Route 1 Corridor DRAFT Transportation Feasibility Study

Wells, Maine

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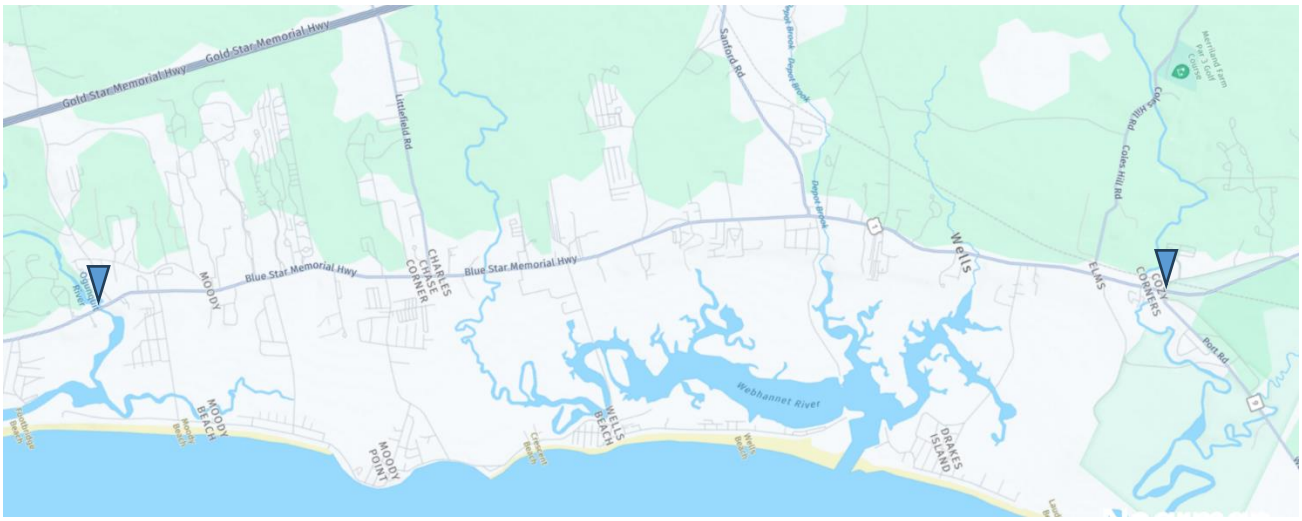
Executive Summary

The Town of Wells has experienced congestion on Route 1 during the summer for many years. They have identified a need to improve safety and amenities for users, while optimizing the mobility and efficiency of vehicles. The purpose of this study is to identify improvements on Route 1 in Wells that would enhance safety, mobility, and accessibility while also complement existing and planned economic development. The Town partnered with MaineDOT through a Planning Partnership Initiative (PPI) to develop this study.



Study Limits along US Route 1 in Wells, ME

Study Overview

The study area extends 5.6 miles from the Ogunquit River to Bypass Road and includes six focus intersections of:

- Wells Road/Route 109
- Mile Road
- Hannaford Plaza
- Littlefield Road/9B
- Eldridge Road
- Bourne Avenue

This study began by identifying existing strengths and deficiencies for all road users, including pedestrians and bicyclists. These were identified by completing a Road Safety Audit for the study area. Once the deficiencies were identified, potential improvements were evaluated. The improvements that were considered include, but are not limited to the following:

- Signalizing key intersections
- Upgrading existing traffic signal hardware
- Adding bicycle lanes
- Improving sidewalk connectivity
- Improving crosswalk safety
- Increasing lighting throughout the corridor
- Access management strategies

Based on the evaluation, many of the improvements that were explored would address deficiencies in the corridor while keeping vehicular traffic flowing. Concept plans showing the proposed improvements have been created as a guide to help the Town as they move forward in implementing changes. The overall recommended improvements are estimated to cost $32.2 million, which could be broken down into several smaller projects for phased construction.

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Introduction

The Town of Wells has been grappling with congestion from summer tourist traffic for decades. Combined with deficiencies in bicycle and pedestrian amenities, the town is seeking to identify opportunities to enhance the Route 1 corridor. The town has partnered with the Maine Department of Transportation (MaineDOT) through a Planning Partnership Initiative (PPI), to develop this Planning and Feasibility Study which evaluates and analyzes safety and mobility improvements to complement local economic development efforts in the Wells PPI Study Area. These study efforts include land use planning and policies, congestion, and safety improvements, including intersection improvements, traffic signal upgrades, transit, and active transportation in general. This report will help the Town implement efforts to maintain or improve the Wells transportation network for all users and identify specific improvements that meet the Town's economic and community development goals.

Purpose and Need

The purpose and need statement was crafted by the study team, which included representatives from both the Town of Wells and MaineDOT. This statement encapsulates the community's goals and serves as a benchmark against which all recommendations will be evaluated to ensure they meet the town's objectives. Additionally, the purpose and need statement offers a clear rationale for why a proposed project should be undertaken, providing essential context and justification for its implementation.

"The study's purpose is to identify transportation recommendations along Route 1 in Wells, Maine to improve safety, mobility, and accessibility, while complimenting economic development. The study will evaluate safety and mobility, but also emphasize reasonable improvements to transportation, including active transportation.

The Need for this study is to improve safety and amenities for active transportation users, while optimizing the mobility and efficiency of vehicles within the existing pavement width. The study will identify and make recommendations for the improvement and addition of sidewalks, bike lanes, traffic signal hardware upgrades, and policies to maintain or improve operations on Route 1."

Study Process

The study process followed the format for MaineDOT's Public Partnership Initiative Program and included the following notable elements, with general findings summarized in each of the following sections.

Roadway Safety Assessment (RSA)

The Roadway Safety Assessment (RSA) is an evaluation of safety issues and High Crash Locations (HCLs) within the Study Area was conducted by a multi-disciplinary team of 16 members including representatives from VHB, the Town of Wells, MaineDOT, and SMPDC with input from local business owners and advocates. Overarching safety concerns identified as part of the RSA included:

- Lack of crosswalks for pedestrians
- High Crash Locations
- Summer vehicle congestion on Route 1

The complete RSA report can be found in Appendix A.

Technical Advisory Committee

The Technical Advisory Committee (TAC) included representatives from the City and MaineDOT; the committee guided the study process and provided direction to VHB throughout the study. TAC members are listed in Table 1.

Table 1: Technical advisory committee members.

COMMITTEE MEMBER	REPRESENTING
Carol Murray	Wells Department of Public Works
Chris Baez	Wells Police
Jeffrey Cullen	Wells Fire Department (Day 1)
Martin Rooney	MaineDOT
Stephen Landry	MaineDOT (Day 1)
Robert VanLuling	MaineDOT (Day 1)
Jeff Pulver	MaineDOT (Day 1)
Theresa Savoy	MaineDOT (Day 1)
Dakota Hewlett	MaineDOT (Day 1)
Stephanie Carver	SMPDC (Day 1)
Dean Williams	SMPDC (Day 1)
Tony Grande	VHB
Elissa Goughnour	VHB
Branden Roberts	VHB
Jason Ready	VHB
Michael Cristiani	VHB

Public Involvement

VHB actively participated in three public meetings to gather community input for this study. The project was first introduced on December 14, 2022, followed by a Select Board Workshop on June 6, 2023, and most recently during an Open House and Public Meeting on June 25, 2024. These sessions were used to present the study scope, obtain public feedback, and identify preliminary recommendations, which helped to shape the recommendations in this report.

Summary of Public Meetings and Community Feedback

The first meeting on December 14, 2022, focused on presenting the scope of work and soliciting public input. Key feedback included the need for enhanced public outreach to engage more residents and visitors, better traffic management through additional speed limit signs and improved Traffic signal timings and avoiding forced one-way exits from driveways. Participants emphasized the importance of pedestrian and cyclist safety by advocating for more sidewalks, curbing, and crosswalks with pedestrian-controlled traffic signals. Suggestions also included urban design improvements like adding green spaces and using native plants, a moratorium on new construction along Route 1 until the traffic study's completion, and public transport options like trolleys and park-and-ride facilities.

Participants generally supported access management strategies, speed management through traffic calming measures, and improvements to the pedestrian and bicycle infrastructure.

The second meeting on June 6, 2023, conducted as a Wells Select Board Meeting and Workshop, covered existing conditions and preliminary recommendations. This included insights from the Road Safety Audit (RSA) and initial sidewalk additions. The Select Board generally agreed with the study's progress thus far, with only a single point of contention: they were not in favor of the proposed demonstration project involving curb extensions on Route 1 near Hannaford. Instead, they preferred to implement through-right lanes at Wells Plaza and Route 1.

The third meeting on June 25, 2024, was an open house followed by a public presentation where feedback was gathered through email, online comments, and in-person conversations. Residents and stakeholders were generally supportive of proposed safety improvements but also raised concerns about traffic flow and potential gridlock from new traffic signals, specifically from Bourne Ave to Mile Rd, and suggested signal placements at critical intersections. Opposition was voiced regarding a proposed raised median at selected locations, with advocacy for safer U-turn alternatives or removal of the median. Better-marked crosswalks, more sidewalks, and flashing beacons for pedestrian safety, especially in high-traffic areas, were also favored. General safety concerns included the inconsistency of pedestrian connectivity where sidewalks were intermittent and bike lanes in high-speed areas.

Summary of comments provided via email after the meeting

1. **Traffic and Safety Concerns**

- Traffic Light and Signage: Several intersections and roads are frequently mentioned as needing traffic lights or better signage in the comments. These locations include Chapel Road, Eldridge Road, Drakes Island Road, and Mile Road. A notable suggestion for Eldridge Road was the installation of a traffic light that could be activated during peak summer times to manage high traffic volumes safely.
- Traffic Flow and Safety at Wells Plaza: Converting the northbound right-turn lane at the Wells Plaza intersection into an additional through-right lane to improve traffic flow was suggested. In addition, it was suggested to move the start of the northbound traffic lane markings farther back near Webhannet Falls to improve traffic flow.
- Traffic Light Synchronization: Multiple comments suggest improving the synchronization of traffic lights to ensure a smoother flow of traffic.
- Concerns Over Neighborhood Access: Some comments pointed out potential issues with a raised median on Rt 1, which could impede emergency and routine access to their neighborhood.

2. **Pedestrian and Cyclist Safety Concerns**

- Rapid Reflective Flashing Beacons (RRFBs): Multiple residents emphasized the need for RRFBs at various points, such as Burnt Mill Rd and near Wellington Manor condos, for pedestrian safety.
- Bike Lanes: Enthusiastic support for bike lanes from many users. Others highlighted the safety concerns for bikers and pedestrians, emphasizing the need for proper infrastructure.
- Sidewalk Improvements: Requests for new sidewalks on Chapel Rd, Mile Road, and the area from Moody Post Office to Ogunquit. The goal is to enhance the quality of Well's sidewalks to match the standards of those in Ogunquit. A multiuse path was also suggested on Chapel Road.

3. **General Sentiment**

- While there is support for improvements that enhance safety and traffic flow, some residents feel that proposed measures like the raised medians, may cause more problems than they solve.

› There is a call for a balanced approach that considers the needs for all road users, including drivers, pedestrians, cyclists, and emergency services.

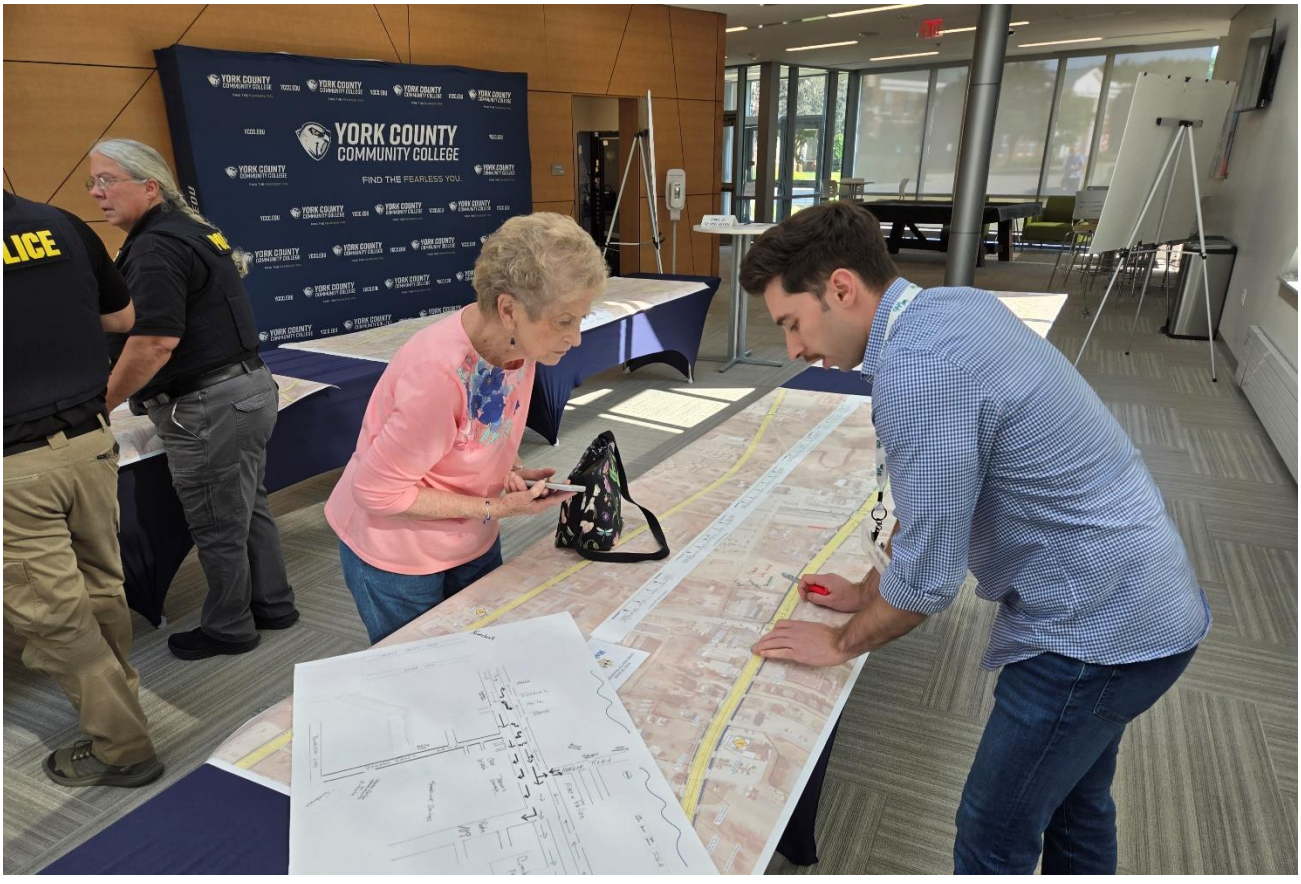
Each meeting was live streamed over Wells Cable TV and recorded for future viewing. The strong public desire for improved multi-modal opportunities and better traffic signal timing at signalized intersections on Post Road (Route 1) was clear. Proposed conceptual improvements were generally well-received, with numerous positive comments.

Conclusion of Overall Public Feedback Goals

The study consistently kept in mind the following primary goals drawn from public feedback:

1. Enhanced public outreach for wider community participation and input.
2. Effective traffic management through improved signage, signal timings, and strategies to avoid congestion.
3. Ensuring safety for pedestrians and cyclists by creating safer, more consistent infrastructure, including protected bike lanes and clearly marked pedestrian pathways.
4. Sustainable urban design with additional green spaces and native plants.
5. Encouraging public transport solutions.
6. Careful consideration of medians and signals by addressing community concerns with alternative traffic calming measures where necessary.

These goals have been central to the study's progress, ensuring that community concerns are addressed and integrated into final recommendations for a safer, more efficient environment in Wells.



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Background

This section of the Feasibility Study primarily introduces the study area, outlines methods of assessment, and describes existing conditions. Additionally, it will cover the Roadway Safety Assessment conducted in November 2022, detail stakeholder collaboration to identify local issues and potential improvements, review environmental considerations—including historic properties and wetlands—and provide a review of relevant available documents.

Study Area

The study area of the project includes several intersections on the Route 1 corridor in Wells, Maine including the focus intersections of:

4. Wells Road/Route 109
5. Mile Road
6. Hannaford Plaza
7. Littlefield Road/9B
8. Eldridge Road
9. Bourne Avenue

Figure 1: Map of study area.

Project Kick-Off

The consultant team met with the study team on October 19, 2022, under a collaborative planning process. The goals of the meeting were to discuss the following:

- Identify and understand local issues
- Identify and understand relevant state and federal regulatory requirements
- Finalize scope of work
- Identify previous related study efforts and available data
- Identify traffic data that will need to be collected
- Identify baseline environmental data that will need to be collected
- Identify existing and future Active Transportation uses and concerns
- Identify existing transit on the corridor and discuss future opportunities
- Discuss Smart city concepts and how they may be applicable to this corridor including signage providing indication of travel time/parking at beaches and transportation center
- Prepare preliminary study purpose and need

Existing Conditions

Traffic Data

Automatic traffic recorders (ATRs) were used to obtain daily traffic volumes along Route 1 at locations shown in Figure 2. Table 2 shows daily traffic volumes at these locations.

Figure 2: Automatic traffic recorder (ATR) location for daily traffic volumes.

In general, the corridor carries an average daily traffic volumes of 20,000 vehicles per day, ranging from nearly 17,500 (south of Wells) to 25,500 (north of Mile Road). Volumes are generally higher in the southbound direction. It should be noted that volumes were conducted in August 2022 which represents a seasonal peak. Traffic volumes in the off-season are much lower, averaging around 7,300 vehicles per day (per data from the MaineDOT Continuous Count Station at the Wells/Ogunquit town line in January 2022).

Table 2: Daily traffic volumes along corridor.

Count Location	1	2	3	4	5	6	7	8	9	10	11	12
NB Volume	9699	10407	11530	11453	10882	11231	11442	10131	9930	12269	8704	9815
SB Volume	9609	10487	10911	11840	11404	11734	11937	11016	11246	13210	8948	9878
Combined AADT	19308	20894	22441	23293	22286	22965	23379	21147	21176	25479	17652	19693

Turning movement counts were conducted at the six focus study intersections on Wednesday, August 24, 2022, from 6 AM – 6 PM. Figure 3 depicts these locations, while Table 3 shows the AM and PM peak hourly volumes and pedestrian/bicycle counts for each location.

Figure 3: Study intersection locations.

Hourly volumes are highest in the middle of the corridor (near the Hannaford Plaza). Pedestrian volumes are highest at the Mile Road intersection followed by the Bourne Avenue intersection. Pedestrian volumes are lowest at the Route 1 / Littlefield Road which is to be expected due to a lack of dedicated crosswalks. Pedestrian volumes were also low at the Route 1 at Sanford Road intersection, likely due to very long crosswalks and an overall unappealing pedestrian environment. Bike volumes vary throughout the corridor but range from 50 – 122 bicyclists per day.

Table 3: Turning movement counts from August 24th, 2022.

Count Location: *Intersection of Route 1 &*	AM Peak	AM Peak Volume	PM Peak	PM Peak Volume	Total Bike Volume	Total Ped Crossings
1. Bourne Avenue	9:45AM-10:45 AM	1656	3:30-4:30PM	1724	122	143
2. Eldridge Road	10:30AM-11:30 AM	1776	3:15-4:15PM	1901	98	35
3. Littlefield Road	11:00AM-12:00PM	1861	3:15-4:15PM	2019	50	5
4. Hannaford Plaza	11:00AM-12:00PM	2037	3:00-4:00PM	2147	78	61
5. Mile Road	11:00AM-12:00PM	2173	5:00-6:00PM	2286	84	150
6. Sanford Road	11:00AM-12:00PM	1959	3:00-4:00PM	2009	75	14

Additional counts were provided by MaineDOT in July of 2023. The counts included the following unsignalized intersections:

- Bypass Road
- Chapel Road
- Furbish Road
- Harbor Road
- Sanford Road

Roadway Safety Assessment

A Roadway Safety Assessment (RSA) was conducted over a two-day period on November 8th and 9th, 2022, along Post Road (Route 1) in Wells, Maine. The RSA Team was comprised of a variety of team members with expertise in safety, roadway design, traffic operations, transportation planning, bicycle and pedestrian safety, Americans with Disability (ADA)/accessibility, and advocacy. The Team included representatives from the Town and MaineDOT, with input from local business owners and advocates.

VHB reviewed all available existing data, including crash data from January 2019 – December 2021. The following were some of the existing conditions noted by the project team:

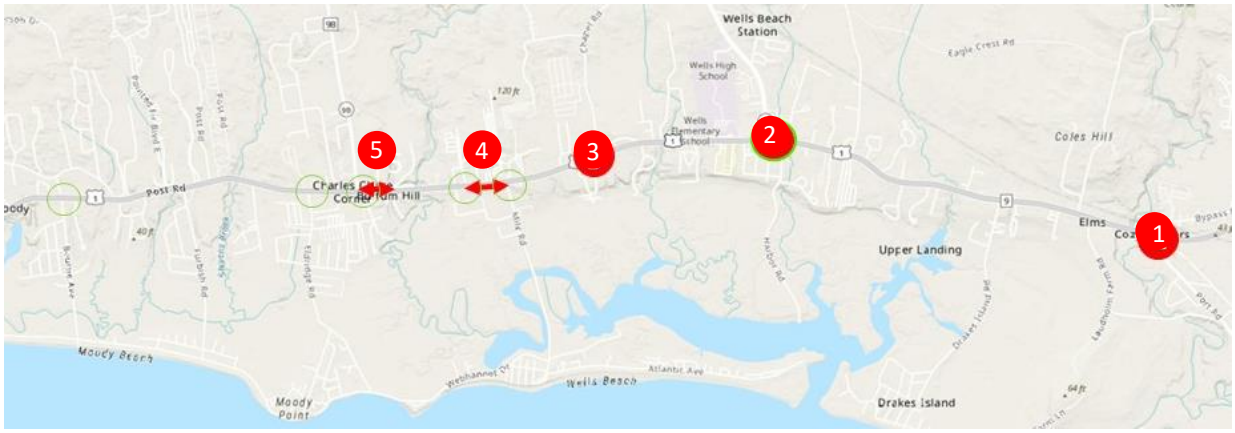
- The town's updated Comprehensive Plan is anticipated to be completed in June 2023
- Route 1 is very busy during beach season then vehicle volume drops off
- Limited / seasonal transit options (Shoreline Explorer)
- Segments of sidewalk are missing throughout the study area
- Various types of sidewalk materials (Town Sidewalk Plan 2003)
- Limited ADA compliant accommodations
- Intermittent pedestrian crossing locations along the corridor
- Multiple business entrances / exits throughout
- Bicyclists and pedestrians are both using shoulders and sidewalks
- Overhead utilities throughout study area, limited overhead lighting
- Five High Crash Locations (HCLs), three intersections and two road segments
- Upcoming light-capital-paving project

The study area includes US Route 1 (Route 1) from Bypass Road to the Ogunquit town line along with the focus intersections previously listed in Table 3 and previously shown in Figure 3.

The RSA Team also focused on the following High Crash Locations (HCLs) shown in Figure 4:

1. *Intersection* – Route 1 (Post Road) / Route 9
2. *Intersection* – Route 1 / Harbor Road
3. *Intersection* – Route 1 / Chapel Road
4. *Segment* – Route 1 from Mile Road to Buzzell Road
5. *Segment* – Route 1 from Littlefield Road to Brown Lane

Figure 4: High crash location in the study area.



Overarching Findings

This section describes the study area as a whole.

Existing Positive Safety Features

The team noted that there are many existing positive safety features within the project limits including Rectangular Rapid Flashing Beacons (RRFB) located at multiple crosswalks, separated sidewalks with landscaping strips providing separation, existing bicycle lanes for bicyclists, effective roadway lighting, roadway signage, and visible lane lines.

Safety Concerns

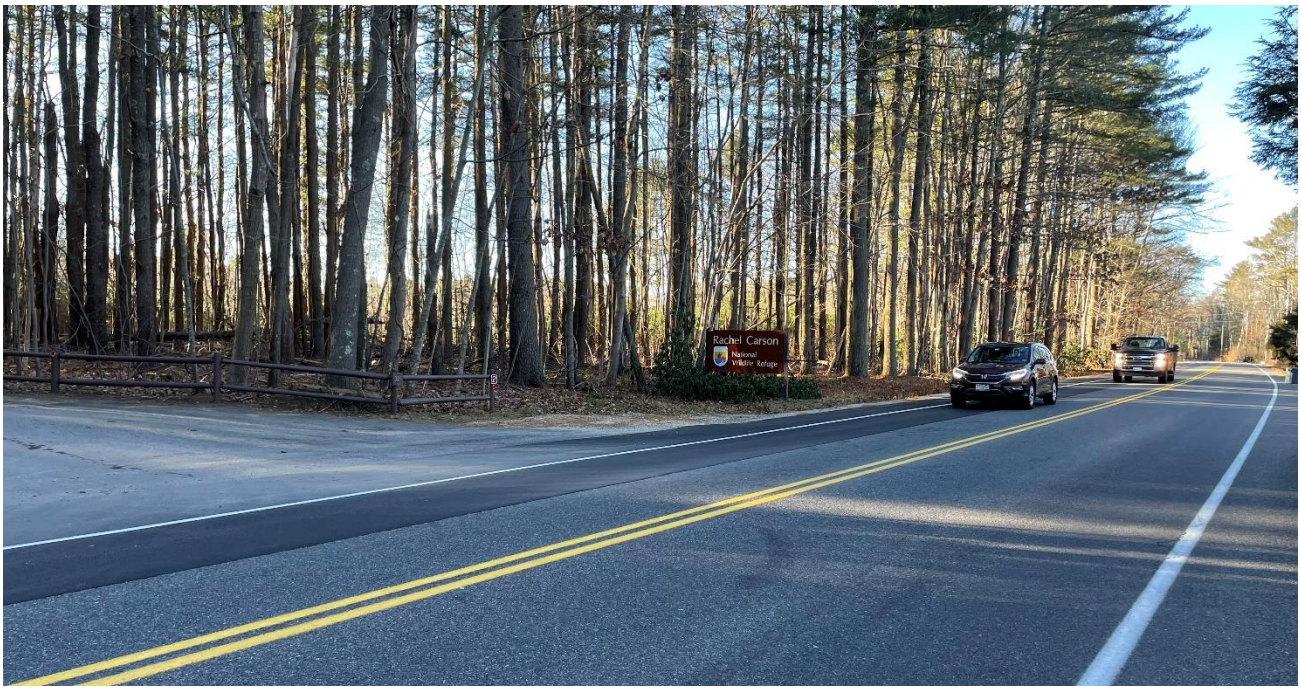
- Lane and shoulder width inconsistencies throughout the corridor.
- Lack of sidewalk / disconnected pedestrian facilities and narrow sidewalk width.
    - Connectivity to origins/destinations and existing pedestrian facilities
    - Pedestrian crossing locations varying
    - Lacking pedestrian signals at crosswalk locations
    - Mobility needs (accessibility, beachgoers)
- There is no sense of defined gateway when traveling into Wells northbound and southbound.
- Route 1 has a high density of driveways.
    - Turn limitations with signage – driver adherence is low
- Wells ranks 11th in the State for bicycle crashes.
    - Narrow bicycle lanes
    - High speeds on Route 1
- Weaving / lane shifts (near public safety building and Hannaford Plaza).
- Hard to find transit stops and transit employees (bus drivers).
- Driver behavior at permissive left turns and drivers not understanding who has right-of-way.
- More beach parking passes (local) are sold than parking is available.

Potential Countermeasures

- Ensure that future projects meet ADA standards and create a plan for upgrading deficient facilities to bring them up to current standards. Providing accessible routes ensures that all pedestrians are able to use the facilities as intended and also provides a benefit to the greater community – such as those using strollers or pushing carts.
- Casino Square accessibility improvements (near study area) (performed through separate project)
- Access management (left turn/movement prohibitions)
- Explore traffic calming measures
- Gateway treatments/consistent treatments in between (throughout the town)

- Enhance lighting, particularly at pedestrian crossing locations. National statistics show that more severe pedestrian crashes occur during dark conditions. Improving lighting would help drivers to see and avoid pedestrians crossing or walking along the roadway.
- Fixed variable message signs to provide information on parking (to get people to park and ride, and to direct people to lots with availability)
- Upgrade infrastructure to replace aging signs, install new signs at bus stop locations, reapply pavement markings to help define the roadway, remove/relocate fixed objects – or as an interim measure, ensure that all fixed objects have adequate signage, and work with the utility companies to clean up loose or incomplete wiring of utility poles
- Pedestrian crossing enhancements such as median refuge islands (will consider a variety of designs/materials because of the emergency access need during high traffic volume periods)
- Consider transit stop enhancements and incorporating branding/wayfinding to make it very apparent and
    - NNEPRA is upgrading their kiosk to provide dynamic messaging, perhaps this could be incorporated.
- Review existing and proposed stormwater drainage design to identify potential areas for improvement.
- Provide bicycle facilities through the corridor to encourage multimodal transportation and improve safety for both cyclists and pedestrians.

Additional information from the RSA for each specific HCL is included in the full RSA Summary Memorandum, which can be found in Appendix A.



Review of Existing Documents

Local Comprehensive Plan Update

The Town of Wells Comprehensive Plan was recently updated over several years and finalized in May 2024 from the original February 2005 version developed by the Southern Maine Regional Planning Commission (SMPDC) in conjunction with the Town of Wells Planning Department. The plan is a roadmap for the Town's future growth and development, outlining strategies for preserving open space, protecting natural resources, enhancing infrastructure, promoting economic development, and ensuring a high quality of life for residents. A major recommendation that came from the plan includes funding to complete a comprehensive corridor study of land use and transportation for Route 1 as continued intensive development of the Route 1 corridor for commercial uses and lodging has changed the character of this area and has contributed to traffic problems on Route 1. The plan also provided a Future Land Use map.

The Comprehensive Plan recommended the following *transportation* related goals for the comprehensive corridor plan:

- Relief from the congestion on US Route 1 and provision of improved north-south movement
- Improvement of problem intersections on US Route 1
- Additional access to the Maine Turnpike in order to serve vehicles destined for the southern section of Wells and Ogunquit to reduce traffic on US Route 1
- Address access management and traffic calming needs
- Identify opportunities for pedestrian and bicycle travel
- Improved public transportation alternatives

The Comprehensive Plan recommended the following *land use* goals related to Route 1:

- Promote a general pattern of development that maintains and enhances the land use, character, and living environments of the Town including the high-density beach/waterfront area, the Route 1 mixed-use corridor, the suburban style neighborhoods and the farm and forest rural areas. To accomplish this policy the Town will:
    - Identify areas for growth that would include residential areas and areas for mixed use development where public infrastructure can service a higher density of development;
    - Restrict development in critical rural areas, near sensitive resource areas, and in areas prone to natural hazards;
    - Encourage commercial and industrial uses in appropriate locations;
    - Preserve tourism-related industry along Route 1;
    - Preserve beach/waterfront residential neighborhoods.
- Encourage higher standards for infrastructure development in the Town's commercial and municipal center in the Route 1/109 area such as complete street designs.
- Work with the MaineDOT to complete a comprehensive corridor study of land use and transportation for Route 1.

Wells Sidewalk Development Plan

The Wells Sidewalk Development Plan was adopted in combination with the Wells Comprehensive Plan in January of 2003 and guides sidewalk construction in the area. The study area along Route 1 begins at the Wells Library and continues north and terminates at Drake Island Road. The project included sidewalks along both sides in many locations, including Route 109 from Route 1 to Chapel Road. Due to the age of the plan, it is recommended that an update be undertaken to provide a townwide comprehensive vision beyond the Route 1 specific recommendations contained herein.

Wells Traffic Inventory and Research for Future Bypass Feasibility

The Southern Maine Planning and Development Commission (SMPDC) developed the Wells Traffic Inventory and Research for Future Bypass Feasibility study in 2018 to research several different options for alleviating traffic on Route 1 in Wells, with a focus on the segment between Wells Road (Route 109) and Littlefield Road (Route 9B). The study completed a feasibility analysis for two long term options which included a new Maine Turnpike partial interchange at Littlefield Road and utilizing an existing Right of Way owned by Central Maine Power (CMP) for a potential bypass road, traveling from Littlefield Road to either Chapel Road or Wells Road (Route 109). The study concluded that Option 1 be investigated further. CMP rejected the idea of a bypass road through their property.

In addition, the study recommended the following (many of which are included within the scope of this study):

- Corridor Safety Audit – Conduct a road safety audit.
- Traffic Signals – Reevaluate current signal timings and phasing to ensure signals are optimized to the fullest extent.
- Traffic Data Collection – Updated traffic counts should be conducted to optimize traffic signals.
- Corridor Analysis – Conduct a traffic and safety corridor analysis study with intent of providing recommendations to improve traffic flow.
- Public Transportation – Continue to support he Shoreline Explorer service and encourage ridership to reduce dependence on personal automobiles.
- Striping and Lane Configuration – Revisit the current lane configuration to ensure lane assignments appropriately reflect current turning movements and travel patterns.

Central York County Connections Study

In 2010 the Central York County Connections Study was commissioned to identify a series of recommendations designed to preserve or enhance transportation connections between central York County, US Route 1 and the Maine Turnpike. Recommendations for the Route 109 corridor in Wells are:

- Expand the Route 109 & Exit 19 Intersection
- Traffic Signal Upgrade – Route 109 & Exit 19 Intersection
- Improve Route 109 & Route 9 Intersection

The study also made recommendations that further study should be made for access management improvements in Wells, with the expansion of inter-city bus service.

Traffic Conditions

In addition to the RSA, VHB completed an evaluation of the existing traffic operations for the study area intersections. The analysis included evaluating 2023 AM and PM peak hour conditions for each of the intersections and used existing intersection timing for the signalized intersections. The following summarizes the methodology and results of the evaluation.

Traffic Volume Data

Weekly group mean factors provided by MaineDOT were used to adjust the counted traffic volumes to represent the 30th highest hour of the year. The raw volumes collected in August 2022 were adjusted by a factor of 1.034 and the volumes collected in July 2023 were collected during the 30th highest hour therefore no seasonal adjustment was required.

In addition to a seasonal adjustment, an annual growth rate is applied to estimate the traffic volumes that will be experienced during the analysis year. Since the analysis year for the existing conditions is 2023, an annual growth rate of 0.5% per year has been applied to the August 2022 seasonally adjusted volumes. No annual adjustment was applied to the July 2023 volumes.

Traffic Operations Analysis

Intersection capacity analyses were performed for the study area intersections as outlined above. Levels of service (LOS) were determined based on Synchro/SimTraffic traffic modeling software. Level of service is the term that defines the conditions that may occur on a given roadway or at an intersection when accommodating various traffic volume loads. Levels of service range from A to F with LOS A representing generally free flowing operating conditions and LOS F representing generally congested conditions. Synchro 11 was used to determine the LOS at signalized and unsignalized intersections. Table 1 summarizes LOS and delay for signalized and unsignalized intersections.

Table 4: Level of service and delay summary.

Level of Service	Signalized Intersection Delay (sec)	Unsignalized Intersection Delay (sec)
A	<10.0	<10.0
B	10.1 – 20.0	10.1 – 15.0
C	20.1 – 35.0	15.1 – 25.0
D	35.1 – 55.0	25.1 – 35.0
E	55.1 – 80.0	35.1 – 50.0
F	>80.0	>50.0

The following table summarizes the results of the evaluation.

Table 5: Assessment of future scenarios results for unsignalized intersections.

	2023 Existing Conditions	
	Delay (sec)	LOS
Route 1/Chapel Road (U)		
AM Peak Hour		
Chapel Road EB	75.3	F
Steak House WB	5.6	A
Route 1 NB	10.7	B
Route 1 SB	5.7	A
Overall	***21.5***	***C***
PM Peak Hour		
Chapel Road EB	197.5	F
Steak House WB	33.6	D
Route 1 NB	15.2	C
Route 1 SB	6.4	A
Overall	***45.3***	***E***
Route 1/Harbor Road (U)		
AM Peak Hour		
Harbor Road WB	939.5	F
Route 1 NB	1.6	A
Route 1 SB	143.1	F
Overall	***79.4***	***F***
PM Peak Hour		
Harbor Road WB	2198.7	F
Route 1 NB	1.7	A
Route 1 SB	319.4	F
Overall	***171.8***	***F***
Route 1/South Street (U)		
AM Peak Hour		
South Street WB	9.2	A
Route 1 NB	3.6	A
Route 1 SB	2.2	A
Overall	***2.9***	***A***
PM Peak Hour		
South Street WB	8.5	A
Route 1 NB	3.5	A
Route 1 SB	2.2	A
Overall	***2.9***	***A***

Table 6: Assessment of future scenarios results for signalized intersection.

	2023 Existing Conditions	
	Delay (sec)	LOS
Route 1/Route 109/Public Safety Building (S)		
AM Peak Hour		
Route 109 EB	28.0	C
Public Safety Bldg WB	57.4	E
Route 1 NB	18.0	B
Route 1 SB	13.2	B
Overall	***18.9***	***B***
PM Peak Hour		
Route 109 EB	25.6	C
Public Safety Bldg WB	33.0	C
Route 1 NB	15.3	B
Route 1 SB	13.8	B
Overall	***17.5***	***B***

As shown in Table 5 Chapel Road is currently experiencing high levels of delay during peak hour. Additionally, the intersection of Harbor Road with Route 1 experiences high levels of delay for both the Harbor Road approach as well as the Route 1 southbound approach due to vehicles waiting to turn left. This delay slows down traffic flow on Route 1 and disrupts traffic traveling through the corridor.

Pedestrian Infrastructure

Although there is some overall coverage of sidewalks within the study area and areas with sidewalks on both sides of the street, most are in poor condition with very little curb reveal, and in many cases, not ADA compliant.

The study area also includes multiple sidewalk materials, which makes it challenging from a maintenance perspective. Sidewalk widths generally vary and are at minimum 5’ with very few pedestrian-related business opportunities currently available, especially with existing levels of disrepair.

There is a lack of crosswalks at several signalized intersections, as well as a lack of ADA compliant accommodations at several crosswalks within the study area where many ADA accessible ramps are non-existent. There are currently 19 crosswalks throughout the study area. Crosswalk locations were reviewed, and recommendations include relocating two midblock crossings near Grenier Lane and relocating a midblock crossing near Rest View Lane. Some locations were recommended to be moved to either side of an intersection instead of within them. Additionally, rectangular rapid flashing beacons are proposed at several existing crosswalk locations.

Existing Bicycle and Pedestrian Accommodations and Deficiencies

The RSA team and stakeholders identified several pedestrian, bicycle and transit deficiencies throughout the Wells Route 1 study area during the RSA on November 8th and 9th, 2022. Although there are several effective and safe design features that currently serve pedestrians and bicyclists along Route 1 in the study area, the RSA brought to light some inadequacies that could be improved upon to provide more consistent and safer pedestrian and bicycle accommodations.

Pedestrian Deficiencies

Sidewalks

The Wells Route 1 corridor is comprised of sidewalks that are inconsistent in terms of width, material, and location. There are no sidewalks present on either side along Route 1 between Route 9 and Upper Landing Road. Although there is sidewalk provided on the east side of Route 1 starting at Upper Landing Road heading south, there is no consistent sidewalk on the west side until Sanford Road. There is a lack of consistent sidewalk on the west side from the Wells Public Library until Walgreens. There is no sidewalk from the Hannaford Plaza to Ogunquit on the east side. There is no sidewalk on the west side from Falls Park to Ogunquit.

Due to these disconnected and inconsistent sidewalks, pedestrians are using shoulders adjacent to the vehicular travel lane when sidewalks are not present. Sidewalks do not always meet ADA compliance and at narrowest are 5 feet in width.

Crossings

There are several locations where midblock ladder crossings do not connect to sidewalks along Route 1. Pedestrians have the ability to cross Route 1 but don't have sidewalk accommodations to go anywhere once they cross. The RSA indicated that the pedestrian crossings throughout the study area have varying signage, markings, dimensions, and accessibility detectable warning designs. Many of the existing crosswalks are very long for pedestrians to cross the roadway length on side streets as well as Route 1. Some signalized intersections may have a crosswalk but lack a pedestrian signal head for crossing safely. Some intersections have crossings on some legs but not all. In addition, there are several locations where pedestrians must cross exceptionally long commercial driveways along Route 1 without any crosswalk striping.

Bicycle Deficiencies

There are bicycle lanes throughout the corridor, but the bike symbols are not consistent throughout. Therefore, bicyclists use shoulders and sidewalks in some locations within the study area. Bike lanes are as narrow as 4 feet in some sections of the corridor. There are bicycle racks on the buses that operate along Route 1, however the area would benefit from additional bicycle racks at destinations.

Gorham Bike and Ski is located within the study area and offers both bicycle rental and repair facilities. The corridor would also benefit from a bicycle share program with bicycles located at key areas available for users to rent.

Pedestrian and Bicycle Connectivity

An array of users rely on safe, well-connected sidewalks and bicycle facilities in Wells. These users include students and faculty accessing the Wells Elementary School, Wells High School, and Wells Junior High School. Additionally, the pedestrian and bicycle facilities serve tourists eager to explore the beach and hiking trails along the coast. Key locations throughout the study area that are anticipated to experience high volumes of pedestrian and bicycle traffic are explored in more depth below.

Educational Services

One major demand for pedestrian and bicycle accommodations is the Junior High School which is located along the west side of Route1 south of Sanford Road. The sidewalk on the west side drops just after the Wells Public Library, therefore there is a need to provide safer and broader pedestrian and bicycle routes for students walking and biking to and from school. In addition, York County Community College is located in close proximity, west of Route 1. There are only sidewalks and crosswalks on some of the approaches at the nearby intersections of Route 1 and adjacent roads.

Seasonal Employees

Residing near their places of employment, many seasonal employees choose walking and cycling for their short commutes, greatly increasing pedestrian and bicycle traffic in Wells. Providing bicycle facilities at or near workplaces can encourage more employees to bike. Moreover, enhancing lighting, connecting sidewalks, and creating safer crosswalks will help pedestrians commute safely on foot.

Outdoor Destinations

Access to the beach is a major consideration for visitors and residents of Wells. There are five major roadways that provide access to Wells beaches: Drakes Island Road, Mile Road, Eldridge Road, Furbish Road, and Bourne Avenue. None of these routes provide sidewalks or bike lanes between Route 1 and the beach areas and some do not provide crosswalks across Route 1 to access them. There is a desire line between hotel/motel accommodations along Route 1 and the beaches that are accessed by these five routes. The lack of bicycle and pedestrian accommodations between Route 1 and the beaches is an existing deficiency in the pedestrian and bicycle network.

Nature walking trails in the study area are located within both the Wells Reserve at Laudholm as well as the Rachel Carson National Wildlife Refuge at the northern end of the corridor to the east of Route 1 and southeast of Port Road. However, there is a lack of connectivity between the Route 1 corridor and these nature walking trails due to an absence of pedestrian and bicycle accommodations in this segment of the study area.

Accommodations in Key Locations

Given that much of the Route 1 corridor is made up of commercial use, there are inadequate pedestrian accommodations in some key locations. One area is the intersection with the Hannaford Plaza and the lack of a sidewalk south of the intersection on the east side as well as crosswalks. Since this is one of the busiest Hannaford stores in the State, and the largest grocery store in this study area, it is a big generator of demand along the corridor.

The signalized intersection of Route 1 at Littlefield Road has no pedestrian signals, crosswalks or continuous sidewalks which has been identified as a concern as the convenience store is a destination

for pedestrians. The unsignalized intersection of Route 1 at Eldridge Road has a crosswalk across Route 1 that doesn't connect to any sidewalks which is an issue as the ice cream shop and restaurant at the intersection generate a high level of demand during the summer months.

The Wells Transportation Center, located approximately 2 miles west of Route 1, provides access to the Amtrak Downeaster Train with service to Boston (to the south) and Brunswick (to the north). The Shoreline Explorer, Orange Line 5, provides year-round service between the Wells Transportation Center and Wells Beach, however it is more difficult to travel by bike or foot between Route 1 and the Transportation Center as there are no bike lanes or consistent sidewalks along Sanford Road. There is a need to better connect the amtrack service to the Wells Route 1 corridor with alternative modes of transportation.

Public Transportation

Public transportation options are somewhat limited in Wells. While there are some local transit options, the nexus is located at the Wells Transportation Center, which is isolated from both Route 1 and the beach areas.

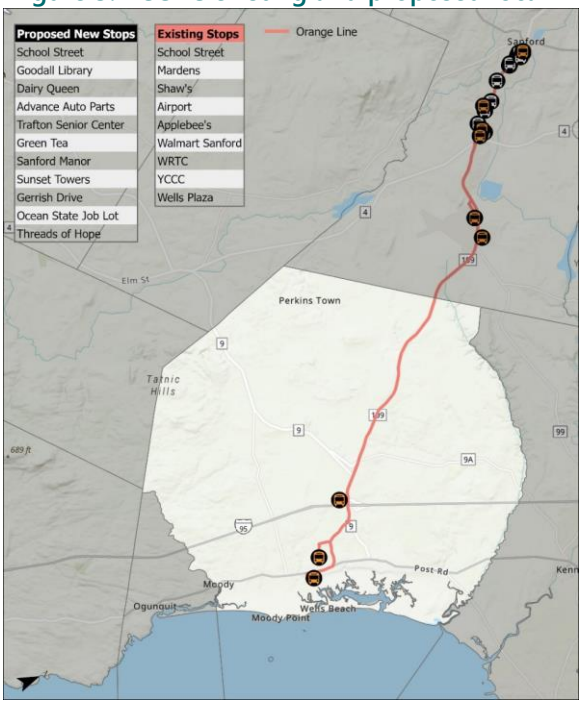
The shoreline explorer network provides bus service in the towns of Wells, Sanford, Kennebunkport, Ogunquit and York. Unfortunately, protracted staffing problems have prevented full service to each town. The only operational service in 2023 was the Orange Line. The Orange Line shuttle operates year-round between Sanford and Wells with designated stops, route deviation and connecting services, including from the Wells Regional Transportation Center. For 2023, the Orange Line additional stopped at Wells Beach. The Wells Transportation Center provides both rail and inter-city bus service, via the Amtrak Downeaster and Greyhound bus service. The Orange Line transit line provides an hourly stop, but as their website notes, "Ground transportation connections are extremely limited." The Downeaster Amtrak service provides five round trips daily. Parking at the facility is noted to be ample and free.

Local Transit

Typically, the Shoreline Explorer runs the Blue 4 Line in Wells with a seasonal schedule limited to June 24th – September 3rd. However, the service was suspended for the 2023 and 2024 seasons due to a lack of drivers. This is a recurring problem across the state and should be studied to include working conditions, driver facilities, and driver compensation.

When the Shoreline Explorer was running, the five trolleys ran on a fixed route from 9:00 AM – 4:00 PM every 30 minutes. Transit stops are located in York Beach, Ogunquit, Wells, Kennebunk-Kennebunkport and Sanford; however, they can be difficult to locate, and the signage is not optimal at all locations. This level of headway (two per hour) and operating hours may also discourage some visitors and or employees from using the trolleys. The York County Community Action Corporation (YCCAC) runs the Orange Line year-round, offering service every day of the week. This route, illustrated in Figure 5, connects Sanford and Wells while also providing a link to the Amtrak Downeaster. YCCAC has proposed additional stops along the Orange Line, which are indicated as black bus stops in the figure below, with the current stops marked as orange bus stops.

Figure 5: YCCAC existing and proposed local



Vulnerable Users and Equity Concerns

MaineDOT's Statement on Equity is consistent with Executive Order 13985: *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, which defines equity as "the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality." The MaineDOT mission is "to support economic opportunity and quality of life by responsibly providing our customers the safest and most reliable transportation system possible, given available resources." It is important that workers, visitors and residents of Wells have safe access to alternative modes of transportation within the Route 1 corridor such as walking, bicycling and transit. As described in the previous sections, there are several deficiencies within the existing pedestrian, bicycle and transit infrastructure in the study area.

According to the National Highway Safety Administration, vulnerable road users, including pedestrians, cyclists, and those who use wheelchairs, made up approximately 20% of the 42,915 people who were killed in motor vehicle crashes in 2021 in the US (an increase of 13% over 2020). Over a 10-year period, there were 47 bicycle crashes and 14 pedestrian crashes along the Route 1 corridor in Wells. Bicycles and pedestrians have a lower overall incident rate of crashes, but a much higher prevalence of injuries.

Most seasonal workers as well as a portion of visitors, residents, and students do not have access to personal vehicles and must rely on the existing segmented network of pedestrian, bicycle and limited seasonal transit accommodations along Route 1. In particular, seasonal workers are more likely to be vulnerable users and are reliant on active transportation modes and commute to work using these alternative transportation modes.

Environmental Conditions

As part of the existing condition review, the VHB team looked at the various environmental characteristics within the study area. It is important to understand and thoughtfully consider the assets within the study area and take them into consideration when providing recommendations.

Historic Properties

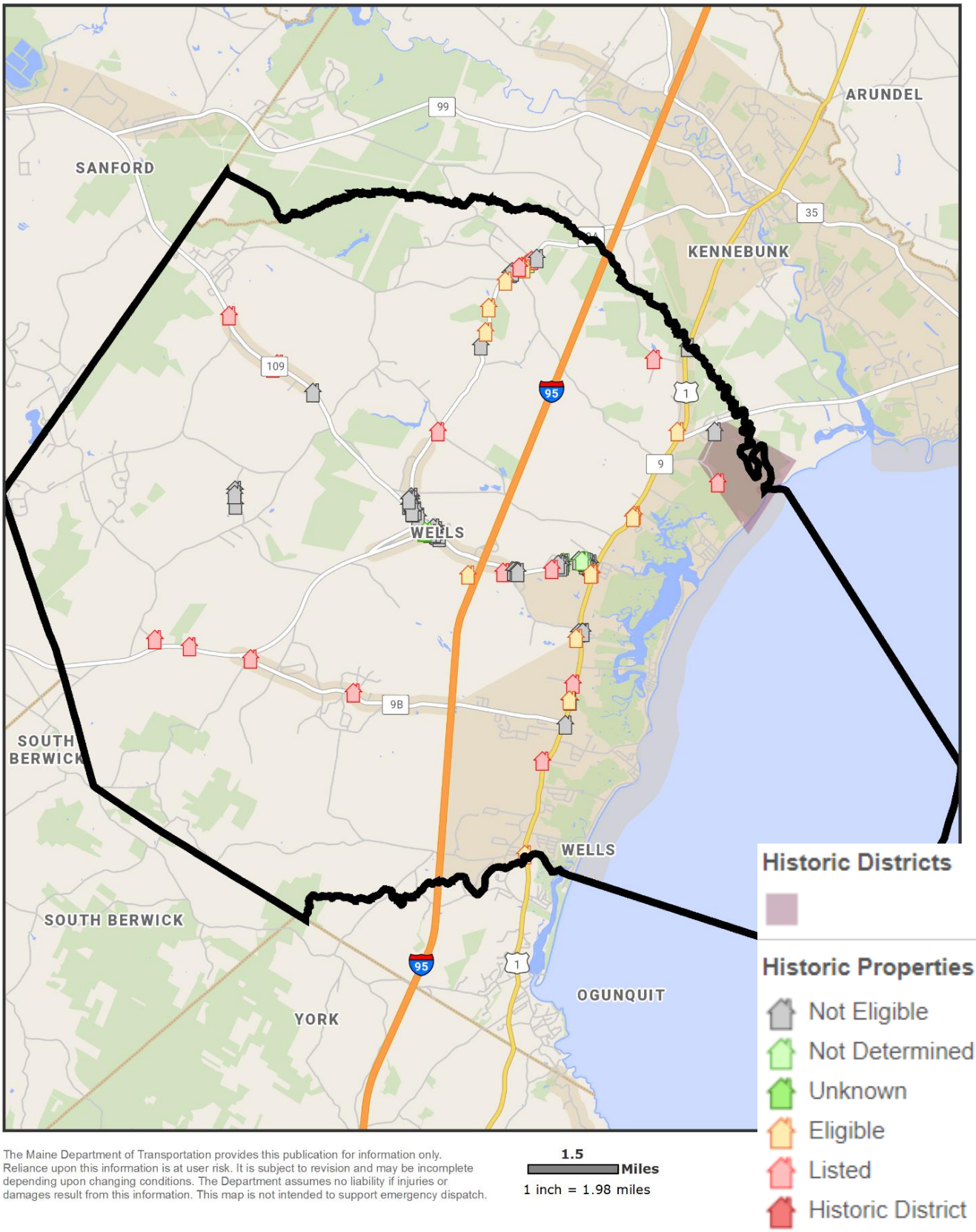
Wells features a number of historic properties and one historic district. As defined in the Town of Wells General Ordinances, Chapter 132 Historic Preservation, a historic district is defined as "A geographically definable area possessing a significant concentration, linkage or continuity of sites, buildings, structures or objects united by past events or aesthetically by plan or physical development and designated in accordance with the requirements of this chapter as appropriate for historic preservation."[1] A historic property is either a historic building or a historic site and is defined as follows by Chapter 132:

- Historic Building
    - 50 or more years old
    - Historically or architecturally significant as designated by the Historic Preservation Commission
- Historic Site:
    - A parcel of land of special significance in the history of the Town and its inhabitants
    - A parcel of land on which a historic event has occurred
    - Has been designated historically significant by the Historic Preservation Commission.

[define historic property and historic district]. Data provided by the MaineDOT public map viewer shows all properties that are historic, that are eligible for historic status, and properties which are not eligible. Figure 6 shows a map of historic properties in Wells.

[1] Town of Wells General Ordinances, Chapter 132 Historic Preservation, Section 2 Definitions Town of Wells, ME Historic Preservation (ecode360.com)

Figure 6: Wells historic buildings and districts.

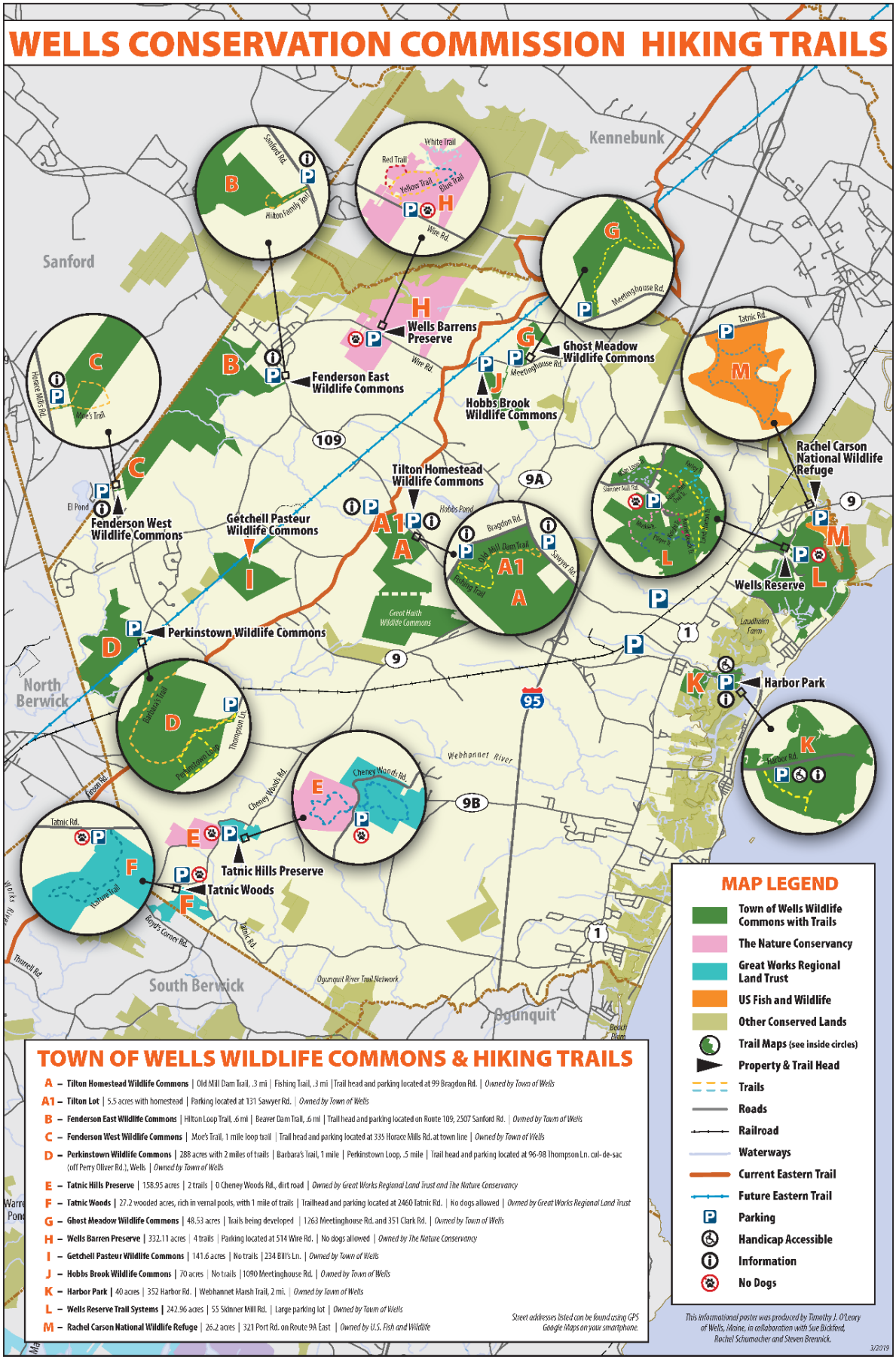


Public Parks and Land

The Town of Wells is known for its beaches and outdoor recreations and hosts many miles of hiking trails and multiple wildlife commons. Wells is notably known for the Wells Estuarine Research Reserve at Laudholm and the Rachel Carson National Wildlife Preserve. The Wells Conservation Commission advises the Town Meeting, the Select Board, and the Planning Board on sustaining the Town's natural resources, including land, water, air, wildlife habitat, and scenic views. The all-volunteer commission seeks to expand the town's conservation lands and trail system.

There are 13 trail areas located in Wells, three of which are located in close proximity to Route 1. In addition to the hiking trails, there are also several bicycle trails in the area. The Eastern Trail, part of the East Coast Greenway, a bike path that connects Maine to Florida, takes riders through Wells on Route 9. The Bicycle Coalition of Maine highlights several bike trails that go through Wells or are located just north of the Town and travel through Kennebunk, Biddeford, and Saco. A map of the hiking trail system and public land is shown in Figure 7.

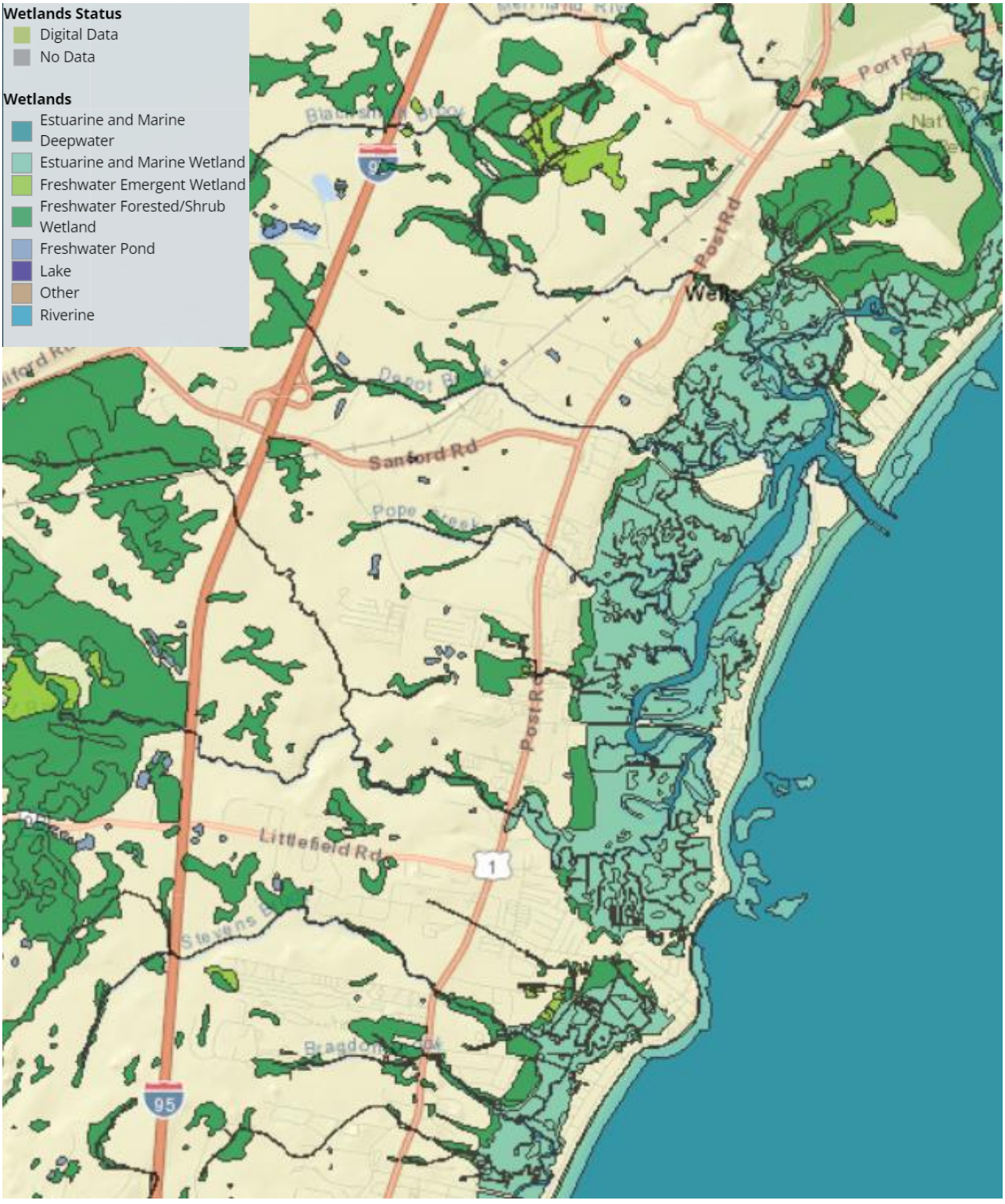
Figure 7: Wells conservation commission hiking trails.



Wetlands

Wetlands are a source of ecological habitat that benefit areas by sequestering and cleaning storm runoff, host biodiversity, and recharge groundwater. The National Wetland Inventory (NWI) was established by the US Fish and Wildlife Service to inventory wetlands to provide the public information regarding their location under federal register (61 FR 39465). The following mapping displays the wetland locations in the Town of Wells (National Wetlands Inventory (usgs.gov)).

Figure 8: Wetlands in Wells.



Endangered Species

There are currently 26 inland fish and wildlife species listed as Endangered and 25 listed as Threatened under Maine's Endangered Species Act, some of which are also listed under the U.S. Endangered Species Act. The most likely endangered species to encounter in Wells in the Piping Plover bird.

Maine Climate Council Plan

The Maine Climate Council was created in June of 2019 to develop a four-year Climate Action Plan to decrease greenhouse gas emissions by 45 percent by 2030 and 80 percent by 2050 with an end goal of carbon neutrality by 2045. The action Plan called *Maine Won't Wait* aims to accomplish that by focusing on four main goals:

1. Reduce Maine's Greenhouse Gas Emissions
2. Avoid the Impacts and Costs of Inaction
3. Foster Economic Opportunity and Prosperity
4. Advance Equity through Maine's Climate Response

There are several strategies presented in the *Maine Won't Wait* Climate Action Plan that align with the objectives of this corridor study as well as other initiatives that are particularly important in Wells. These key strategies are described as follows:

- Strategy A: Embrace the Future of Transportation in Maine - 54 Percent of Maine's greenhouse gas emissions are produced by transportation related uses. The use of electric vehicles, fuel efficiency, alternative fuels, and reduction of vehicle miles traveled are all important aspects of this strategy.
- Strategy E: Protect Maine's Environment and Working Lands and Waters: Promote Natural Climate Solutions and Increase Carbon Sequestration – Given Wells extensive shoreline and tourism industry, this strategy is imperative for protecting natural and working lands, developing new carbon storage, and monitoring and using data collection to help guide decisions.
- Strategy F: Build Healthy and Resilient Communities – At a local community level, it will be important for Wells to monitor sea level and use updated land-use regulations, laws and practices to increase resilience to flooding and other potential climate impacts.
- Strategy G: Invest in Climate-Ready Infrastructure – The state is completing an infrastructure vulnerability assessment and will develop and implement design standards for resilience in infrastructure projects.

4

Recommendations

VHB, in working with the study partners and stakeholders, along with consideration of public comments, has developed the following recommendations for the Route 1 Corridor. Installing traffic signals at the intersections of Chapel Road with Route 1 and South Street with Route 1; upgrading existing signal equipment, signalizing the Public Safety Building, and changing a segment of Harbor Road to one-way traffic flow; expanding and connecting the sidewalk network; improving crosswalks and adding rectangular rapid flashing beacons; improving and expanding bike lanes; improving access management; adding and improving bus stops; and adding lighting throughout the corridor. The following chapter discusses these recommendations in more detail.

Signalization and Signal Upgrades

The Route 1 corridor experiences significant congestion due to summer tourist traffic. A potential solution to congestion and safety issues that arise is the signalization of intersections within the study area and upgrading the existing signal equipment to better serve the corridor.

Signalize Intersections

The intersections of Chapel Road with Route 1 and South Street with Route 1 both meet several of the Manual on Uniform Traffic Control Devices (MUTCD) Signal Warrant criteria. The intersections were evaluated for both 2025 and 2045, the planning year for the project. The addition of traffic signals at these two intersections would improve traffic flow through the corridor, especially during peak summer conditions. Additionally, they may improve safety through the corridor, particularly at the intersection of Route 1 with Chapel Road.

Adaptive Signals

Adaptive signal control refers to technology that captures current traffic demand data to adjust traffic signal timing to optimize traffic flow in coordinated traffic signal systems. Adaptive signals work by collecting current demand data, evaluating the performance of the corridor using system specific algorithms, then implementing modifications to the intersection timing based on the outcome of the evaluation.[2] Adaptive signals are helpful in reducing traffic delay and congestion, improving travel times, decreasing travel time variability, and decreasing emissions.

MaineDOT has implemented adaptive signals for two corridors in Augusta, two corridors in Waterville, and one corridor in Sanford. Adaptive signal technology is also operating in Wells, though not consistently very well. Upgrading the existing signal equipment in the study area would further expand the use of adaptive signals.

[2] Federal Highway Administration, Adaptive Signal Control FAQs
EDC-1: Adaptive Signal Control FAQs | Federal Highway Administration (dot.gov)

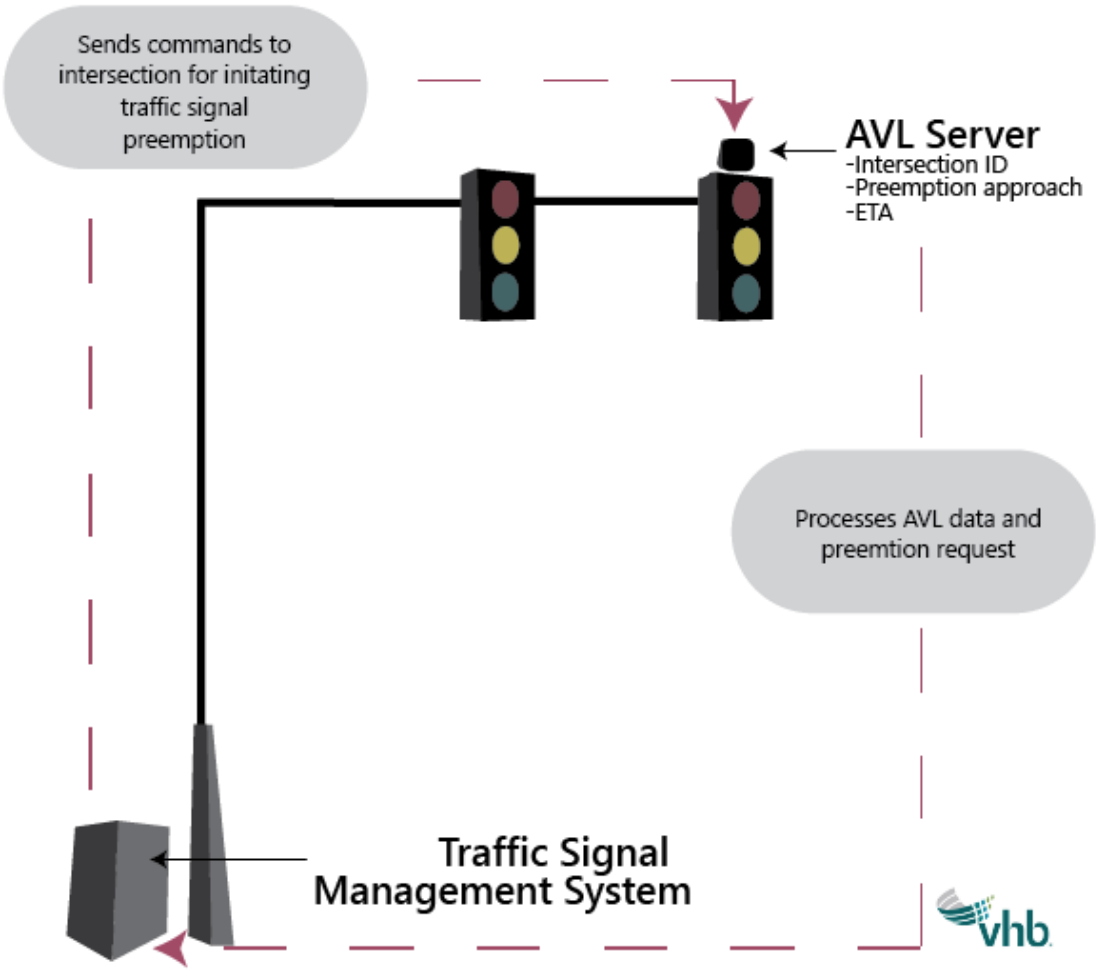
Emergency Preemption

Advanced Vehicle Location (AVL) based emergency preemption systems use GPS and wireless data communication to provide real-time location information of emergency vehicles to a central system[3].

In the short term, an optical based preemption system can be installed. This system works with a button located at the station that communicates with the adjacent traffic signal to prioritize the public safety building.

There is opportunity in Wells to update the intersection emergency preemption systems to AVL. Unlike other systems, AVL does not require any field instrumentation. Since it does not depend on local detection, there is no need to equip every intersection with EVP equipment. When a 9-1-1 dispatcher receives a call, the vehicle sends a preemption request to the central system wirelessly, along with the vehicle class, relative priority, and vehicle location, direction, and speed from the GPS. The central system then uses this data to identify the intersection the vehicle is approaching and sends commands to preempt the traffic signal at that intersection.

Figure 9: Communication between central traffic signal management system and AVL server.



[3] Homeland Security Science and Technology. Tech Note: Automatic Vehicle Locating Systems. https://www.dhs.gov/sites/default/files/publications/AVLSys-TN_0609-508.pdf. June 2009.

Pedestrian Intersection Improvements

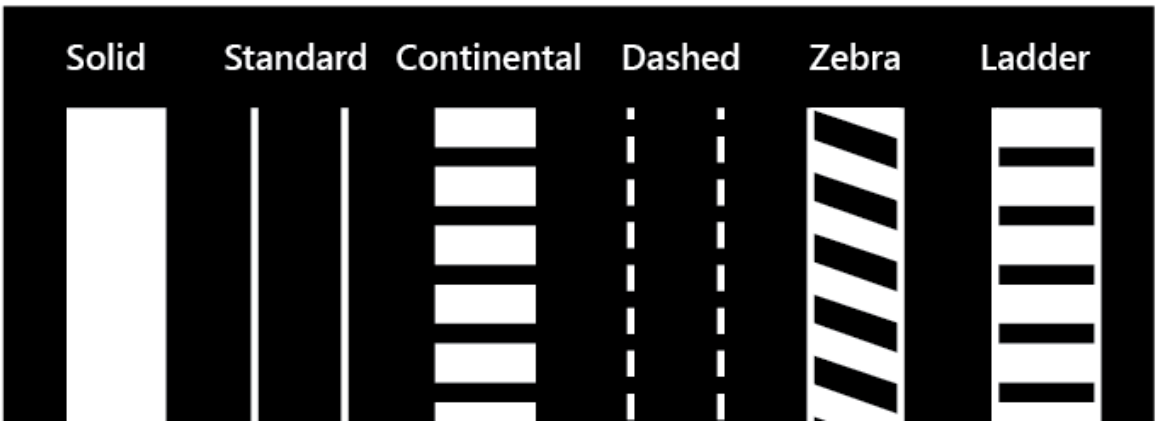
There is an important opportunity to ensure that future projects meet ADA standards for site design and off-site improvements. There are several locations as mentioned in the previous sections that describe locations such as the Hannaford Plaza Driveway that would benefit from pedestrian crossings like RRFBs as well as pedestrian signals and connecting sidewalks.

Crosswalks

There is an opportunity to provide crosswalks at the intersections of Route 1 at Eldridge Road and Route 1 at Littlefield Road since they also have a high pedestrian demand during the summer months. Crosswalks serve as indicators to drivers that pedestrians may attempt to cross the road at that specific location. According to Maine State law (Title 29-A Subsection 2056-4), all vehicles are required to yield to pedestrians who have entered a marked crosswalk when there is no operational traffic control device.

This kind of pedestrian safety measure is typically indicated by white rectangular lines that are at least 6 feet wide. There are several variations of these markings, including the zebra (diagonal style) or continental (piano style) designs. The gold standard for crosswalk markings are ladder, zebra, or continental markings because they have been shown to improve yielding behavior better than parallel or dashed pavement markings[4]. Singular painted crosswalks help decrease vehicle-pedestrian accidents by heightening driver awareness.

Figure 10: Various common crosswalk markings



Crosswalks should be installed in areas where there is an expectation of pedestrian traffic. In areas with high pedestrian traffic and roads with high speeds and large volumes, the use of signalized crossings is recommended. Conversely, unsignalized crossings may be suitable for roads with low speeds and less traffic. Regular crossings can enhance walkability and potentially increase demand. Factors such as land use, current and future demand, pedestrian compliance, speed, safety, and crash history should also be considered when deciding on crosswalk placements. According to the National Association of City Transportation Officials, all sides of signalized intersections should have marked crosswalks unless pedestrians are not allowed on the road or section, or if there is no pedestrian access on either corner and no possibility of providing access.

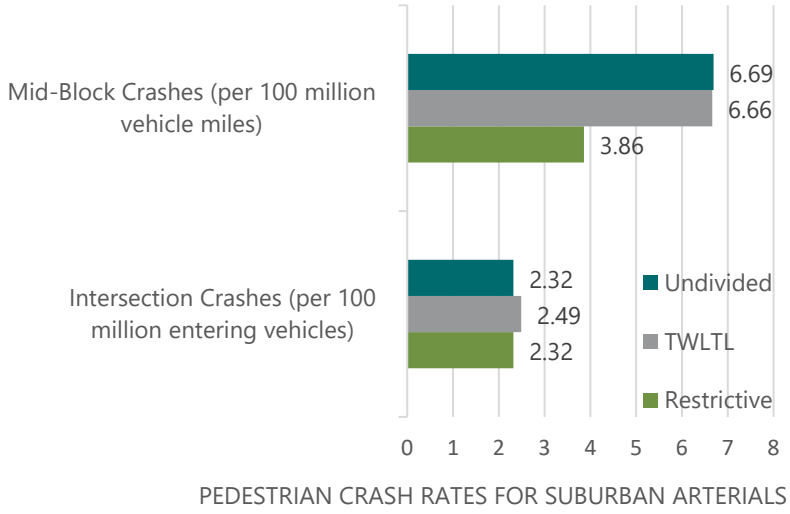
[4] National Association of City Transportation Officials. Conventional Crosswalks. https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/conventional-crosswalks/. Accessed January 2024.

Rectangular Rapid Flashing Beacons

RRFBs are safety devices designed to safeguard pedestrians at crossing locations without signals. These devices produce quick, flashing LED lights when a button is pressed. Signs indicating drivers should yield to pedestrians are placed near these flashing LEDs, alerting drivers of pedestrians intending to cross. Research conducted by the Federal Highway Administration has demonstrated that RRFBs can enhance driver yielding conduct at crosswalks[5]. Both existing and proposed crosswalks could benefit from the installation of RRFBs.

Figure 11: Example of a rectangular rapid flashing beacon.

Figure 12: Mid-block compared to intersection crash rates for suburban arterials.



[5] Chestnutt. FDOT Center for Urban Transportation Research. Florida Best Practices: Pedestrian and Bicycle Safety. June 2018.

Raised Medians

Several locations would benefit from raised median treatments. Raised medians have been linked to a 25% decrease in accident rates compared to center turn lanes, according to a 1993 study by Long, Gan, and Morrison from the University of Florida. A specific case study observed a 48.1% reduction in total accidents over a three-year period after transitioning from a center turn lane to a restrictive raised median. With the number of these specific crash patterns on Route 1, raised medians would decrease the total number of these crashes that are more prone to serious injuries. However, based on the specific feedback from public safety, the recommended locations are in very specific and targeted areas with a mountable curb type to accommodate emergency vehicles.

The effectiveness of raised center medians is attributed to their ability to lessen the number of potential conflict points that a corridor user needs to monitor simultaneously and provide traffic calming. Raised medians can therefore provide an access management benefit by funneling drivers away from high conflict points. Additionally, the Driver Information Load is lessened with the presence of raised medians, as illustrated in the subsequent figure[6].

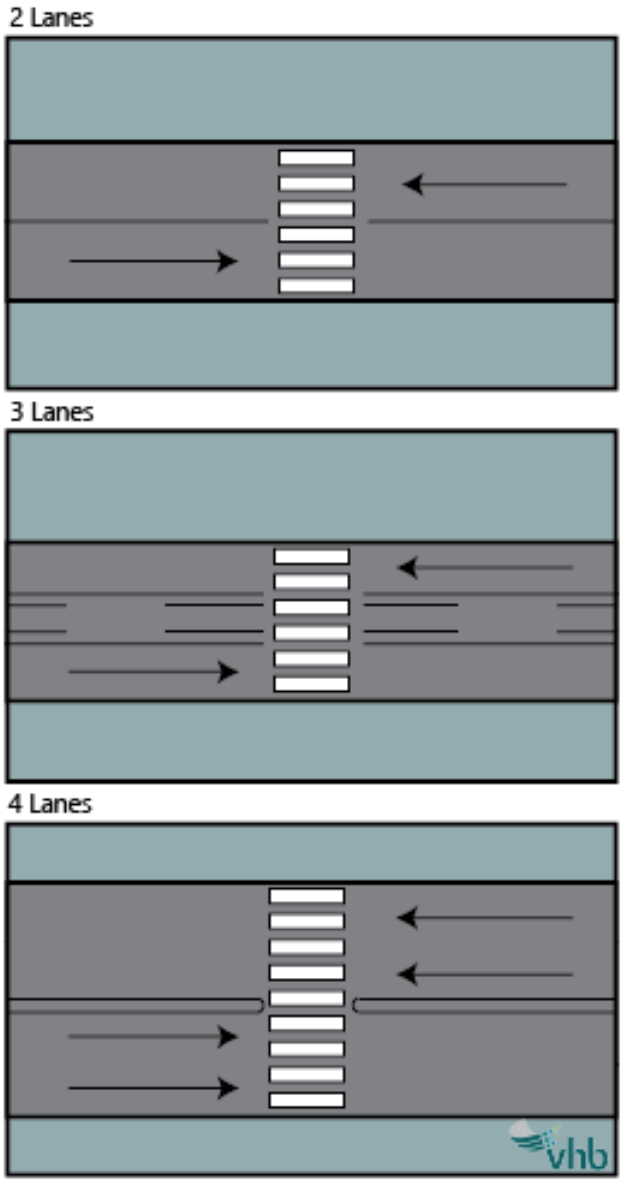
Figure 13: Median compared to double yellow lines driver perspectives.

[6] FDOT Systems Planning. 2014 Median Handbook. dot.state.fl.us/planning/systems. September 2014.

Pedestrian Refuge Islands

Outside of the high congestion time periods in the summer, Route 1 is a straight 3 lane road that can lead to higher vehicle speeds. As the number of travel lanes increases, it is more advisable to use pedestrian safety islands within crosswalks. These should be a minimum of 6 feet wide with a nose that extends beyond the crosswalk to protect pedestrians from turning vehicles. Pedestrian refuge islands can also have a traffic calming benefit for the corridor, providing a safety countermeasure for pedestrians in two different ways.

Figure 14: Depiction of when raised center medians should be used in crosswalk design.



Intersections become less safe for pedestrians as the number of lanes increase. Higher speeds and volumes indicate the use of a median to create an island for pedestrian safety and comfort.

Connecting Sidewalks

Sidewalks play a crucial role in ensuring the safety and comfort of pedestrians. In cases where one side of the street is undeveloped, sidewalks may be situated only on the developed side. However, it is preferable to have sidewalks on both sides of a street, particularly in urban settings. It is also recommended to have continuous lighting where sidewalks are in use[7]. There is an opportunity to enhance lighting, particularly at pedestrian crossing locations in the corridor. National statistics show that more severe pedestrian crashes occur during dark conditions. Improving lighting would help drivers to see and avoid pedestrians crossing or walking along the roadway.

As part of the Town of Wells Comprehensive Plan – Sidewalk Development Plan, adopted in 2003, continuous sidewalk is recommended for both sides of Route 1 between the Library and Drakes Island Road as well as both sides of Route 109 between Route 1 and the Wells Transportation Center. The typical recommended cross-section is 5-foot-wide pedestrian walkways and 4-foot-wide bicycle lanes/shoulders. Currently there are no sidewalks on either side of Route 1 between Drakes Island Road and Upper Landing Road. Sidewalks are currently present on the east side from Upper Landing Road to the Wells Library however they do not contain a landscape strip between the roadway and sidewalk the entire way as shown in the sidewalk plan.

Realizing this Town Sidewalk Development Plan and implementing the Comprehensive Plan would provide enhanced pedestrian and bicycle connectivity to the north along both sides of Route 1 from the Wells Junior Highschool, Wells Library, residential areas, and commercial uses. If the sidewalks and bike lanes were extended further in the north direction past Drakes Island Road, they would provide a link for pedestrians and bicyclists to access the nature trails at the Wells Reserve at Laudholm as well as the Rachel Carson National Wildlife Refuge.

[7] National Association of City Transportation Officials. Crosswalks and Crossings. https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/. Accessed January 2024.

Improving the sidewalk conditions and connectivity along the Route 1 corridor would make traveling as a pedestrian more comfortable and efficient and would encourage more people to travel by foot. Connectivity to the Wells Transportation Center is currently limited. Implementing sidewalks and bike lanes along Route 109 between Route 1 and the Wells Transportation Center would provide a key connection between downtown Wells and additional regional public transit amenities. Additionally, a sidewalk is proposed along Chapel Road and is recommended to be at least 10 feet wide and function as a multiuse path, making it more useful for a wider range of users.

Enhanced Lighting

During summer months pedestrian and bicyclist traffic increase significantly in the study area and pedestrians are often present in the vicinity of the school during the rest of the year. A lack of lighting along the Route 1 corridor has been identified as a safety concern for the study area. According to FHWA, "in 2020, 76% of all pedestrian-related fatalities occurred during periods of darkness[8]." Lighting is a key element in improving pedestrian visibility at night and other dark conditions. Additional lighting is proposed at crosswalks, sidewalks/multiuse paths, and intersections.

Crosswalks

To improve pedestrian visibility, luminaires are proposed on either side of all crosswalks in addition to the proposed RRFBs. The luminaires should be located on the same side of the crosswalk as oncoming vehicles to further improve visibility and reduce backlighting pedestrians in the crosswalks. Lighting at crosswalks also draws driver attention to the crosswalks during dark conditions.

Sidewalks/Multiuse Paths

Lighting along sidewalks and multiuse paths can improve safety and pedestrian/bicyclist comfort. Well-lit pathways may deter crime and increase the sense of security, encouraging more nighttime foot traffic and activity in the evening. Improved visibility reduces the risk of accidents, making sidewalks safer for all users.

[8] Federal Highway Administration, Lighting for Pedestrian Safety, 2022

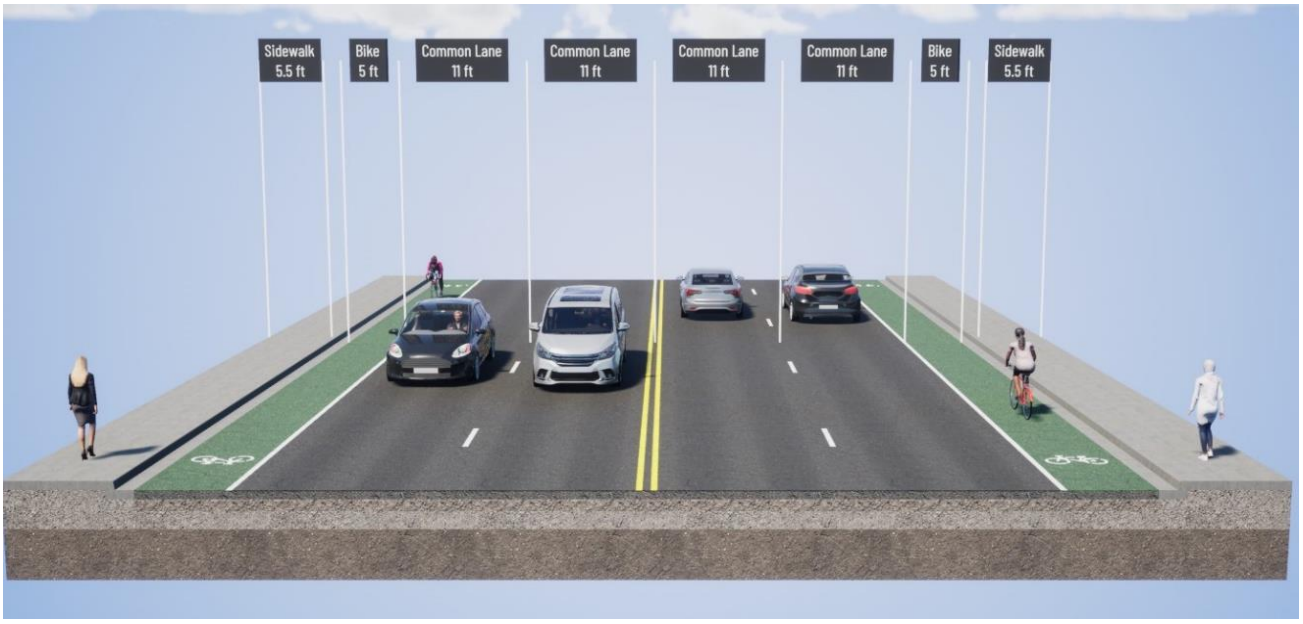
Intersections

Additional lighting is beneficial at both signalized and unsignalized intersections. Enhanced lighting at intersections improves visibility for all users, including pedestrians, bicyclists, and vehicles. Lighting can provide a visual indication of an intersection, creating advance warning of turning vehicles or pedestrians crossing. This is especially true at unsignalized intersections where slowing and stopped vehicles may not be expected if the intersection is not highlighted.

Bicycle Lanes

In addition to the bicycle lanes proposed as part of the Sidewalk Development Plan, there is an opportunity to provide additional bicycle facilities throughout the Route 1 Corridor south of the Wells Library as well as along the roadways to the Wells Beaches.

Figure 15: Example cross section with bicycle lanes.



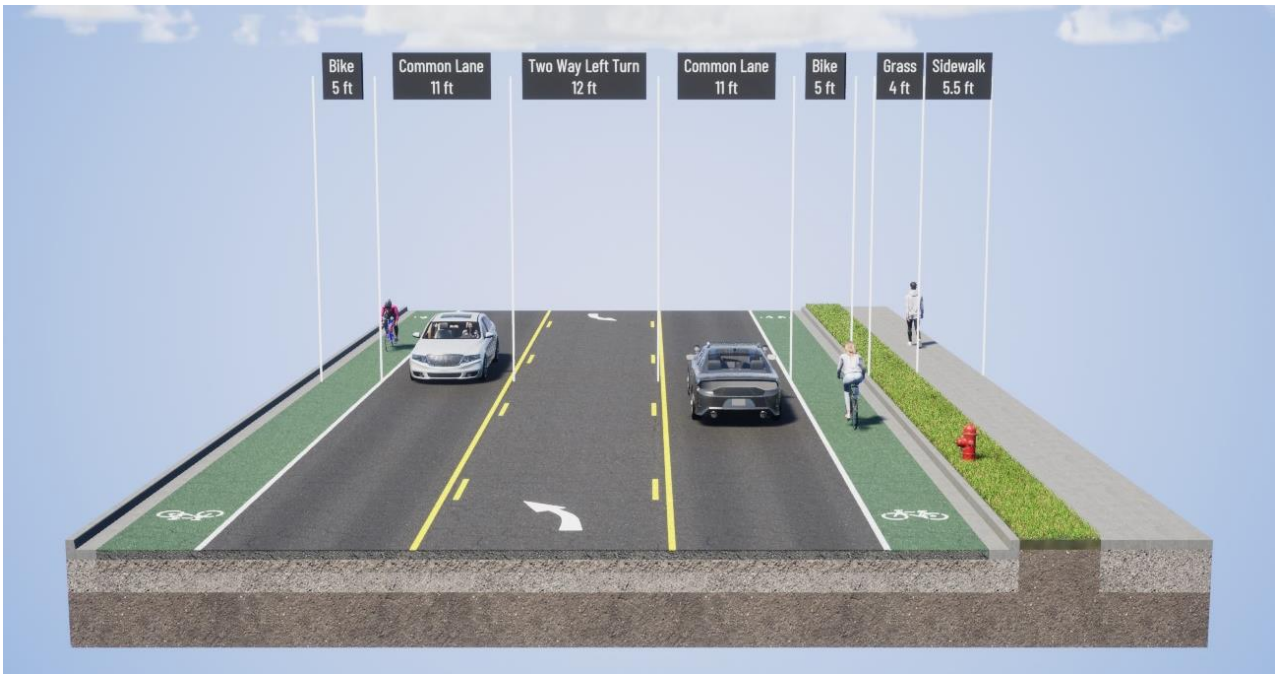
Visitors and residents could use bike lanes along the major beach routes for access to recreational areas which would help alleviate seasonal summer traffic to the beaches. Due to some exceptionally long existing driveways and intersection legs, there is an opportunity to provide bicycle lane extension pavement markings through driveways and intersections. These bike lanes would be a minimum of 5 feet wide and there would be more consistent pavement markings to make drivers more aware of bicyclists. The addition of more consistent bicycle facilities throughout the corridor would encourage multimodal transportation and improve safety for vulnerable users as bicyclists would have their own designated lane.

At the northern end of the Route 1 corridor, there is an opportunity to reroute cyclists from Route 1 to encourage an alternate route parallel to the corridor. This route could run on existing roads or trails. This type of bicycle accommodation away from the more heavily traveled Route 1 corridor would provide a more comfortable accommodation for those less experienced riders while still making that connection. In addition, there is space to provide an esplanade, park and ride or visitor center at the north end of the corridor.

Access Management

The Federal Highway Administration (FHWA) defines access management as "the proactive management of vehicular access points to land parcels adjacent to all manner of roadways."[9] Access Management seeks to achieve safe access to driveways while maintaining efficient mobility within the adjacent multimodal transportation network.

Figure 16: Example cross section with center two way left turn lane.



[9] Stottmeister. U.S Department of Transportation Federal Highway Administration. Understanding Access Management Solutions. https://highways.dot.gov/public-roads/marapr-2008/understanding-access-management-solutions. Accessed January 2024.

One existing Access Management approach that has already been implemented along the Route 1 corridor is the two-way left turn lane in the center which improves safety and efficiency for vehicles turning into and out of driveways. However, there are some examples of locations along Route 1 where additional techniques such as installing raised median islands to better control access and reduce crashes are recommended at select locations. Consideration of driveway spacing would also enhance safety and mobility. Some of these opportunities to reduce the number of conflict points include the following:

- On the east side of Route 1 just north and south of Bayview Terrace there are a few opportunities to consolidate and decrease the number of driveways that serve a few of the commercial uses along Route 1. The Aubuchon Hardware and Borealis Breads have two entrance/exits one of which is approximately 12 feet from Bayview Terrace. The north driveway entrance/exit could be consolidated to use Bayview Terrace thus reducing the conflict between these close curb cuts. The Steakhouse restaurant has an approximately 100-foot curb cut for its driveway which is just 6 feet from the Wells Antique Auto Museum driveway. This intersection is proposed to be signalized, therefore the Antique Auto Museum drive on Route 1 could be closed since they have full access from Bayview Terrace. This driveway closure could be implemented prior to the traffic signal installation.
- Another opportunity to improve access is the perpendicular parking along Route 1 at the Saltwater Farm Market. There is a curb cut over 200 feet on the front of the business that provides parking out back in addition to the perpendicular parking in the front. This causes a lot of conflict points and slows traffic down along Route 1 when vehicles need to back up right on to Route 1 to exit the parking spaces. Moving and consolidating the parking to the rear of the building and shortening the curb cut would improve operations while making this a safer access point for pedestrians, bicyclists and transit as well as vehicles along Route 1.

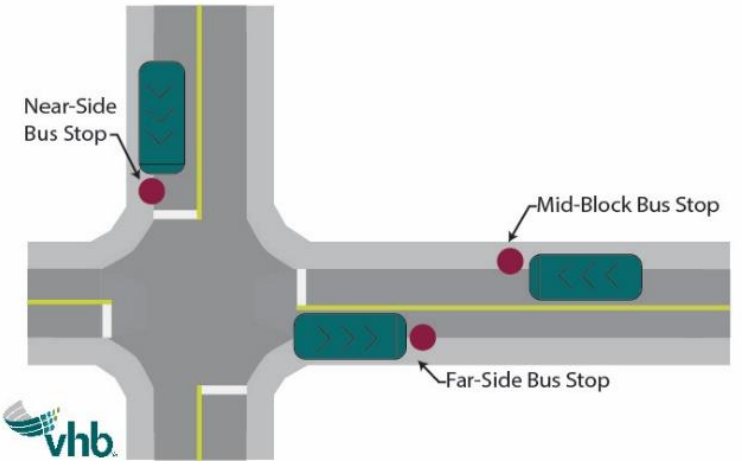
As part of the planning board review process, the Town of Wells should be implementing Access Management strategies to ensure that change in land uses or new proposed developments provide safe and efficient access to their driveways while maintaining travel operations for vehicles, pedestrians, bicyclists, and transit trolleys along Route 1.

Future Transit Impacts and Opportunities

In order to better serve the transit needs in Wells within the Route 1 corridor, there are several enhancements that could be considered to increase capacity and promote economic development.

- There is a need to improve the visibility of the transit stops by installing new signage at the stops. This would make it easier for visitors and seasonal workers to be able to access the transit trolleys.
- The Northern New England Passenger Rail Authority (the agency that runs the Amtrak Downeaster Train) is upgrading their kiosk to provide dynamic messaging. There is an opportunity to incorporate that type of technology for the Shoreline Explorer.

Figure 17: Common bus stop placements.



The Shoreline Explorer transit stops are fixed and there is an opportunity to see how to maintain connectivity to points of interest while accommodating pedestrians (beach equipment etc.) This could look like exploring the option of using micro transit which is the operation of smaller vehicle (such as minibuses) on demand public transit that can offer both fixed routes and on-demand flexible schedules. One option is to make the Wells Transportation Center more attractive for those arriving by train by providing more enhanced beach access via the trolley and/or micro transit. As new transit stops are explored it is important to consider their placement. Bus stops are typically situated in one of three primary locations: near-side, far-side, and mid-block, as depicted in the following graphic.

Each location comes with its own set of benefits, drawbacks, and factors of use that should be considered when deciding on the placement of a new bus stop (listed below)[10].

Near-Side	Far-Side	Mid-Block
•Placed just before entering the intersection zone (upstream of traffic) •Traffic is heavier on the far-side of the intersection. •Safer/greater pedestrian facilities on the near side •Passenger amenities must be clear of intersection sightlines	•Placed just after departing the intersection zone (downstream of traffic) •High volume of right-turns near-side of the intersection •Stop can work well as part of enhanced bus service. •Safer/greater pedestrian facilities on the far-side •Stop should be far enough from the intersection to allow a turning bus to become parallel with the curb •Preferred with Queue Jumps •Maximizes benefits of Transit Signal Priority (TSP)	•Placed midway between intersections. •Trip generator is located mid-block and cannot be served at the nearest intersection.

Wells could use the materials/education for the MaineDOT Heads Up program in particular for seasonal employees which are typically vulnerable users.

[10] Washington Metropolitan Area Transit Authority. Guidelines for the Design and Placement of Transit Stops. December 2009.

Gateway Improvements

Improving gateway corridors can significantly enhance both the aesthetic appeal and functionality of entrance points into urban areas. These improvements often involve adding visually appealing elements, like landscaped medians, public art installations, and welcoming signage, and can create a positive initial impression for visitors and residents. Traffic calming is also a common trait of the added improvements. By prioritizing these enhancements, municipalities can foster a safer, more inviting, and vibrant environment that supports economic growth and community well-being.

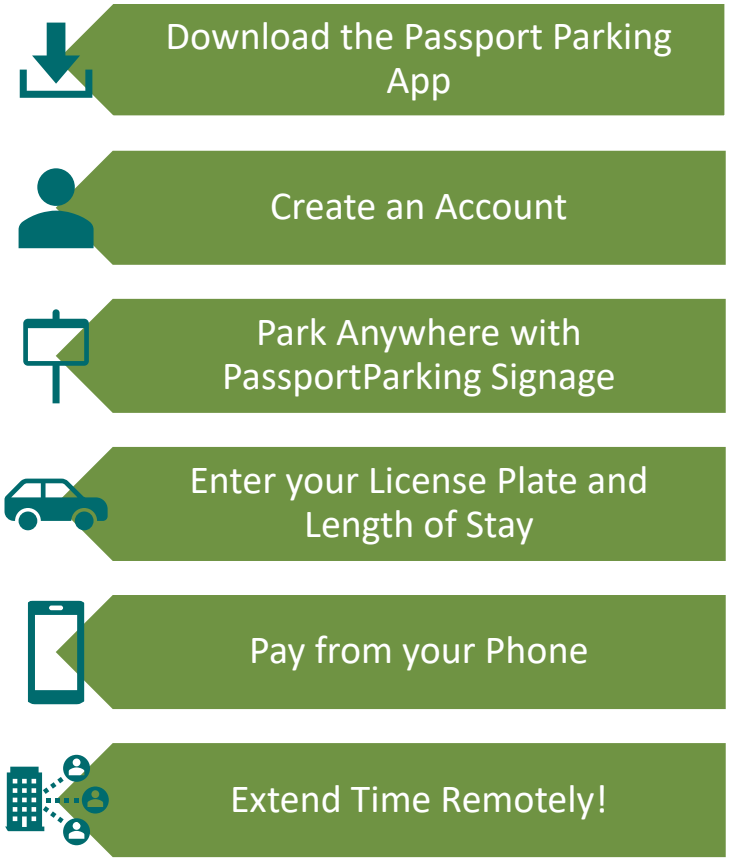
Gateway recommendations for Wells include the use of large Welcome signs at the town line with Ogunquit, and north of the Route 1 and Bypass Road intersection. A roundabout and Welcome Center at the Route 1 and Bypass Road intersection may also enhance the traffic calming and gateway appeal. Overall, it is important that a change in visual characterization is made to signal to drivers that a change in location has been made, along with a need to modify driving behavior.

Smart Parking Apps

Wells could utilize parking apps that enable drivers to make swift and secure payments via their phones. After initiating a parking session, additional time can be added through the same device. Parking apps could cover any on street parking, as well as public parking lots. They help avoid additional trips in the area and the resulting congestion from people looking for parking spots. These apps also offer advantages like alerts before the session ends and access to parking history, simplifying the process of creating expense reports. Passport Parking is used in Portland, Maine, but there are alternatives like the Smart Parking App[11].

[11] City of Portland, ME. *Passport Parking App*. www.portlandmaine.gov/327/Passport-Parking-App. Accessed January 2024.

Figure 18: Instructions for using smart parking apps.



5

Future Scenarios

To help in mitigating some of the identified deficiencies, especially those pertaining to traffic operations, the future traffic volumes with and without proposed improvements have been evaluated.

Assessment of Future Scenarios

The forecast operation of the future scenarios was evaluated using Synchro/SimTraffic traffic modeling software to ensure the proposed improvements would have a positive impact on traffic throughout the study area. The evaluation was completed for three scenarios; 2025 No-Build, 2025 Build, and 2045 Build conditions. The following table summarizes the results of the operations analysis.

Table 7: Assessment of future scenarios results.

Heading 1	2025 No-Build		2025 Build		2045 Build	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Route 1/Chapel Road[1]						
AM Peak Hour						
Chapel Road EB	86.1	F	25.1	C	37.5	D
Steak House WB	6.0	A	10.5	B	8.3	A
Route 1 NB	11.2	B	20.4	C	8.3	A
Route 1 SB	5.9	A	41.2	D	19.4	B
Overall	**23.7**	**C**	**28.5**	**C**	**17.9**	**B**
PM Peak Hour						
Chapel Road EB	207.4	F	31.6	C	34.1	C
Steak House WB	36.8	E	32.1	C	36.9	D
Route 1 NB	17.4	C	45.3	D	18.4	B
Route 1 SB	6.5	A	38.9	D	29.1	C
Overall	**48.0**	**E**	**40.5**	**D**	**25.3**	**C**
Route 1/Route 109/Public Safety Building (S)						
AM Peak Hour						
Route 109 EB	19.6	B	28.5	C	30.7	C
Public Safety Bldg WB	n/a	n/a	43.8	D	43.9	D
Route 1 NB	16.5	B	18.0	B	17.1	B
Route 1 SB	13.9	B	14.6	B	15.7	B
Overall	**16.4**	**B**	**19.4**	**B**	**20.2**	**C**
PM Peak Hour						
Route 109 EB	30.0	C	39.5	D	55.7	E
Public Safety Bldg WB	n/a	n/a	54.7	D	48.5	D
Route 1 NB	14.7	B	13.8	B	13.5	B
Route 1 SB	10.9	B	11.5	B	12.3	B
Overall	**17.0**	**B**	**19.2**	**B**	**23.7**	**C**

Table 7: Assessment of future scenarios results continued.

Heading 1	2025 No-Build		2025 Build		2045 Build	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Route 1/South Street[1]						
AM Peak Hour						
South Street WB	15.8	C	11.7	B	14.2	B
Route 1 NB	3.9	A	4.3	A	5.7	A
Route 1 SB	2.8	A	2.7	A	3.2	A
Overall	**3.5**	**A**	**1.9**	**A**	**2.5**	**A**
PM Peak Hour						
South Street WB	16.6	C	15.5	B	12.1	B
Route 1 NB	3.7	A	4.2	A	5.5	A
Route 1 SB	2.6	A	3.0	A	3.0	A
Overall	**3.2**	**A**	**4.0**	**A**	**4.7**	**A**
Route 1/Bypass Road[2]						
AM Peak Hour						
Port Road WB	4.2	A	3.9	A	3.7	A
Bypass EB	10.7	B	4.8	A	5.0	A
Route 1 NB	3.0	A	5.6	A	5.9	A
Route 1 SB	1.8	A	5.4	A	5.8	A
Overall	**4.3**	**A**	**5.3**	**A**	**5.6**	**A**
PM Peak Hour						
Port Road WB	5.8	A	3.9	A	4.2	A
Bypass EB	13.4	B	6.3	A	7.2	A
Route 1 NB	3.2	A	6.0	A	6.4	A
Route 1 SB	1.8	A	5.8	A	6.2	A
Overall	**5.5**	**A**	**6.0**	**A**	**6.5**	**A**

1 *Modeled as unsignalized in 2025 No-Build and Signalized in 2025 and 2045 Build*

2 *Modeled as unsignalized in 2025 No-Build and a Roundabout in 2025 and 245 Build*

As shown in Table 7, the traffic modeling results indicate that signalizing the intersection of Route 1 with Chapel Road is anticipated to improve the operation of the intersection. Additionally, at the intersection of Route 1 with Route 109, the additional phase for the public safety building is not forecast to significantly decrease the operation of the intersection. Constructing a roundabout at the intersection of Route 1 with Bypass Road is forecast to improve the operation of the Bypass Road approach. However, it is not forecast to have a significant impact on the operation of the overall intersection.

Sanford Road and Harbor Road Queuing Analysis

A queuing analysis was completed for the intersections of Sanford Road with Route 1 and Harbor Road with Route 1 using Synchro/SimTraffic computer analysis software.

Table 8: Queuing analysis results.

	95th Percentile Queue Lengths (ft)		
	2025 No-Build	2025 Build	2045 Build
Route 1/Route 109/Public Safety Building (S)			
AM Peak Hour			
Route 109 EB L	191	270	330
Route 109 EB R	125	186	222
Public Safety Bldg WB LTR	n/a	28	24
Route 1 NB L	171	189	205
Route 1 NB TR	227	297	270
Route 1 SB L	n/a	13	14
Route 1 SB T	121	124	122
Route 1 SB R	126	129	132
PM Peak Hour			
Route 109 EB L	290	352	573
Route 109 EB R	202	236	286
Public Safety Bldg WB LTR	n/a	20	22
Route 1 NB L	156	165	172
Route 1 NB TR	169	169	193
Route 1 SB L	n/a	15	17
Route 1 SB T	118	122	127
Route 1 SB R	126	132	132
Route 1/Harbor Road (U)			
AM Peak Hour			
Harbor Road WB LR	291	n/a	n/a
Route 1 NB TR	3	--	3
Route 1 SB LT	2262	2084	2328
PM Peak Hour			
Harbor Road WB LR	284	n/a	n/a
Route 1 NB TR	21	14	26
Route 1 SB LT	2058	1699	2296

As shown in the table, the proposed improvements are not forecast to increase the queue lengths at the intersection of Route 1 with Sanford Road and Route 1 with Harbor Road. It should be noted that during both the no-build and build scenarios the queue lengths on Route 1 southbound at Harbor Road are expected to exceed 1500 feet, which is consistent with the low levels of service forecast to be experienced.

Roundabouts

Roundabouts have become increasingly popular due to their numerous advantages. One significant advantage of a roundabout is the ability to improve traffic flow by reducing stop-and-go situations, leading to smoother and more efficient movement of vehicles. They may also enhance safety by lowering vehicle speeds and decreasing the likelihood of severe accidents, as conflicts occur at lower speeds and at angles that result in less severe crashes.

On the other hand, there are some negative aspects of roundabouts to consider as well. The construction of a roundabout is generally significantly more expensive than other intersection improvements. A roundabout also expands the footprint of an intersection and requires more space. Pedestrians and cyclists might also find them challenging to navigate, raising safety concerns.

A roundabout was considered at the intersection of Route 1 with Bypass Road. As discussed previously, a roundabout is expected to improve the operation of the Bypass Road approach to the intersection, but overall is not expected to have a significant impact on the operation of the intersection. Due to the cost of a potential roundabout and the minimal impact on traffic operation at this location, a roundabout is not recommended at this time.

Alternating Merge

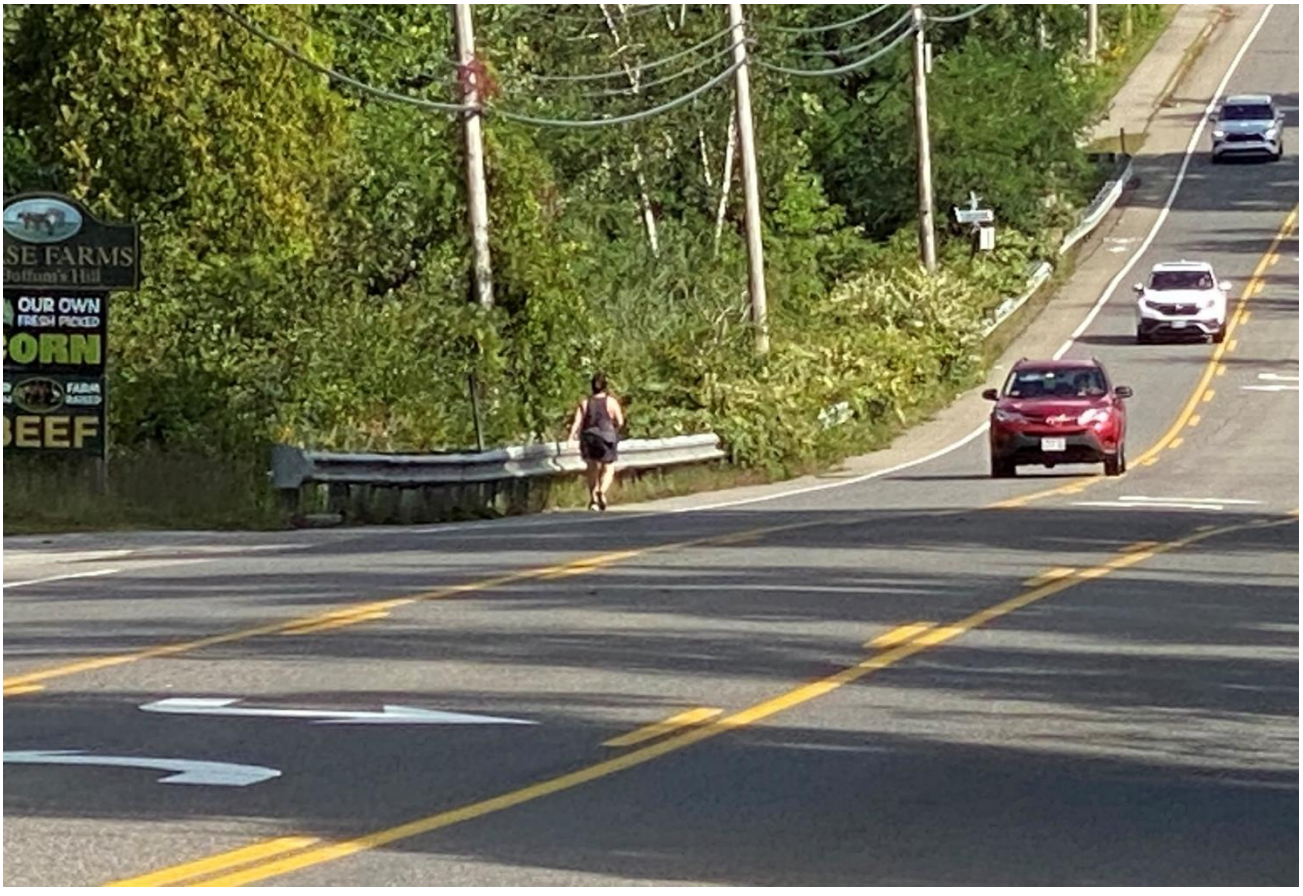
One of the potential improvements in the study area is changing the northbound lane uses at the intersection of Steeple Way with Route 1 from a left lane, a through lane, and a right lane to a left lane, a through lane, and a through-right lane. This change makes it possible for the intersection to accommodate more through vehicles, but it requires two receiving lanes. The existing pavement on Route 1 north of Steeple Way can accommodate two through lanes until just north of Mile Road. Where the pavement begins to narrow a two-lane alternating merge is suggested. An alternating merge encourages drivers to use both lanes fully up to the merge point, which can help reduce bottlenecks near the merge.

Preliminary Recommendations

After reviewing the future scenarios with the Town and MaineDOT, it has been decided to move forward with certain preliminary design recommendations, including but not limited to:

1. Signalize the intersection of Route 1 at Chapel Road
2. Signalize the intersection of Route 1 at South Street and change Harbor Road to one way eastbound
3. Upgrade all traffic signals to existing MaineDOT specification, including adaptive traffic signal control
4. Add signal phase for the Public Safety Building
5. Expand the sidewalk network to increase access and close links between existing sidewalk facilities
6. Improve crosswalks and add more Rectangular Rapid Flashing Beacons (RRFBs)
7. Add a sidewalk or trail connection from the Wells Transportation Center to Route 1
8. Add bike lanes throughout the corridor
9. Policy recommendations to improve access management, including reducing the number of curb cuts on Route 1 and adding raised median islands at selected locations
10. Add and improve bus stops with transit cutouts and bus shelters
11. Gateway improvements from the north, south, and west
12. Add lighting at existing and proposed crosswalks as well as areas with significant pedestrian activity

The preliminary recommendations are shown graphically on concept plans included in Appendix C. Note that these recommendations will be further refined once the project moves to the preliminary design phase including further consideration of comments received during the study process.



Preliminary Project Costs

VHB developed preliminary opinions of probable construction costs for each option based on current (2024) dollars for the recommended improvements within the study area. The preliminary estimate of cost was $32,200,000. A breakdown of the estimated cost items is shown in Table 9 below.

Table 9: Cost estimate breakdown.

Item	Estimated Cost
Signalization and Traffic Signal Upgrades	$5,090,000
Crosswalks and RRFBs	$750,000
Bike Lanes	$2,220,000
Curbs, Esplanades, and Sidewalks	$8,540,000
Pavement Modifications	$3,280,000
Transit Cutouts and Bus Shelters	$980,000
Lighting	$1,170,000
Costs Associated with Construction	$4,680,000
Transit Center Building	$2,440,000
Miscellaneous Transportation Items	$3,050,000
Estimated Total	**$32,200,000**

The detailed cost estimate is included in Appendix E. It should be noted that these costs include a 30% contingency to account for unforeseen costs or items not included at this conceptual level. Costs associated with construction include maintaining traffic control, temporary soil erosion, and water pollution control, and the contractor's mobilization. Costs shown also reflect additional percentage-based costs for preliminary engineering (10%) and construction inspection (15%). While most of the improvements are intended to be completed within the existing right-of-way (ROW), these costs do not include any costs for ROW, utility relocations, environmental permitting, or mitigation.

If overall project funding is not obtainable all at one time, future construction could be phased as follows and funded as each phase is completed:

1. Chapel Road Sidewalk
2. All items from the Wells/Ogunquit town line to Littlefield Road
3. All items from Littlefield Road to Sanford Road (Route 9)
4. All items from Sanford Road (Route 9) to Bypass Road, including the pedestrian bridge across the Merriland River
5. Transit Center

Although construction may be phased, we recommend completing the Preliminary Design Report (PDR) for the entire study area as one project so that more informed decisions can be made regarding phasing.

There are also some interim maintenance improvements that could be completed in the short-term that could help with current safety concerns including updating signage, updating crosswalk pavement markings, adding RRFB's, and updating the Town's sidewalk plan.

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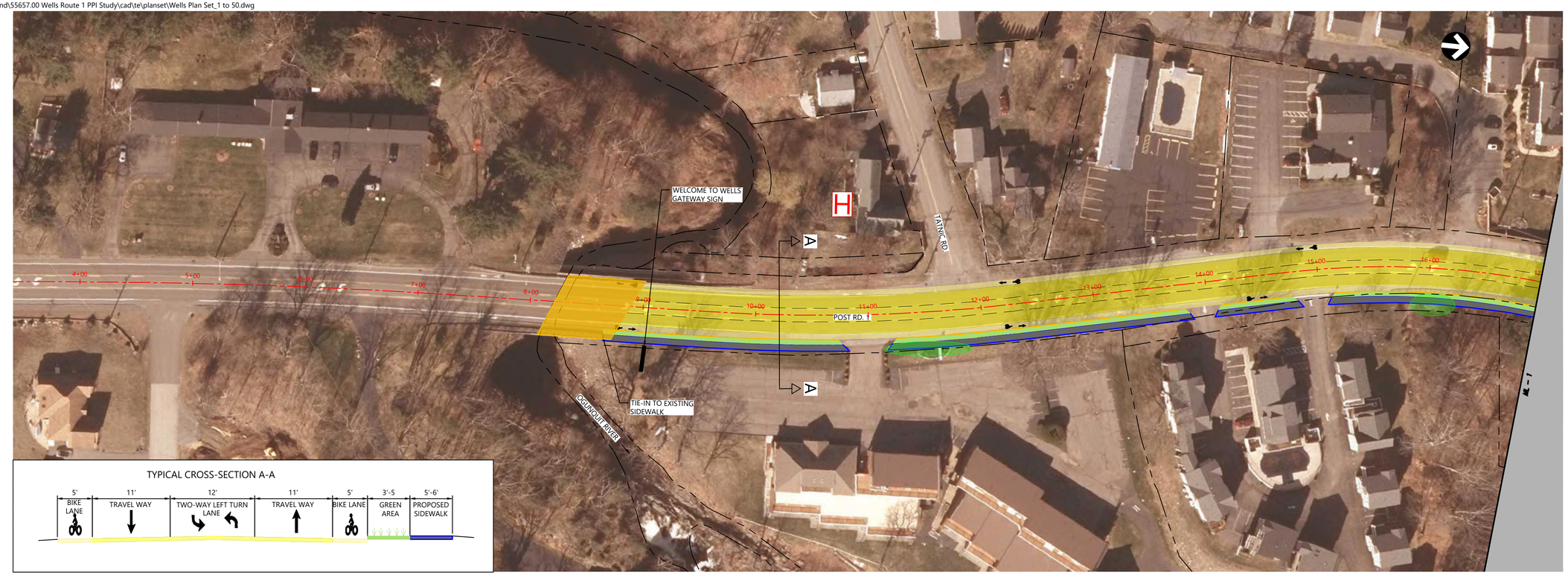

TYPICAL CROSS-SECTION A-A

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LEGEND:

- RIGHT OF WAY
- PROPOSED EDGE OF PAVEMENT
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- EXISTING CULVERT
- EXISTING SIDEWALK
- PROPOSED SIDEWALK
- TRAVEL WAY
- BIKE LANE
- RAISED ISLAND
- GREEN AREA
- H — ELIGIBLE HISTORIC PROPERTY
- H — LISTED HISTORIC PROPERTY
- C — PROPOSED TRANSIT CENTER
- B — PROPOSED TRANSIT CUTOUT AND BUS SHELTER
- T — TOURIST INFORMATION CENTER
- EXISTING RECTANGULAR RAPID FLASHING BEACONS (RRFB)
- PROPOSED RECTANGULAR RAPID FLASHING BEACONS (RRFB)
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL
- PROPOSED CROSSWALK
- SIDEWALK IMPACT AREA

WELLS ROUTE 1 PPI STUDY

ROUTE 1
WELLS

No.	Revision	Date	Appvd.

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Drawing Title

PLAN LAYOUT

Drawing Number

C-101

Sheet 1 of 13

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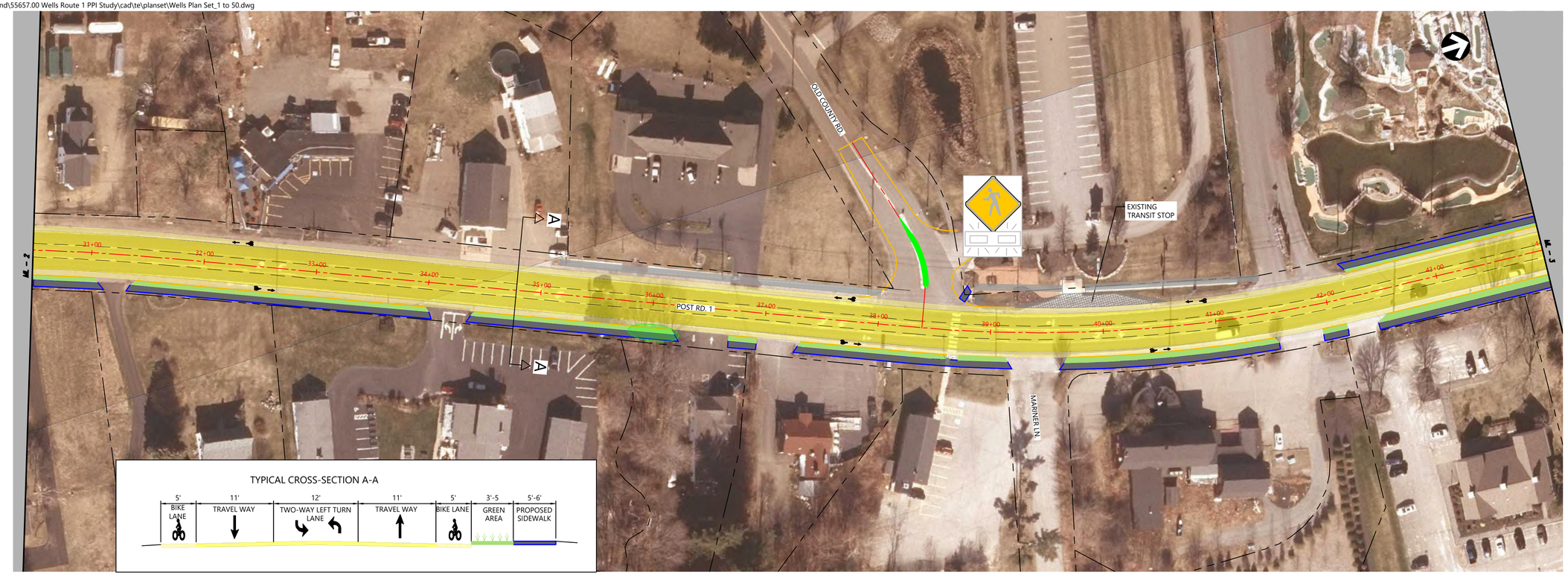
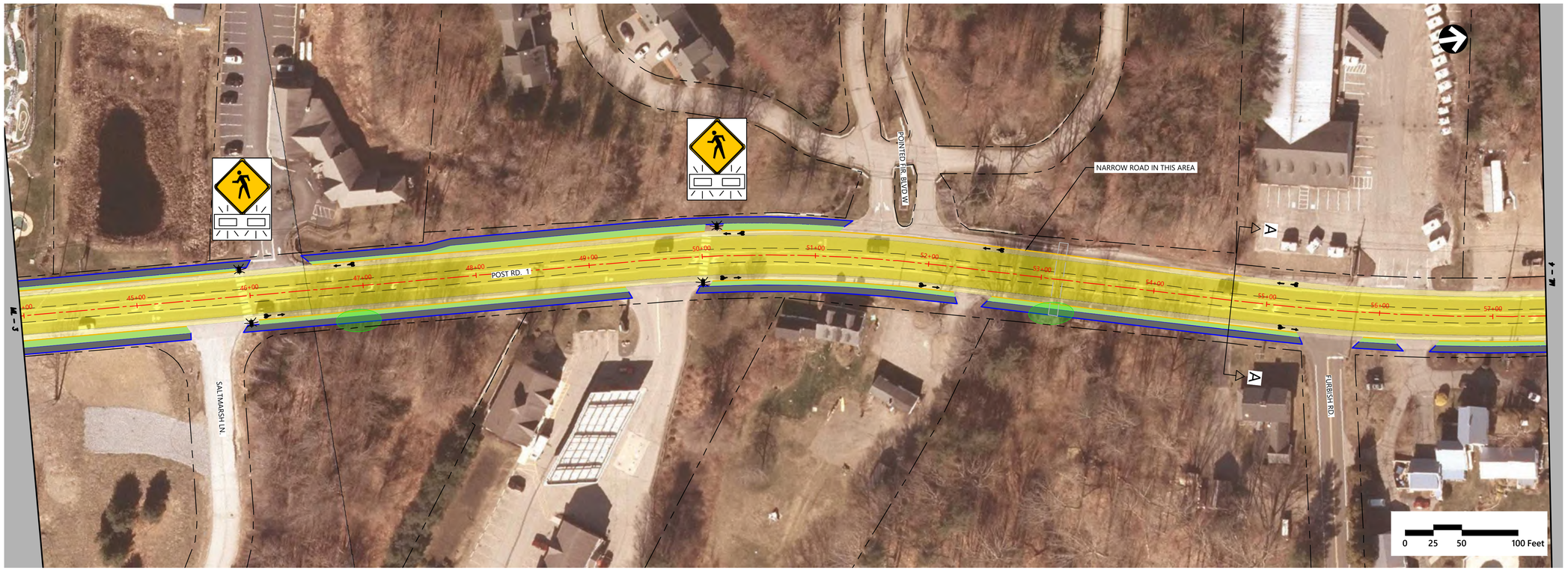


TYPICAL CROSS-SECTION A-A



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ROUTE 1
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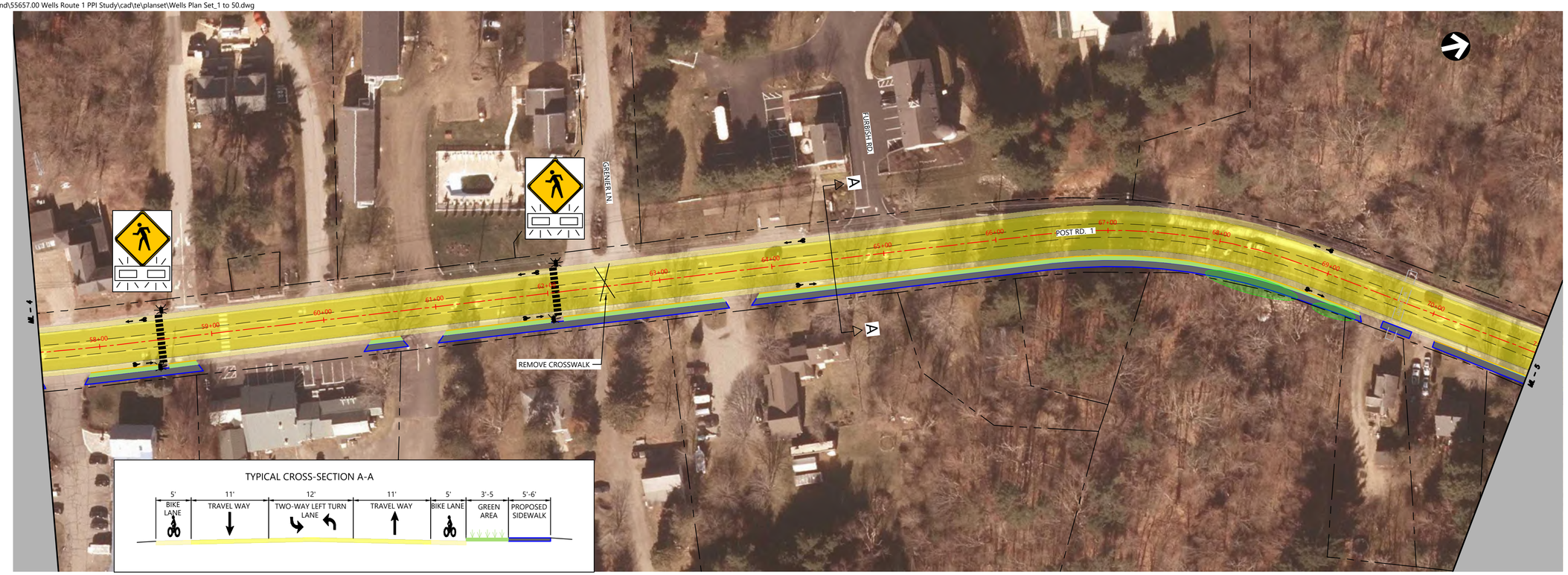

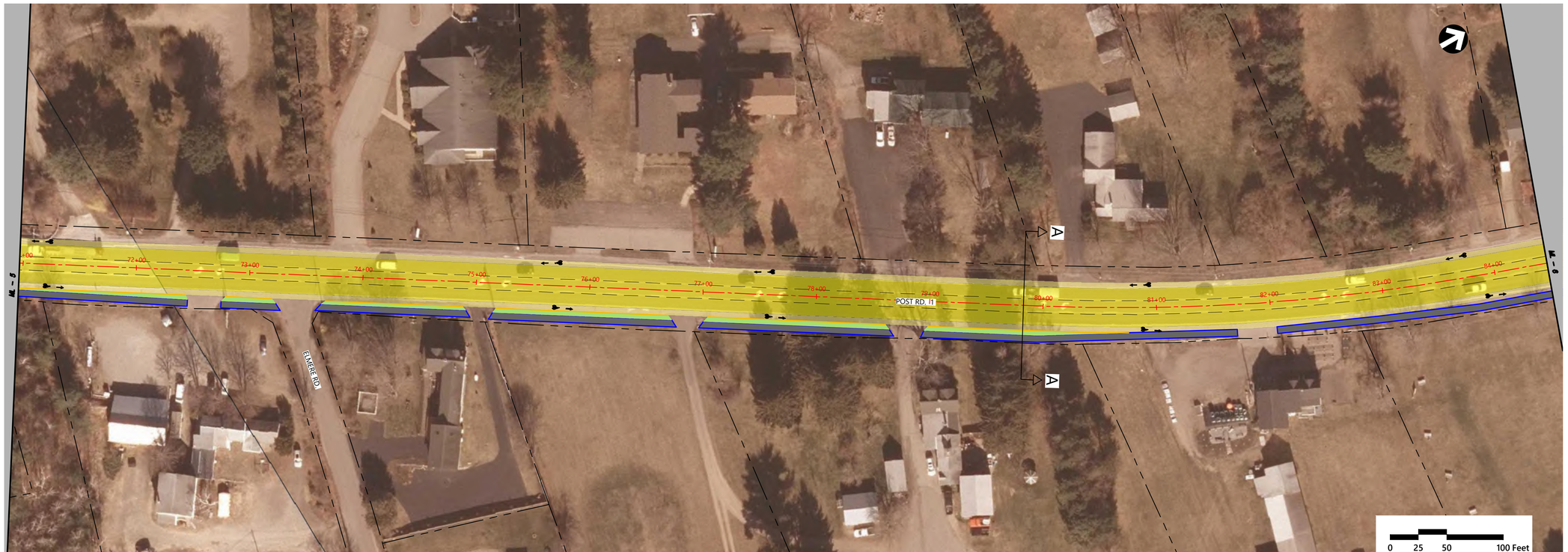

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WELLS ROUTE 1 PPI STUDY

ROUTE 1
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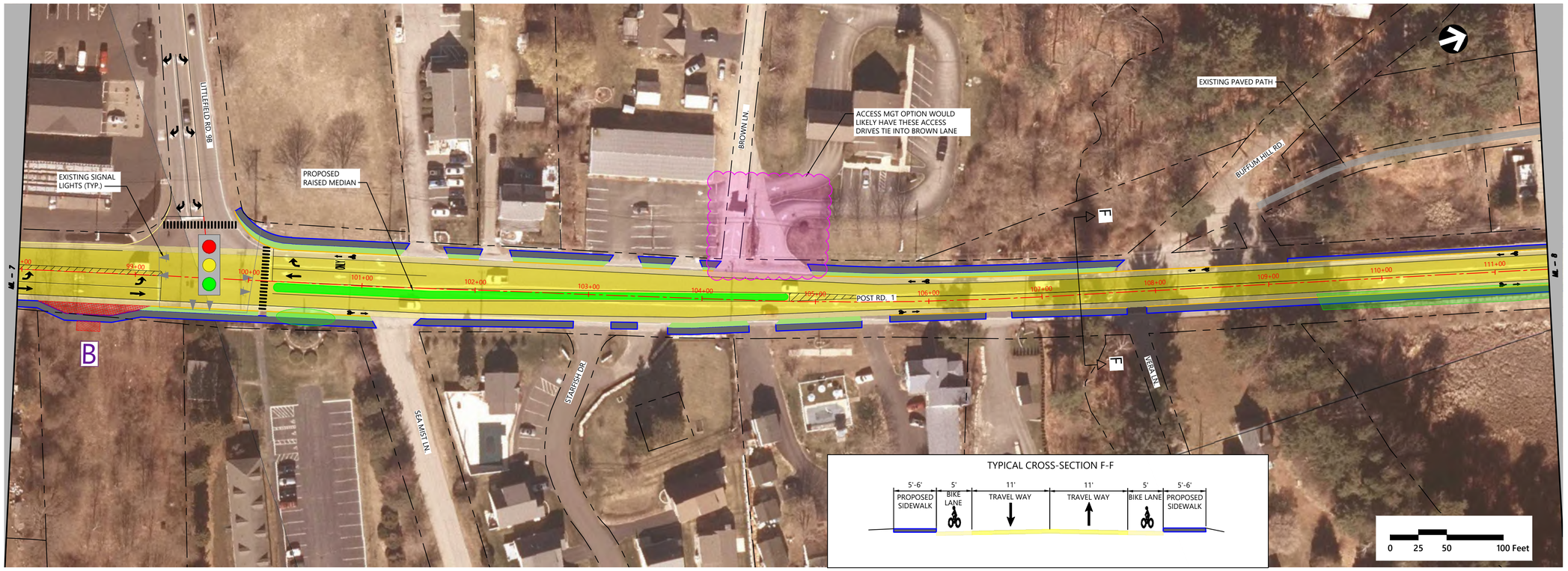

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WELLS ROUTE 1 PPI STUDY

ROUTE 1
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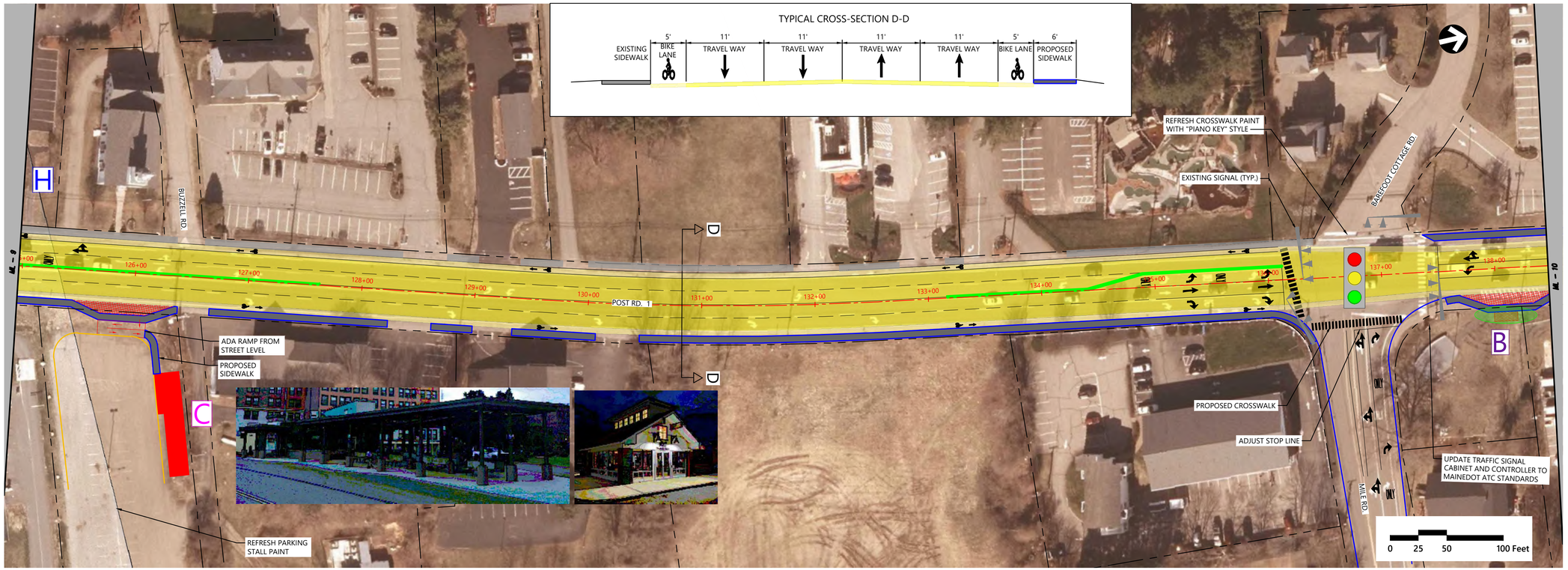

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LEGEND:

- RIGHT OF WAY
- PROPOSED EDGE OF PAVEMENT
- EXISTING BRIDGE
- EXISTING CULVERT
- EXISTING SIDEWALK
- PROPOSED SIDEWALK
- TRAVEL WAY
- BIKE LANE
- RAISED ISLAND
- GREEN AREA
- H — ELIGIBLE HISTORIC PROPERTY
- H — LISTED HISTORIC PROPERTY
- C — PROPOSED TRANSIT CENTER
- B — PROPOSED TRANSIT CUTOUT AND BUS SHELTER
- T — TOURIST INFORMATION CENTER
- EXISTING RECTANGULAR RAPID FLASHING BEACONS (RRFB)
- PROPOSED RECTANGULAR RAPID FLASHING BEACONS (RRFB)
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL
- PROPOSED CROSSWALK
- SIDEWALK IMPACT AREA

WELLS ROUTE 1 PPI STUDY

ROUTE 1
WELLS

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Drawing Title
PLAN LAYOUT

Drawing Number
C-105

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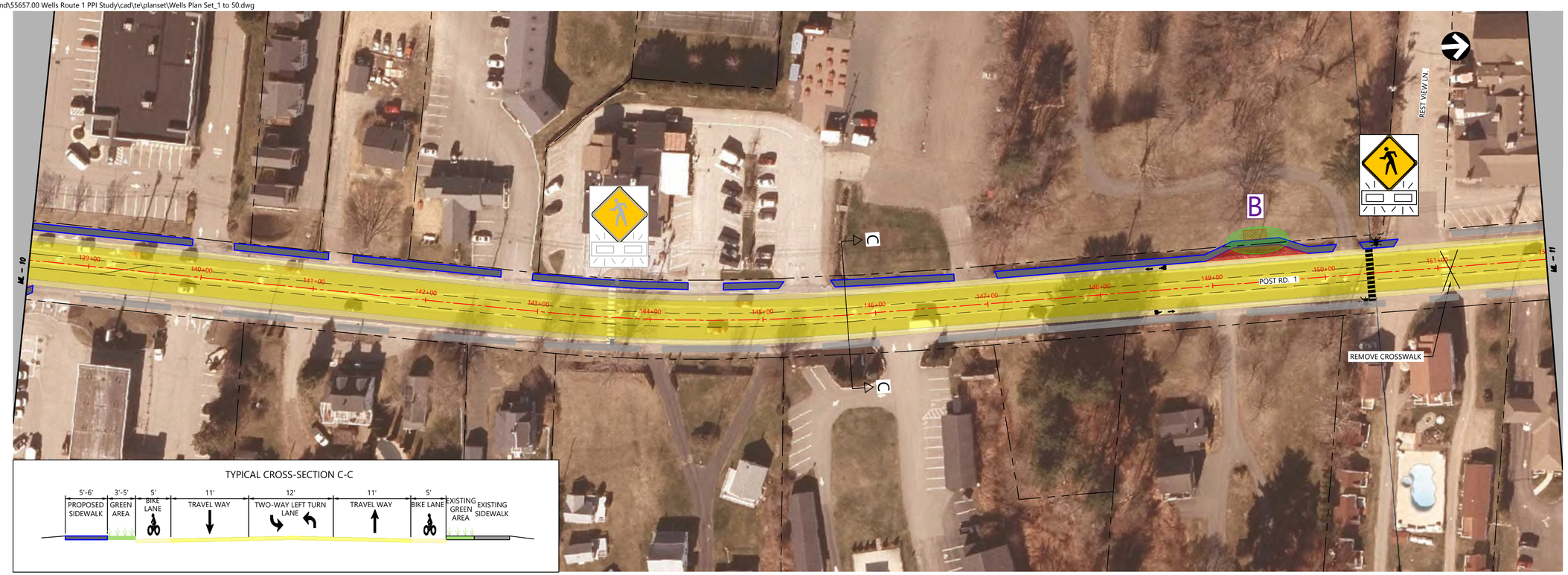
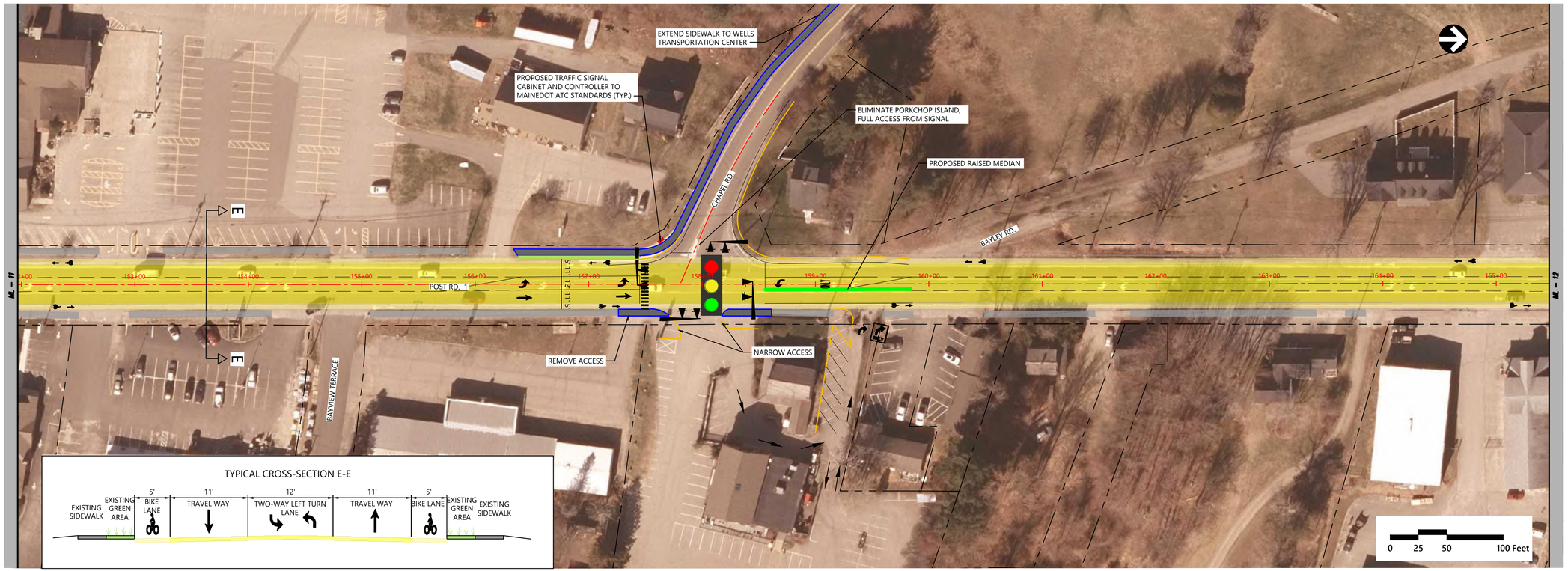
Project Number
55657.00



TYPICAL CROSS-SECTION C-C



TYPICAL CROSS-SECTION E-E

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- EXISTING BRIDGE
- EXISTING CULVERT
- EXISTING SIDEWALK
- PROPOSED SIDEWALK
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- PROPOSED RECTANGULAR RAPID FLASHING BEACONS (RRFB)
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL
- PROPOSED CROSSWALK
- SIDEWALK IMPACT AREA

WELLS ROUTE 1 PPI STUDY

ROUTE 1
WELLS

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Drawing Title
PLAN LAYOUT

Drawing Number
C-106

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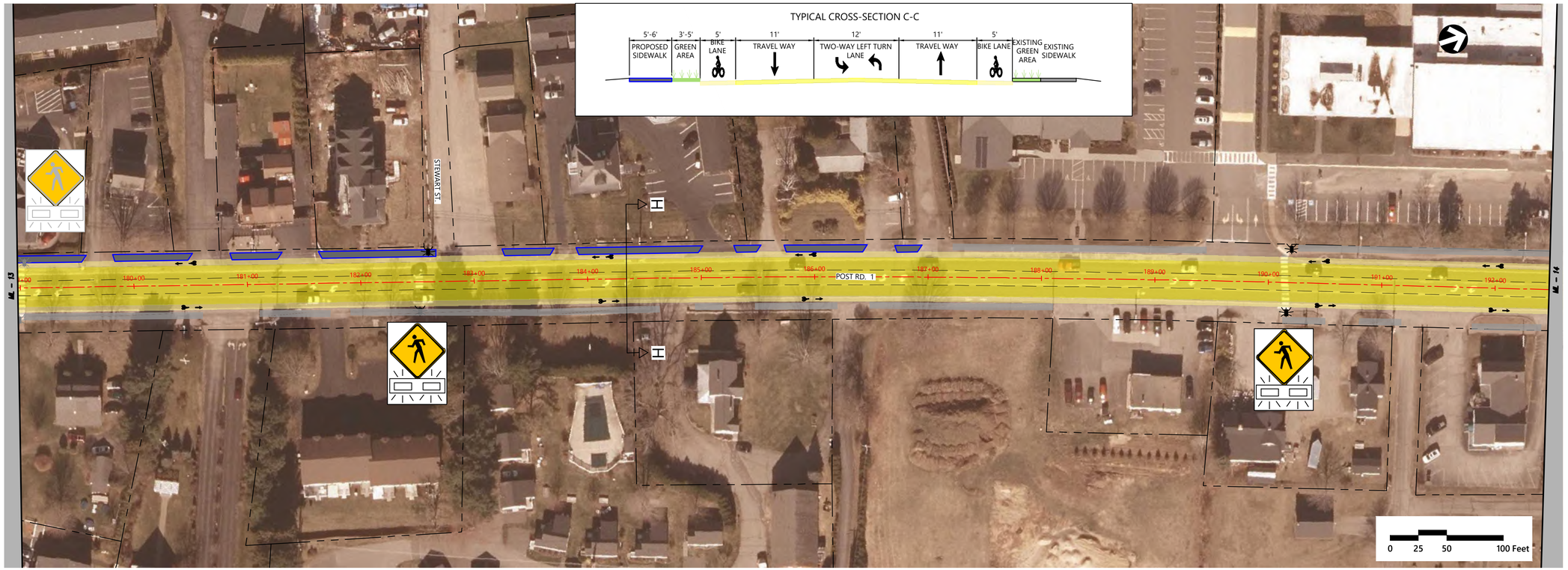
Project Number
55657.00

\\vhb\gbl\proj\SPortland\55657.00 Wells Route 1 PPI Study\cad\te\planset\Wells Plan Set_1 to 50.dwg



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LEGEND:

- RIGHT OF WAY
- PROPOSED EDGE OF PAVEMENT
- EXISTING BRIDGE
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- PROPOSED TRAFFIC SIGNAL
- PROPOSED CROSSWALK
- SIDEWALK / ASPHALT AREA

0 25 50 100 Feet

WELLS ROUTE 1 PPI STUDY

ROUTE 1
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Drawing Title
PLAN LAYOUT

Drawing Number
C-107

Sheet 7 of 13

Project Number
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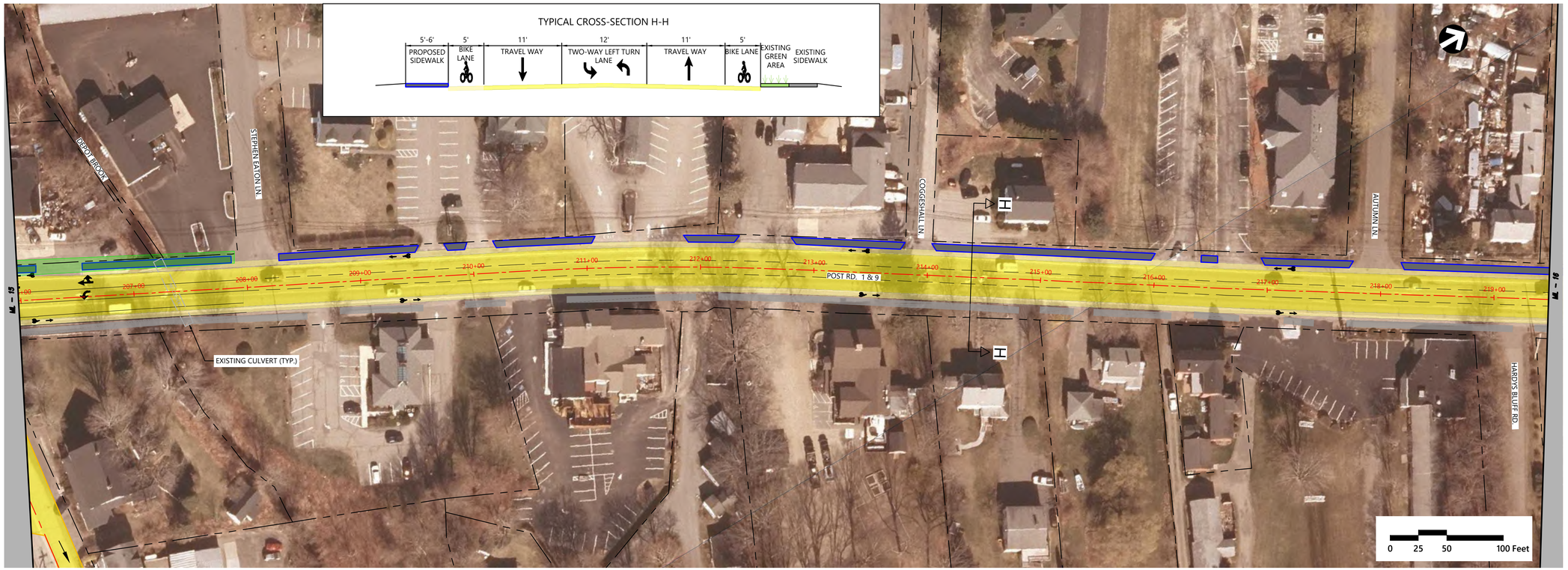

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LEGEND:

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WELLS ROUTE 1 PPI STUDY

ROUTE 1
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Drawing Title
PLAN LAYOUT

Drawing Number
C-108

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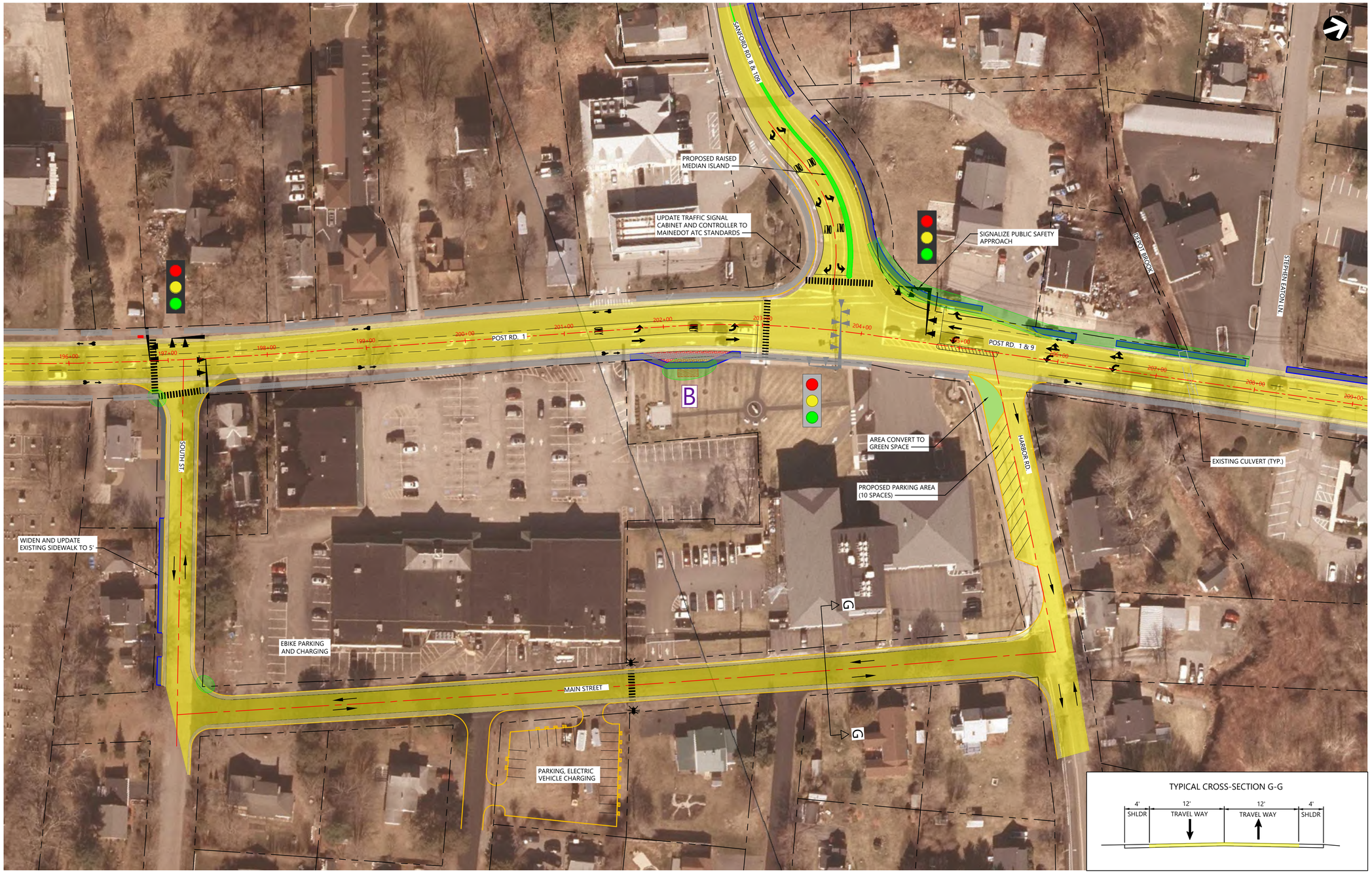
Project Number
55657.00



TYPICAL CROSS-SECTION G-G

0 25 50 100 Feet

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LEGEND:

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WELLS ROUTE 1 PPI STUDY

ROUTE 1
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Drawing Title
PLAN LAYOUT

Drawing Number
C-108A

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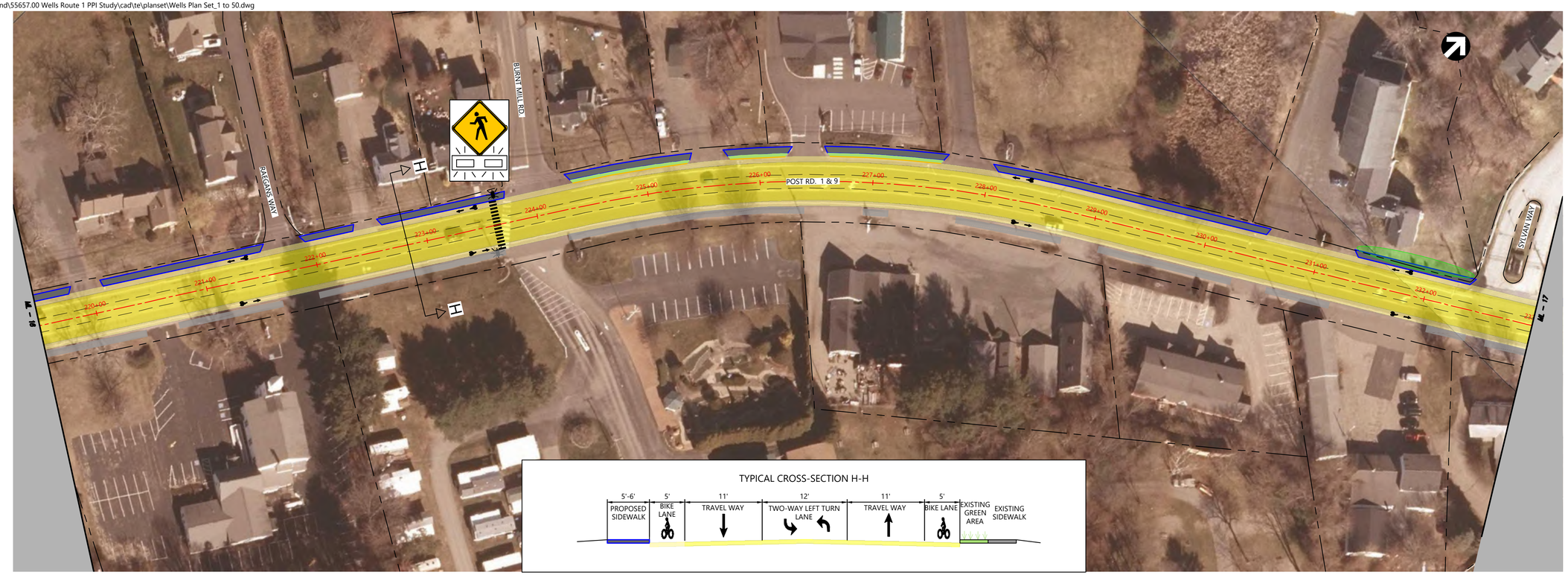

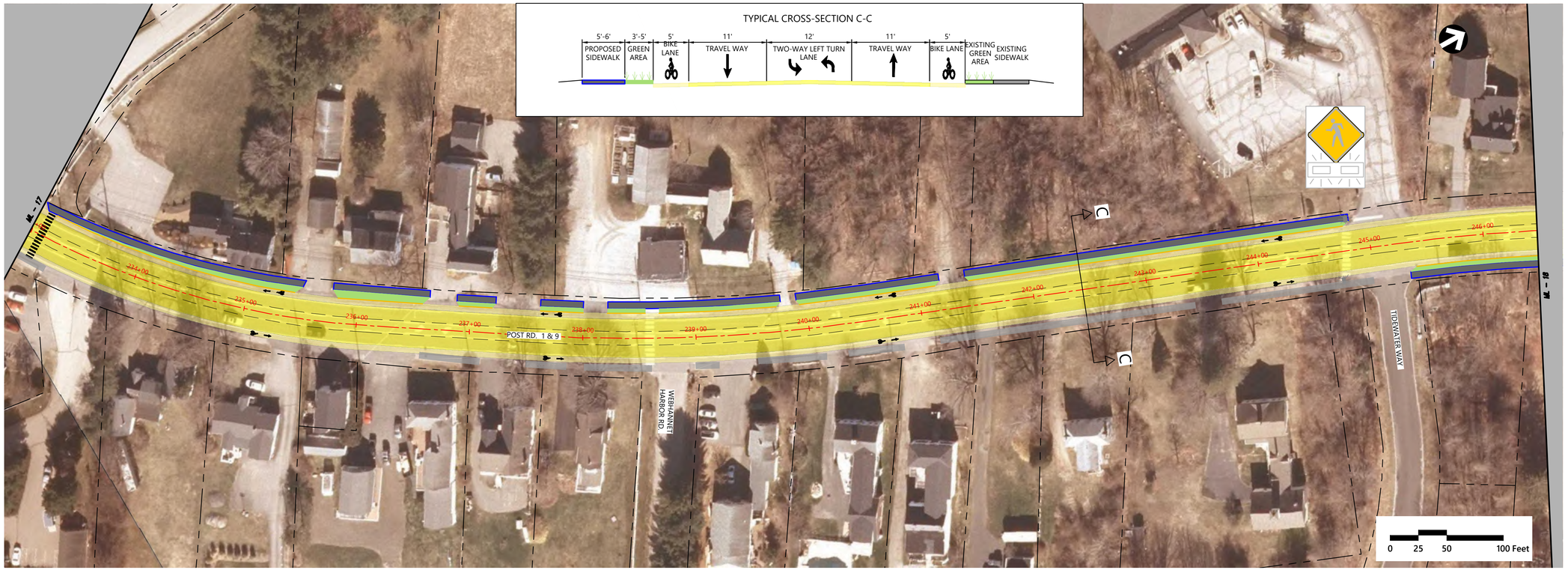

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WELLS ROUTE 1 PPI STUDY

ROUTE 1
WELLS

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Drawing Title
PLAN LAYOUT

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C-109

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TYPICAL CROSS-SECTION A-A

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WELLS ROUTE 1 PPI STUDY

ROUTE 1
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Drawing Title

PLAN LAYOUT

Drawing Number

C-110

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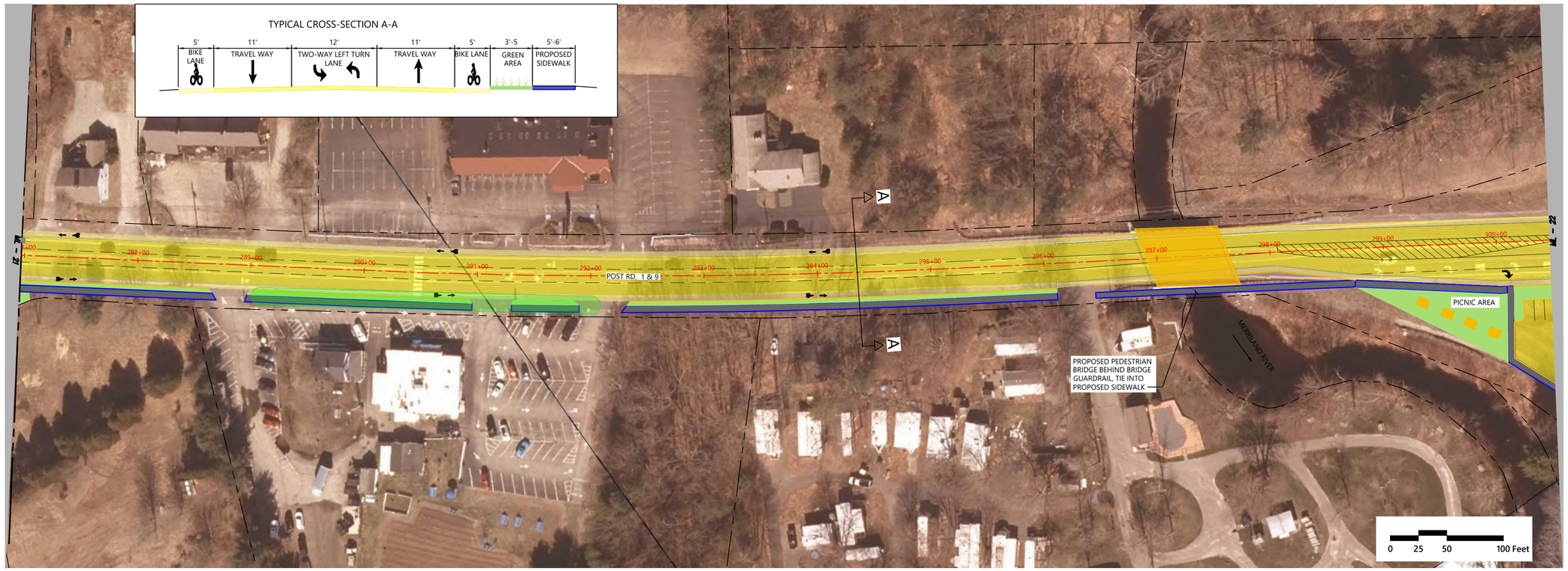

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- SIDEWALK IMPACT AREA

0 25 50 100 Feet

WELLS ROUTE 1 PPI STUDY

ROUTE 1
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Drawing Title
PLAN LAYOUT

Drawing Number
C-111

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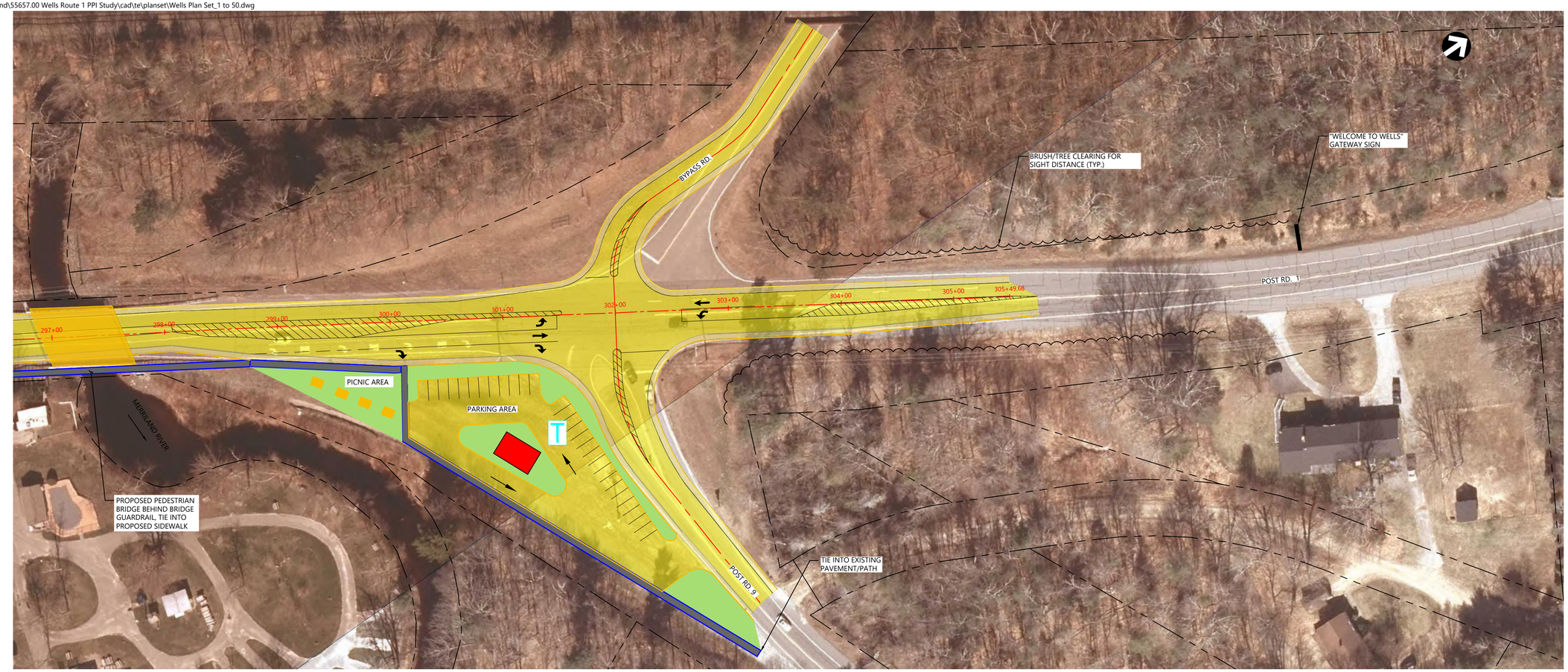

0 25 50 100 Feet

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WELLS ROUTE 1 PPI STUDY

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Drawing Title

PLAN LAYOUT

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C-112

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