI-FAMILY		GOVERNMENTAL		EDUCATION		HEALTH CARE	
INDUSTRY		RELIGIOUS		HOTEL		LANDSCAPE	
TRANSPORTATION		DEFENSE		SUMMER COTTAGE/CAMP		SOCIAL	
RECREATION/CULTURE		UNKNOWN					

OTHER _____

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.	✓	FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER			

12. OTHER STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER	CAPE COD		

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ___ 2 STORY ✓ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ___ MORE THAN 5 (9) ✓

15. APPENDAGES: SIDE ELL ___ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ✓ DORMERS ✓ PORCH ✓ TOWER ___
CUPOLA ___ BAY WINDOW ___



11-5 NNE

16. PORCH: ATTACHED ✓ ENGAGED ___ ONE STORY ✓ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR ___ 1/2 CAPE ___ CENTRAL HALL ✓ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER ___

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER ___

19. CHIMNEY PLACEMENT: INTERIOR ✓ INTERIOR FRONT/REAR ___ CENTER ___ INTERIOR END ___
EXTERIOR ___ OTHER ___

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER ___

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ✓

22. EXTERIOR WALL MATERIALS: CLAPBOARD ✓ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ___
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER ___

23. FOUNDATION MATERIAL: FIELDSTONE ✓ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ___
ORNAMENTAL CONC. BLOCK ___ OTHER ___

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ✓ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ✓ ARCHAEOLOGICAL SITE ___ GARAGE ✓
Cement OTHER SHEDS
Rock outcroppings

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: ___ 26. ESTIMATED DATE OF CONSTRUCTION: ___

27. DATE MAJOR ADDITIONS/ALTERATIONS: ___

28. ARCHITECT: ___ 29. CONTRACTOR (NOTE IF SAME AS 28): ___

30. ORIGINAL OWNER: ___

31. SUBSEQUENT SIGNIFICANT OWNER: ___ DATES: ___

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER ___

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: ___

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: ___

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: ___
39. UTM NORTHING: ___ 40. UTM EASTING: ___
41. FACADE DIRECTION (CIRCLE ONE): N S E (W) NE NW SE SW

MHPC USE ONLY

JUN 1 2 1995

DATE ENTERED IN INVENTORY: ___ PHOTO FILE #: ___
NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER ___
DATA SOURCE: HPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM HPSL7WFK.FRM

1672 ✓ md

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0150
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 257 CHASES ROAD ROAD

4. TOWN: YORK 5. COUNTY: YORK

6. DATE RECORDED: 11/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: H RUCH (HEIRS) ADDRESS: P.O. BOX 215, YORK

9. PRIMARY USE (PRESENT):

SINGLE FAMILY ✓	AGRICULTURE ___	COMMERCIAL/TRADE ___	FUNERARY ___
MULTI-FAMILY ___	GOVERNMENTAL ___	EDUCATION ___	HEALTH CARE ___
INDUSTRY ___	RELIGIOUS ___	HOTEL ___	LANDSCAPE ___
TRANSPORTATION ___	DEFENSE ___	SUMMER COTTAGE/CAMP ___	SOCIAL ___
RECREATION/CULTURE ___	UNKNOWN ___		
OTHER ___			

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE ___

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL ___	STICK STYLE ___	COLONIAL REV. ___	FEDERAL ___
RENAISSANCE REV. ___	GREEK REVIVAL ___	SHINGLE STYLE ___	BUNGALOW ___
ROMANESQUE ___	19TH/20TH C. REV. ___	R. ROMANESQUE ___	ITALIANATE ___
NEO-CLASSIC. REV. ___	SECOND EMPIRE ___	QUEEN ANNE ___	GOTHIC ___
HIGH VIC. GOTHIC ___	ARTS & CRAFTS ___	OTHER VERNACULAR	

12. OTHER STYLISTIC CATEGORY:

COLONIAL ___	STICK STYLE ___	COLONIAL REV. ___	FEDERAL ___
RENAISSANCE REV. ___	GREEK REVIVAL ___	SHINGLE STYLE ___	BUNGALOW ___
ROMANESQUE ___	19TH/20TH C. REV. ___	R. ROMANESQUE ___	ITALIANATE ___
NEO-CLASSIC. REV. ___	SECOND EMPIRE ___	QUEEN ANNE ___	GOTHIC ___
HIGH VIC. GOTHIC ___	ARTS & CRAFTS ___	OTHER ___	

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ___ 2 STORY ✓ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ✓ 5 BAY ___ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ___ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ___ PORCH ___ TOWER ___
CUPOLA ___ BAY WINDOW ___



11-7 NE

16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR___ 1/2 CAPE___ CENTRAL HALL✓ SIDE HALL___ BACK HALL___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ✓ INTERIOR FRONT/REAR ___ CENTER ___ INTERIOR END ___
EXTERIOR ___ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ___ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ✓
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ✓
ORNAMENTAL CONC. BLOCK ___ OTHER _____

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ___ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

_____

_____

_____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: York, Maine QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE (NW) SE SW

MHPC USE ONLY JUN 1 2 1995

DATE ENTERED IN INVENTORY: _____ PHOTO FILE #: _____
HR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: HPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM MPSLTWFK.FRM

1633 Trust

HHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0161
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 261 CLARKS POND ROAD

4. TOWN: York 5. COUNTY: York

6. DATE RECORDED: 11/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: TYR BAILEY ADDRESS: 261 CLARKS POND ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE	___	COMMERCIAL/TRADE	___	FUNERARY	___
MULTI-FAMILY	___	GOVERNMENTAL	___	EDUCATION	___	HEALTH CARE	___
INDUSTRY	___	RELIGIOUS	___	HOTEL	___	LANDSCAPE	___
TRANSPORTATION	___	DEFENSE	___	SUMMER COTTAGE/CAMP	___	SOCIAL	___
RECREATION/CULTURE	___	UNKNOWN	___				
OTHER	___						

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	VERNACULAR		

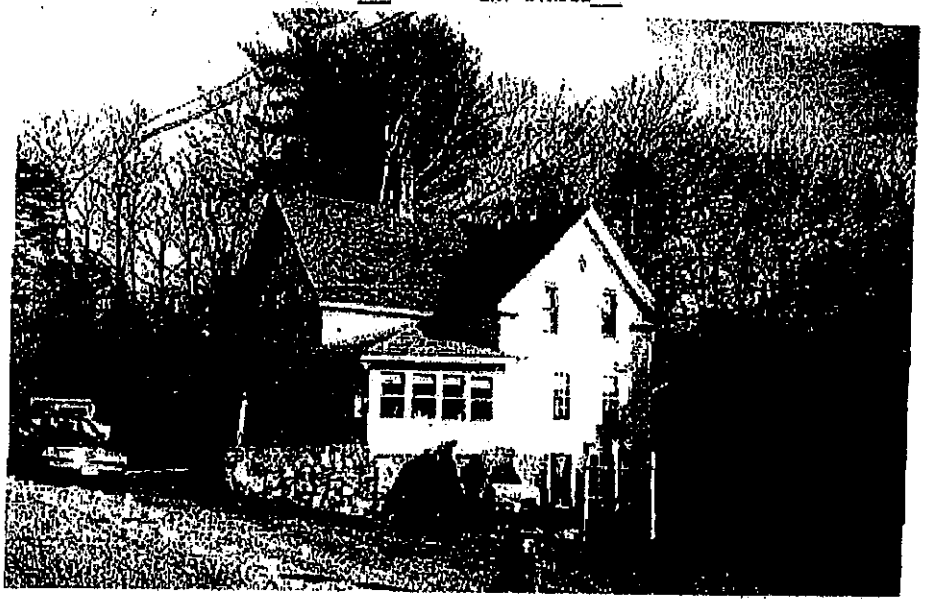
12. OTHER STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	HOMESTEAD/BUNGALOID		

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ___ 2 STORY ✓ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ✓ 4 BAY ___ 5 BAY ___ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ✓ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ___ PORCH ✓ TOWER ___
CUPOLA ___ BAY WINDOW ___



118 NE

16. PORCH: ATTACHED ✓ ENGAGED ___ ONE STORY ✓ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___
INFILLED

17. PLAN: HALL AND PARLOR___ 1/2 CAPE___ CENTRAL HALL___ SIDE HALL ✓ BACK HALL___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ___ CENTER ✓ INTERIOR END ___
EXTERIOR ___ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ___ GABLE FRONT ✓ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ✓ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ✓ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ✓
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ___
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ✓ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ___
ORNAMENTAL CONC. BLOCK ___ OTHER _____

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ___ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: Yorktown QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E (W) NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 1 8 1995 PHOTO FILE #: _____
NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: HPF ___ CLG ___ RAC ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM MPSL7WFK.FRM

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0152
Survey Map Name YORK TOLL PLAZ

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 267 CHASES POND ROAD

4. TOWN: YORK 5. COUNTY: YORK

6. DATE RECORDED: 11/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: W+K ARNOLD ADDRESS: 271 CHASES POND ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE		COMMERCIAL/TRADE		FUNERARY	
MULTI-FAMILY		GOVERNMENTAL		EDUCATION		HEALTH CARE	
INDUSTRY		RELIGIOUS		HOTEL		LANDSCAPE	
TRANSPORTATION		DEFENSE		SUMMER COTTAGE/CAMP		SOCIAL	
RECREATION/CULTURE		UNKNOWN					

OTHER _____

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER	VERNACULAR CAPE		

12. OTHER STYLISTIC CATEGORY:

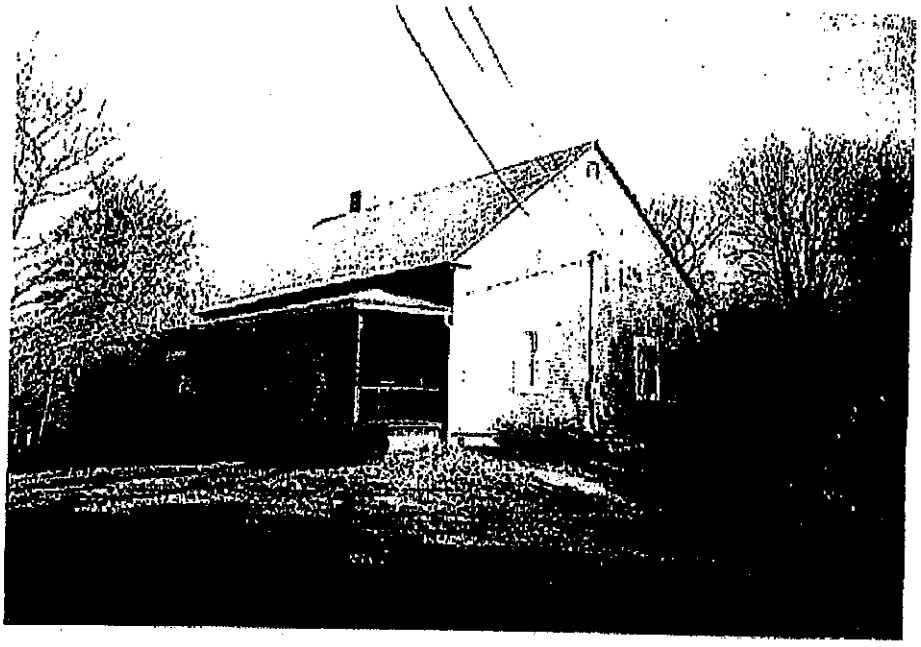
COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER			

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ✓ 2 STORY ___ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ✓ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ✓ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ___ PORCH ___ TOWER ___
CUPOLA ___ BAY WINDOW ___ LARGE ADDITION & LEFT DORMERS

PHOTOGRAPH:



11-10
NE

16. PORCH: ATTACHED ✓ ENGAGED ___ ONE STORY ✓ MORE THAN ONE STORY ___
FULL WIDTH ✓ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR ✓ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER ___

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER ___

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ✓ CENTER ___ INTERIOR END ___
EXTERIOR ___ OTHER ___

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER ___

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ___ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ✓
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER ___

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ✓
ORNAMENTAL CONC. BLOCK ___ OTHER ___

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ✓ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ___ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ✓
OTHER ___

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: ___ 26. ESTIMATED DATE OF CONSTRUCTION: ___

27. DATE MAJOR ADDITIONS/ALTERATIONS: ___

28. ARCHITECT: ___ 29. CONTRACTOR (NOTE IF SAME AS 28): ___

30. ORIGINAL OWNER: ___

31. SUBSEQUENT SIGNIFICANT OWNER: ___ DATES: ___

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER ___

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: ___

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: ___

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ___ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ___ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: ___ QUADRANGLE #: ___
39. UTM NORTHING: ___ 40. UTM EASTING: ___
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 12 1995 PHOTO FILE #: ___
HR STATUS: L ___ ND ___ E ___ NE ___ ND ___ REVIEWER ___
DATA SOURCE: HPF ___ CLG ___ B&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM MPSL7WFK.FRM

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0163
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 271 CHASES POND ROAD

4. TOWN: York 5. COUNTY: York

6. DATE RECORDED: 11/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: UNKNOWN ADDRESS: 271 CHASES POND ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE		COMMERCIAL/TRADE		FUNERARY	
MULTI-FAMILY		GOVERNMENTAL		EDUCATION		HEALTH CARE	
INDUSTRY		RELIGIOUS		HOTEL		LANDSCAPE	
TRANSPORTATION		DEFENSE		SUMMER COTTAGE/CAMP		SOCIAL	
RECREATION/CULTURE		UNKNOWN					

OTHER _____

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL	✓	STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER			

12. OTHER STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER			

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ___ 2 STORY ___ 2 1/2 STORY ✓
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ✓ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ✓ REAR ELL ___ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ___ PORCH ___ TOWER ___
CUPOLA ___ BAY WINDOW ___



11-12 N

16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR ✓ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ___ CENTER ✓ INTERIOR END ___
EXTERIOR ___ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ___ GABLE FRONT ✓ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ✓ METAL ___ TILE ___ SLATE ___ ASPHALT ___ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ✓ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ___
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ✓
ORNAMENTAL CONC. BLOCK ___ OTHER _____

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ✓ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N (S) E W NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 1 8 1995 PHOTO FILE #: _____
NR STATUS: L ___ MD ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: MPF ___ CLG ___ REC ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM MPSLTWFK.FRM

MHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0154
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 275 CHASES POND ROAD

4. TOWN: York 5. COUNTY: York

6. DATE RECORDED: 11/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: E. TRAFTON ADDRESS: 275 CHASES POND ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	✓	AGRICULTURE		COMMERCIAL/TRADE		FUNERARY	
MULTI-FAMILY		GOVERNMENTAL		EDUCATION		HEALTH CARE	
INDUSTRY		RELIGIOUS		HOTEL		LANDSCAPE	
TRANSPORTATION		DEFENSE		SUMMER COTTAGE/CAMP		SOCIAL	
RECREATION/CULTURE		UNKNOWN					
OTHER							

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER	CAPE VERNACULAR		

12. OTHER STYLISTIC CATEGORY:

COLONIAL		STICK STYLE		COLONIAL REV.		FEDERAL	
RENAISSANCE REV.		GREEK REVIVAL		SHINGLE STYLE		BUNGALOW	
ROMANESQUE		19TH/20TH C. REV.		R. ROMANESQUE		ITALIANATE	
NEO-CLASSIC. REV.		SECOND EMPIRE		QUEEN ANNE		GOTHIC	
HIGH VIC. GOTHIC		ARTS & CRAFTS		OTHER			

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ___ 2 STORY ✓ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ___ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ✓ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ___ PORCH ✓ TOWER ___
CUPOLA ___ BAY WINDOW ___



11-15 NE

16. PORCH: ATTACHED ✓ ENGAGED ___ ONE STORY ✓ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR___ 1/2 CAPE___ CENTRAL HALL___ SIDE HALL___ BACK HALL___ IRREGULAR ✓
OTHER ___

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER ___

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ___ CENTER ___ INTERIOR END ___
EXTERIOR ___ OTHER ___

20. ROOF CONFIGURATION: GABLE SIDE ___ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ✓ COMPOUND ___ OTHER ___

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ___ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ✓
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER ___

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ___
ORNAMENTAL CONC. BLOCK ✓ OTHER ___

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ✓ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER SHED

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: ___ 26. ESTIMATED DATE OF CONSTRUCTION: ___

27. DATE MAJOR ADDITIONS/ALTERATIONS: ___

28. ARCHITECT: ___ 29. CONTRACTOR (NOTE IF SAME AS 28): ___

30. ORIGINAL OWNER: ___

31. SUBSEQUENT SIGNIFICANT OWNER: ___ DATES: ___

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER ___

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: ___

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: ___

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: ___ QUADRANGLE #: ___
39. UTM NORTHING: ___ 40. UTM EASTING: ___
41. FACADE DIRECTION (CIRCLE ONE): N S E (W) NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 1 2 1995 PHOTO FILE #: ___
NR STATUS: L ___ ND ___ E ___ NE ___ ND ___ REVIEWER ___
DATA SOURCE: HPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM HPSL7WFX.FRM

NRPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0155
Survey Map Name YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: BARN @ 275 CHASES POND ROAD

4. TOWN: York 5. COUNTY: York

6. DATE RECORDED: 11/94 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: E. THAXTON ADDRESS: 275 CHASES POND ROAD

9. PRIMARY USE (PRESENT):

SINGLE FAMILY	___	AGRICULTURE	___	COMMERCIAL/TRADE	___	FUNERARY	___
MULTI-FAMILY	___	GOVERNMENTAL	___	EDUCATION	___	HEALTH CARE	___
INDUSTRY	___	RELIGIOUS	___	HOTEL	___	LANDSCAPE	___
TRANSPORTATION	___	DEFENSE	___	SUMMER COTTAGE/CAMP	___	SOCIAL	___
RECREATION/CULTURE	___	UNKNOWN	___				

OTHER BARN/STORAGE

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___ DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	VERNACULAR ENGLISH BARN		

12. OTHER STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	___		

13. HEIGHT: 1 STORY ___ 1 1/2 STORY ___ 2 STORY ✓ 2 1/2 STORY ___
3 STORY ___ 4 STORY ___ 5 STORY ___ OVER 5 (___) ___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
1 BAY ___ 2 BAY ___ 3 BAY ✓ 4 BAY ___ 5 BAY ___ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ✓ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORNERS ___ PORCH ___ TOWER ___
CUPOLA ___ BAY WINDOW ___



11-16 NE

16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR ___ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL ___ BACK HALL ___ IRREGULAR ___
OTHER Gable Ell

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER ___

19. CHIMNEY PLACEMENT: INTERIOR ___ INTERIOR FRONT/REAR ___ CENTER ___ INTERIOR END ___
EXTERIOR ___ OTHER N/A

20. ROOF CONFIGURATION: GABLE SIDE ___ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ✓ COMPOUND ___ OTHER ___

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ✓ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ___
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER ___

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ✓
ORNAMENTAL CONC. BLOCK ___ OTHER ___

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ___ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ___
OTHER ___

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: ___ 26. ESTIMATED DATE OF CONSTRUCTION: ___

27. DATE MAJOR ADDITIONS/ALTERATIONS: ___

28. ARCHITECT: ___ 29. CONTRACTOR (NOTE IF SAME AS 28): ___

30. ORIGINAL OWNER: ___

31. SUBSEQUENT SIGNIFICANT OWNER: ___ DATES: ___

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER ___

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: ___

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: ___

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ✓ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ✓ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: Grand Manan QUADRANGLE #: ___
39. UTM NORTHING: ___ 40. UTM EASTING: ___
41. FACADE DIRECTION (CIRCLE ONE): N S E (W) NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 1 2 1995 PHOTO FILE #: ___
NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER ___
DATA SOURCE: HPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ 1 ___

FORM HPSL7WFK.FRM

NHPC USE ONLY

INVENTORY NO.

Survey Map No. 497-0198
Survey Map Name YORK-TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 9 PLAISTED RD

4. TOWN: York 5. COUNTY: York

6. DATE RECORDED: 12/84 7. SURVEYOR: RUSSELL WRIGHT

8. OWNER NAME: _____ ADDRESS: _____

9. PRIMARY USE (PRESENT):

SINGLE-FAMILY	✓	AGRICULTURE	___	COMMERCIAL/TRADE	___	FUNERARY	___
MULTI-FAMILY	___	GOVERNMENTAL	___	EDUCATION	___	HEALTH CARE	___
INDUSTRY	___	RELIGIOUS	___	HOTEL	___	LANDSCAPE	___
TRANSPORTATION	___	DEFENSE	___	SUMMER COTTAGE/CAMP	___	SOCIAL	___
RECREATION/CULTURE	___	UNKNOWN	___				

OTHER _____

10. CONDITION: GOOD ✓ FAIR ___ POOR ___ DESTROYED ___, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	___	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	VERNACULAR		

12. OTHER STYLISTIC CATEGORY:

COLONIAL	___	STICK STYLE	___	COLONIAL REV.	___	FEDERAL	___
RENAISSANCE REV.	___	GREEK REVIVAL	✓	SHINGLE STYLE	___	BUNGALOW	___
ROMANESQUE	___	19TH/20TH C. REV.	___	R. ROMANESQUE	___	ITALIANATE	___
NEO-CLASSIC. REV.	___	SECOND EMPIRE	___	QUEEN ANNE	___	GOTHIC	___
HIGH VIC. GOTHIC	___	ARTS & CRAFTS	___	OTHER	___		

13. HEIGHT:

1 STORY	___	1 1/2 STORY	___	2 STORY	___	2 1/2 STORY	✓
3 STORY	___	4 STORY	___	5 STORY	___	OVER 5 (___)	___

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):

1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ✓ MORE THAN 5 (___) ___

15. APPENDAGES: SIDE ELL ✓ REAR ELL ✓ FRONT ___ ADDED STORIES ___ SHED ___ DORMERS ___ PORCH ✓ TOWER ___
CUPOLA ___ BAY WINDOW ___



16. PORCH: ATTACHED ___ ENGAGED ___ ONE STORY ✓ MORE THAN ONE STORY ___
FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH ___

17. PLAN: HALL AND PARLOR___ 1/2 CAPE___ CENTRAL HALL ✓ SIDE HALL___ BACK HALL___ IRREGULAR ___
OTHER _____

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___
BALLOON FRAME ___ CONCRETE ___ STEEL ___ LOG ___
PLANK WALL ___ PLATFORM FRAME ___
FRAME CONSTRUCTION - TYPE UNKNOWN ✓ OTHER _____

19. CHIMNEY PLACEMENT: INTERIOR ✓ INTERIOR FRONT/REAR ___ CENTER ___ INTERIOR END ___
EXTERIOR ___ OTHER _____

20. ROOF CONFIGURATION: GABLE SIDE ✓ GABLE FRONT ___ HIP ___ MANSARD ___
FLAT ___ GAMBREL ___ PARAPET GABLE ___ SHED ___
CROSS GABLE ___ COMPOUND ___ OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ✓ ASBESTOS ___

22. EXTERIOR WALL MATERIALS: CLAPBOARD ___ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___
STONE ___ LOG ___ BOARD AND BATTEN ___ CONCRETE ___
PRESSED METAL ___ STUCCO ___ ASPHALT ___ ALUMINUM/VINYL ✓
GRANITE ___ ASBESTOS ___ TERRA COTTA ___ OTHER _____

23. FOUNDATION MATERIAL: FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ✓ GRANITE ___
ORNAMENTAL CONC. BLOCK ___ OTHER _____

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___
BARN (CONNECTED) ___ BARN (DETACHED) ___ FORMAL GARDEN ___
LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE ___ GARAGE ✓
OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR (NOTE IF SAME AS 28): _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___
FRENCH CANADIAN ___ EAST EUROPEAN ___ IRISH ___
OTHER _____

33. HISTORIC CONTEXT(S): COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___
MILITARY ___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___
HABITATION ___ EDUCATION ___ ART, LIT, SCIENCE ___ SOCIAL ___

34. COMMENTS/SOURCES: _____

_____

_____

_____

35. HISTORICAL DRAWINGS EXIST: YES ___ NO ___ LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL ___ MOVED ___ DATE MOVED ___
37. SETTING: RURAL/UNDISTURBED ___ RURAL/BUILT UP ___ SMALL TOWN ___ URBAN ___ SUBURBAN ___
38. QUADRANGLE MAP USED: _____ QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: JUN 1 8 1995 PHOTO FILE #: _____
NR STATUS: L ___ ND ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: MPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY ___ OTHER ___ LEVEL OF SURVEY: R ___ I ___

FORM MPSL7WFK.FRM

SURVEY MAP NO. 8

SURVEY MAP NAME YORK TOLL PLAZA

MHPC USE ONLY

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC):

2. PROPERTY NAME (OTHER):

3. STREET ADDRESS: 24 New Town Road

4. TOWN: York 5. COUNTY: York

6. DATE RECORDED: 6/30/03 7. SURVEYOR:

8. OWNER NAME: _____ ADDRESS: _____

9. PRIMARY USE (PRESENT):

___ SINGLE FAMILY	___ AGRICULTURE	___ COMMERCIAL/TRADE	___ FUNERARY
___ MULTI-FAMILY	___ GOVERNMENTAL	___ EDUCATION	___ HEALTH CARE
___ INDUSTRY	___ RELIGIOUS	___ HOTEL	___ LANDSCAPE
___ TRANSPORTATION	___ DEFENSE	___ SUMMER COTTAGE/CAMP	___ SOCIAL
___ RECREATION/CULTURE	___ UNKNOWN		

___ OTHER _____

10. CONDITION: ___ GOOD ___ FAIR ___ POOR ___ DESTROYED, DATE ___/___/___

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

___ COLONIAL	___ STICK STYLE	___ NEO-CLASSICAL REV.	___ FOUR SQUARE
___ FEDERAL	___ QUEEN ANNE	___ RENAISSANCE REV.	___ ART DECO
___ GREEK REVIVAL	___ SHINGLE STYLE	___ 19TH/20TH C. REV VAL	___ INTERNATIONAL
___ GOTHIC REVIVAL	___ R. ROMANESQUE	___ ARTS & CRAFTS	___ RANCH
___ ITALIANATE	___ ROMANESQUE	___ BUNGALOW	___ VERNACULAR
___ SECOND EMPIRE	___ HIGH VIC. GOTHIC	OTHER _____	

12. OTHER STYLISTIC CATEGORY:

___ COLONIAL	___ STICK STYLE	___ NEO-CLASSICAL REV.	___ FOUR SQUARE
___ FEDERAL	___ QUEEN ANNE	___ RENAISSANCE REV.	___ ART DECO
___ GREEK REVIVAL	___ SHINGLE STYLE	___ 19TH/20TH C. REVIVAL	___ INTERNATIONAL
___ GOTHIC REVIVAL	___ R. ROMANESQUE	___ ARTS & CRAFTS	___ RANCH
___ ITALIANATE	___ ROMANESQUE	___ BUNGALOW	___ VERNACULAR
___ SECOND EMPIRE	___ HIGH VIC. GOTHIC	OTHER _____	

Photograph



13. HEIGHT:
___ 1 STORY ___ 1 1/2 STORY ___ 2 STORY ___ 2 1/2 STORY ___ 3 STORY ___ 4 STORY
___ 5 STORY ___ OVER 5 (___)

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
___ 1 BAY ___ 2 BAY ___ 3 BAY ___ 4 BAY ___ 5 BAY ___ MORE THAN 5 (___)

15. APPENDAGES: ___ SIDE ELL ___ REAR ELL ___ FRONT ___ ADDED STORIES ___ SHED
___ DORMERS ___ PORCH ___ TOWER ___ CUPOLA ___ BAY WINDOW

16. PORCH:
___ ATTACHED ___ ENGAGED ___ ONE STORY ___ MORE THAN ONE STORY
___ FULL WIDTH ___ WRAPAROUND ___ SLEEPING PORCH ___ SECONDARY PORCH

17. PLAN:
___ HALL AND PARLOR ___ 1/2 CAPE ___ CENTRAL HALL ___ SIDE HALL
___ BACK HALL ___ IRREGULAR OTHER _____

18. PRIMARY STRUCTURAL SYSTEM:
___ TIMBER FRAME ___ BRACED FRAME ___ BRICK ___ STONE ___ BALLOON FRAME
___ CONCRETE ___ STEEL ___ LOG ___ PLANK WALL ___ PLATFORM FRAME
___ FRAME CONSTRUCTION - TYPE UNKNOWN OTHER _____

19. CHIMNEY PLACEMENT:
___ INTERIOR ___ INTERIOR FRONT/REAR ___ CENTER ___ INTERIOR END ___ EXTERIOR
OTHER _____

20. ROOF CONFIGURATION:
___ GABLE SIDE ___ GABLE FRONT ___ HIP ___ MANSARD ___ FLAT
___ GAMBREL ___ PARAPET GABLE ___ SHED ___ CROSS ___ GABLE
___ COMPOUND OTHER _____

21. ROOF MATERIAL: WOOD ___ METAL ___ TILE ___ SLATE ___ ASPHALT ___ ASBESTOS ___

22. EXTERIOR WALL MATERIALS:
___ CLAPBOARD ___ BRICK ___ FLUSH SHEATHING ___ WOOD SHINGLE ___ STONE
___ LOG ___ PRESSED METAL ___ CONCRETE ___ STUCCO ___ ASPHALT
___ GRANITE ___ ASBESTOS ___ TERRA COTTA ___ BOARD AND BATTEN ___ ALUMINUM/VINYL
OTHER _____

23. FOUNDATION MATERIAL:
___ FIELDSTONE ___ BRICK ___ WOOD ___ CONCRETE ___ GRANITE ___ ORNAMENTAL CONC. BLOCK
OTHER _____

24. OUTBUILDINGS/FEATURES:
___ CARRIAGE HOUSE ___ FENCE OR WALL ___ CEMETERY ___ BARN (CONNECTED)
___ BARN (DETACHED) ___ FORMAL GARDEN ___ LANDSCAPE/PLANT MAT. ___ ARCHAEOLOGICAL SITE
___ GARAGE OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR: _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION:
___ ENGLISH ___ FRENCH ACADIAN ___ NATIVE AMERICAN ___ SCOTTISH ___ FRENCH CANADIAN
___ EAST EUROPEAN ___ IRISH OTHER _____

33. HISTORIC CONTEXT(S):
___ COMMERCE ___ INDUSTRY ___ TRANSPORTATION ___ AGRICULTURE ___ MILITARY
___ RELIGION ___ CIVIC AFFAIRS ___ RECREATION ___ HABITATION ___ EDUCATION
___ ART, LIT, SCIENCE ___ SOCIAL

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: ___ YES ___ NO LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ___ ORIGINAL ___ MOVED DATE MOVED

37. SETTING: ___ RURAL/UNDISTURBED ___ RURAL/BUILT UP ___ SMALL TOWN ___ URBAN ___ SUBURBAN

38. QUADRANGLE MAP USED: _____ QUADRANGLE #:

39. UTM NORTHING: _____ 40. UTM EASTING:

41. FACADE DIRECTION (CIRCLE ONE): N S E W NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: _____ PHOTO FILE #: _____

NR STATUS: L___ HD___ E___ NE___ ND___ REVIEWER _____

DATA SOURCE: ___ HPF ___ CLG ___ R&C ___ STAFF ___ STATE SURVEY OTHER _____ LEVEL OF SURVEY: ___R ___I

SURVEY MAP NO. 5

SURVEY MAP NAME [illegible]

MHPC USE ONLY

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION

Historic Farmstead Survey Cover Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 24 New Town Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:
48. PRIMARY USE (PRESENT):
☑ RESIDENTIAL ☐ ANIMAL HUSBANDRY ☐ AGRICULTURE ☐ MIXED USE ☐ OTHER
49. FARM ACREAGE: 1.2
50. NUMBER OF STRUCTURES AND SITES ON FARM (INCLUDING HOUSE): 2
51. INVENTORY NUMBERS FOR SURVEYED BUILDINGS: 8, 9
52. LIST ANY STRUCTURE OR SITE NOT INDIVIDUALLY RECORDED ON A SURVEY FORM.
PLEASE ASSIGN EACH STRUCTURE OR SITE A LETTER AND LABEL ON SKETCH MAP ON BACK AND PHOTOGRAPH. INCLUDE ALL EXISTING STRUCTURES - SUCH AS COOPS, PIT SILOS, BEE HIVES, GARAGES, STONE WALLS, PRIVIES AND COTTAGES - AND NOTE ANY THAT HAVE BEEN REMOVED OVER THE YEARS (FOUNDATION HOLES).

HISTORICAL DATA

53. HISTORICAL USE:
53. DOCUMENTED DATE OF CONSTRUCTION:
54. ESTIMATED DATE OF CONSTRUCTION: ca. 1780
55. DATE MAJOR ADDITIONS/ALTERATIONS:
56. ORIGINAL OWNER:
57. CULTURAL/ETHNIC AFFILIATION:
☐ ENGLISH ☐ FRENCH ACADIAN ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
☐ EAST EUROPEAN ☐ IRISH OTHER
58. COMMENT/SOURCES:
59. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION
60. HAS THE SAME FAMILY FARMED THIS PROPERTY FOR MORE THAN 100 YEARS?
61. BEGINNING WHEN?

ENVIRONMENTAL DATA

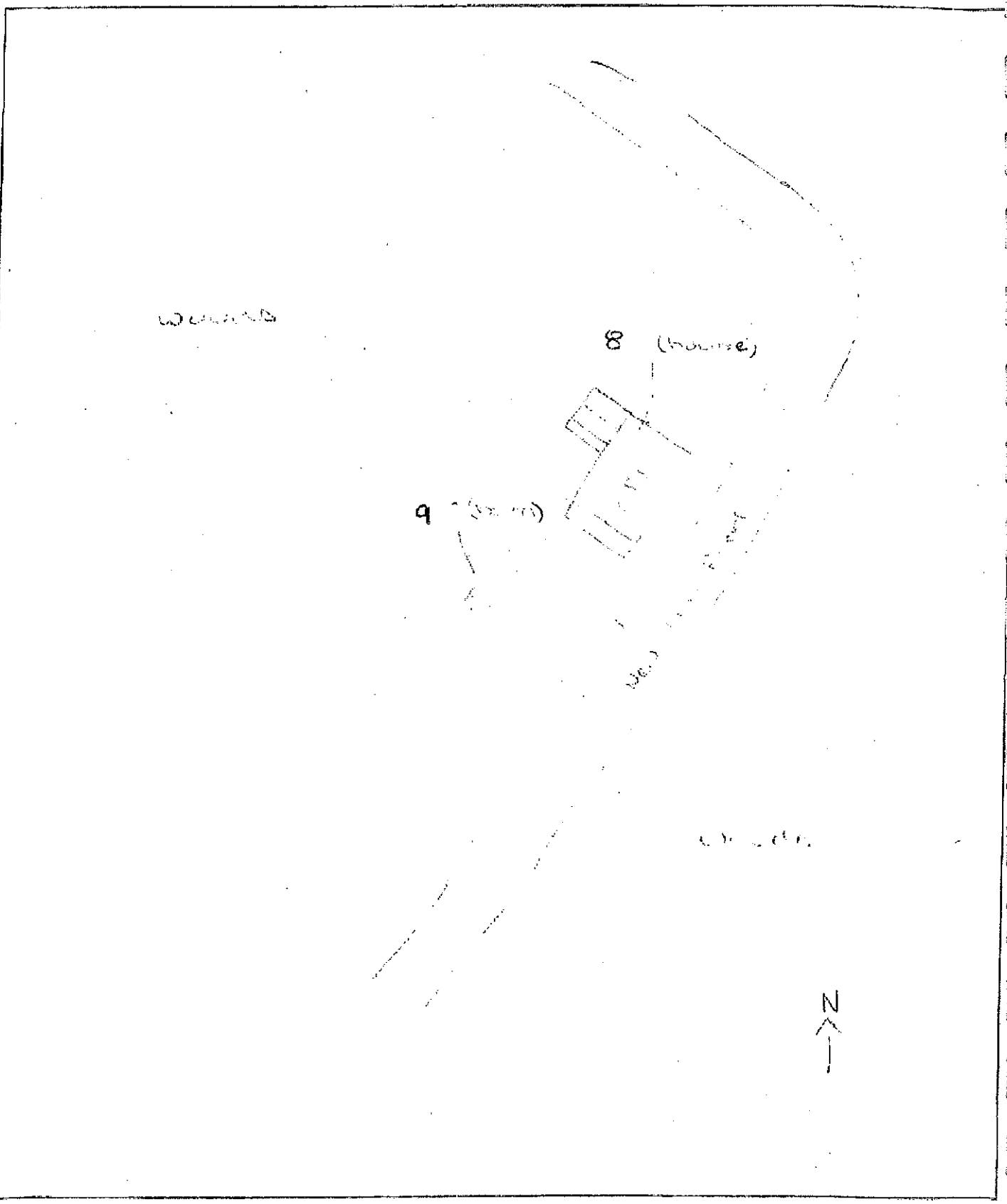
62. SITE INTEGRITY: ☑ ORIGINAL ☐ MOVED DATE MOVED
63. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
64. QUADRANGLE MAP USED: York Harbor QUADRANGLE NO. 43070-B6-TF-024
65. UTM NORTHING: 4780054 66. UTM EASTING: 0365661
67. FACADE DIRECTION: ☐ N ☐ S ☐ E ☐ W ☐ NE ☐ NW ☑ SE ☐ SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: PHOTO FILE #
NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER
DATA SOURCE: ___HPF ___CLG ___R/C ___STAFF ___STATE SURVEY OTHER ___ LEVEL OF SURVEY ___R ___I

SITE PLAN:

SKETCH MAP: THIS MAP SHOULD SHOW THE FARM AS SEEN LOOKING DOWN AT IT. IDENTIFY ALL STRUCTURES AND SITES WITH LETTERS, CORRESPONDING TO THOSE LISTED ON PAGE ONE. LABEL OTHER LANDSCAPE FEATURES SUCH AS STONE WALLS, FENCING, ORCHARDS, WOOD LOTS AND FIELDS. PLEASE INDICATE NORTH WITH AN ARROW. SCALE MAY BE APPROXIMATE.



Please return completed form to: Maine Historic Preservation Commission, 55 Capitol Street, SHS 65, Augusta, Maine 04333

MHPC USE ONLY

INVENTORY NO.

SURVEY MAP NO. 5
SURVEY MAP NAME YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form
Continuation Sheet

PROPERTY NAME:

TOWN: YORK

COUNTY: YORK

SURVEYOR: PAL

DATE: 05/10/2010

DATA FIELDS (From Survey Forms): PHOTOGRAPH



SURVEY MAP NO. 8

SURVEY MAP NAME York Tele. Plaza

MHPC USE ONLY

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 24 New Town Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:
9. PRIMARY USE (PRESENT):

- [x] SINGLE FAMILY
- [ ] MULTI-FAMILY
- [ ] INDUSTRY
- [ ] TRANSPORTATION
- [ ] RECREATION/CULTURE
- [ ] AGRICULTURE
- [ ] GOVERNMENTAL
- [ ] RELIGIOUS
- [ ] DEFENSE
- [ ] UNKNOWN
- [ ] COMMERCIAL/TRADE
- [ ] EDUCATION
- [ ] HOTEL
- [ ] SUMMER COTTAGE/CAMP
- [ ] FUNERARY
- [ ] HEALTH CARE
- [ ] LANDSCAPE
- [ ] SOCIAL

OTHER

10. CONDITION: [x] GOOD [ ] FAIR [ ] POOR [ ] DESTROYED, DATE

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY

- [ ] COLONIAL
- [x] FEDERAL
- [ ] GREEK REVIVAL
- [ ] GOTHIC REVIVAL
- [ ] ITALIANATE
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] QUEEN ANNE
- [ ] SHINGLE STYLE
- [ ] R. ROMANESQUE
- [ ] ROMANESQUE
- [ ] HIGH VIC. GOTHIC
- [ ] NEO-CLASSICAL REV.
- [ ] RENAISSANCE REV.
- [ ] 19TH/20TH C. REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] BUNGALOW
- [ ] FOUR SQUARE
- [ ] ART DECO
- [ ] INTERNATIONAL
- [ ] RANCH
- [ ] VERNACULAR

OTHER

12. OTHER STYLISTIC CATEGORY:

- [ ] COLONIAL
- [ ] FEDERAL
- [ ] GREEK REVIVAL
- [ ] GOTHIC REVIVAL
- [ ] ITALIANATE
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] QUEEN ANNE
- [ ] SHINGLE STYLE
- [ ] R. ROMANESQUE
- [ ] ROMANESQUE
- [ ] HIGH VIC. GOTHIC
- [ ] NEO-CLASSICAL REV.
- [ ] RENAISSANCE REV.
- [ ] 19TH/20TH C. REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] BUNGALOW
- [ ] FOUR SQUARE
- [ ] ART DECO
- [ ] INTERNATIONAL
- [ ] RANCH
- [x] VERNACULAR

OTHER

13. HEIGHT:

- [ ] 1 STORY
- [ ] 1 1/2 STORY
- [x] 2 STORY
- [ ] 2 1/2 STORY
- [ ] 3 STORY
- [ ] 4 STORY
- [ ] 5 STORY
- [ ] OVER 5 (_____)

14. PRIMARY FACADE WIDTH (MAIN BLOCK: USE GROUND FLOOR):

- [ ] 1 BAY
- [ ] 2 BAY
- [ ] 3 BAY
- [ ] 4 BAY
- [x] 5 BAY
- [ ] MORE THAN 5 (_____)

15. APPENDAGES:

- [x] SIDE ELL
- [ ] DORMERS
- [x] REAR ELL
- [ ] PORCH
- [ ] FRONT TOWER
- [ ] ADDED STORIES
- [ ] CUPOLA
- [ ] SHED
- [ ] BAY WINDOW

PHOTOGRAPH



16. PORCH:

☐ ATTACHED ☐ FULL WIDTH ☐ ENGAGED ☐ WRAPAROUND ☐ ONE STORY ☐ SLEEPING PORCH ☐ MORE THAN ONE STORY ☐ SECONDARY PORCH

17. PLAN:

☐ HALL AND PARLOR ☐ BACK HALL ☐ 1/2 CAPE ☐ IRREGULAR ☐ CENTRAL HALL ☐ SIDE HALL

OTHER Rectangular

18. PRIMARY STRUCTURAL SYSTEM:

☐ TIMBER FRAME ☐ CONCRETE ☑ FRAME CONSTRUCTION-TYPE UNKNOWN ☐ BRACED FRAME ☐ STEEL ☐ BRICK ☐ LOG ☐ STONE ☐ PLANK WALL ☐ BALLOON FRAME ☐ PLATFORM FRAME

OTHER

19. CHIMNEY PLACEMENT:

☐ INTERIOR ☐ INTERIOR FRONT/REAR ☑ CENTER ☐ INTERIOR END ☐ EXTERIOR

OTHER

20. ROOF CONFIGURATION

☑ GABLE SIDE ☐ GAMBREL ☐ COMPOUND ☐ GABLE FRONT ☐ PARAPET GABLE ☐ HIP ☐ SHED ☐ MANSARD ☐ CROSS ☐ FLAT ☐ GABLE

OTHER

21. ROOF MATERIAL: ☐ WOOD ☐ METAL ☐ TILE ☐ SLATE ☑ ASPHALT ☐ ASBESTOS

22. EXTERIOR WALL MATERIALS:

☐ CLAPBOARD ☑ LOG ☐ GRANITE ☐ BRICK ☐ PRESSED METAL ☐ ASBESTOS ☐ FLUSH SHEATING ☐ CONCRETE ☐ TERRA COTTA ☐ WOOD SHINGLE ☐ STUCCO ☐ BOARD AND BATTEN ☐ STONE ☐ ASPHALT ☐ ALUMINUM/VINYL

OTHER

23. FOUNDATION MATERIALS:

☐ FIELDSTONE ☐ BRICK ☐ WOOD ☐ CONCRETE ☐ GRANITE ☐ ORNAMENTAL CONC. BLOCK

OTHER Not Visible

24. OUTBUILDINGS/FEATURES:

☐ CARRIAGE HOUSE ☐ BARN (DETACHED) ☐ GARAGE ☐ FENCE OR WALL ☐ FORMAL GARDEN ☐ CEMETERY ☐ LANDSCAPE/PLANT MAT. ☐ BARN (CONNECTED) ☐ ARCHAEOLOGICAL SITE

OTHER Shop

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: ca. 1780

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR: _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION:

☐ ENGLISH ☐ EAST EUROPEAN ☐ FRENCH ACADIAN ☐ IRISH ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN

OTHER

33. HISTORIC CONTEXT(S):

☐ COMMERCE ☐ RELIGION ☐ ART, LIT SCIENCE ☐ INDUSTRY ☐ CIVIC AFFAIRS ☐ SOCIAL ☐ TRANSPORTATION ☐ RECREATION ☐ AGRICULTURE ☐ HABITATION ☐ MILITARY ☐ EDUCATION

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ☑ ORIGINAL ☐ MOVED DATE MOVED: _____

37. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN

38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: 43070-B6-TF-024

39. UTM NORTHING: _____ 40. UTM EASTING: _____

41. FACADE DIRECTION: ☐ N ☐ S ☐ E ☐ W ☐ NE ☐ NW ☑ SE ☐ SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: _____ PHOTO FILE # _____

NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER _____

DATA SOURCE: ___HPF ___CLG ___R/C ___STAFF ___STATE SURVEY OTHER _____ LEVEL OF SURVEY ___R ___I

ASSOCIATED INVENTORY NUMBERS: _____

MHPC USE ONLY

INVENTORY NO.

SURVEY MAP NO. 9

SURVEY MAP NAME YORK TOLL PLAZA

MAINE HISTORIC PRESERVATION COMMISSION
Historic Barn/Agricultural Structure Survey Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 24 New Town Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:

73. PRIMARY USE (HISTORIC):

- ☐ BARN, MIXED USE
- ☐ SILO
- ☐ HOP HOUSE
- ☐ GREENHOUSE
- ☐ SMOKE HOUSE
- ☐ ANIMAL SHED (TYPE)
- ☐ HAY BARN
- ☐ MILK HOUSE
- ☐ SPRING/WELL HOUSE
- ☐ WAGON SHED
- ☐ POTATO BARN
- ☐ DAIRY BARN
- ☐ CIDER HOUSE
- ☐ POULTRY BARN
- ☐ WORKER HOUSING
- ☐ CORN CRIB
- ☑ OTHER Shop
- ☐ STABLE/LIVERY
- ☐ SUGAR SHACK
- ☐ CHICKEN COOP
- ☐ ICE HOUSE
- ☐ PIGGERY

ARCHITECTURAL DATA

74. PRIMARY STYLISTIC CATEGORY:

- ☐ COLONIAL
- ☐ GREEK REVIVAL
- ☐ ARTS AND CRAFTS
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ SHINGLE STYLE
- ☐ ITALIANATE
- ☐ HIGH VIC. GOTHIC
- ☐ FEDERAL
- ☐ 19TH/20TH C. REVIVAL
- ☐ BUNGALOW
- ☐ OTHER
- ☐ QUEEN ANNE
- ☐ GOTHIC REVIVAL
- ☑ VERNACULAR

75. HEIGHT.

☐ 1 STORY ☑ 1 1/2 STORY ☐ 2 STORY ☐ 2 1/2 STORY ☐ 3 STORY ☐ 4 STORY ☐ OVER 4 ( )

76. PLAN:

- ☐ ENGLISH
- ☐ CONNECTED
- ☐ NEW ENGLAND
- ☑ DETACHED
- ☐ ROUND
- ☐ BANK BARN
- ☑ OTHER Rectangular

77. PRIMARY STRUCTURAL SYSTEM:

- ☐ HAND-HEWN
- ☐ LOG
- ☐ SAWN HEAVY TIMBERS
- ☐ CONCRETE
- ☐ STUD CONSTRUCTION
- ☐ OTHER Unknown
- ☐ STONE
- ☐ BRICK

78. EXTERIOR SIDING:

- ☐ CLAPBOARD
- ☐ ALUMINUM/VINYL
- ☐ OTHER
- ☑ WOOD SHINGLE
- ☐ STONE
- ☐ ASPHALT
- ☐ BRICK
- ☐ CONCRETE
- ☑ CORRUGATED METAL

79. ROOF CONFIGURATION:

- ☑ GABLE SIDE
- ☐ OTHER
- ☐ GABLE FRONT
- ☐ MONITOR
- ☐ GAMBREL
- ☐ HIP
- ☐ SHED

80. ROOF MATERIAL:

- ☐ WOOD
- ☐ OTHER
- ☑ METAL
- ☐ SLATE
- ☐ ASPHALT
- ☐ ASBESTOS

81. FOUNDATION MATERIAL:

☑ FIELDSTONE ☐ BRICK ☐ CONCRETE ☐ GRANITE ☐ OTHER

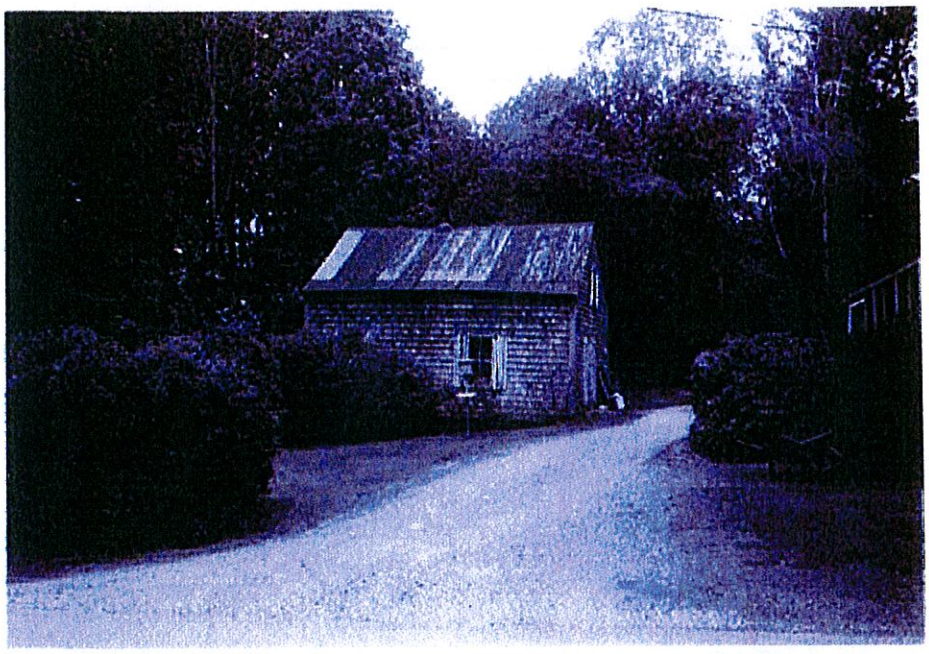
82. DOCUMENTED DATE OF CONSTRUCTION

54. ESTIMATED DATE OF CONSTRUCTION: ca. 1900

PHOTOGRAPH

FRAMING CROSS SECTION

SKETCH FRAMING OF ONE TRANSVERSE SECTION (BENT) OF BARN AND ONE LATERAL SECTION (EAVE WALL) OF STRUCTURE. LABEL EACH SKETCH TO SHOW CARDINAL DIRECTION.



MHPC USE ONLY

DATE ENTERED IN INVENTORY:_____ PHOTO FILE #_____

NR STATUS: L ____ HD ____ E ____ NE ____ ND ____ REVIEWER _____

DATA SOURCE: ____HPF ____CLG ____R/C ____ STAFF ____STATE SURVEY OTHER _____ LEVEL OF SURVE __R __I

SURVEY MAP NO. 6

SURVEY MAP NAME York PIN 15522.00

MHPC USE ONLY

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 650 Blue Star Memorial Highway (US Route 1)

4. TOWN: York

5. COUNTY: York

6. DATE RECORDED: 1/8/2003

7. SURVEYOR: Geoffrey Melhuish

8. OWNER NAME: _____

ADDRESS: _____

9. PRIMARY USE (PRESENT):

- ☐ SINGLE FAMILY
- ☒ MULTI-FAMILY
- ☐ INDUSTRY
- ☐ TRANSPORTATION
- ☐ RECREATION/CULTURE
- ☐ AGRICULTURE
- ☐ GOVERNMENTAL
- ☐ RELIGIOUS
- ☐ DEFENSE
- ☐ UNKNOWN
- ☐ COMMERCIAL/TRADE
- ☐ EDUCATION
- ☐ HOTEL
- ☐ SUMMER COTTAGE/CAMP
- ☐ FUNERARY
- ☐ HEALTH CARE
- ☐ LANDSCAPE
- ☐ SOCIAL

OTHER _____

10. CONDITION: ☐ GOOD ☒ FAIR ☐ POOR ☐ DESTROYED, DATE ___/___/___

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

- ☐ COLONIAL
- ☐ FEDERAL
- ☐ GREEK REVIVAL
- ☐ GOTHIC REVIVAL
- ☐ ITALIANATE
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ QUEEN ANNE
- ☐ SHINGLE STYLE
- ☐ R. ROMANESQUE
- ☐ ROMANESQUE
- ☐ HIGH VIC. GOTHIC
- ☐ NEO-CLASSICAL REV.
- ☐ RENAISSANCE REV.
- ☒ 19TH/20TH C. REVIVAL
- ☐ ARTS & CRAFTS
- ☐ BUNGALOW
- ☐ FOUR SQUARE
- ☐ ART DECO
- ☐ INTERNATIONAL
- ☐ RANCH
- ☐ VERNACULAR

OTHER _____

12. OTHER STYLISTIC CATEGORY:

- ☐ COLONIAL
- ☐ FEDERAL
- ☐ GREEK REVIVAL
- ☐ GOTHIC REVIVAL
- ☐ ITALIANATE
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ QUEEN ANNE
- ☐ SHINGLE STYLE
- ☐ R. ROMANESQUE
- ☐ ROMANESQUE
- ☐ HIGH VIC. GOTHIC
- ☐ NEO-CLASSICAL REV.
- ☐ RENAISSANCE REV.
- ☐ 19TH/20TH C. REVIVAL
- ☐ ARTS & CRAFTS
- ☐ BUNGALOW
- ☐ FOUR SQUARE
- ☐ ART DECO
- ☐ INTERNATIONAL
- ☐ RANCH
- ☐ VERNACULAR

OTHER _____

13. HEIGHT:

☐ 1 STORY ☒ 1½ STORY ☐ 2 STORY ☐ 2½ STORY ☐ 3 STORY ☐ 4 STORY
☐ 5 STORY ☐ OVER 5 (___)

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):

☐ 1 BAY ☐ 2 BAY ☐ 3 BAY ☒ 4 BAY ☐ 5 BAY ☐ MORE THAN 5 (___)

15. APPENDAGES:

- ☒ SIDE ELL
- ☒ DORMERS
- ☐ REAR ELL
- ☒ PORCH
- ☐ FRONT
- ☐ TOWER
- ☐ ADDED STORIES
- ☐ CUPOLA
- ☐ SHED
- ☒ BAY WINDOW

PHOTOGRAPH:



16. PORCH: ☒ ATTACHED ☐ FULL WIDTH ☐ ENGAGED ☐ WRAPAROUND ☒ ONE STORY ☐ SLEEPING PORCH ☐ MORE THAN ONE STORY ☒ SECONDARY PORCH

17. PLAN: ☐ HALL AND PARLOR ☐ BACK HALL ☐ 1/2 CAPE ☒ IRREGULAR ☐ CENTRAL HALL ☐ OTHER ____ ☐ SIDE HALL

18. PRIMARY STRUCTURAL SYSTEM: ☐ TIMBER FRAME ☐ CONCRETE ☒ FRAME CONSTRUCTION - TYPE UNKNOWN ☐ BRACED FRAME ☐ STEEL ☐ BRICK ☐ LOG ☐ OTHER ____ ☐ STONE ☐ PLANK WALL ☐ BALLOON FRAME ☐ PLATFORM FRAME

19. CHIMNEY PLACEMENT: ☒ INTERIOR ☐ INTERIOR FRONT/REAR ☐ CENTER ☐ INTERIOR END ☐ EXTERIOR
OTHER ____

20. ROOF CONFIGURATION: ☐ GABLE SIDE ☒ GAMBREL ☐ COMPOUND ☐ GABLE FRONT ☐ PARAPET GABLE ☐ OTHER ____ ☐ HIP ☐ MANSARD ☐ FLAT ☐ SHED ☐ CROSS ☐ GABLE

21. ROOF MATERIAL: ☐ WOOD ☐ METAL ☐ TILE ☐ SLATE ☒ ASPHALT ☐ ASBESTOS

22. EXTERIOR WALL MATERIALS: ☐ CLAPBOARD ☐ LOG ☐ GRANITE ☐ BRICK ☐ PRESSED METAL ☐ ASBESTOS ☐ FLUSH SHEATHING ☐ CONCRETE ☐ TERRA COTTA ☐ WOOD SHINGLE ☐ STUCCO ☐ BOARD AND BATTEN ☐ STONE ☐ ASPHALT ☒ ALUMINUM/VINYL
OTHER ____

23. FOUNDATION MATERIAL: ☐ FIELDSTONE ☐ BRICK ☐ WOOD ☒ CONCRETE ☐ GRANITE ☐ ORNAMENTAL CONC. BLOCK
☐ OTHER ____

24. OUTBUILDINGS/FEATURES: ☐ CARRIAGE HOUSE ☐ BARN (DETACHED) ☒ GARAGE ☐ FENCE OR WALL ☐ FORMAL GARDEN ☐ OTHER ____ ☐ CEMETERY ☐ LANDSCAPE/PLANT MAT. ☐ BARN (CONNECTED) ☐ ARCHAEOLOGICAL SITE

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: ____ 26. ESTIMATED DATE OF CONSTRUCTION: ____

27. DATE MAJOR ADDITIONS/ALTERATIONS: ____

28. ARCHITECT: ____ 29. CONTRACTOR: ____

30. ORIGINAL OWNER: ____

31. SUBSEQUENT SIGNIFICANT OWNER: ____ DATES: ____

32. CULTURAL/ETHNIC AFFILIATION: ☐ ENGLISH ☐ EAST EUROPEAN ☐ FRENCH ACADIAN ☐ IRISH ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
OTHER ____

33. HISTORIC CONTEXT(S): ☐ COMMERCE ☐ RELIGION ☐ ART, LIT, SCIENCE ☐ INDUSTRY ☐ CIVIC AFFAIRS ☐ SOCIAL ☐ TRANSPORTATION ☐ RECREATION ☐ AGRICULTURE ☐ HABITATION ☐ MILITARY ☐ EDUCATION

34. COMMENTS/SOURCES:

35. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION:

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ☒ ORIGINAL ☐ MOVED DATE MOVED
37. SETTING: ☐ RURAL/UNDISTURBED ☒ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: 64026
39. UTM NORTHING: 40. UTM EASTING:
41. FACADE DIRECTION (CIRCLE ONE): ☐ N ☒ S ☐ E ☐ W ☐ NE ☐ NW ☐ SE ☐ SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: ____ PHOTO FILE #:
NR STATUS: L___ HD___ E___ NE___ ND___ REVIEWER
DATA SOURCE: ___HPF ___CLG ___R&C ___STAFF ___STATE SURVEY OTHER ____ LEVEL OF SURVEY: ___R ___

FORM: K:\KIRKMARCH-SVY.FRM\HBSSFSVY.MAS

SURVEY MAP NO. 7

SURVEY MAP NAME York PIN 10822.00

MHPC USE ONLY

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: 6/6 Blue Star Memorial Highway (US Route 1)

4. TOWN: York

5. COUNTY: York

6. DATE RECORDED: 1/8/2009

7. SURVEYOR: Geoffrey Wellwich

8. OWNER NAME: _____

ADDRESS: _____

9. PRIMARY USE (PRESENT):

- ☐ SINGLE FAMILY
- ☐ MULTI-FAMILY
- ☐ INDUSTRY
- ☐ TRANSPORTATION
- ☐ RECREATION/CULTURE
- OTHER _____
- ☐ AGRICULTURE
- ☐ GOVERNMENTAL
- ☐ RELIGIOUS
- ☐ DEFENSE
- ☐ UNKNOWN
- ☒ COMMERCIAL/TRADE
- ☐ EDUCATION
- ☐ HOTEL
- ☐ SUMMER COTTAGE/CAMP
- ☐ FUNERARY
- ☐ HEALTH CARE
- ☐ LANDSCAPE
- ☐ SOCIAL

10. CONDITION: ☐ GOOD ☒ FAIR ☐ POOR ☐ DESTROYED, DATE __/__/

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

- ☐ COLONIAL
- ☐ FEDERAL
- ☐ GREEK REVIVAL
- ☐ GOTHIC REVIVAL
- ☐ ITALIANATE
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ QUEEN ANNE
- ☐ SHINGLE STYLE
- ☐ R. ROMANESQUE
- ☐ ROMANESQUE
- ☐ HIGH VIC. GOTHIC
- ☐ NEO-CLASSICAL REV.
- ☐ RENAISSANCE REV.
- ☐ 19TH/20TH C. REVIVAL
- ☐ ARTS & CRAFTS
- ☐ BUNGALOW
- ☐ FOUR SQUARE
- ☐ ART DECO
- ☐ INTERNATIONAL
- ☐ RANCH
- ☒ VERNACULAR

OTHER _____

12. OTHER STYLISTIC CATEGORY

- ☐ COLONIAL
- ☐ FEDERAL
- ☐ GREEK REVIVAL
- ☐ GOTHIC REVIVAL
- ☐ ITALIANATE
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ QUEEN ANNE
- ☐ SHINGLE STYLE
- ☐ R. ROMANESQUE
- ☐ ROMANESQUE
- ☐ HIGH VIC. GOTHIC
- ☐ NEO-CLASSICAL REV.
- ☐ RENAISSANCE REV.
- ☐ 19TH/20TH C. REVIVAL
- ☐ ARTS & CRAFTS
- ☐ BUNGALOW
- ☐ FOUR SQUARE
- ☐ ART DECO
- ☐ INTERNATIONAL
- ☐ RANCH
- ☐ VERNACULAR

OTHER _____

13. HEIGHT:

- ☐ 1 STORY
- ☐ 1½ STORY
- ☐ 2 STORY
- ☐ 2½ STORY
- ☐ 3 STORY
- ☐ 4 STORY
- ☐ 5 STORY
- ☐ OVER 5 (___)

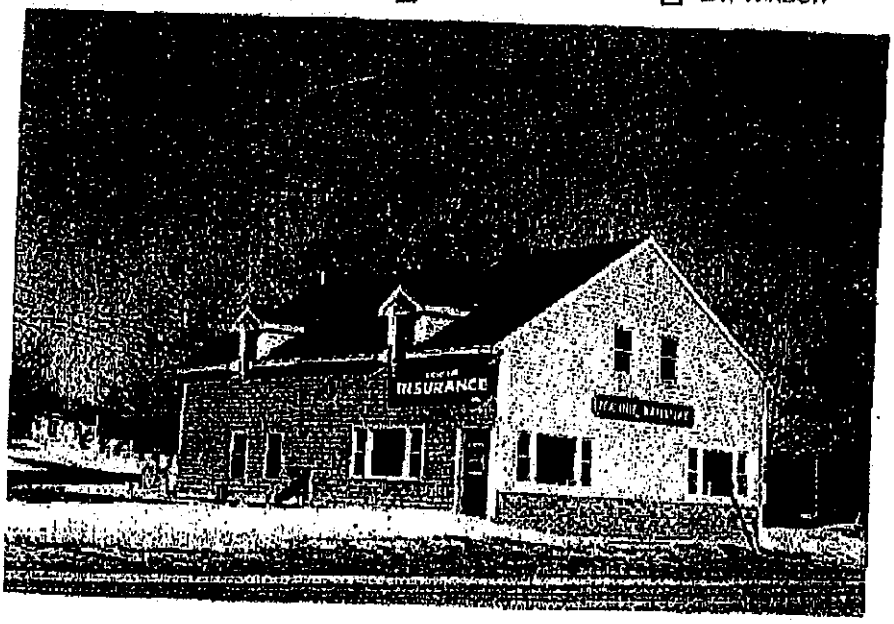
14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):

- ☐ 1 BAY
- ☐ 2 BAY
- ☐ 3 BAY
- ☒ 4 BAY
- ☐ 5 BAY
- ☐ MORE THAN 5 (___)

15. APPENDAGES:

- ☐ SIDE ELL
- ☒ DORMERS
- ☐ REAR ELL
- ☐ PORCH
- ☐ FRONT
- ☐ TOWER
- ☐ ADDED STORIES
- ☐ CUPOLA
- ☐ SHED
- ☐ BAY WINDOW

PHOTOGRAPH:



16. PORCH:
☐ ATTACHED ☐ ENGAGED ☐ ONE STORY ☒ MORE THAN ONE STORY
☐ FULL WIDTH ☐ WRAPAROUND ☐ SLEEPING PORCH ☒ SECONDARY PORCH

17. PLAN:
☐ HALL AND PARLOR ☐ 1/2 CAPE ☐ CENTRAL HALL ☐ SIDE HALL
☐ BACK HALL ☒ IRREGULAR ☐ OTHER _____

18. PRIMARY STRUCTURAL SYSTEM:
☐ TIMBER FRAME ☐ BRACED FRAME ☐ BRICK ☐ STONE ☐ BALLOON FRAME
☐ CONCRETE ☐ STEEL ☐ LOG ☐ PLANK WALL ☐ PLATFORM FRAME
☒ FRAME CONSTRUCTION - TYPE UNKNOWN ☐ OTHER _____

19. CHIMNEY PLACEMENT:
☐ INTERIOR ☐ INTERIOR FRONT/REAR ☐ CENTER ☐ INTERIOR END ☐ EXTERIOR
OTHER _____

20. ROOF CONFIGURATION:
☒ GABLE SIDE ☐ GABLE FRONT ☐ H P ☐ MANSARD ☐ FLAT
☐ GAMBREL ☐ PARAPET GABLE ☐ SHED ☐ CROSS ☐ GABLE
☐ COMPOUND ☐ OTHER _____

21. ROOF MATERIAL: ☐ WOOD ☐ METAL ☐ TILE ☐ SLATE ☒ ASPHALT ☐ ASBESTOS

22. EXTERIOR WALL MATERIALS:
☐ CLAPBOARD ☐ BRICK ☐ FLUSH SHEATHING ☒ WOOD SHINGLE ☐ STONE
☐ LOG ☐ PRESSED METAL ☐ CONCRETE ☐ STUCCO ☐ ASPHALT
☐ GRANITE ☐ ASBESTOS ☐ TERRA COTTA ☐ BOARD AND BATTEN ☒ ALUMINUM/VINYL
OTHER _____

23. FOUNDATION MATERIAL:
☐ FIELDSTONE ☐ BRICK ☐ WOOD ☒ CONCRETE ☐ GRANITE ☐ ORNAMENTAL CONC. BLOCK
☐ OTHER _____

24. OUTBUILDINGS/FEATURES:
☐ CARRIAGE HOUSE ☐ FENCE OR WALL ☐ CEMETERY ☐ BARN (CONNECTED)
☐ BARN (DETACHED) ☐ FORMAL GARDEN ☐ LANDSCAPE/PLANT MAT. ☐ ARCHAEOLOGICAL SITE
☐ GARAGE ☐ OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: _____

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR: _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION.
☐ ENGLISH ☐ FRENCH ACADIAN ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
☐ EAST EUROPEAN ☐ IRISH OTHER _____

33. HISTORIC CONTEXT(S):
☐ COMMERCE ☐ INDUSTRY ☐ TRANSPORTATION ☐ AGRICULTURE ☐ MILITARY
☐ RELIGION ☐ CIVIC AFFAIRS ☐ RECREATION ☐ HABITATION ☐ EDUCATION
☐ ART, LIT, SCIENCE ☐ SOCIAL

34. COMMENTS/SOURCES:

35. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION:

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ☒ ORIGINAL ☐ MOVED DATE MOVED
37. SETTING: ☐ RURAL/UNDISTURBED ☒ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: 64026
39. UTM NORTHING: 40. UTM EASTING:
41. FACADE DIRECTION (CIRCLE ONE): ☐ N ☒ S ☐ E ☐ W ☐ NE ☐ NW ☐ SE ☐ SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: _____ PHOTO FILE #:
NR STATUS: L___ HD___ E___ NE___ ND___ REVIEWER
DATA SOURCE: ___HPF ___CLG ___R&C ___STAFF ___STATE SURVEY OTHER _____ LEVEL OF SURVEY: ___R ___I

FORM K:\KIRK\ARCH-SVY.FRM\HBSSFSVY.MAS

APPENDIX C

SURVEY FORMS FOR NEWLY IDENTIFIED PROPERTIES WITHIN THE YORK TOLL PLAZA APE

Table C-1. Properties Identified During the York Toll Plaza Architectural Reconnaissance Survey.

Survey Map No.	Address	Town	MHPC Form Type	Property Type
1	New Town Road, west side, approx. 0.3 miles north of the intersection with US Route 1.	York	Historic Building/Structure Survey Form	Cemetery
2	2 New Town Road	York	Historic Farmstead Survey Cover Form	Farmstead
3	2 New Town Road	York	Historic Building/Structure Survey Form	Residence
4	2 New Town Road	York	Historic Barn/Agricultural Structure Survey Form	Barn

SURVEY MAP NO 1

MHPC USE ONLY

SURVEY MAP NAME York Toll Plaza Survey Base Map

INVENTORY NO

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER): Simpson Cemetery
3. STREET ADDRESS: New Town Road, west side, approx. 0.3 miles north of the intersection with US Route 1
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 2/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:
9. PRIMARY USE (PRESENT):
- ☐ SINGLE FAMILY
- ☐ MULTI-FAMILY
- ☐ INDUSTRY
- ☐ TRANSPORTATION
- ☐ RECREATION/CULTURE
- ☐ AGRICULTURE
- ☐ GOVERNMENTAL
- ☐ RELIGIOUS
- ☐ DEFENSE
- ☐ UNKNOWN
- ☐ COMMERCIAL/TRADE
- ☐ EDUCATION
- ☐ HOTEL
- ☐ SUMMER COTTAGE/CAMP
- ☑ FUNERARY
- ☐ HEALTH CARE
- ☐ LANDSCAPE
- ☐ SOCIAL

OTHER Cemetery

10. CONDITION: ☐ GOOD ☑ FAIR ☐ POOR ☐ DESTROYED, DATE

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:
- ☐ COLONIAL
- ☐ FEDERAL
- ☐ GREEK REVIVAL
- ☐ GOTHIC REVIVAL
- ☐ ITALIANATE
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ QUEEN ANNE
- ☐ SHINGLE STYLE
- ☐ R. ROMANESQUE
- ☐ ROMANESQUE
- ☐ HIGH VIC. GOTHIC
- ☐ NEO-CLASSICAL REV.
- ☐ RENAISSANCE REV.
- ☐ 19TH/20TH C. REVIVAL
- ☐ ARTS AND CRAFTS
- ☐ BUNGALOW
- ☐ FOUR SQUARE
- ☐ ART DECO
- ☐ INTERNATIONAL
- ☐ RANCH
- ☐ VERNACULAR

OTHER

12. OTHER STYLISTIC CATEGORY:
- ☐ COLONIAL
- ☐ FEDERAL
- ☐ GREEK REVIVAL
- ☐ GOTHIC REVIVAL
- ☐ ITALIANATE
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ QUEEN ANNE
- ☐ SHINGLE STYLE
- ☐ R. ROMANESQUE
- ☐ ROMANESQUE
- ☐ HIGH VIC. GOTHIC
- ☐ NEO-CLASSICAL REV.
- ☐ RENAISSANCE REV.
- ☐ 19TH/20TH C. REVIVAL
- ☐ ARTS AND CRAFTS
- ☐ BUNGALOW
- ☐ FOUR SQUARE
- ☐ ART DECO
- ☐ INTERNATIONAL
- ☐ RANCH
- ☐ VERNACULAR

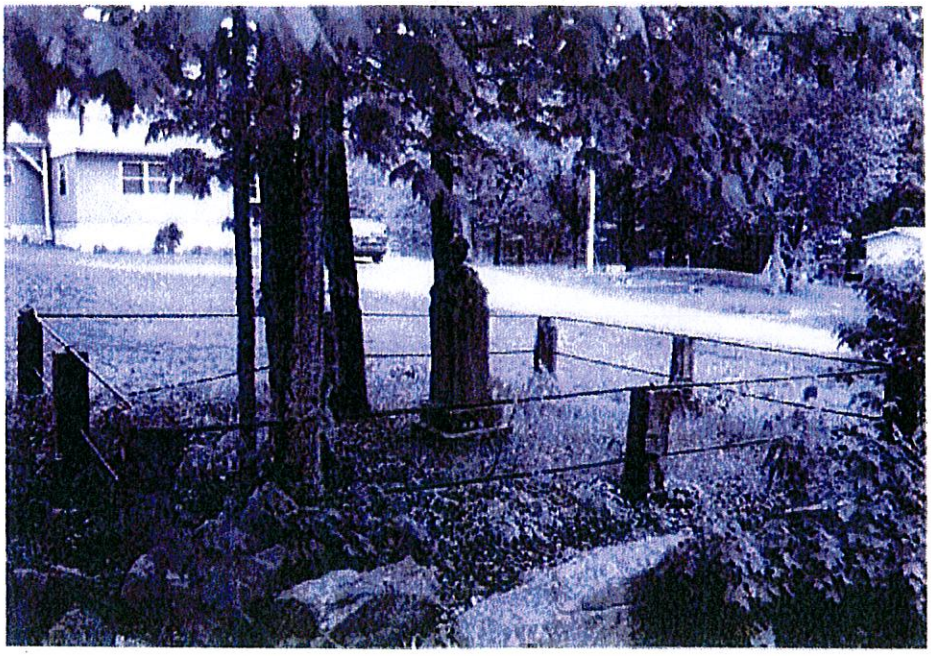
OTHER

13. HEIGHT:
☐ 1 STORY ☐ 1 1/2 STORY ☐ 2 STORY ☐ 2 1/2 STORY ☐ 3 STORY ☐ 4 STORY
☐ 5 STORY ☐ OVER 5 (_____)

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
☐ 1 BAY ☐ 2 BAY ☐ 3 BAY ☐ 4 BAY ☐ 5 BAY ☐ MORE THAN 5 (_____)

15. APPENDAGES:
☐ SIDE ELL ☐ REAR ELL ☐ FRONT ☐ ADDED STORIES ☐ SHED
☐ DORMERS ☐ PORCH ☐ TOWER ☐ CUPOLA ☐ BAY WINDOW

PHOTOGRAPH



16. PORCH:
☐ ATTACHED ☐ ENGAGED ☐ ONE STORY ☐ MORE THAN ONE STORY
☐ FULL WIDTH ☐ WRAPAROUND ☐ SLEEPING PORCH ☐ SECONDARY PORCH

17. PLAN:
☐ HALL AND PARLOR ☐ 1/2 CAPE ☐ CENTRAL HALL ☐ SIDE HALL
☐ BACK HALL ☐ IRREGULAR OTHER _____

18. PRIMARY STRUCTURAL SYSTEM
☐ TIMBER FRAME ☐ BRACED FRAME ☐ BRICK ☐ STONE ☐ BALLOON FRAME
☐ CONCRETE ☐ STEEL ☐ LOG ☐ PLANK WALL ☐ PLATFORM FRAME
☐ FRAME CONSTRUCTION-TYPE UNKNOWN OTHER _____

19. CHIMNEY PLACEMENT
☐ INTERIOR ☐ INTERIOR FRONT/REAR ☐ CENTER ☐ INTERIOR END ☐ EXTERIOR
OTHER _____

20. ROOF CONFIGURATION
☐ GABLE SIDE ☐ GABLE FRONT ☐ HIP ☐ MANSARD ☐ FLAT
☐ GAMBREL ☐ PARAPET GABLE ☐ SHED ☐ CROSS ☐ GABLE
☐ COMPOUND OTHER _____

21. ROOF MATERIAL: ☐ WOOD ☐ METAL ☐ TILE ☐ SLATE ☐ ASPHALT ☐ ASBESTOS

22. EXTERIOR WALL MATERIALS:
☐ CLAPBOARD ☐ BRICK ☐ FLUSH SHEATING ☐ WOOD SHINGLE ☐ STONE
☐ LOG ☐ PRESSED METAL ☐ CONCRETE ☐ STUCCO ☐ ASPHALT
☐ GRANITE ☐ ASBESTOS ☐ TERRA COTTA ☐ BOARD AND BATTEN ☐ ALUMINUM/VINYL
OTHER _____

23. FOUNDATION MATERIALS:
☐ FIELDSTONE ☐ BRICK ☐ WOOD ☐ CONCRETE ☐ GRANITE ☐ ORNAMENTAL CONC. BLOCK
OTHER _____

24. OUTBUILDINGS/FEATURES:
☐ CARRIAGE HOUSE ☑ FENCE OR WALL ☐ CEMETERY ☐ BARN (CONNECTED)
☐ BARN (DETACHED) ☐ FORMAL GARDEN ☐ LANDSCAPE/PLANT MAT. ☐ ARCHAEOLOGICAL SITE
☐ GARAGE OTHER _____

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: ca. 1859

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR: _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION:
☐ ENGLISH ☐ FRENCH ACADIAN ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
☐ EAST EUROPEAN ☐ IRISH OTHER _____

33. HISTORIC CONTEXT(S):
☐ COMMERCE ☐ INDUSTRY ☐ TRANSPORTATION ☐ AGRICULTURE ☐ MILITARY
☐ RELIGION ☐ CIVIC AFFAIRS ☐ RECREATION ☐ HABITATION ☐ EDUCATION
☐ ART, LIT SCIENCE ☐ SOCIAL

34. COMMENTS/SOURCES: The Simpson Cemetery contains a central stone monument inscribed with names and dates, as well as several small stone tablets marking to identify the individual graves.

35. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ☑ ORIGINAL ☐ MOVED DATE MOVED: _____
37. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: 43070-B6-TF-024
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION: ☐ N ☐ S ☐ E ☐ W ☐ NE ☐ NW ☐ SE ☐ SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: _____ PHOTO FILE # _____
NR STATUS: L ____ HD ____ E ____ NE ____ ND ____ REVIEWER _____
DATA SOURCE: ____HPF ____CLG ____R/C ____STAFF ____STATE SURVEY OTHER _____ LEVEL OF SURVEY __R __I
ASSOCIATED INVENTORY NUMBERS: _____

SURVEY MAP NO. 2

SURVEY MAP NAME York Toll Plaza Survey Base Map

MHPC USE ONLY

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION

Historic Farmstead Survey Cover Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 2 New Town Road
4. TOWN York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:

48. PRIMARY USE (PRESENT):

☐ RESIDENTIAL ☐ ANIMAL HUSBANDRY ☐ AGRICULTURE ☑ MIXED USE ☐ OTHER

49. FARM ACREAGE: 12.4 50. NUMBER OF STRUCTURES AND SITES ON FARM (INCLUDING HOUSE): 3

51. INVENTORY NUMBERS FOR SURVEYED BUILDINGS: 3, 4

52. LIST ANY STRUCTURE OR SITE NOT INDIVIDUALLY RECORDED ON A SURVEY FORM.
PLEASE ASSIGN EACH STRUCTURE OR SITE A LETTER AND LABEL ON SKETCH MAP ON BACK AND PHOTOGRAPH. INCLUDE ALL EXISTING STRUCTURES - SUCH AS COOPS, PIT SILOS, BEE HIVES, GARAGES STONE WALLS, PRIVIES AND COTTAGES - AND NOTE ANY THAT HAVE BEEN REMOVED OVER THE YEARS (FOUNDATION HOLES).

A. Non-Historic Garage

HISTORICAL DATA

53. HISTORICAL USE:

53. DOCUMENTED DATE OF CONSTRUCTION: 54. ESTIMATED DATE OF CONSTRUCTION: c. 1880

55. DATE MAJOR ADDITIONS/ALTERATIONS:

56. ORIGINAL OWNER:

57. CULTURAL/ETHNIC AFFILIATION:

☐ ENGLISH ☐ FRENCH ACADIAN ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
☐ EAST EUROPEAN ☐ IRISH OTHER

58. COMMENT/SOURCES:

59. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION

60. HAS THE SAME FAMILY FARMED THIS PROPERTY FOR MORE THAN 100 YEARS? 61. BEGINNING WHEN?

ENVIRONMENTAL DATA

62. SITE INTEGRITY: ☑ ORIGINAL ☐ MOVED DATE MOVED
63. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
64. QUADRANGLE MAP USED: York Harbor QUADRANGLE NO. 43070-B6-TF-024
65. UTM NORTHING: 0365458 66. UTM EASTING: 4779574
67. FACADE DIRECTION: ☐ N ☐ S ☑ E ☐ W ☐ NE ☐ NW ☐ SE ☐ SW

MHPC USE ONLY

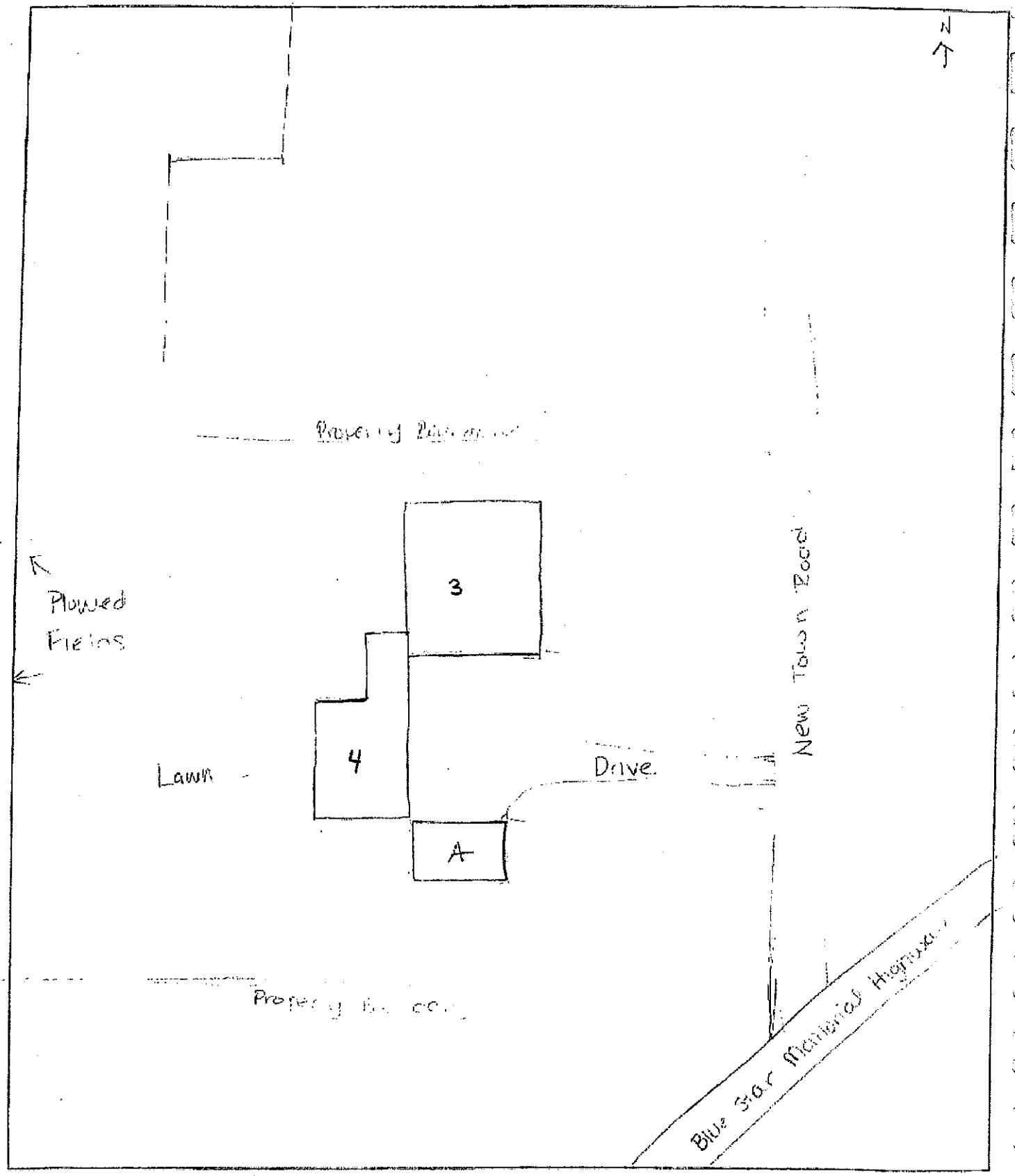
DATE ENTERED IN INVENTORY: PHOTO FILE #

NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER

DATA SOURCE: ___HPF ___CLG ___R/C ___ STAFF ___STATE SURVEY OTHER ___ LEVEL OF SURVEY ___R ___I

SITE PLAN:

SKETCH MAP: THIS MAP SHOULD SHOW THE FARM AS SEEN LOOKING DOWN AT IT. IDENTIFY ALL STRUCTURES AND SITES WITH LETTERS, CORRESPONDING TO THOSE LISTED ON PAGE ONE. LABEL OTHER LANDSCAPE FEATURES SUCH AS STONE WALLS, FENCING, ORCHARDS, WOOD LOTS AND FIELDS PLEASE INDICATE NORTH WITH AN ARROW. SCALE MAY BE APPROXIMATE.



Please return completed form to: Maine Historic Preservation Commission, 55 Capitol Street, SHS 65, Augusta, Maine 04333

MHPC USE ONLY

INVENTORY NO.

SURVEY MAP NO. 2
SURVEY MAP NAME York Toll Plaza Survey Base Map

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form
Continuation Sheet

PROPERTY NAME:

TOWN: YORK

COUNTY: YORK

SURVEYOR: PAL

DATE: 05/10/2010

DATA FIELDS (From Survey Forms): PHOTOGRAPH



SURVEY MAP NO. 3

SURVEY MAP NAME York Toll Plaza Survey Base Map

MHPC USE ONLY

INVENTORY NO.

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): _____
2. PROPERTY NAME (OTHER): _____
3. STREET ADDRESS: 2 New Town Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME: _____
ADDRESS: _____
9. PRIMARY USE (PRESENT):
- ☑ SINGLE FAMILY
- ☐ MULTI-FAMILY
- ☐ INDUSTRY
- ☐ TRANSPORTATION
- ☐ RECREATION/CULTURE
- ☐ AGRICULTURE
- ☐ GOVERNMENTAL
- ☐ RELIGIOUS
- ☐ DEFENSE
- ☐ UNKNOWN
- ☐ COMMERCIAL/TRADE
- ☐ EDUCATION
- ☐ HOTEL
- ☐ SUMMER COTTAGE/CAMP
- ☐ FUNERARY
- ☐ HEALTH CARE
- ☐ LANDSCAPE
- ☐ SOCIAL

OTHER _____

10. CONDITION: ☐ GOOD ☑ FAIR ☐ POOR ☐ DESTROYED, DATE _____

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:
- ☐ COLONIAL
- ☐ FEDERAL
- ☐ GREEK REVIVAL
- ☑ GOTHIC REVIVAL
- ☐ ITALIANATE
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ QUEEN ANNE
- ☐ SHINGLE STYLE
- ☐ R. ROMANESQUE
- ☐ ROMANESQUE
- ☐ HIGH VIC. GOTHIC
- ☐ NEO-CLASSICAL REV.
- ☐ RENAISSANCE REV.
- ☐ 19TH/20TH C. REVIVAL
- ☐ ARTS AND CRAFTS
- ☐ BUNGALOW
- ☐ FOUR SQUARE
- ☐ ART DECO
- ☐ INTERNATIONAL
- ☐ RANCH
- ☐ VERNACULAR

OTHER _____

12. OTHER STYLISTIC CATEGORY:
- ☐ COLONIAL
- ☐ FEDERAL
- ☐ GREEK REVIVAL
- ☐ GOTHIC REVIVAL
- ☐ ITALIANATE
- ☐ SECOND EMPIRE
- ☐ STICK STYLE
- ☐ QUEEN ANNE
- ☐ SHINGLE STYLE
- ☐ R. ROMANESQUE
- ☐ ROMANESQUE
- ☐ HIGH VIC. GOTHIC
- ☐ NEO-CLASSICAL REV.
- ☐ RENAISSANCE REV.
- ☐ 19TH/20TH C. REVIVAL
- ☐ ARTS AND CRAFTS
- ☐ BUNGALOW
- ☐ FOUR SQUARE
- ☐ ART DECO
- ☐ INTERNATIONAL
- ☐ RANCH
- ☑ VERNACULAR

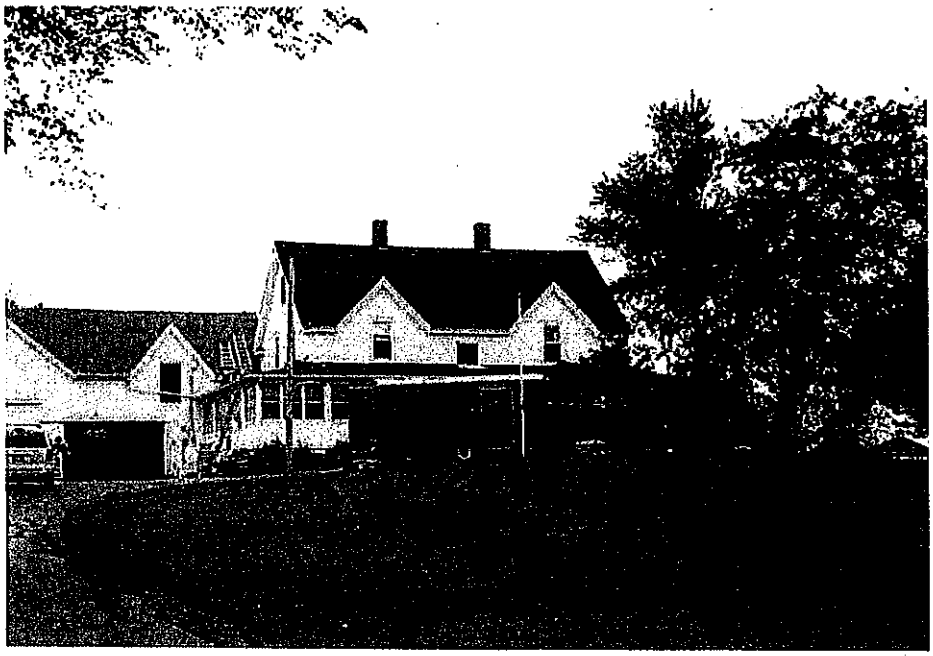
OTHER _____

13. HEIGHT:
☐ 1 STORY ☑ 1 1/2 STORY ☐ 2 STORY ☐ 2 1/2 STORY ☐ 3 STORY ☐ 4 STORY
☐ 5 STORY ☐ OVER 5 (_____)

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):
☐ 1 BAY ☐ 2 BAY ☑ 3 BAY ☐ 4 BAY ☐ 5 BAY ☐ MORE THAN 5 (_____)

15. APPENDAGES:
☐ SIDE ELL ☑ REAR ELL ☐ FRONT ☐ ADDED STORIES ☐ SHED
☐ DORMERS ☑ PORCH ☐ TOWER ☐ CUPOLA ☐ BAY WINDOW

PHOTOGRAPH



16. PORCH:
☐ ATTACHED ☐ ENGAGED ☐ ONE STORY ☐ MORE THAN ONE STORY
☐ FULL WIDTH ☑ WRAPAROUND ☐ SLEEPING PORCH ☐ SECONDARY PORCH

17. PLAN:
☐ HALL AND PARLOR ☐ 1/2 CAPE ☐ CENTRAL HALL ☐ SIDE HALL
☐ BACK HALL ☐ IRREGULAR OTHER Rectangular

18. PRIMARY STRUCTURAL SYSTEM:
☐ TIMBER FRAME ☐ BRACED FRAME ☐ BRICK ☐ STONE ☐ BALLOON FRAME
☐ CONCRETE ☐ STEEL ☐ LOG ☐ PLANK WALL ☐ PLATFORM FRAME
☐ FRAME CONSTRUCTION-TYPE UNKNOWN OTHER Unknown

19. CHIMNEY PLACEMENT:
☑ INTERIOR ☐ INTERIOR FRONT/REAR ☐ CENTER ☐ INTERIOR END ☐ EXTERIOR
OTHER

20. ROOF CONFIGURATION
☑ GABLE SIDE ☐ GABLE FRONT ☐ HIP ☐ MANSARD ☐ FLAT
☐ GAMBREL ☐ PARAPET GABLE ☐ SHED ☐ CROSS ☐ GABLE
☐ COMPOUND OTHER

21. ROOF MATERIAL: ☐ WOOD ☐ METAL ☐ TILE ☐ SLATE ☑ ASPHALT ☐ ASBESTOS

22. EXTERIOR WALL MATERIALS:
☐ CLAPBOARD ☐ BRICK ☐ FLUSH SHEATING ☐ WOOD SHINGLE ☐ STONE
☐ LOG ☐ PRESSED METAL ☐ CONCRETE ☐ STUCCO ☐ ASPHALT
☐ GRANITE ☐ ASBESTOS ☐ TERRA COTTA ☐ BOARD AND BATTEN ☑ ALUMINUM/VINYL
OTHER

23. FOUNDATION MATERIALS:
☐ FIELDSTONE ☐ BRICK ☐ WOOD ☐ CONCRETE ☐ GRANITE ☐ ORNAMENTAL CONC. BLOCK
OTHER Not Visible

24. OUTBUILDINGS/FEATURES:
☐ CARRIAGE HOUSE ☐ FENCE OR WALL ☐ CEMETERY ☑ BARN (CONNECTED)
☐ BARN (DETACHED) ☐ FORMAL GARDEN ☐ LANDSCAPE/PLANT MAT. ☐ ARCHAEOLOGICAL SITE
☐ GARAGE OTHER

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: ca. 1880

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR: _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION:
☐ ENGLISH ☐ FRENCH ACADIAN ☐ NATIVE AMERICAN ☐ SCOTTISH ☐ FRENCH CANADIAN
☐ EAST EUROPEAN ☐ IRISH OTHER

33. HISTORIC CONTEXT(S):
☐ COMMERCE ☐ INDUSTRY ☐ TRANSPORTATION ☐ AGRICULTURE ☐ MILITARY
☐ RELIGION ☐ CIVIC AFFAIRS ☐ RECREATION ☐ HABITATION ☐ EDUCATION
☐ ART, LIT SCIENCE ☐ SOCIAL

34. COMMENTS/SOURCES: _____

35. HISTORICAL DRAWINGS EXIST: ☐ YES ☐ NO LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ☑ ORIGINAL ☐ MOVED DATE MOVED: _____
37. SETTING: ☐ RURAL/UNDISTURBED ☑ RURAL/BUILT UP ☐ SMALL TOWN ☐ URBAN ☐ SUBURBAN
38. QUADRANGLE MAP USED: York Harbor QUADRANGLE #: 43070-B6-TF-024
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION: ☐ N ☐ S ☑ E ☐ W ☐ NE ☐ NW ☐ SE ☐ SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: _____ PHOTO FILE # _____
NR STATUS: L ___ HD ___ E ___ NE ___ ND ___ REVIEWER _____
DATA SOURCE: ___HPF ___CLG ___R/C ___STAFF ___STATE SURVEY OTHER _____ LEVEL OF SURVEY __R __I
ASSOCIATED INVENTORY NUMBERS: _____

MHPC USE ONLY

INVENTORY NO.

SURVEY MAP NO. 4

SURVEY MAP NAME York Toll Plaza Survey Base Map

MAINE HISTORIC PRESERVATION COMMISSION
Historic Barn/Agricultural Structure Survey Form

1. PROPERTY NAME (HISTORIC):
2. PROPERTY NAME (OTHER):
3. STREET ADDRESS: 2 New Town Road
4. TOWN: York
5. COUNTY: York County
6. DATE RECORDED: 5/10/2010
7. SURVEYOR: PAL
8. OWNER NAME:
ADDRESS:

73. PRIMARY USE (HISTORIC):

- [x] BARN, MIXED USE
- [ ] SILO
- [ ] HOP HOUSE
- [ ] GREENHOUSE
- [ ] SMOKE HOUSE
- [ ] ANIMAL SHED (TYPE)
- [ ] HAY BARN
- [ ] MILK HOUSE
- [ ] SPRING/WELL HOUSE
- [ ] WAGON SHED
- [ ] POTATO BARN
- [ ] DAIRY BARN
- [ ] CIDER HOUSE
- [ ] POULTRY BARN
- [ ] WORKER HOUSING
- [ ] CORN CRIB
- [ ] OTHER
- [ ] STABLE/LIVERY
- [ ] SUGAR SHACK
- [ ] CHICKEN COOP
- [ ] ICE HOUSE
- [ ] PIGGERY

ARCHITECTURAL DATA

74. PRIMARY STYLISTIC CATEGORY:

- [ ] COLONIAL
- [ ] GREEK REVIVAL
- [ ] ARTS AND CRAFTS
- [ ] SECOND EMPIRE
- [ ] STICK STYLE
- [ ] SHINGLE STYLE
- [ ] ITALIANATE
- [ ] HIGH VIC. GOTHIC
- [ ] FEDERAL
- [ ] 19TH/20TH C. REVIVAL
- [ ] BUNGALOW
- [ ] OTHER
- [ ] QUEEN ANNE
- [ ] GOTHIC REVIVAL
- [x] VERNACULAR

75. HEIGHT:

- [ ] 1 STORY
- [x] 1 1/2 STORY
- [ ] 2 STORY
- [ ] 2 1/2 STORY
- [ ] 3 STORY
- [ ] 4 STORY
- [ ] OVER 4 (0)

76. PLAN:

- [ ] ENGLISH
- [x] CONNECTED
- [ ] NEW ENGLAND
- [ ] DETACHED
- [ ] ROUND
- [ ] BANK BARN
- [x] OTHER Rectangular

77. PRIMARY STRUCTURAL SYSTEM:

- [ ] HAND-HEWN
- [ ] LOG
- [ ] SAWN HEAVY TIMBERS
- [ ] CONCRETE
- [ ] STUD CONSTRUCTION
- [x] OTHER Unknown
- [ ] STONE
- [ ] BRICK

78. EXTERIOR SIDING:

- [ ] CLAPBOARD
- [x] ALUMINUM/VINYL
- [ ] OTHER
- [ ] WOOD SHINGLE
- [ ] STONE
- [ ] ASPHALT
- [ ] BRICK
- [ ] CONCRETE
- [ ] CORRUGATED METAL

79. ROOF CONFIGURATION:

- [x] GABLE SIDE
- [ ] OTHER
- [ ] GABLE FRONT
- [ ] MONITOR
- [ ] GAMBREL
- [ ] HIP
- [ ] SHED

80. ROOF MATERIAL:

- [ ] WOOD
- [ ] OTHER
- [ ] METAL
- [ ] SLATE
- [x] ASPHALT
- [ ] ASBESTOS

81. FOUNDATION MATERIAL:

- [ ] FIELDSTONE
- [ ] BRICK
- [ ] CONCRETE
- [ ] GRANITE
- [x] OTHER Not Visible

82. DOCUMENTED DATE OF CONSTRUCTION
54. ESTIMATED DATE OF CONSTRUCTION: ca. 1900

PHOTOGRAPH

FRAMING CROSS SECTION

SKETCH FRAMING OF ONE TRANSVERSE SECTION (BENT) OF BARN AND ONE LATERAL SECTION (EAVE WALL) OF STRUCTURE. LABEL EACH SKETCH TO SHOW CARDINAL DIRECTION.



MHPC USE ONLY

DATE ENTERED IN INVENTORY:_____ PHOTO FILE #_____

NR STATUS: L ____ HD ____ E ____ NE ____ ND ____ REVIEWER _____

DATA SOURCE: ____HPF ____CLG ____R/C ____ STAFF ____STATE SURVEY OTHER_____ LEVEL OF SURVE __R __I



Revisions / Modifications / Data Source	
PAL revised: Survey boundary added, site numbers revised	9-22-2010
PAL modified: Project areas and reconnaissance sites added	6-8-2010
Client data: Toll plaza location received from HNTB	5-4-2010
Base Imagery: Bing Maps (ESRI ArcGIS Online)	9-22-2010

The base information contained in this map was supplied to PAL as a professional courtesy for informational and planning purposes only. PAL makes no warranties, either expressed or implied, regarding the fitness or suitability of this map for any other purpose than to depict the location and/or results of cultural resource investigations conducted by PAL.

KEY:

- *Direct Impact APE*
- *Indirect Impact APE (Quarter-mile)*
- *Survey Boundary (Half-mile)*
- 5 *NR Listed or Determined Eligible*
- 1 *MHPC Inventory Property*
- 2 *Property Identified During Survey*

N

Figure 9b. York Toll Plaza Survey Base Map.

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APPENDIX 12

Wetland Functions and Value Assessment Forms

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Wetlands Function -Value Evaluation Form

Total Area of Wetland: **unknown** Human made? **No**

Is wetland part of a wildlife corridor? **No** Or a "habitat island"? **No**

Wetland I.D.

Latitude **43°09'36"** Longitude **70°39'34"**

Adjacent land use **Turnpike**

Distance to nearest roadway or other development **0**

Prepared by: **STI** Date **2/8/16**

Dominant wetland systems present **PFO1E**

Contiguous undeveloped buffer zone present **No**

Wetland Impact Type **Turnpike expansion**

Is the wetland a separate hydraulic system? **no**

If not, where does the wetland lie in the drainage basin? high

Evaluation based on: Office **Yes** Field **Yes**

How many tributaries contribute to the wetland? **None**

Wildlife & vegetation diversity/abundance (see attached list)

Corps manual wetland delineation completed **Partially**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge	X		10	1, 2, 6, 7, 10, 12, 13 Wetland is underlain by fine-textured or organic soil allowing for groundwater discharge to occur
Floodflow Alteration	X		6	1, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 16, 17, 18 The Little River has a 100-year floodplain in this wetland
Fish and Shellfish Habitat		X	2	1, 2, 4, 8
Sediment/Toxicant Retention	X		4	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 14, 16 Dense vegetation and organic soils trap stormwater runoff from the turnpike
Nutrient Removal	X		1	1, 3, 4, 6, 7, 8, 11, 12, 14, 15 This a forested wetland with variable layers of dense vegetation
Production Export		X		N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat	X		7	7, 8, 10, 11, 13, 14, 15, 16, 17, 20 Several non-significant vernal pools were found within this wetland
Recreation		X	---	4 Wetland is private property
Educational/Scientific		X	---	3 Wetland is private property
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **unknown** Human made? **No**

Adjacent land use **Turnpike**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **no**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **No** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? high

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 8**
Latitude **43°10'15"** Longitude **70°39'10"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Partially**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge/ Discharge		X	2	1, 2, 6
Floodflow Alteration		X	---	N/A
Fish and Shellfish Habitat		X	---	N/A
Sediment/Toxicant Retention	X		5	1, 3, 4, 5, 6, 7, 8, 9. This wetland is large and flat which traps sediment and toxicants prior to entering stream on east side of turnpike.
Nutrient Removal	X		7	1, 3, 4, 7, 8, 11, 12. Due to its size and vegetation density, this wetland traps nutrients and uptake is present.
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat		X	---	N/A
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	
Other		X	---	

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **unknown** Human made? **No**

Adjacent land use **Turnpike**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **no**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **No** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? high

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 9**
Latitude **43°10'39"** Longitude **70°39'01"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Partially**

Function/Value	Suitability Y	N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	2	2, 5, 7
Floodflow Alteration		X	4	4, 13, 18
Fish and Shellfish Habitat		X	2	2,
Sediment/Toxicant Retention	X		4	1, 4, 10, 16
Nutrient Removal	X		4	4, 7, 8
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat		X	---	N/A
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **8,500 sf** Human made? **No**

Is wetland part of a wildlife corridor? **No** Or a "habitat island"? **No**

Wetland I.D. **Wetland 10**
Latitude **43°10'48"** Longitude **70°38'58"**

Adjacent land use **Turnpike**

Distance to nearest roadway or other development **0**

Prepared by: **STI** Date **2/8/16**

Dominant wetland systems present **PFO1E**

Contiguous undeveloped buffer zone present **No**

Wetland Impact Type **Turnpike expansion**

Is the wetland a separate hydraulic system? **yes**

If not, where does the wetland lie in the drainage basin? high

Evaluation based on: Office **Yes** Field **Yes**

How many tributaries contribute to the wetland? **None**

Wildlife & vegetation diversity/abundance (see attached list)

Corps manual wetland delineation completed **Yes**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	---	N/A
Floodflow Alteration		X	4	3, 4
Fish and Shellfish Habitat		X	---	N/A
Sediment/Toxicant Retention	X		1	1, 2, 4, 9 This is an isolated wetland that currently accepts runoff from the turnpike.
Nutrient Removal	X		3	3
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat		X	---	N/A
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **Unknown** Human made? **No**

Adjacent land use **Turnpike**

Dominant wetland systems present **PEM1F**

Is the wetland a separate hydraulic system? **No**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? **low**

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 11**
Latitude **43°10'55"** Longitude **70°38'59"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Yes**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge	X		12	1, 2, 5, 12 Wetland contains deep organic soils in a flat lowland allowing for recharge
Floodflow Alteration	X		6	1, 5, 6, 7, 8, 9, 15, 16, 17, 18 Wetland is a basin within a larger, steeper gradient wetland complex
Fish and Shellfish Habitat		X	---	N/A
Sediment/Toxicant Retention	X		6	3, 4, 5, 6, 8, 9 Organic soils present
Nutrient Removal	X		9	1, 3, 5, 6, 7, 8, 9,11 Wetland is emergent marsh and stays saturated during most of the growing season
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat	X		16	1, 2, 5, 7, 11, 13, 16, 18, 20, 21, 22 Wetland contains ribbon snakes and spotted turtles and most likely vernal pool indicator species
Recreation		X	5	5, 7 There is currently no public access to this wetland
Educational/Scientific		X	1	1, 2, 4, 5 Potential exists for scientific research in this wetland
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat	X		1	Ribbon Snake and Spotted Turtle have been observed here
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **Unknown** Human made? **No**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Wetland I.D. **Wetland 12**
Latitude **43°10'57"** Longitude **70°38'56"**

Adjacent land use **Turnpike**

Distance to nearest roadway or other development **0**

Prepared by: **STI** Date **2/8/16**

Dominant wetland systems present **PFO1E**

Contiguous undeveloped buffer zone present **No**

Wetland Impact Type **Turnpike expansion**

Is the wetland a separate hydraulic system? **No**

If not, where does the wetland lie in the drainage basin? **middle**

Evaluation based on: Office **Yes** Field **Yes**

How many tributaries contribute to the wetland? **None**

Wildlife & vegetation diversity/abundance (see attached list)

Corps manual wetland delineation completed **Yes**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	2	2,4, 7, 11 Wetland contains organic topsoil overlying sandy loam and ledge. Very little recharge occurs.
Floodflow Alteration		X	4	4, 13
Fish and Shellfish Habitat		X	7	4, 7
Sediment/Toxicant Retention		X	4	4, 6, 10 Due to its size and slope, very little sediment retention takes place here
Nutrient Removal		X	7	7, 8 Due to its size and slope, very little nutrient retention takes place here
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat	X		8	7, 8, 16 This portion of the wetland contains a small amphibian population
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other		X	---	

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **Unknown** Human made? **No**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Wetland I.D. **Wetland 13**

Latitude **43°10'57"** Longitude **70°38'56"**

Adjacent land use **Turnpike**

Distance to nearest roadway or other development **0**

Prepared by: **STI** Date **2/8/16**

Dominant wetland systems present **PFO1E**

Contiguous undeveloped buffer zone present **No**

Wetland Impact Type **Turnpike expansion**

Is the wetland a separate hydraulic system? **No**

If not, where does the wetland lie in the drainage basin? **middle**

Evaluation based on: Office **Yes** Field **Yes**

How many tributaries contribute to the wetland? **None**

Wildlife & vegetation diversity/abundance (see attached list)

Corps manual wetland delineation completed **Partially**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge	X		2	2, 4, 7, 11 Soils are fine sandy loam over ledge
Floodflow Alteration		X	13	3, 4, 13
Fish and Shellfish Habitat		X	2	2, 4, 7, 17
Sediment/Toxicant Retention		X	6	6, 10
Nutrient Removal		X	---	N/A
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat		X	2	2, 6
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **Unknown** Human made? **No**

Adjacent land use **Turnpike**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **No**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? **middle**

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 14**
Latitude **43°11'17"** Longitude **70°38'48"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Partially**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	1	1, 2, 4, 5
Floodflow Alteration		X	4	4, 13
Fish and Shellfish Habitat		X	2	1, 2
Sediment/Toxicant Retention	X		4	4, 6, 10
Nutrient Removal	X		7	3, 7
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat		X	2	2, 6
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **Unknown** Human made? **No**

Adjacent land use **Turnpike**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **No**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? **middle**

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 15**
Latitude **43°10'59"** Longitude **70°38'49"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Partially**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	1	1, 2, 4, 5, 7
Floodflow Alteration		X	4	4, 13
Fish and Shellfish Habitat		X	2	2
Sediment/Toxicant Retention	X		4	4, 6, 10
Nutrient Removal	X		7	3, 7, 9
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat		X	2	2, 6
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **Unknown** Human made? **No**

Adjacent land use **Turnpike**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **No**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? **middle**

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 16**
Latitude **43°10'52"** Longitude **70°38'52"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Partially**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	1	1, 2, 4, 5
Floodflow Alteration		X	4	4
Fish and Shellfish Habitat		X	2	1, 2, 9
Sediment/Toxicant Retention	X		4	4
Nutrient Removal	X		7	3, 7
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat	X		13	13, 14, 15, 16, 20 This wetland contains a potential vernal pool.
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **19,300 sf** Human made? **No**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Wetland I.D. **Wetland 17**

Latitude **43°10'48"** Longitude **70°38'53"**

Adjacent land use **Turnpike**

Distance to nearest roadway or other development **0**

Prepared by: **STI** Date **2/8/16**

Dominant wetland systems present **PFO1E**

Contiguous undeveloped buffer zone present **No**

Wetland Impact Type **Turnpike expansion**

Is the wetland a separate hydraulic system? **No**

If not, where does the wetland lie in the drainage basin? **middle**

Evaluation based on: Office **Yes** Field **Yes**

How many tributaries contribute to the wetland? **None**

Wildlife & vegetation diversity/abundance (see attached list)

Corps manual wetland delineation completed **Yes**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	1	1, 2, 4, 7
Floodflow Alteration		X	4	4, 7, 13
Fish and Shellfish Habitat		X	9	7, 9
Sediment/Toxicant Retention	X		4	4, 6
Nutrient Removal	X		3	3, 4, 7
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat	X		6	2, 6, 20 This wetland contains two non-significant pools
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **22,600 sf** Human made? **No**

Adjacent land use **Turnpike**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **No**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? **middle**

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 18**
Latitude **43°10'44"** Longitude **70°38'54"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Yes**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	1	1, 2, 4, 5, 7
Floodflow Alteration		X	4	4, 7, 13
Fish and Shellfish Habitat		X	9	2, 8, 7, 9
Sediment/Toxicant Retention	X		4	1, 4, 6 This wetland is located between the turnpike and a maintenance road
Nutrient Removal	X		3	3, 4, 7
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat		X	6	N/A Some use by amphibians may occur in this wetland due to its proximity to vernal pools
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	1	1, 2
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **Unknown** Human made? **No**

Adjacent land use **Turnpike**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **No**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? **middle**

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 30**
Latitude **43°11'17"** Longitude **70°38'48"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Partially**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	2	2, 7, 11
Floodflow Alteration		X	4	4, 13, 18
Fish and Shellfish Habitat		X	4	1, 2, 4, 7
Sediment/Toxicant Retention	X		3	3, 4, 6, 9 Wetland has a constricted outlet and "traps" sediment prior to entering the Cape Neddick River
Nutrient Removal	X		11	3, 7, 8, 10, 11, 12 Wetland has a constricted outlet and "traps" nutrients prior to entering the Cape Neddick River
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat		X	2	2, 6 The wetland is associated with the Cape Neddick River, which meets class B water quality standards
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **Unknown** Human made? **No**

Adjacent land use **Turnpike**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **No**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? **middle**

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 42**
Latitude **43°11'22"** Longitude **70°38'42"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Partially**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	1	1, 2, 7
Floodflow Alteration		X	4	4, 13
Fish and Shellfish Habitat		X	4	1, 4, 7 The Cape Neddick River contains fish habitat
Sediment/Toxicant Retention	X		6	4, 6, 10
Nutrient Removal	X		7	2, 3, 7, 9
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat	X		2	2, 6, 20 This wetland contains a stream and vernal pools
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **1,500 sf** Human made? **No**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Wetland I.D. **Wetland 53**
Latitude **43°10'46"** Longitude **70°39'06"**

Adjacent land use **Turnpike**

Distance to nearest roadway or other development **0**

Prepared by: **STI** Date **2/8/16**

Dominant wetland systems present **PFO1E**

Contiguous undeveloped buffer zone present **No**

Wetland Impact Type **Turnpike expansion**

Is the wetland a separate hydraulic system? **No**

If not, where does the wetland lie in the drainage basin? **High**

Evaluation based on: Office **Yes** Field **Yes**

How many tributaries contribute to the wetland? **None**

Wildlife & vegetation diversity/abundance (see attached list)

Corps manual wetland delineation completed **Yes**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	6	1, 2, 6
Floodflow Alteration		X	2	2
Fish and Shellfish Habitat		X	---	N/A
Sediment/Toxicant Retention		X	6	4, 6, 10
Nutrient Removal		X	7	7
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat	X		2	1, 3, 4, 5, 6, 7, 8,16, 20 This wetland is a non-significant vernal pool
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other		X	---	N/A

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **48,500 sf** Human made? **No**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Wetland I.D. **Wetland 54**

Latitude **43°10'44"** Longitude **70°39'05"**

Adjacent land use **Turnpike, residential**

Distance to nearest roadway or other development **0**

Prepared by: **STI** Date **2/8/16**

Dominant wetland systems present **PFO1E**

Contiguous undeveloped buffer zone present **No**

Wetland Impact Type **Turnpike expansion**

Is the wetland a separate hydraulic system? **No**

If not, where does the wetland lie in the drainage basin? **Mid**

Evaluation based on: Office **Yes** Field **Yes**

How many tributaries contribute to the wetland? **None**

Wildlife & vegetation diversity/abundance (see attached list)

Corps manual wetland delineation completed **Yes**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	2	1, 2, 6
Floodflow Alteration		X	13	2, 4, 13
Fish and Shellfish Habitat		X	9	1, 2, 7, 9
Sediment/Toxicant Retention	X			4, 6, 10
Nutrient Removal	X		7	7
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat	X			2, 3, 6, 16, 20 Wetland contains 4 vernal pools
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	1	1, 2
Other		X	---	N/A

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **350 sf** Human made? **No**

Adjacent land use **Turnpike, residential**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **No**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? **Mid**

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 55**
Latitude **43°10'44"** Longitude **70°39'12"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Yes**

Function/Value	Suitability Y	Suitability N	PF	Comments-Rationales (Reference #)
Groundwater Recharge Discharge		X	2	2, 6
Floodflow Alteration		X	4	2, 4, 6
Fish and Shellfish Habitat		X	2	2
Sediment/Toxicant Retention		X	---	
Nutrient Removal		X	---	1
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	---	N/A
Wildlife Habitat		X	---	N/A
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other		X	---	N/A

Notes:

Wetlands Function -Value Evaluation Form

Total Area of Wetland: **Unknown** Human made? **No**

Adjacent land use **Turnpike, residential**

Dominant wetland systems present **PFO1E**

Is the wetland a separate hydraulic system? **No**

How many tributaries contribute to the wetland? **None**

Is wetland part of a wildlife corridor? **Yes** Or a "habitat island"? **No**

Distance to nearest roadway or other development **0**

Contiguous undeveloped buffer zone present **No**

If not, where does the wetland lie in the drainage basin? **Mid**

Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. **Wetland 56**
Latitude **43°10'53"** Longitude **70°39'07"**

Prepared by: **STI** Date **2/8/16**

Wetland Impact Type **Turnpike expansion**

Evaluation based on: Office **Yes** Field **Yes**

Corps manual wetland delineation completed **Yes**

Function/Value	Suitability Y	Suitability N	PF	*Comments-Rationales (Reference #)*
Groundwater Recharge Discharge		X	2	2, 7
Floodflow Alteration		X	2	2, 4, 13
Fish and Shellfish Habitat		X	2	N/A
Sediment/Toxicant Retention	X		4	4, 6, 9, 10 Portions of Chases Pond Road drain into this wetland
Nutrient Removal	X		11	3, 7, 8, 9, 11, 12 Portions of Chases Pond Road drain into this wetland
Production Export		X	---	N/A
Sediment/Shoreline stabilization		X	14	14
Wildlife Habitat	X		---	2, 6, 19, 20 This wetland has potential for amphibian breeding habitat
Recreation		X	---	N/A
Educational/Scientific		X	---	N/A
Uniqueness/Heritage		X	---	N/A
Visual Quality/Aesthetics		X	---	N/A
Endangered Species Habitat		X	---	N/A
Other				

Notes:

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APPENDIX 13

Memorandum of Understanding among MTA, MDIFW, and MDOT

October 13, 2016
Memorandum of Understanding
Among
The Maine Turnpike Authority, the Maine Department of Inland Fisheries and Wildlife, and the Maine Department of Transportation

Whereas, the Maine Turnpike Authority (MTA) intends to apply for permits under the Natural Resources Protection Act (NRPA) and Site Location of Development Act (Site Law) to build a new toll plaza (the "project") near mile 8.8 of the Maine Turnpike; and

Whereas, pursuant to the NRPA and Site Law permitting process, and the Maine Endangered Species Act, the MTA has proposed a Mitigation Plan to address anticipated impacts to both wildlife and wildlife habitats near the project; and

Whereas, the Maine Department of Inland Fisheries and Wildlife (MDIFW) has the authority under 12 MRS §12805 of the Maine Endangered Species Act to enter into cooperative agreements with other agencies for the establishment and maintenance of programs for the conservation of endangered or threatened species; and

Whereas, the MTA is willing to minimize the potential for road mortality to wildlife by constructing and maintaining barrier fencing as specified by MDIFW on both sides of the highway in the vicinity of the project; and

Whereas, MTA owns an approved subdivision adjacent to the project, of which 22 acres (the "Morrison Parcel") can be made available to preserve habitat for Spotted Turtles (State Threatened) and Ribbon Snakes (of State Special Concern); and

Whereas, MTA agrees to grant MDIFW staff unconditional access to the Morrison Parcel for species and habitat management;

Whereas, in addition to restricting the Morrison Parcel, the MTA will contribute $170,000 to the Maine Department of Transportation to be used to construct improved wildlife passage and associated barrier fencing along an area of Route 236 in Eliot where there is documented mortality of several rare and endangered wildlife species; and

Whereas, MDIFW's concerns for the project's potential impact on wildlife species are addressed by MTA's agreement:

- to erect barrier fencing in the vicinity of the new toll plaza;
- to apply conservation easements to the 22-acre Morrison Parcel; and
- to help fund a planned wildlife connectivity crossing on Route 236 in Eliot;

Now, therefore, the parties agree as follows:

MTA shall record a conservation easement on the 22-acre Morrison Parcel (a central portion of the previously approved subdivision) for purposes of preserving habitat for Spotted Turtle, Ribbon Snake and other species. The conservation easement shall comply with the requirements of Maine law and will be finalized and recorded in the appropriate registry of deeds upon issuance of state permits;

MTA will contribute $170,000 to the Maine Department of Transportation to enable construction of improved wildlife passage and associated barrier fencing along an area of Route 236 in Eliot within one month of the issuance of state and federal permits;

The Maine Department of Transportation will install the barrier fencing along Route 236 in Eliot as agreed upon by MDIFW within one year of its receipt of the $170,000 contribution/payment from MTA as provided for in this MOU;

The Maine Department of Transportation will install the wildlife crossing along Route 236 in Eliot as agreed upon by MDIFW within two years of its receipt of the $170,000 contribution/payment from MTA as provided for in this MOU;

In constructing the new plaza, the MTA will construct and maintain wildlife barrier fencing, according to specifications provided to and approved by MDIFW, on both sides of the highway in the vicinity of the plaza;

The location and terms of the conservation easement and specifications for barrier fencing near the project will be reviewed and approved by the MTA and MDIFW, and will be recommended by MDIFW to DEP for inclusion as a condition in its permitting decisions relating to the construction of the project.

On behalf of the organizations that we represent, we agree that the terms of this MOU will become binding upon the issuance and final approval by DEP of Site Law and NRPA permits and relating to construction of the proposed project.

Peter Mills Date: 10.17.16

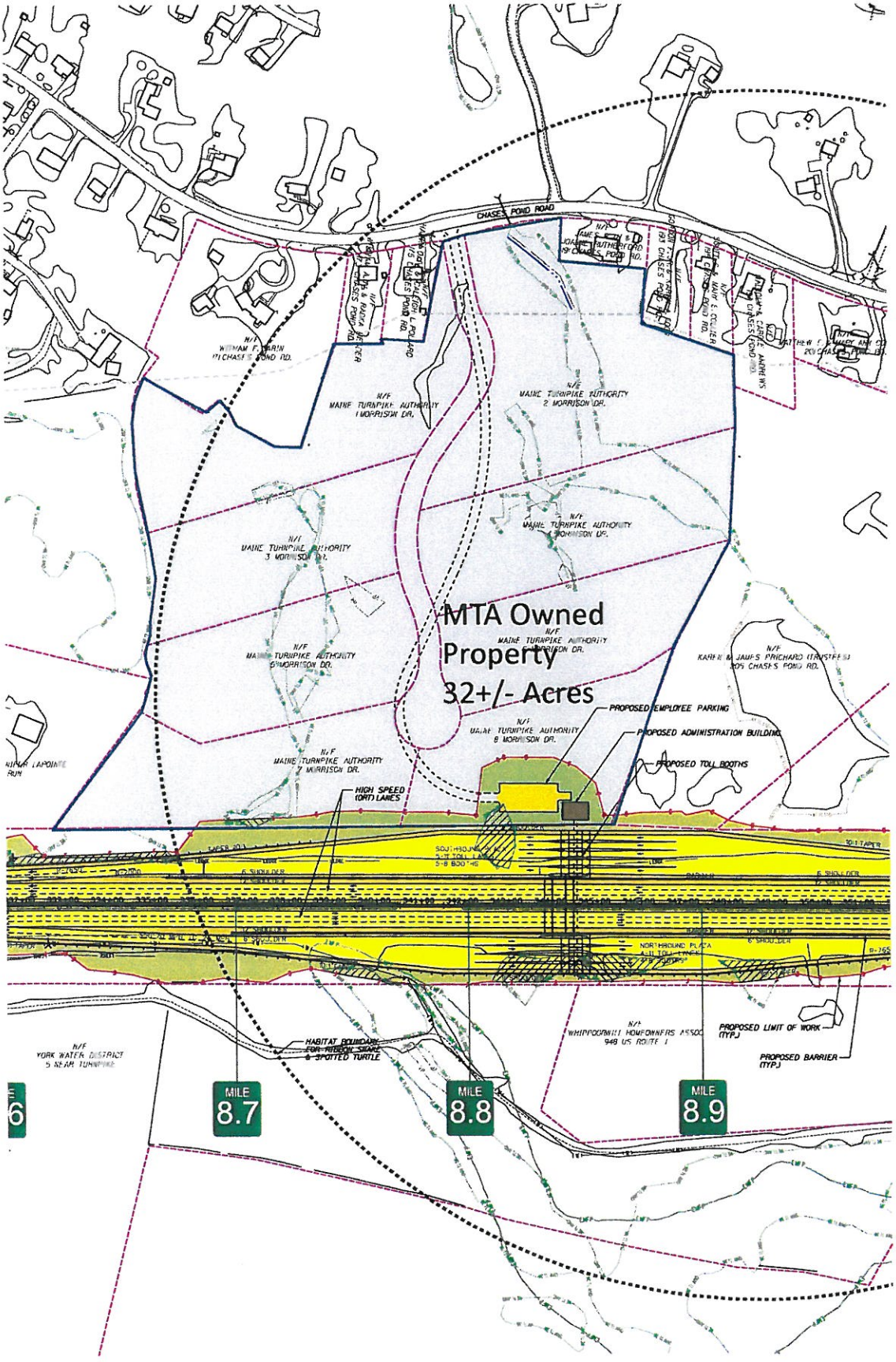
Peter Mills, Executive Director, Maine Turnpike Authority

James M Connolly Date: 10/14/2016

James M. Connolly, Director, Bureau of Resource Management, MDIFW

Judy C. Gates Date: 10/14/16

Judy C. Gates, Director, Environmental Office, MaineDOT


CHASES POND ROAD
MAINE TURNPIKE AUTHORITY
1 MORRISON DR.
MAINE TURNPIKE AUTHORITY
2 MORRISON DR.
MAINE TURNPIKE AUTHORITY
3 MORRISON DR.
MAINE TURNPIKE AUTHORITY
4 MORRISON DR.
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5 MORRISON DR.
MAINE TURNPIKE AUTHORITY
6 MORRISON DR.
MAINE TURNPIKE AUTHORITY
7 MORRISON DR.
MAINE TURNPIKE AUTHORITY
8 MORRISON DR.
MTA Owned
Property
32+/- Acres
PROPOSED EMPLOYEE PARKING
PROPOSED ADMINISTRATION BUILDING
PROPOSED TOLL BOOTHS
HIGH SPEED (ORT) LANES
PROPOSED LIMIT OF WORK (TYP.)
PROPOSED BARRIER (TYP.)
HABITAT BOUNDARY FOR BLANDING'S & SPOTTED TURTLE
WHIPPOORWILL HOMEOWNERS ASSOC
949 US ROUTE 1
YORK WATER DISTRICT
5 NEAR TURNPIKE
MILE 8.7
MILE 8.8
MILE 8.9

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