Final Report

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COMMERCIAL VEHICLE SERVICE PLAN

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Office of Freight Transportation

Maine Department of Transportation

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Introduction

The Maine Department of Transportation initiated the Commercial Vehicle Service Plan in response to a growing awareness of the increased strain on truck parking and other truck-related services in Maine. This increased strain is due to the overall increase in truck traffic, the increased size of trucks operating in Maine and the federal requirements regarding required rest intervals by truck drivers. By current Federal law, truck drivers may drive for no more than 10 consecutive hours. The availability of adequate parking and other services is important if truck drivers are to obtain the rest needed to operate their vehicles safely.

The State of Maine owns, operates and maintains a system of rest areas on the Interstate System (apart from the Maine Turnpike) and on certain State highways. Most of the rest area facilities on State highways do not provide parking for trucks. The Maine Turnpike owns and operates six service plazas.

A number of private truck stops are also operated in Maine. Many are located just off the interstate highway and many are located on major state and US numbered routes with a high volume of long distance truck traffic. These facilities vary in the range of services they provide and fulfill a valuable role in providing the services that trucks and their drivers require.

Effective January 1, 2004, the Maine Turnpike will be designated I-95 along its entire length from Kittery to Augusta. At that time, the portion of Interstate highway previously designated I-95 from Falmouth to West Gardiner will be designated I-295, extending the portion of I-295 through South Portland and Portland. Following the redesignation, the MaineDOT and the Maine Turnpike Authority will be renumbering the exits on the Interstate highways to correspond to their route mileage. The new exit signs will also indicate the old exit numbers during a transition period.

In 2002, the Department issued two reports related to the truck rest area issues: *Evaluation of Maine's Non-Interstate Roadside Facilities* (January 2002) and *A Plan for Maine's State Visitor Information Centers: A Needs Assessment for Existing Centers and A Proposal for New Centers* (September 2002).

Current Facilities

Of the 99 public rest areas (including Maine Turnpike facilities), twenty four provide designated parking for trucks, totaling 183 truck parking spaces. The vast majority of these are located along the Interstate highway system. Table ES-1 summarizes data regarding public rest/service areas.

Table ES-1
Public Rest/Service Areas

Public Rest/Service Areas	Number of Rest Areas	Number of Areas with Truck Parking	Total Truck Parking Spaces
State Rest Area – State Highway/Non-Interstate	82	8	31
State Rest Area - Interstate	11	10	114
Maine Turnpike Service Area	6	6	38
TOTAL:	**99**	**24**	**183**

Source: MaineDOT Rest Area Database, 2001; WSA field inventory.

Site visits were conducted to the public rest areas and service areas that have marked parking spaces for trucks. The site visits were conducted during daytime hours and during the overnight hours to gauge facility usage information. The number of marked truck parking spaces was also counted. Four main trends emerged from a review of the field data (see Table 2-4 for the full data):

- Generally there is much higher use of the facilities for the overnight period than for daytime period.
- Use outstrips the capacity of the marked truck parking spaces (in some cases substantially) for the interstate service areas on the Maine Turnpike.
- There is much lower use of truck parking spaces on the section of interstate highway north of Augusta.
- There is low use of truck parking spaces in public rest areas along state highways off the interstate system.

Guidelines/Considerations for Truck Parking Areas

A number of guidelines and other considerations for truck parking were identified during the course of the project. These include:

- Current guidelines suggest truck parking design should accommodate a truck with an overall length of 74 feet. The most desirable type of parking is a diagonal pull-through space so that trucks need not back up or negotiate tight turns.
- A 2002 FHWA report on truck parking areas reported that truckers most valued well-maintained restrooms, well-lit parking areas, showers, public telephones, and a location convenient to the highway.
- Current national guidelines recommend spacing between rest areas of approximately 60 to 75 miles or one hour of driving time. This spacing can be affected by factors such as the sizing of current rest area facilities, driving conditions along a particular segment, availability of other services, and proximity of urban areas. There is also the possibility that nearby private truck stop facilities may meet demand. Closer spacing may be required between rest areas if more than one facility is needed to meet the demand.
- A calculation of estimated truck parking demand identified an unmet need along segments of Interstate highway and state highways. Figure 4-5 (in the body of the main report) shows the location of roadway segments where spacing issues and

unmet parking demand may indicate the need for new truck rest area facilities or truck parking capacity.

Recommendations

Several improvement strategies should be explored further for their potential to provide short term solutions to truck parking shortages. These include:

- Part-time, nighttime use of surplus automobile parking for truck parking when automobile parking demand is lightest.
- Part-time truck parking at park and ride lots if potential impacts can be mitigated and potential policy issues addressed.
- Allow truck parking at weigh stations if potential policy issues can be addressed.
- Develop a signage and information program to better identify existing public and private truck parking areas. Two types of signage are recommended: Interstate Gateway signage (11 locations at a cost of $126,500) and General Wayfinding Signage off the Interstate System (12 locations at $27,600). It is recommended that the MaineDOT in collaboration with its industry partners publish a map and brochure regarding the availability of truck parking and services. It is also recommended that research be done to identify more fully private truck parking facilities that are available.

Potential long term improvement solutions may include upgrades/expansions at existing facilities or development of new facilities to meet identified demand. These upgraded or new facilities could be either public or private. Corridors for potential truck parking improvement locations are shown in Figure 4-7 (in the body of the main report). On non-Interstate state highways, it is not recommended at this time to expand existing rest areas to accommodate truck parking or to construct new truck parking areas without careful consideration of private sector opportunities to meet truck parking needs. Preference should be given for private facilities, where possible. To make the most efficient use of public resources, it may be necessary to form public-private partnerships to create these facilities and this concept, with its required policies, should be explored more fully in the near term. Some truck parking demand may be accommodated at new or upgraded Welcome Centers or Visitor Information Centers being built by the State.

Potential improvements at four existing Interstate Rest Areas (non-Turnpike) with truck parking were identified in the Pittsfield and Medway areas. The potential improvements and capital and operating costs are identified in Table ES-2.

Potential needs on off-Interstate state highways are identified in Table ES-3.

The Maine Turnpike Authority is conducting a study evaluating the need for truck parking improvements to its six service plazas. The greatest need for additional truck parking is along the Interstate corridor south of Portland.

Table ES-2
Summary of Potential Improvements at Existing Interstate Rest Areas with Truck Parking

Location	Improvement	Preliminary Cost	Annual Operating and Maintenance	Time Frame
Pittsfield (I-95 Northbound)	Facilities Upgrade	$150,000	$150,000 - $200,000	Intermediate Term
	Truck Parking Reconfiguration to Include 16 Total Spaces	$500,000		Long Term
Pittsfield (I-95 Southbound)	Facilities Upgrade	$150,000	$150,000 - $200,000	Intermediate Term
	Truck Parking Reconfiguration to Include 16 Total Spaces	$400,000		Long Term
Medway (I-95 Northbound)	Truck Parking Reconfiguration To Include 14 Total Spaces	$300,000	$150,000 - $200,000	Long Term
Medway (I-95 Southbound)	Truck Parking Reconfiguration to Include 14 Total Spaces	$200,000	$150,000 - $200,000	Long Term

Source: Wilbur Smith Associates; MaineDOT.

Table ES-3
Summary of Potential Needs on Off-Interstate Corridors without Public Truck Parking

Location	Estimated Demand Truck Parking Demand	Existing Potential Private Resource	Potential Public Resource
Route 201 *	5-10 spaces	None known	Arnold's Way and Parlin Pond Rest Areas; Future new Jackman Visitor Information Center
Route 27 **	5-10 spaces	None known	Eustis Weigh Station
Route 1, Downeast	5-15 spaces	None known	Blueberry Hill Rest Area
Route 1, Mid-coast	5-15 spaces	None known	Northport Rest Area
Route 11, Aroostook County **	5-10 spaces	None known	Cold Spring and Soldier Pond Rest Areas
Route 302	5-10 spaces	None known	Moose Pond Rest Area; The to be Relocated Fryeburg Visitor Information Center
Route 25	5-10 spaces	None known	Ossipee Trail Rest Area
Route 2, west of Route 4	5-15 spaces	None known	Riverside Rest Area; Existing or relocated Bethel Visitor Information Center
Route 4, between I-495 and Route 2	5-15 spaces	None known	None known
Route 6, near Dover-Foxcroft	5-15 spaces	None known	None known
Route 1, near Weston **	5-10 spaces	None known	None known
Route 1A, near Fort Fairfield	5-10 spaces	None known	None known

* This corridor is a ***National Scenic Byway*** and any truck parking facility will need to be developed with utmost sensitivity and compatibility with the qualities of the corridor.
** A portion of this corridor is a ***State Designated Scenic Highway*** and any truck parking facility will need to be developed with utmost sensitivity and compatibility with the qualities of the corridor.
Not in order of priority.
Source: Wilbur Smith Associates, 2002.

Chapter 1. Introduction

1.1 Background

The Maine Department of Transportation initiated the Commercial Vehicle Service Plan in response to a growing awareness of the increased strain on truck parking and other truck-related services in Maine. This increased strain is due to the overall increase in truck traffic, the increased size of trucks operating in Maine and the federal requirements regarding required rest intervals by truck drivers.

The current system of rest areas and stops are provided by the State of Maine, the Maine Turnpike Authority and private operators. The State-owned facilities are provided as part of statewide system of public rest areas. A wide variety of facilities are provided. Truck parking is available at rest areas owned and operated by the Maine Turnpike Authority. Other services such as restrooms, food and fuel concessions are also offered at some of these locations. Truck parking located at private facilities generally offer restrooms, fuel, and convenience store or restaurant.

Rest areas on interstate highways are heavily used by trucks, particularly during the late evening and early morning hours of the day. By current state and federal law, truck drivers may drive for no more than 10 consecutive hours without taking a mandatory rest. The availability of adequate parking is important if truck drivers are to obtain the rest needed to operate their vehicles safely. Along the interstate highway system and on many state highways, truck parking is becoming increasingly difficult to find. As a result, overflow parking of trucks occurs on shoulders of entrance and exit ramps, and in some cases on the mainline itself. This leads to safety issues that result from trucks parking on shoulders which can obstruct the visibility of other motorists. From a maintenance perspective, trucks parking on shoulders exert forces on the pavement which are in excess of design loadings.

While maintenance and operational issues of inadequate truck parking are clear, the factors contributing to driver fatigue are less certain and subject to varying interpretations. Some of the factors that have been proposed as possibly contributing to driver fatigue include:

- Inability to find overnight rest areas
- Hours of service mandatory rest periods that may not conform to drivers' natural circadian rhythms for rest
- Shipper and receiver policies that may require drivers to load or unload their cargo when they should be resting
- Driver wages that are based upon miles driven rather than hours worked that may encourage excessive driving hours.

Many of these issues are complex and beyond the scope of this particular study, but they are all part of a growing problem that affects truckers and the general public alike. As our economy continues to increasingly rely on freight movement by truck, the parking problems and other issues that exist today will only be exacerbated in the future unless

solutions can be found to better accommodate these vehicles and their operators, or, reduce our reliance on trucks.

The passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) made funds available to upgrade highways of national significance, but recent federal regulation has precluded the funding of privately operated rest areas within interstate rights of way. While this has prevented the use of federal dollars for providing competitive advantage to certain businesses, it also has imposed limitations on the availability and usefulness of truck parking facilities throughout the country. This is due mainly to the fact that many public rest areas, which do qualify for federal aid, lack the types of facilities, amenities, space, or security that many truck drivers require. In addition, many public rest areas have limitations on the number of hours that a truck can park, and in some instances, ban overnight parking altogether.

Privately operated rest areas that provide those services to trucks are in short supply on interstate highways and are usually located outside of the interstate right of way. While less convenient in terms of accessibility, truckers generally preferred them for the range of services they provide. In addition, the National Association of Truck Stop Operators (NATSO), a lobby organization representing private truck stops, opposes any notion to allow public-private partnerships to develop new rest area facilities within interstate rights of way. Such partnerships, they claim, will force existing truck stops to downsize or close completely since they could not competitively compete with facilities that have direct interstate access.

The proposed new hours-of-service regulations that would require as much as 14 hours of off-duty time in a 24-hour period may make the parking problem more problematic. If truckers are required to increase the time in which they are not allowed to operate, then demand for parking spaces, service stations, utilities, and restaurants will increase. To further evaluate the deficiencies and needs of the statewide truck parking situation, the Maine Department of Transportation (MaineDOT) has initiated an outreach effort to interview, survey, and conduct focus groups involving truck drivers, owners, facilities managers, and law enforcement personnel.

1.2 Current Regulatory Issues on Rest Area Development

Privately owned and operated truck stops are typically located in close proximity to interstate highway interchanges. Until recently, federal regulations governing the funding of the interstate system prohibited the placement of private facilities within the interstate right-of-way. Specifically, (Guide for Development of Rest Areas on Major Arterials and Freeways, AASHTO, 2001), federal regulation 23 U.S.C. 111 “prohibits commercial development at travel information centers or rest areas.” This regulation was enacted to prevent unfair advantages for private companies that are directly accessible from the interstate over those companies that operate at an exit off the interstate.

The major exception to this policy is the exemption of toll facilities constructed prior to or outside the interstate system, such as the Maine Turnpike, New Hampshire Turnpike,

and Massachusetts Turnpike in New England; the New York State Thruway and the New Jersey Turnpike; and facilities originally constructed as toll operations, such as the Connecticut Turnpike. One other exception to this policy was granted by the federal Surface Transportation Act of 1982 which permitted non-profit organizations to provide vending machines at interstate rest areas under the Randolph-Sheppard Act of 1936.

1.3 Current Conditions in Maine

The State of Maine owns, operates and maintains a system of rest areas on the Interstate System (apart from the Maine Turnpike) and on certain State highways. Most of the rest area facilities on State highways do not provide parking for trucks. Those that do provide accommodation for trucks typically offer a narrow range of basic facilities such as picnic areas and restrooms.

Since the Maine Turnpike predated the Interstate system, it was permitted to retain the rest areas when it was subsequently designated as the southern portion of Route I-95. The concessions for food and fuel services are currently held by two separate organizations. In addition to fuel, the fuel concessionaire provides limited road service to disabled vehicles. The food concessionaire provides fastfood, family dining and snack facilities as well as comfort facilities. The concessionaires maintain the facilities they operate, and the Maine Turnpike Authority (MTA) maintains the other parts of the rest areas. The MTA considers the current method of operation cost-effective because revenues from concessionaires generally offset operating costs of the rest areas. MTA is studying possible locations for additional or relocated travel service areas. Several possibilities are under consideration, particularly in the northern part of the Maine Turnpike.

A number of private truck stops are operated in Maine. These are discussed more fully in Chapter 2. These facilities vary in the range of services they provide and fulfill a valuable role in providing the services that trucks and their drivers require. Many are located just off the interstate highway and many are located on major state and US numbered routes with a high volume of long distance truck traffic.

Effective January 1, 2004, the Maine Turnpike will be designated Interstate 95 along its entire length from Kittery to Augusta. At that time, the portion of Interstate highway previously designated Interstate 95 from Falmouth to West Gardiner will be designated Interstate 295, extending the portion of Interstate 295 through South Portland and Portland. Following the redesignation, the MaineDOT and the Maine Turnpike Authority will be renumbering the exits on the Interstate highways to correspond to their route mileage. The new exit signs will also indicate the old exit numbers during a transition period.

In 2002, the Department issued two reports related to the truck rest area issues: *Evaluation of Maine's Non-Interstate Roadside Facilities* (January 2002) and *A Plan for Maine's State Visitor Information Centers: A Needs Assessment for Existing Centers and A Proposal for New Centers* (September 2002).

Chapter 2. Existing Truck Parking Facilities and Services

2.1 Public Rest Areas

The Bureau of Planning at the Maine Department of Transportation (MaineDOT) provided an inventory detailing 93 existing state-owned rest areas in the State of Maine. Eighteen of these rest areas were identified as having designated truck parking spaces. In addition to the state-owned rest areas, there are also six service areas on the Maine Turnpike that are owned and operated by the Maine Turnpike Authority. These data are shown in Table 2-1.

Table 2-1
Public Rest/Service Areas

Public Rest/Service Areas	Number of Rest Areas	Number of Areas with Truck Parking
State Rest Area – State Highway/Non-Interstate	82	8
State Rest Area - Interstate	11	10
Maine Turnpike Service Area	6	6
TOTAL:	**99**	**24**

Source: MaineDOT Rest Area Database, 2001.

These data do not include the two weigh stations on northbound and southbound I-95 in Kittery.

An additional sixteen private and undesignated truck rest areas were identified by trucker surveys and through field surveys. Undesignated areas are locations that were identified during a survey of Maine truck drivers or noticed during the field survey of designated parking. These undesignated truck parking areas include shopping center parking lots, shoulders of interstate highways and state highways, on and off ramps of interstate highways, and at State weigh stations. These are shown in Table 2-2.

Table 2-2
Identified Private and Undesignated Rest Areas

Private and Undesignated Rest Areas	Number of Rest Areas	Number of Areas with Truck Parking
Private Truck Stops	6	6
Undesignated Stops	10	10
TOTAL:	**16**	**16**

Source: WSA Survey, 2001.

Of the 115 total identified rest areas, 40 are rest areas with accommodations for truck parking. Eighteen are located on state highways or interstates. Six motorist rest stops

with parking areas and fuel for trucks are located along the Maine Turnpike. Six others were private truck stops such as Dysarts or Irving that are privately owned and operated. Ten were undesignated parking areas with informal or undesignated parking areas such as at shopping centers or weigh stations. The database provided by MaineDOT also lists how many spaces are allotted for auto parking and for truck-sized parking. The number of truck parking spaces at Maine Turnpike Service Areas was counted during field visits. These locations and parking capacities are shown in Table 2-3.

The field survey also identified where "undesignated" truck parking areas were located.

Table 2-3
Identified Truck Parking Areas: Designated and Undesignated

NAME	LOCATION	AUTO PARKING SPACES	TRUCK PARKING SPACES
State Highway/Non-Interstate Rest Area			
Pike Woods	Calais Area, US 1 (east)	30	3
East Musquash	Topsfield Area, Route 6 (west)	16	2
Long Cove	Sullivan Area, US 1	10	1
Blue Hill	Route 172 between Surry & Blue Hill	10	2
Phillips Corner	Pittsfield Area US 2 (west)	14	6
Northbound	Bath Area US 1 (west)	22	6
The Pines	Windham Area US 302 (east of Rte. 4/202)	20	3
Mopang Stream	TWP 30 Route 9 (east of Beddington)	5	8
Interstate Rest Area			
Southbound I-95	Medway Area I-95 South	20	10
Northbound I-95	Medway Area I-95 North	20	10
Northbound I-95	I-95 North (Hampden, south of Bangor)	26	12
Southbound I-95	I-95 South (Hampden, south of Bangor)	25	12
Southbound I-95	Pittsfield Area I-95 South (Exit 38-37)	25	12
Northbound I-95	Pittsfield Area I-95 North	28	12
Southbound I-95	Sidney Area, I-95 South (Exit 32-31)	38	5
Northbound I-95	Augusta, I-95 North	22	8
I-95 Info Center	Yarmouth, I-95	60	8
Northbound I-95	Kittery, I-95 North	167	25
Maine Turnpike Service Area			
Turnpike - Kennebunk Northbound	I-95 North, Kennebunk - Biddeford (Exit 3-4)		10
Turnpike - Kennebunk Southbound	I-95 South, Kennebunk - Biddeford (Exit 3-4)		10
Turnpike - Gray	I-495 North, Portland North - Gray		6

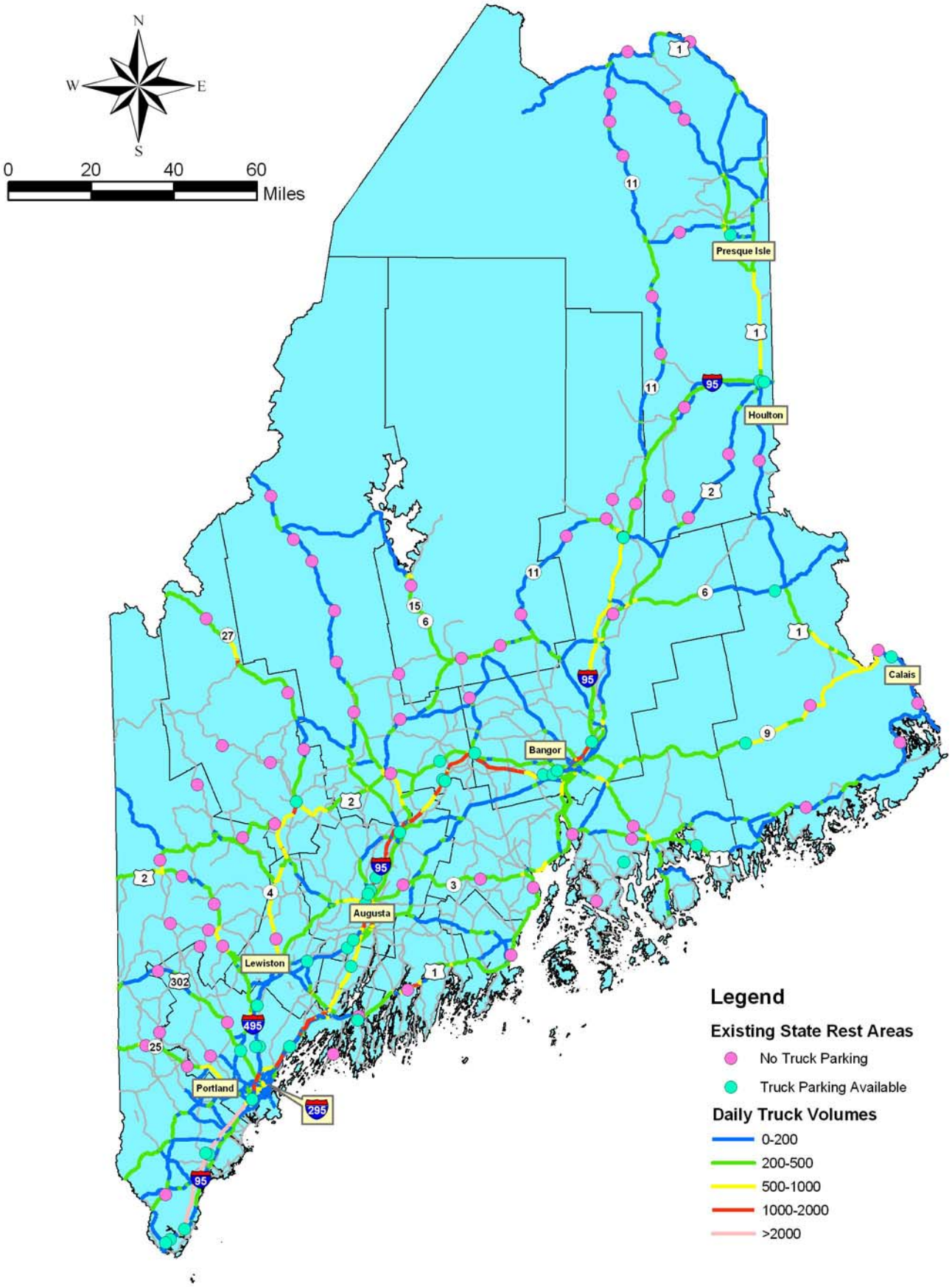
Northbound	(Exit 10-11)		
Turnpike - Cumberland Southbound	I-495 South, Portland North - Cumberland (Exit 10-11)		0
Turnpike - Lewiston Southbound	I-495 South (north of Exit 13)		6
Turnpike - Litchfield Northbound	I-495 North (south of Gardiner Tollbooth)		6
Private Truck Stops			
Dysarts – Bangor	I-95, Exit 44		
Farmington Big Stop	Routes 2 & 4, Farmington, ME		
Howells – Kittery	I-95, Exit 2		
Irving 201 – Fairfield	Route 201, Fairfield, north of Waterville		
Newport Big Stop	Routes 2 & 100, Newport, ME		
Travelers Big Stop	I-95 & US 1, Houlton, ME		
Undesignated Truck Parking Areas		**Where Reported/Observed**	
Kittery/York Tollbooth	I-95, York, ME	Along interstate shoulder	
Gardiner Tollbooth	I-495, Gardiner, ME	Along roadway shoulder and Exit 27 shoulder	
Maine Turnpike, Exit 6A	I-95 Northbound and Southbound, Portland Area	Maine Mall parking lots; Exit 8 area parking lots	
Gray Area (I-495, Exit 11-12)	Between Portland & Auburn	Along interstate shoulder	
Richmond Int. (I-95, Exit 26)	I-95, Exit 26 Between Brunswick & Augusta	Along interstate shoulder	
Western Avenue, Augusta	I-95, Exit 30	Reported in survey, none observed	
Augusta Civic Center	I-95, Exit 31	Civic Center parking lot; Walmart parking lot	
I-95 NB Old Town Weigh Station	I-95, Old Town, ME (north of Bangor)	In weigh station	
I-95 SB Old Town Weigh Station	I-95, Old Town, ME (north of Bangor)	In weigh station	
Presque Isle Mall Area	Presque Isle, ME	Reported in survey, none observed	

Source: MaineDOT Rest Area Database, 2001; WSA Survey, 2001. Does not include Kittery weigh stations.

The location of public rest areas (state-owned) and service areas (Maine Turnpike owned) are shown in Figure 2-1. These locations are shown in relation to the MaineDOT Heavy Haul Truck Network. This is a network of Maine roadways where existing truck traffic has been identified as the most intensive and accommodations for trucks should be prioritized (WSA, 2001). These figures can help in the determination whether truck rest areas are located where truck traffic is the heaviest. The map identifies which of these areas has truck parking available.

Figure 2-1

Statewide Public Rest Areas



The average number of parking spaces for trucks at a state highway/non-interstate rest area is less than five. The average number of parking spaces for autos at a state highway rest area is sixteen. For the interstate rest areas, the average number of parking spaces for auto parking is a little over forty spaces. The average number of parking spaces for trucks at an interstate rest area is just over eleven spaces. Of all state rest areas, seven rest areas provide fewer than six truck parking spaces. Six rest areas provide between six and ten spaces. Four rest areas provide between ten and fifteen spaces with one rest area providing 25 truck parking spaces.

The state rest areas are fairly evenly distributed across the state with truck rest areas concentrated mainly along the interstates in the southern part of the state. However, there are no state truck rest areas in the northern part of the state in Aroostook County and in western Maine. The northernmost state rest area with truck parking is located on I-95 in the Medway area. The remaining truck rest areas that are located on state highways are generally situated in Down East Maine.

Figure 2-1 also displays the number of heavy trucks along the heavy haul truck network. The figure indicates that the highest volume of heavy vehicles occurs primarily along the interstate system where most of the public truck rest areas are located. Overall, most of the non-interstate HHTN routes in Maine carry 500 to 1000 heavy trucks per day.

A January 2002 report by the MaineDOT, "Evaluation of Maine's Non-Interstate Roadside Facilities" (Bureau of Environmental Services), concluded that three state-owned rest areas that have truck parking should be closed or downgraded. These rest areas are: Blue Hill (Route 172, 2 truck parking spaces, recommended to be closed); Windham ('The Pines', Route 302, 3 truck parking spaces, recommended to be closed); and, Baldwin ('Hiram Falls', Route 5, 1 truck parking space, recommended to be downgraded to scenic area).

2.1.1 Field Survey of Truck Parking Utilization

During the week of September 24, 2001, WSA performed site visits to public rest areas and service areas that have marked parking spaces for trucks. The site visits were conducted during daytime hours and during the overnight hours to gauge facility usage information. The number of marked truck parking spaces was also counted. The usage data are shown in Table 2-4. Four main trends emerge from a review of the data:

- Generally there is much higher use of the facilities for the overnight period than for daytime period
- Use outstrips the capacity of the marked truck parking spaces (in some cases substantially) for the interstate service areas on the Maine Turnpike
- Much lower use of truck parking spaces on the section of interstate highway north of Augusta
- Low use of truck parking spaces in public rest areas along state highways off the interstate system.

Table 2-4
Daytime & Nighttime Truck Parking Observation at Public Rest Areas
Week of September 24, 2001

Location	Estimated Truck Parking Capacity (marked spaces)	Daytime Observed Parking	Nighttime Observed Parking
I-95 NB Rest Area, Kittery	25	7	9
I-95 NB, Service Plaza, Kennebunk	10	9	43
I-95 Info. Center, Yarmouth	8	2	12
I-95 NB Rest Area, Augusta	7	3	13
I-95 NB Rest Area, Pittsfield	12	1	5
I-95 NB Rest Area, Hampden	12	1	4
I-95 NB Rest Area, Medway	10	4	7
I-95 Rest Area, Houlton	7	0	0
I-95 SB Rest Area, Medway	10	4	6
I-95 SB Rest Area, Hampden	12	2	4
I-95 SB Rest Area, Pittsfield	12	1	2
I-95 SB Rest Area, Sidney	6	3	13
I-95 SB, Service Plaza, Kennebunk	10	5	49
I-495 NB, Service Plaza, Gray	6	3	10
I-495 NB Service Plaza, W. Gardiner	6	2	8
I-495 SB, Service Plaza, Lewiston	6	2	16
I-495 SB, Service Plaza, Cumberland	0	10	16
Route 1 EB Rest Area, Bath	6	0	0
Route 1 WB Rest Area, Bath	7	0	0
Long Cove Rest Area, Rte. 1	1	0	0
Pike Woods Rest Area, Rte. 1	3	1	1
Phillips Corner Rest Area, Route 2	6	1	0
East Musquash Rest Area, Route 6	2	2	0
Mopang Stream Rest Area, Route 9	8	1	3
Blue Hill Rest Area, Route 172	2	0	0
The Pines Rest Area, Route 302	3	0	0*

* Site was closed during overnight hours.
Source: Wilbur Smith Associates

Site visits were also made to private truck stops and other parking areas to observe usage of these facilities. The data show a high volume of usage for several of the private truck stops along the northern interstate corridor (the Bangor area and north). This likely explains the lower usage of public rest areas in this area.

Table 2-5
Daytime & Nighttime Truck Parking Observation at Truck Stops and Other Parking Areas
Week of September 24, 2001

Location	Estimated Truck Parking Capacity	Daytime Observed Parking	Nighttime Observed Parking
Dysart's Truck Stop, Bangor	approx. 85	54	111
Irving Big Stop, Farmington	approx. 25	1	9
Irving 201 Truck Stop, Fairfield	approx. 12	6	10
Irving Big Stop, Newport	approx. 25	14	24
Irving Big Stop, Houlton	approx. 20	13	33
Irving Big Stop, Searsport	approx. 20	3	*
Irving Big Stop, Calais	approx. 5	2	*
Exxon Truck Stop, Mars Hill	approx. 6	3	*
Trucker's International Truck Stop, Fairfield	approx. 20	16	14
Howell's Truck Stop, Kittery	approx 65	19	40
I-95 NB Weigh Station, Kittery	approx. 30	0	1
I-95 NB Weigh Station, Old Town	approx. 15	0	3
I-95 SB Weigh Station, Old Town	approx. 10	0	0
I-95 SB Weigh Station, York	approx. 30	0	3

* Location not checked during overnight hours.
Source: Wilbur Smith Associates

Site visits were also conducted to "undesignated" truck parking areas that were observed during the field survey or reported in the survey or interviews done for the study. The observations (shown in Table 2-6) confirmed use of the shoulder at toll plazas in Kittery and Gardiner for nighttime truck parking and the use of shopping center parking lots for nighttime parking.

Table 2-6
Daytime & Nighttime Observed Truck Parking at Undesignated Sites
Week of September 24, 2001

Location	Daytime Observed Parking	Nighttime Observed Parking
Kittery/York Tollbooth	0	3
Gardiner Tollbooth	0	9
Turnpike Exit 6A/S. Portland Commercial Area	3	4
Turnpike Exit 8 Commercial Area	12	23
Former MaineDOT Maintenance Area, Ashland	3	*
I-95 Exit 26, Richmond	1	3
Route 11, Eagle Lake	1	*

* Location not checked during overnight hours.
Source: Wilbur Smith Associates

2.2 Survey of Maine Truck Drivers

In August of 2001, a questionnaire was distributed by the Maine Professional Drivers Association to its member drivers. While this survey was not intended to be taken as statistically significant, it did provide some insight into trucker preferences in regard to rest areas. Based on this limited survey, 52 responses were received from truck drivers who were company drivers, independent operators, or company owners. The division of operator type and operating base is listing in Table 2-7.

Table 2-7
Maine Driver Survey Respondent Characteristics

Type of Operator	(52 surveys returned)
Independent/Owner-Operator	10%
Company Driver	85%
Trucking Company Owner	5%
Operating Base	
Maine	100%
Other State	0%
Canada	0%

Source: Wilbur Smith Associates.

One hundred percent of those surveyed were drivers based in Maine. This may have some bearing on the results, since out of state drivers may not be as familiar with the locations of overnight rest areas in the state, and are more likely to use them when their hours-of-service have expired. The survey was designed to ask specifically which facilities in Maine are most often used by truck drivers. In most cases, the respondent had used more than one type of facility over the course of a week, so the results indicate a fairly even distribution of usage for each type of facility. Again, it should be noted that drivers based in Maine are less likely to seek out facilities to rest during the night after

they have completed their maximum hours-of-service, so usage of private facilities may be underestimated. Table 2-8 lists the results from the truck parking survey.

The majority (85%) of respondents were company drivers rather than an independent /owner-operator or owner of a trucking company. Maine was the home base for all respondents. The results of the survey can be found below.

Private rest areas and pull-offs to the side of the road were used by 30% of the respondents on a daily basis. However, 50% of survey respondents used road side pull-offs or undesignated areas infrequently. State highway rest areas received the largest "Poor" rating at 35% while private rest areas received the largest "Good" rating at 49%.

The survey also asked how often truckers use off-ramps and shoulders as places to rest. The majority of the respondents (59%) said they used off-ramps and shoulders infrequently. Twenty-seven percent said they use off-ramps and shoulders on a weekly basis while 15% used them everyday. Reasons for using off-ramps and shoulders as a rest area were varied. The most common reasons were that the parking at a rest area was full, there was an immediate need, and that there were no rest areas/facilities nearby. A few stated that their driving time was up and they had to pull over and that they felt it was safer. Some truckers stated that they never parked on off-ramps and shoulders because they felt it was very dangerous to do so.

The survey also asked respondents to identify rest areas in need of improvement and areas where new facilities are needed because none currently exist.

Table 2-8
Survey of Maine Drivers: Truck Parking Use

Interstate Rest Areas including Maine Turnpike					
Percent that used this type of facility	90%	Frequency of Use		How Well It Meets Your Needs	
		Daily	24%	Well	31%
		Weekly	51%	Fair	53%
		Infrequently	24%	Poor	17%
State Highway Rest Areas					
Percent that used this type of facility	92%	Frequency of Use		How Well It Meets Your Needs	
		Daily	29%	Well	14%
		Weekly	24%	Fair	51%
		Infrequently	48%	Poor	35%
Private Rest Areas					
Percent that used this type of facility	85%	Frequency of Use		How Well It Meets Your Needs	
		Daily	30%	Well	49%
		Weekly	50%	Fair	51%
		Infrequently	20%	Poor	0%
Roadside Pull-Off					
Percent that used this type of facility	90%	Frequency of Use		How Well It Meets Your Needs	
		Daily	30%	Well	3%
		Weekly	20%	Fair	43%
		Infrequently	50%	Poor	54%
Off-Ramps/Shoulders					
Percent that used this type of facility	79%	Frequency of Use		Reason for Use	
		Daily	15%	Rest Area Full	23%
		Weekly	27%	Immediate Need	25%
		Infrequently	59%	No Close Facility	26%
				Time Limits	12%
				Feel it's Safer	12%
				Other Reason	3%

Source: Wilbur Smith Associates

In addition to the results above, survey respondents indicated more favorable ratings for private rest areas than for public ones -- private facilities were rated better at “meeting their needs”. About 86% of respondents rated the public rest areas on state highways as “poor” or “fair” at meeting their needs, while 51% rated the private rest areas as “poor” or “fair” at meeting their needs. Seventy percent rated rest areas/service areas on interstate highways (State or Maine Turnpike Authority-owned) as “fair” or “poor” at meeting their needs. The survey also reinforced and further confirmed the field observations that indicated that trucks often stop at roadside pull-offs as well and on highway ramps and shoulders.

2.4 Focus Group Findings

On the evenings of February 12th and 13th, 2002, focus groups were held to discuss the deficiencies of truck parking and the needs of the trucking industry. While the main emphasis of the meetings was to address truck parking, other general issues were discussed as well. The first meeting, held in Bangor at the MaineDOT training facility, was attended by ten individuals comprised of MaineDOT staff, private and company operators, truck stop owners, law enforcement personnel, and MaineDOT's transportation consultant. The second meeting, held at the Maine Turnpike Authority administration building in Portland, was attended by eight individuals representing similar groups as in the previous night, but focused more in the Southern Maine area. The groups were deliberately kept small and informal in order to generate frank and open discussion. Both meetings were successful in fostering discussion on a wide variety of issues common to the trucking industry, state agencies, and private business. With regard to truck parking in general, four themes emerged from the discussions.

- There is no chronic shortage of total truck rest area parking spaces in the State of Maine relative to other northeastern states;
- Public rest areas do not meet many essential needs of drivers such as security, available truck parking capacity and restroom facilities; private areas in many cases do;
- Existing public areas need improvement; and
- Additional information needs to be provided for more effective utilization of truck parking resources that are available, including an improved signage program

1) There is no chronic system-wide shortage of truck parking spaces in the State of Maine.

According to comments received at both the Portland and Bangor focus group meetings, in general there does not appear to be chronic shortage of truck parking in the State of Maine. Exceptions to this statement are that a shortage of parking does exist in spot locations, most notably in southern Maine between Gardiner and Portland. In addition, undesignated spots such as department store parking lots are becoming more frequently restricted to truck parking. Problems finding parking was generally perceived to be more pronounced in other states.

In areas where truck parking was noted as deficient, suggestions from the group were made to look into other public places that could be used for truck parking to supplement rest areas and truck stops. One idea was to use weigh stations for truck parking. Several drivers indicated that this would be a potential solution provided they would not be subjected to random inspections when they are trying to sleep.

Discussion:

For example, in Kentucky, about 225 overnight truck parking spaces are available at weigh stations in the state's "Rest Haven" program. According to this program, truckers will not be disturbed except for emergencies. The state is adding more truck parking, as well as basic restroom, phone and vending facilities, to new weigh stations. Two are scheduled to open this fall; however, Kentucky officials report it's been difficult to get truckers to park at the weigh stations due to limited restroom facilities and the perception that drivers will be forced to perform inspections of their vehicles.

One potential location cited by the group for conversion to allow truck parking would be the Kittery weigh station. This location was noted as an underutilized resource and could allow for additional parking spaces provided restrooms, lighting, and security could be provided. Other public parking areas such as park-and-ride lots for parking between 10 p.m. and 6 a.m., closed military bases, and stadiums could become sources of truck parking, as well.

The focus group members (drivers and non-drivers) were based in Maine and may be less likely to have a need for using Maine rest areas than out of state drivers.

2) Truck drivers prefer private truck stops to public rest areas.

Most drivers would prefer to sleep at private truck stops, according the comments received at the focus groups. Statements from drivers at both of the focus group meetings indicated that private rest areas better served the needs of drivers that need to rest in order to comply with the federal hours-of-service regulations. FHWA's national survey [1] supports this finding. Two-thirds of the drivers surveyed in the federal parking study said they prefer using private truck stops for overnight or long-term rest needs.

The complaint most often associated with public rest areas was that they lacked the security necessary for drivers to feel safe and comfortable while parked for the night. Poor lighting and infrequent patrols by state police have led to problems involving solicitation and drug dealing. Because private truck stops are staffed 24-hours, there is less of a threat resulting from people who do not belong there. In addition, truck stops often provide cleaner restrooms with showers, have restaurants and convenience stores, and in many cases provide maintenance facilities and fuel supplies.

Discussion:

Even at a cost, many drivers prefer private truck stops over free public spaces. The major drawback to private facilities is that they are often located off of the interstate system and can be difficult to find for the driver who is unfamiliar with the local street system. Additionally, certain interchange and intersection geometric conditions are difficult to

[1] Patricia Hamilton. Rest Area Forum: Summary of Proceedings, Publication No. FHWA-RD-00-034, Federal Highway Administration, Washington, D.C., December 1999.

negotiate with large trucks. Since trucks require more acceleration and deceleration time and distance, short ramps and tight radius ramps can be dangerous. Also, the wider turn radius required by some of the larger trucks can be difficult to make at intersections with small curb radii.

The inventory of truck parking facilities indicates that few public rest areas on the state highway system provide truck parking or other desirable services/features such as flush toilets, food services and on-site security.

3) Existing public areas need improvement.

Many at the focus group meetings felt that public rest areas are too unpredictable and unreliable in terms of security, capacity, and services for trucks. Some felt that improvements relating to additional lighting can go a long way toward making rest areas feel safer. There was also some discussion on the potential for designating rest areas as 'Drug Free Zones'. While public rest areas may never have all of the full services that private truck stops provide, the group felt that public areas can be drastically improved to fill the needs of truckers who simply need to stop for basic rest and other requirements.

Discussion:

Many people feel that the federal and state governments should be responsible for improving and expanding rest areas to help solve the truck parking problem. Rest areas are often old, expensive to maintain and attract crime; and were not designed for overnight truck parking in the first place. Many states have closed rest areas because of a crime problem or because they couldn't afford to keep up the maintenance.

Despite funding concerns, many states are working to renovate and build new rest areas, and they're paying more attention to truck parking. The California Department of Transportation has proposed to spend more than $77 million to restore and renovate state rest areas in the next 10 years. Alabama is doubling the number of truck parking spaces at its rest areas when they are renovated. Delaware recently tripled the truck parking at its I-95 rest area, from 25 to 75 spaces. As New York renovates its interstate rest areas and thruway travel plazas, it is doubling or tripling commercial truck parking at each one. Virginia recently converted a car rest area to a trucks-only rest area, with lots of well-lit parking. Even with recent successes in these states, it is difficult to build new rest areas in locations that are largely residential. For example, New Jersey officials looked into building a truck rest area along Route 78 after published reports said 11 people had been killed in six years when their vehicles hit illegally parked trucks. The state had to drop the idea of building a rest area after local residents complained.

4) A comprehensive signage and information program would be beneficial to truckers.

An issue that received attention at both focus group meetings was the deficiencies in regard to the existing signage system in the state. This issue reached many levels, from

the absence of basic wayfinding signage to poorly planned interchange numbering to the 'understandability' of signs to foreign drivers.

Most attendees were in agreement that a proper signage program could greatly benefit truckers by directing them to truck stops that have the facilities that they require. For example, signs for truck stops that have service areas, restaurants, or shower facilities could be extremely helpful when looking for a place to park for the night. In addition, proper wayfinding signage can prevent trucks from making wrong turns and ending up in a residential neighborhood or some area that may become difficult to drive a truck in. As an example, the Vermont Oasis Program was cited as a good model for the State of Maine to adopt.

Another complaint about existing signage was that the numbering of exits at interchanges is often confusing to drivers. The number systems used on the Maine Turnpike and on Interstate 95 are not coordinated with each other and on overlapping segments the change in exit numbers can seem illogical. Maine is implementing a new road mileage sign program and an exit renumbering program over the next few years as well as a signage policy to improve sign clarity.

In addition, there was some discussion on the 'understandability' of signs for foreign drivers. While foreign drivers are required to understand the English language in order to operate a commercial vehicle in the United States, the reality is that some do not. It was recommended that pictorial signs representing road conditions or hazard be used rather than signs with English text.

Discussion:

On a national level, truck parking signage has also received some considerable attention. The Truck Rest Area Subcommittee of the Baltimore Region Freight Movement Task Force studied truck parking on the I-95 corridor and discovered that between public rest areas, private truck stops, park-and-ride lots and weigh stations that allow truck parking, there were actually more than enough spaces to satisfy overnight parking needs. The problem, they decided, was letting truckers know where those facilities are. In June, the task force unveiled the first elements of a sign system that would alert truckers to the availability of other truck parking. Signs along I-95 will offer information about what truck services are available at which exits and how far away they are. "Additional truck parking available" signs at the I-95 welcome center entrance and exit ramps will also point truckers to the next nearest parking facility. A trucker's map, showing the location of all truck parking on the corridor, both public and private, will be distributed at rest areas, weigh stations and truck stops and through police and trucking companies. Maryland's State Highway Authority publishes a map showing resources available to truckers in the state.

Source: MD SHA website

Michigan has been experimenting with a similar program since 1991. A white-on-blue plaque denoting "Truck Parking at ___ exit" was added to the top of the state's general service (white-on-blue) signs at several exits along I-94 in southern Michigan. This was a cooperative effort between the state's truck stop operators association and the Michigan DOT. Maps showing the location of facilities were printed and distributed.

Other potential solution to identifying truck parking availability is using intelligent transportation systems, such as computerized highway information signs, to offer real-time information about the number of parking spaces available. In addition, more cost effective method to provide real-time information directly to drivers include cell phones, onboard computers, the Internet, CB radio or low-power/Highway Advisory Radio (HAR) radio. Another alternative would be real-time reports sent to fleets, which could relay them to drivers via satellite or other communication systems.

The exit numbering system on the interstate system in Maine will be revised over the next few years with exit numbers reflecting route mileage. Current exit numbers will also be given on the new signs during a transition period.

According to the NATSO website, Vermont implemented its oasis program by identifying one truck stop off the interstate system with the oasis designation. NATSO recommends expanding this concept more broadly. It has developed three guidelines that it feels addresses issues of fairness and equity. These guidelines are:

- "Ensure uniform guidelines for 'oasis' facilities. State transportation departments, with input from other stakeholders, should develop the criteria (hours of operation, distance from Interstate, etc.) businesses must meet to become an "oasis." Only with consistent standards can the highway traveler be guaranteed that each oasis facility will be able to meet their needs.

- Ensure full participation by all eligible businesses. We believe that where this program is implemented, that each and every business meeting the eligibility requirements should be given the option to serve as an 'oasis' designation. By requiring participation by all businesses meeting the standards, the decision of participating will be left to individual business owners, not a state official who could arbitrarily select one business over another.

- Ensure that "oasis" facilities have the same 'look'. A uniform name and logo for these facilities are required to ensure highway users traveling can easily recognize these facilities. We believe 'oasis' facilities could be easily identified through the existing Interstate logo program, either with a special mark on existing boards, or creation of a new board specifically for 'oasis' facilities."

Source: NATSO website, 2003.

2.5 National Driver Surveys

In recent years, issues regarding truck driver fatigue and shortages in truck parking spaces have received considerable attention. Attempts to quantify parking supply have been met with mixed reactions. Some experts believe that the total inventory of truck spaces nationwide is adequate to serve demand, and in fact, many rest areas are underutilized. Freight operators and drivers will argue that many existing facilities with truck parking are poorly equipped to handle the needs of trucks and their drivers. In addition, truck spaces are being used by automobiles and recreational vehicles in some locations. The following text has been excerpted from several national studies that have performed surveys to measure the deficiencies in truck parking on a national level.

According to a 1996 federal study prepared[2] by the Federal Highway Administration's Office of Motor Carriers and the American Trucking Association's Trucking Research Institute, more than 90% of truck drivers indicated that there is a shortage of truck parking, especially for long-term or overnight parking. The report found eight out of every 10 rest areas were full or overflowing, with few legal spaces available at rest areas between midnight and 5 a.m. It also found more than half of truck stops are filled to capacity 20 nights per month or more.

Similarly, an Owner-Operator Independent Drivers Association [3] survey of 2,000 owner-operators found more than 90% of truck drivers indicating that they had difficulty finding rest area parking spaces at least once a week. More than 80% of drivers indicated that they drive beyond the point where they feel "safe and alert" because they can't find parking. In addition, more than a third said that lack of parking spaces caused them to drive beyond hours-of-service limits at least once a week.

The survey also found that drivers often resort to parking in unsafe areas, such as along the shoulders of highways and on highway on-ramps, if they can't find a place at a rest area. Nearly 60 percent of the surveyed drivers admitted that they do this. Of the 579 drivers who provided a comment, 185 -- almost one-third -- urged FHWA to "build more and bigger rest areas." Other comments included a desire for more rest area security, more parking at existing rest areas, and a plea to keep all existing rest areas open.

In a 1997 survey of 593 long-distance [4] truck drivers randomly selected at private truck stops and public rest areas in New York took place. According to this survey, 25% of the drivers said that at least once during the last year they had fallen asleep while driving, and 17% said it occurred on more than one occasion. Of those surveyed, 80% of the

[2] Patricia Hamilton. Rest Area Forum: Summary of Proceedings, Publication No. FHWA-RD-00-034, Federal Highway Administration, Washington, D.C., December 1999.
[3] Survey of 2,000 truckers, conducted by the Owner-Operator Independent Drivers Association (OOIDA) Foundation Inc., 1998.
[4] Norman R. Schneider, Nancy O. Alexander, Donald A. Baker, and Anne T. McCartt. "New York's Research and Program Approach to Address the Needs of the Motor Carrier Industry at Public Roadside Rest Areas," *Proceedings, Second International Large Truck and Bus Safety Symposium*, Transportation Center, University of Tennessee, October 1999.

drivers reported that they were always unable or often unable to find a parking space at a public rest area at night. When asked what discouraged their use of public rest areas in New York, 51% of the surveyed drivers cited inadequate parking. Other common responses were enforcement of the two-hour parking limit (28%), prostitution/solicitation (16%), lack of security (15%), and poor or expensive food (14%).

To reflect the side of those against the expansion of truck parking at interstate facilities, officials with the National Association of Truck Stop Operators (NATSO) indicated that drivers who can't find a place to rest either don't know about the many available truck stop spaces or they are deliberately passing up the truck stops. They cite their own survey of private truck stop operators, who report that "on the worst corridors, at the busiest times of the week, there was still a parking availability of 17 percent." Therefore, the truck stop operators disagree with the trucking industry's desire for government to provide more public rest areas for truckers.

Chapter 3. Survey of Current Practices

3.0 Introduction

This Chapter summarizes a survey of current planning methods for service area planning, construction and operations. It recognizes the context, including existing legislation, regulations and policies, in which this activity takes place, and notes that practices are evolving in response to safety and financial concerns. A number of reports on the subject have been reviewed, and interviews conducted with both public sector and private operators of rest area facilities. The references and interviews are in the appendix.

3.1 The Context

A 1998 U.S. Department of Transportation (DOT) report[1] stated that "large trucks account for about 3.5 percent of all vehicles and for approximately 7 percent of all motor vehicle travel, while accounting for about 12 percent of all traffic fatalities."

Statistics show that the number of motor vehicles on U.S. highways has grown by more than 10 percent from 1995 to 2000 and is estimated to increase an additional 10 percent by 2005. In 1996, the number of large trucks operating on the highways was approximately 7 million;[2] in 2005, the number is projected to increase about 9 percent to approximately 8.25 million. In 1998, truck-related highway fatalities totaled 5,374 (compared with 5,355 in 1997), and trucks involved in fatal crashes totaled 4,935 (compared with 4,917 in 1997).[3]

By current law, truck drivers may drive for no more than 10 consecutive hours. The availability of adequate parking is important if truck drivers are to obtain the rest needed to operate their vehicles safely. Research[4] by the National Highway Traffic Safety Administration suggests that truck driver fatigue may be a contributing factor in as many as 30 to 40 percent of all heavy truck accidents. The Safety Board had earlier estimated in a 1990 safety study[5] that the most important factors in predicting a fatigue-related accident are the duration of the last sleep period, the time slept in the past 24-hours, and

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[1] U.S. Department of Transportation, National Highway Traffic Safety Administration. May 1998. *Trends in Large Truck Crashes*. DOT-HS 808-690. National Technical Information Services. Springfield, Virginia.

[2] U.S. Department of Transportation, National Highway Traffic Safety Administration. *Traffic Safety Face 1998: Large Trucks*. DOT-HS 808-952. Washington, D.C.

[3] DOT-HS 808-952.

[4] Knipling, R.R., and Wang, J.S. "Crashes and Facilities Related to Driver Drowsiness/Fatigue." *Research Note.* November 1994. National Highway Traffic Safety Administration, Washington, D.C.

[5] National Transportation Safety Board, 1990. Fatigue, Alcohol, Other Drugs and Medical Factors in *Fatal-to-the-Driver Heavy Truck Crashes.* Safety Study NTSB/SS-90/01. Washington, D.C.

the split sleep periods. The availability of parking for truck drivers can have an impact on all three of these factors.

Complicating the parking availability issue is that some States enforce time restrictions on parking at public rest areas that are less than the time for sleep required under the hours-of-service regulations. When time limits that do not allow for adequate sleep are enforced at public rest areas, drivers parked there may not be able to get enough sleep, which may lead to fatigue-related accidents.

The 1996 Federal Highway Administration (FHWA) study *Commercial Driver Rest and Parking Requirements: Making Space for Safety* found that a shortfall of parking spaces for commercial vehicles existed throughout the United States. Because of the increase in truck traffic since this study was completed, the apparent shortfall of parking spaces continues to grow.

3.2 National Research

Considerable research has been done on the truck parking issue. The following sections contain some highlights of several studies conducted throughout the country in the past 10 years addressing truck parking adequacy and some of the solutions that have been suggested.

Commercial Driver Rest and Parking Requirements. The 1996 FHWA-funded study *Commercial Driver Rest and Parking Requirements: Making Space for Safety*[6] was conducted by the Trucking Research Institute[7] in response to Senate recommendations to evaluate "the adequacy of places for truck drivers to stop and rest, both public and private."[8] While a detailed survey of public rest areas was conducted, the survey of private truck stops was more cursory and is based on statistical weighting of the 17 percent of private truck stops that completed and returned the survey. (See table 1 for a summary of the results of the parking inventories and surveys.) The truck driver survey found that differences between private truck stops and public rest areas influence drivers' decisions about where to stop. For long term parking, truck drivers prefer the private truck stops to the public rest areas because the truck stops provide amenities, such as showers, restaurants, gas, and stores.[9]

[6] FHWA-MC-96-0010, May 1996.

[7] The research component of the American Trucking Associations Foundation, Inc., an affiliate of the ATA.

[8] The study consisted of an inventory of parking, direct observation, surveys, and calculations of capacity and demand.

[9] FHWA-MC-96-0010, May 1996.

The areas needing the greatest numbers of additional truck parking are in FHWA regions 1 and 4.[10] The States with the greatest demand for parking are California, Pennsylvania, New York, Texas, and Virginia. The Interstate 95 (I-95) corridor[11] was identified as having the greatest need for parking of any interstate.

Table 3-1
Results of FHWA Report Inventory

Public rest areas with full or overflowing parking at night	80 percent
Shortfall of truck parking spaces	28,400 (estimate)
Parking spaces at private truck stops	185,000 (estimate)
Number of trucks parked at private truck stops at night	167,453 (estimate)
Private truck stops that are full on any given night nationwide	53 percent
Private truck stop parking spaces to be added by the end of 2000	20,000 to 38,000
Cost of building additional parking to meet future trucking demands	$489 to $629 million (projected)

Source: Commercial Driver Rest and Parking Requirements: Making Space for Safety, FHWA, 1996.

Recommendations from the report, listed from least to greatest cost, include:

1. using truck pull-off areas, widened shoulder and parking areas on the side of the road;[12]
2. modifying current public rest areas to enhance truck parking by using under utilized car parking spaces at night;
3. renovating public rest areas to create more parking availability; and
4. constructing new public rest areas.

Several States have begun conducting studies on their own to determine where the parking shortages exist and to examine innovative ways to alleviate the shortages. The FHWA will use the information that has been developed by the States to support its upcoming Transportation Equity Act for the 21st Century (TEA-2 1) Section 4027 study, which builds on the 1996 research.

The National Association of Truck Stop Operators (NATSO)[13] believes that the 1996 FHWA study was flawed because 1) it did not contain a complete survey of private truck

[10] Region 1 consists of Connecticut, Massachusetts, Maine, New Hampshire, New Jersey, New York, and Vermont. Region 4 consists of Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina and Tennessee.

[11] Extends from Maine to Florida.

[12] Areas adjacent to the travel lanes wide enough for parking and, generally, designated as such.

[13] NATSO is the professional association of America's $35 billion travel plaza and truck stop industry. It serves as the official source of information on the diverse industry, acts as the voice of the industry in

stops and 2) the FHWA's methodology for calculating truck parking shortages was faulty (private truck stops could meet the parking demands, if truck drivers planned their trips better).[14] The Section 4027 study has been conducted in a way that responds to these concerns. This study is discussed further in Section 3.

Evaluation of Safety at Public Rest Areas. The 1989 Transportation Research Board study **Evaluation of Safety Roadside Rest Areas**[15] was initiated to identify and quantify the benefits and costs of public rest areas, to generate an updated profile of public rest area user attributes, and to develop a reliable method for comparing benefits and costs. While this study did not focus on commercial vehicles, it did include information specific to commercial transportation.

The study found that trucks entering public rest areas at night stayed more than twice the length of time that cars stayed in the public rest areas. The percentage of trucks entering public rest areas exceeds the percentage of trucks found on the main driving lanes during that time period. According to this study, these two facts combined mean trucks need more parking spaces per capita than cars. In addition, the study revealed that truck drivers were more inclined to pull onto the shoulder if parking were not available whereas car drivers were more inclined to pull off the route.

Relationship between Truck Crash Rates and Truck Parking Shortfall Estimates. The 1999 NATSO study *Examination of the Relationship between Truck Crash Rates and Truck Parking Shortfall Estimates*[16] was conducted in response to a recommendation from the 1996 FHWA study. The recommendation proposed a planning strategy to identify public rest areas where additional parking was needed by examining the relationship between accident rates and parking shortfall estimates. The NATSO study found no association between a State's need for additional truck parking capacity and a greater number of crashes or greater fatal crash rate involving large trucks. The study did find an association between the number of fatal crashes and the number of truck miles traveled in each State. NATSO concluded that building more truck parking at public rest areas was an ineffective and inefficient method of improving highway safety and reducing the fatal crash rate of large trucks. Thus, addressing truck parking shortages would not reduce truck fatal crash rates. NATSO recommended that highway money be used to promote safety.

According to NATSO, over 2,000 private truck stop locations provide more than 250,000 spaces nationwide; by 2005, eight of the largest private companies will increase truck parking capacity by 30,000 to 48,000 spaces, where market demand is greatest.

Washington on legislative and regulatory matters, and supports efforts to generally improve the business climate in which its member companies operate.

[14] From NATSO' party submission.

[15] King, G.F.

[16] NATSO and the University of Maryland, March 1999.

The American Association of State Highway and Transportation Officials (AASHTO) released the Third Edition of the Guide for Development of Rest Areas on Major Arterials and Freeways, prepared by the AASHTO Task Force on Geometric Design, in 2001. This document is a comprehensive guide for development of rest areas and is discussed further in the following sections.

3.3 State Research

Minnesota. The purpose of the 1998 Minnesota Department of Transportation study *Commercial Truck Usage Nighttime Parking Demand Analysis, February 1995- October 1998*[17] was to identify public rest areas in Minnesota that have a greater demand for nighttime truck parking. The study was conducted because of the growing industry and public concern about the availability of adequate safe off-highway parking for commercial vehicles. It is part of an ongoing effort of the Minnesota Department of Transportation to understand the needs of public rest area users. The study found that 12 of 50 public rest areas at 2 a.m. had a higher average number of trucks present than spaces available. Twenty-six public rest areas had potential capacity problems. The highest demand for parking occurred Monday through Thursday between 12:00 and 6:00 a.m.; although, some areas were full after 10:00 p.m. The Minnesota Department of Transportation plans to conduct more studies to determine why some public rest areas or parking facilities are used more than others.

New York. The 1999 New York State Department of Transportation study *New York's Approach to Addressing the Needs of the Motor Carrier Industry at Public Rest Areas*[18] summarizes the development and refurbishment of the public rest area system on interstate highways in New York State. On highways other than toll roads, 11 public rest areas have been constructed or are in the design phase, creating an additional 200 to 300 spaces. Other projects are in the planning phase. By 2011, 23 public rest areas will be reconstructed and 11 new facilities built; the cost will be over $320 million.

According to the New York study, the lessons learned from the public rest area work done to date have been that public rest areas serve a critical public safety need and that inadequate attention has been paid to the needs of commercial vehicle drivers, especially with respect to parking and rest areas. According to the study, driving while drowsy is common among truck drivers. The frequency of not finding parking spaces available at public rest areas was correlated with drivers who had fallen asleep at the wheel in the past year and had a tendency to violate regulations.[19] The report stated that

[17] Minnesota Safety Rest Area Programs, December 1998.

[18] Schneider, N.R., and Alexander, N.O. *New York's Approach to Addressing the Needs of the Motor Carrier Industry at Roadside Rest Areas*, 1999, New York State Department of Transportation.

[19] Schneider, N.R., and Alexander, N.O.

increased Federal flexibility appears desirable for appropriate commercialization of public rest areas, especially where such services are not readily available. Also, Federal encouragement would help the development of additional privately owned truck stops.

Tennessee. The 1999 *study Truck Parking at Night Along Interstate Highways-Tennessee Experience,*[20] funded by the Tennessee Department of Transportation and conducted by the University of Tennessee, was initiated to assess the nature and magnitude of the public rest area parking problem in Tennessee and to explore alternative solutions. The study found that on an average weekday night nearly 44 percent of the parked trucks were pulled over on ramps and shoulders.

The estimated number of additional parking spaces needed in Tennessee was 1,407 (compared with the 627 spaces calculated in the 1996 FHWA report). About 10 times more spaces were available in private truck stops than in public rest areas. About 30 percent of these spaces were unoccupied, although some private truck stops were found to be full or nearly full. Nearly three times as many trucks were parked in private truck stops as parked in public rest areas on the interstate. The unoccupied spaces at private truck stops would provide nearly enough parking to accommodate the trucks parked on ramps and shoulders. Interviewed drivers reported that private truck stops and public rest areas are not substitutions for each other; when a driver feels sleepy and wants to stop as soon as possible, he/she prefers the nearest public rest area or interchange.

The study recommended that more parking spaces need to be built. A cost-effective solution, according to the study, is to reopen pull-off areas, but that would not be sufficient because of the lack of lighting and restrooms. The authors also recommended that Tennessee explore strategies to increase the use of private truck stops by adopting better signage, design, lighting and security. They also indicated that opportunities exist for public/private partnerships to reduce the parking problems for commercial vehicles. Because this study was recently completed and is part of an ongoing study, the recommendations have not yet been implemented.

3.4 Planning

Planning for Highway rest areas includes several important aspects:

- Identifying the number of truck parking spaces required;
- Classifying rest areas by type according to the services they provide and the needs they serve; and,
- Developing criteria for locating rest areas.

[20] Wegmann, F.J., Chatterjee, A., and Clarke, D.B. *Truck Parking at Night Along Interstate Highways – Tennessee Experience. Proceedings, Second International Truck and Bus Safety Symposium, October 6-8. 1999*. University of Tennessee Transportation Center, Knoxville, Tennessee.

The AASHTO Guide for Development of Rest Areas on Major Arterials and Freeways, Third Edition, issued this year, stresses that the planning process for rest areas needs to be comprehensive and address investment and implementation. It is recommended that states develop statewide Rest-Area Plans. Each state should "integrate its rest-area planning into its overall transportation planning and development program".

3.4.1 Spaces Required

Forecasting of truck parking demand has been undertaken in several places over the past two decades. The State of Minnesota developed a model for predict demand based on factors such as Average Daily Traffic (ADT), distance from the previous rest area, design hour usage, distribution of parking spaces between cars and trucks, peak hour factors and vehicle turnover at parking spaces. The state of Ohio developed a simpler model in the late 1980s based on directional ADT, percent trucks in the traffic stream, and distance from the previous rest areas. In both cases, extensive surveys were undertaken to calibrate the models and determine the coefficients for model equations.

The most comprehensive attempt at forecasting truck parking demand was produced by FHWA, assisted by the Trucking Research Institute and two consulting firms, in 1996. The effort resulted in a report entitled **Commercial Driver Rest and Parking Requirements: Making Space for Safety.**

The goal of the study was to assess the supply, utilization, parking statutes and practices, and demand related to rest area parking at the state and national levels. Based on the findings of that analysis, the study was to identify policies and programs to meet commercial truck drivers' rest needs.

Realizing these goals required extensive data related to truck parking activities both at Interstate corridor and state levels. Prior research in this area typically concentrated on analyzing data at the individual Interstate corridor level. In order to undertake empirical research a the state and national level, it was necessary to develop an extensive database of truck parking activities at rest areas located along Interstates across the entire country. This study relied on three general methods of data collection, resulting in five sources:

- An *inventory* of parking capacity and restrictions at public rest areas nationwide;

- Direct *observation* of the actual usage of truck parking at rest areas along a medium-density trucking corridor;

- A series of *surveys*, including:
  - An in-person *survey of truck drivers* along the corridor to determine their needs, perceptions, and preferences for truck parking as well as the reasons behind current practices;

  - A nationwide mail *survey of motor carriers* to identify perceived driver needs, preferences, and the availability of truck parking; and,

- A mail *survey of truck stop operators* to assess their perceptions of public rest area truck parking supply and demand, the role of the public and private sectors in meeting that demand, and potential obstacles.

Two quantitative models were developed to analyze the data collected. The first was an economically-derived *Capacity Utilization Model*, designed to identify those factors affecting rest area utilization by trucks. The second, a *Demand Model*, was a mathematical model designed to estimate the total demand for truck parking spaces at public rest areas nationwide.

The results of the quantitative analyses were then used to develop:

- Policy recommendations for FHWA; and,
- A Guidebook designed to inform state DOT executives of this research process and how it can be applied at the state level.

The Guidebook appears as an Appendix to this volume. The AASHTO Guide retains this approach, although it is noted that the Section 4027 Study (see below) may modify some of the parameters when it is completed.

The shortfall in truck parking spaces is given in Table 3-2. It indicates a shortfall of 181 truck parking spaces in Maine and over 6,000 spaces in the nine Northeastern States. Traffic has continued to grow since this report was published. Some states have used the methodology in the Guidebook to forecast demand for parking spaces to future years. Connecticut, for example, estimated that the shortfall would increase from about 1,200 spaces to over 1,600 spaces by 2020. [This finding possibly contrasts with the focus group general consensus that there was “no chronic shortage” of truck parking in Maine.]

As noted in Section 3.1, NATSO (the National Association of Truck Stop Operators) objected to some of the methods and conclusions in this report, and the update (the “Section 4027 Study”) currently in preparation responds to their concerns. This report has not yet been released, but some information about it was made available by NATSO. The new report categorizes truck parking conditions as follows:

- Level One – Plenty of spare parking capacity is available
- Level Two – Supply and Demand for Parking are roughly in balance
- Level Three - There is a clear lack of parking spaces

Truck parking conditions in each state were categorized in this way. Unlike the previous study, the update categorizes parking conditions at private truck stops as well as highway rest areas. It also indicates conditions for public and private spaces combined. The categorizations reported for Maine are:

- Public Rest Areas – Level Three
- Private Truck Stops – Level One

Table 3-2
Statewide Shortfall Estimates of Truck Parking Spaces, 1995

State	Total Number of Rest Areas in the State	Truck Parking Space Requirements	Truck Parking Spaces Available	Truck Parking Space Shortfall
Connecticut	20	1,462	437	1,025
Maine	11	297	116	181
Massachusetts	37	1,572	1,180	392
New Hampshire	10	533	206	327
New Jersey	19	1,529	655	874
New Mexico	27	NA	NA	NA
New York	58	2,399	1,218	1,181
Pennsylvania	63	3,157	1,175	1,982
Rhode Island	1	62	NA	NA
Vermont	19	250	192	58
Virginia	40	2,288	966	1,322
TOTAL	232	11,261	5,179	6,020

NA: Insufficient data to determine shortfall estimates.
Note: Maine data in FHWA study does not correspond to truck parking inventory data for this study. FWWA data for Maine does not include truck parking at Maine Turnpike Service Areas.

SOURCE: Commercial Driver Rest and Parking Requirements, Making Space for Safety, Federal Highway Administration, 1996.

- Combined – Level One

3.4.2 Classification of Rest Areas

Safety rest areas fulfill a variety of functions. These functions include:

- Rest/Relaxation;
- Comfort;
- Information Needs;
- Communication Needs;
- Food (Snack/Refreshment/Restaurant)
- Vehicle Repair or Maintenance Functions;
- Tourism/Travel Information;
- Traveler Amenities (Picnic);
- Gasoline;
- Scenic View/Vista;
- Truck Weight Enforcement;
- Truck Parking (Overnight); and,
- Local, regional, or statewide economic development.

Rest areas have been categorized into numerous groups based on their facilities. A typical set of categories is:

- Travel Services Rest Areas;
- Welcome Centers;
- Rest Areas with Sanitary Facilities;
- Rest Areas without Sanitary Facilities;
- Weigh Station;
- Truck Lay-over Area;
- Picnic Area/Seasonal; and,
- Tourist Information Bulletin Board.

Travel Services Rest Areas (TSRAs) are full service rest areas that include gasoline and diesel fuel, one or more food outlets, restrooms, and other services. These are generally found only on tolled facilities. Current law prohibits operators of such facilities on Interstates constructed within Federal Funds.

Welcome Centers are appropriately located on major travel corridors into a state or at locations approaching metropolitan areas. These high travel locations are ideally suited to guide travelers as they enter the state. These will usually include rest areas and vending machines.

Rest Areas with Sanitary Facilities are the nucleus of on-highway traveler services. Sanitary facilities and other supporting services such as snack food vending offer a periodic respite from driving, and may highlight attractions of local interest.

Rest Areas without Sanitary Facilities. These serve a limited role by providing areas for rest, but without comfort facilities. Frequently, tourist information bulletin boards may be erected at these locations. Maintenance associated with these facilities includes litter control, mowing, snow removal, and police/security protection. These facilities are observed to experience only limited use by travelers, but may be used for overnight parking by commercial vehicles. There may be a problem, however, with unsanitary conditions arising from the lack of regular toilet facilities at overnight truck parking areas.

Truck weigh stations were built along many interstates, but are used less frequently than in the past. Instead, truck weight enforcement is done at rest areas utilizing portable or semi-portable scales on a random basis. These stations are typically operated once or twice a month at randomly selected locations. Because of the congestion which accompanies weight enforcement, this activity is normally physically separated from other rest area operations.

Truck Layovers, are meant to accommodate a growing demand of interstate travelers. During late evenings, night, and early mornings, Rest Areas without formal truck parking may become parking areas (layovers) for truckers. Alternatives for the location of these types of rest areas include:

- Locating at single locations with security lighting;
- Adjacent to, but physically separated from Welcome Centers or Rest Areas with Sanitary Facilities with parking enforcement;
- Conversion of Rest Areas without Sanitary Facilities to this function; or
- Provision of off-highway facilities at interchanges (park & ride lots) or in partnership with private development.

Both **Scenic/Picnic/Seasonal and Tourist Information Bulletin Board,** are generally located only where special circumstances limit the opportunity for higher-level facilities. They are frequently offered in conjunction with private enterprise or quasi-public organizations such as a Chamber of Commerce or Tourism Board.

3.4.3 Location Criteria

One of the earliest documents to provide guidance on rest area planning and design was "A Guide for Safety Rest Areas for the National System of Interstate and Defense Highways," by the American Association of State Highway and Transportation Officials (AASHO) in 1968. Other helpful guidelines have been developed at both national and state levels.

According to the Federal Highway Administration (FHWA) publication on "Safety Rest Area, Planning Location & Design" the following are the operation guidelines that should be evaluated during development of a rest area program:

- Traffic Types/Classification;
- Spacing and Traffic Volume;
- Tourism Needs;
- Desired Quality of Service;
- Combination Facilities;
- Maintenance Cost;
- Wastewater Disposal Constraints;
- Concurrent Construction Phasing; and,
- Need for Upgrading.

Additional Factors mentioned by the AASHTO Guide (2001) are:

- Environmental Impacts;
- Right-of-Way Opportunities; and,
- Community Acceptance.

Location Factors Location is of primary importance to system planning issues. Table 3-3 summarizes the locational factors suggested by three reference publications - AASHTO's Guide on Safety Rest Area (1968, updated in 2001), National Comprehensive Highway Research Program Report #324, Evaluation of Safety Roadside Rest Areas, and FHWA's publication on Safety Rest Area Planning Location Design. Factors recommended by WSA in a previous study of rest areas are also listed in Table 3-3.

The following is a brief explanation of the factors:

- **First Entry into State and Approach to Metropolitan Areas.** It is important to intercept motorists at the first opportunity. Due to rest area programs in adjoining states, the facilities may be the first on the highway encountered by the long distance motorist. The approach to metropolitan areas is important to direct visitors to the variety of attractions, services, and institutions which exist in the region.
- **Distance from Last Rest Area.** The recommended drive time between rest areas has varied from thirty minutes to one hour. The NCHRP Report found that the average distance was 60 miles. On several Interstates in Vermont and New England, twenty (20) to thirty (30) mile spacing is prevalent.
- **Traffic Volumes.** High volumes of traffic would suggest the need to have larger rest area facilities or to reduce the spacing between them.
- **Safety/Accident Experience.** The long recognized function of the rest area is to provide a respite for the travel weary motorists. Fatigue, stress, or weariness may contribute to accidents thus indicating the need for more frequent rest stops.
- **Public Utilities.** Environmental concerns for handling sewage from facilities may require the need to relocate rest areas. Topographic or other site specific constraints may influence system planning decisions.
- **Constructability.** This factor also considers issues related to the topography and cost associated with construction of the rest area. As a practical matter, higher costs for construction and maintenance may suggest the need for fewer rest areas.

- **Tourism.** Tourism and its relationship to economic development is a significant State concern. In some locales, rest areas offer an important means to communicate with the traveling public.
- **Scenic Vista.** A spectacular view or unique topographic feature offers a unique opportunity to showcase the location.
  - Environmental Effects. As a minimum, potential sites must be examined to identify endangered species, wetlands, historic properties, archaeological resources, parks, recreation areas and wildlife refuges. These areas cannot be adversely affected by the project, so their presence should be known before site selection.
  - Right of Way Opportunities. Research should be done to identify landlocked parcels and owners who are more willing to sell property. A premium is placed on avoiding eminent domain or condemnation proceedings.
  - Community Acceptance. This factor relates to liaison with the local community and identifying any sensitive nearby land uses, as well as maintaining good public relations with the local communities.

A typical approach to planning rest areas involves dividing the statewide expressway network into segments and prioritizing them according to the factors listed above.

The general approach is:

1. The Interstate System is subdivided into segments;
2. Numerical scales are defined for each of the factors defined above'
3. Relative weights are assigned to each factor to reflect the level of importance in making final location decisions;
4. Welcome Centers are located at state lines and on metropolitan approaches;
5. Priorities based on calculated results are assigned to segments to reflect the ranking of each; and,
6. The results of the analysis are reviewed in the context of the existing systems and final recommendations developed.

A weighted scale for the location factors used in a study for Vermont appears as Table 3-4. Two types of adjustments are possible for use elsewhere:

1. Consideration of environmental and community acceptance factors can be via a "fatal flaw analysis", rather than a quantitative evaluation. Consideration of right of way issues can be scaled according to size and availability of parcels, and whether complications in the acquisition process are anticipated.
2. For rest areas primarily intended to serve trucks, the Historic/Tourism, Scenic Vista, and First Entry to State criteria can be omitted.

Table 3-3
Rest Area Location Factors

AASHTO (1968)*	NCHRP #324 (1989)	Minnesota DOT (1981)	WSA (1994)
Distance from Last Rest Area	Cost	Site Quality	First Entry into State and Approach to Metro Area
Traffic Volumes	Safety	Utility Availability	Distance from last Rest Area
Topography	Users	Spacing	Traffic Volumes
Interchange Spacing Experience	Institutional	Geometrics	Safety/Accident
Service Facilities	Economic & Social	Environmental Effects	Public Utilities
Climate	Systems	Right of Way	Tourism
			Scenic Vista
Site Quality*			
Environmental Impacts*			
Right-of-Way Opportunities*			
Community Acceptance*			

Note: *Updated in 2001 by the Third Edition of the Guide to Development of Rest Areas on Arterials and Freeways.

Table 3-4
Weighted Scale for Rest Area Locational Factors

NO.	FACTOR	WEIGHTED SCALE	
1	Distance from last rest area	2	Within 25 miles
		4	25 – 30 miles
		6	30 – 40 miles
		8	40 – 49 miles
		10	Greater than 49 miles
2	Traffic Volumes	1	ADT < 1000
		2	1000 – 2000 vehicles
		3	2000 – 3000 vehicles
		4	3000 – 4000 vehicles
		5	4000 – 5000 vehicles
		6	5000 – 6000 vehicles
		7	6000 – 7000 vehicles
		8	7000 – 8000 vehicles
		9	8000 – 9000 vehicles
		10	ADT > 9000 vehicles
3	Safety and Accident Experience	1	<0.005 accidents per million vehicle miles
		2	0.005 – 0.105 accidents per million vehicle miles
		3	0.105 – 0.205 accidents per million vehicle miles
		4	0.205 – 0.305 accidents per million vehicle miles
		5	0.305 – 0.405 accidents per million vehicle miles
		6	0.405 – 0.505 accidents per million vehicle miles
		7	0.505 – 0.605 accidents per million vehicle miles
		8	0.605 – 0.705 accidents per million vehicle miles
		9	0.705 – 0.805 accidents per million vehicle miles
		10	>0.905 accidents per million vehicle miles
4	Availability of Water and Utilities	1	> 1.5 miles
		2	1 to 1.5 miles
		3	½ a mile to 1 mile
		4	¼ to ½ a mile
		5	< ¼ of a mile
5	Construction/Cost	1	Low
		2	Below average
		3	Average
		4	Above average
		5	High
6	Historic/Tourism	1	> 2.5 miles
		2	1.5 – 2 miles
		3	2 – 2.5 miles
		4	1 – 2 miles
		5	Less than 1 mile
7	Scenic Vista	1	Not a scenic spot
		5	Scenic spot location
8	First Entry to State on Interstate Road	1	Within 20 miles of entry
		5	No Welcome Center

Sources: AASHTO's Guide on Safety Rest Area (1968, updated in 2001); National Comprehensive Highway Research Program Report #324, Evaluation of Safety Roadside Rest Areas; and FHWA's publication on Safety Rest Area Planning Location Design

3.5 Cost and Implementation Issues

Options for expanding truck parking in rest areas nationwide vary substantially in cost, required engineering, administrative responsibilities, and number of additional parking spaces. The total federal funding committed to rest area modification, renovation, and new construction nationwide has averaged $42 million annually since 1991. The majority of the funding is dedicated to the maintenance of existing rest area facilities and services.

3.5.1 Costs

Cost for developing additional parking spaces were presented in the 1996 FHWA study. Costs were developed for four categories of improvements:

- **Enforcement** – Increase enforcement of time limits or reduce time limits through regular patrolling of rest areas to encourage a greater turnover of spaces.
- **Modification** – Modify existing facilities to create additional truck parking spaces by using some of the car parking area for trucks at night or using existing park-and-ride facilities for night overflow parking or by modifying existing ramps at rest areas. This category provides an alternative use for existing parking areas that are underutilized at night, when truck parking demand is highest.
- **Renovation** – Redesign and reconfigure the parking area of existing facilities to allow for additional truck parking spaces and better use of the parking lot at existing rest areas. This involves upgrading rest areas to allow for maximum and efficient use of parking space, for example, designing diagonal pull through spaces instead of the parallel spaces commonly found today.
- **New Construction** – Build new rest areas to allow for additional truck parking spaces.

The costs include only development of parking spaces and exclude costs of services and facilities, and are in 1995 dollars. The costs appear in Table 3-5.

Table 3-5
Costs of Rest Area Options

Options	Potential for Additional Spaces	Average Cost Per Space*	
		Low	High
Truck Pull Off	0-10 spaces	$5,000	$7,000
Minor Renovation	11-35 spaces	$10,000	$15,000
Major Renovation	36-50 spaces	$20,000	$25,000
New Construction	>50 spaces	$30,000	$35,000

Source: Commercial Driver Rest and Parking Requirements: Marking space for Safety Final Report, FHWA, 1996.

3.5.2 Funding Sources

Public rest areas on interstate highways are constructed, operated, and maintained by the States. The States received interstate maintenance funding in FY 2000 of $3.795 billion to use for reconstruction, rehabilitation, restoration, and resurfacing of interstate highways, including rest areas. Road segments on the National Highway System (NHS), including the Interstate Highway System, are eligible for NHS funding. Existing rest areas on Interstate Highways are eligible for Interstate Maintenance (IM), NHS and STP funds. However, according to several State departments of transportation, this money cannot be used for day-to-day maintenance and upkeep of rest areas. No Federal funds are currently earmarked specifically for rest area construction.

Use of Federal funds for rest area improvements is discretionary and subject to competing priorities from other projects, and must be included in transportation improvement programs endorsed by Metropolitan Planning Organizations where the rest area is within an MPO jurisdiction. Some states have elected to fund improvements with State funds, as discussed in the following section.

Federal law (23 U.S.C. 111) prohibits States from allowing private entities to sell goods in interstate public rest areas for profit. Some exceptions exist for toll roads such as the New York State Thruway and the Pennsylvania Turnpike because these roads were built before being designated interstates. This Federal law was enacted to prevent unfair advantages for private companies that are directly accessible from the interstate over those companies that operate at an exit off the interstate.

3.5.3 Implementation

The FHWA Report found that prospects for implementation is linked to five factors:

1. **Adequacy:** Is the truck parking generated under this option likely to be adequate to meet truck drivers' needs?

2. **Implementation Ease:** Are the administrative, legislative, and contractual actions and changes required to implement the options relatively easy?

3. **Impacts:** What are the impacts on the key parties involved? Are these impacts favorable or unfavorable from their point of view?

4. **Support:** Given the anticipated impacts, what is the expected level of support or potential from opposition from the parties involved?

5. **Flexibility:** Is the option sufficiently flexible to accommodate variations in project and regional characteristics?

Table 3-6 presents qualitative assessment of these factors relative to the different categories of improvements, and Table 3-7 presents summary of advantages and disadvantages for categories of improvements, based on FHWA's review of experience nationwide.

All of the options considered may not be suited to all geographical areas with their utility depending on land costs and availability, population density, average daily traffic, and percentage of truck traffic. Truck pull off areas, for example, may be appropriate for rural areas with great distances between rest areas and a need for a short-term rest solution. Facility modification is useful in an area where there is a need for an increase in a limited number of spaces or near an urban area where park-and-ride facilities are available. Rest area renovation, both minor and major, is appropriate for rest areas where the existing design can be reconfigured and for which the renovation can significantly expand both the number and type of truck parking spaces. New rest areas are appropriate where land is available and capital funds are made accessible either through public and/or private sources.

In general, modification and renovation encompass the most cost-effective options. A modification program would be relatively easy to implement and would have no impact on neighboring landowners. Modification is only possible, however, at a select group of existing public rest areas and will only expand parking modestly. The nighttime conversion of park-and-ride lots to truck parking is generally limited to urban areas across the country and will not serve as a solution for non-urban markets. A modification program would not substantially improve the rest area truck parking shortage nationwide.

Renovation offers the potential for the greatest number of additional parking spaces at a moderate capital cost. A renovation program would make the greater use of existing land and would receive support from state DOTs, policy makers, and truck drivers. However, renovation would only be possible on a case-by-case basis, depending on the ability to reconfigure a rest area.

Although new construction incurs the greatest expense, it also offers the greatest opportunity to solve the rest area parking shortage. There is, however, some uncertainty

as to whether it would receive political and local support without an associated financing initiative.

The AASHTO Guide (2001) recommends a procedure for design and implementation of rest areas that includes the following steps:

- Geometric Design;
- Grading and Drainage;
- Parking Layout and Paving Design;
- Design for Maintenance;
- Pedestrian Circulation;
- Safety Considerations;
- Accessibility for the Disabled;
- Building Siting;
- Signing;
- Lighting;
- Site Features and Details;
- Security; and
- Landscape Development.

The Guide further recommends that a Maintenance and Operation Plan should be developed for each rest area. This should include:

- Details of all equipment;
- Emergency Contacts;
- Maintenance Schedules; and
- Responsibilities of Agencies and Personnel.

Table 3-6
Summary of Rest Area Options By Evaluation Factors

No.	Criteria Options	Adequacy	Ease	Implementation Impacts	Support	Flexibility
1	**MODIFICATION**					
1a	Use some car parking areas for trucks at night	M	Y	Y	Y	M
1b	Use existing park and ride facilities for night overflow parking	M	Y	Y	Y	M
2	**RENOVATION**					
2a	Minor renovation of rest area parking lot with pull through type spaces	Y	M	M	M	Y
2b	Major renovation by redesigning parking lot to to add additional truck parking spaces	Y	N	M	M	M
3	**NEW CONSTRUCTION**					
3a	Build pull-off areas	Y	Y	Y	M	Y
3b	Build new rest areas	Y	N	Y	M	M

Legend
Y = Yes
M = Maybe
N = No

Source: Commercial Driver Rest and Parking Requirements: Marking space for Safety Final Report, FHWA, 1996.

Table 3-7
Advantages and Disadvantages For Improvement Categories

Options	Advantages	Disadvantages
CATEGORY 1 - MODIFICATION		
Option 1a: Use some car parking area for trucks at night	▪ Low cost ▪ Increases truck parking during peak usage time	▪ Provides only a few parallel spaces for trucks during nighttime hours ▪ Trucks may still tend to park on shoulders and ramps
Option 1b: Use existing park-and-ride facilities for night overflow parking	▪ Low costs for signing and publicity to drivers only ▪ Provides parking for periods of high parking volumes ▪ Space for pull through-type parking	▪ Does not provide normal rest area facilities ▪ May require some enforcement to ensure that trucks leave before normal daytime use of lot begins ▪ May only be feasible in select urban areas
CATEGORY 2 - RENOVATION		
Option 2a: Minor renovation of rest area parking lot with pull-through type spaces	▪ Maximum use of existing land ▪ Provides parking for an additional number of trucks ▪ Truck parking is pull-through type allowing better utilization	▪ Moderate capital expense ▪ Requires rest area (or sections of the rest area) to be temporarily closed ▪ May not provide adequate additional parking for all trucks
Option 2b: Major renovation, convert/redesign existing parking lot to add additional truck parking spaces that are pull-through type	▪ Maximum use of existing land ▪ Provides potentially substantial additional parking for trucks ▪ Truck parking is pull-through type, which has higher parking utilization than parallel	▪ May require extensive capital expense ▪ Requires rest area (or sections of the rest area) to be temporarily closed ▪ May not be feasible at all rest areas
CATEGORY 3 – NEW CONSTRUCTION		
Option 3a: Build pull off areas within the existing right-of-way with no additional facilities	▪ Supplies additional parking for trucks without cost of a complete rest area ▪ Can provide day time picnic area for cars	▪ Moderate capital cost ▪ If not visible from the Interstate, drivers may perceive that it is not safe for parking ▪ May be rejected as a safety hazard ▪ May lack public support
Option 3b: Build new rest areas	▪ Supplies maximum truck parking ▪ Supplies security and service	▪ My require large capital expense ▪ May require new land ▪ Requires acceleration lane for re-entry ▪ May lack public support

Source: Commercial Driver Rest and Parking Requirements: Marking space for Safety Final Report, FHWA, 1996.

3.6 Public Sector Practices

This section summarizes practices in nearby jurisdictions with respect to planning and operating rest areas. Interviews have been conducted with officials in state Departments of Transportation and turnpike authorities.

3.6.1 Connecticut

Connecticut currently has 13 public and 6 private rest areas with truck parking. Many of the public rest areas are located along Interstate Routes 95 and 395, formerly known as the Connecticut Turnpike, and the Merritt Parkway. These facilities were constructed in the 1950s and the 1930s/1940s respectively. This section reports on two areas:

- Operations of Rest Areas
- Efforts to develop additional truck parking

Rest Area Operations – Leased Service Plazas

Two kinds of rest areas exist in the state. Full-service Travel Service Rest Areas (TSRAs) operate on Routes I-95, I-395 and the Merritt Parkway. Other types of areas, without fuel or food outlets, operate along other Interstate Routes.

The Connecticut Turnpike and Merritt Parkway were constructed before the Interstate Highway Program was first established in 1956. They were constructed as toll roads and operated this way until the mid-1980s, when the tolls were removed. Although the Connecticut Turnpike had been redesignated as Routes I-95 and I-395 in the meantime, the TSRAs were permitted to continue in operation until the present day.

Two concession contracts are currently in effect. One contract pertains to food outlets at ten locations along I-95. The other contract pertains to gasoline and diesel fuel operations at 23 locations along Routes I-95, I-395 and the Merritt Parkway. The concessionaires are McDonald's and Exxon-Mobil respectively. Contracts are typically for an initial ten years, with an option for an additional ten. The food concession runs through 2003, while the fuel concession expires in 2005.

Concessionaires are currently responsible for maintenance of their buildings and facilities, while ConnDOT is responsible for external lighting, parking area resurfacing, snow and ice removal, lawn and picnic area maintenance, trash removal and so forth. ConnDOT considers the present operation cost-effective in that revenues from concessions approximately offset DOT's costs to operate and maintain the areas.

ConnDOT is considering several changes when the concession contracts expire and new contracts are put out for bidding. Current thinking is to transfer responsibility for green areas maintenance, snow and ice removal and septic and sewage disposal to the lessees. In addition, it has been noted that service plazas have been rebuilt in New York and other

states in recent years. Rebuilding and modernizing the plazas may be included in the next set of concession contracts.

Interstate Rest Areas

At other locations around the state, facilities available include tourist information, rest rooms and vending machines. The tourist information centers are operated by the Department of Economic Development, while the vending machines are supplied and maintained by an organization for the blind. ConnDOT maintains the building and ground with on-site custodial staff.

Planning for Additional Truck Parking

ConnDOT completed a report in the year 2000 investigating the possibilities for improved truck parking. The strategies considered included:

1. Do Nothing;
2. Current Policies and Practices;
3. Opportunities to reduce truck traffic on highways;
4. Using Intelligent Transportation System Communications to display the status of parking availability;
5. Reconfiguring existing public rest areas for additional truck parking spaces;
6. Expanding existing public rest areas for additional truck parking; and,
7. Constructing new facilities for additional truck rest area parking.

The first four of these alternatives were found to be impractical. ConnDOT reconfigured several rest areas along Route I-95 to increase the available truck parking spaces from 100 to 180. Reconfiguring other areas is under further consideration. The sixth strategy was to expand existing rest areas to accommodate more parking. Preliminary concepts were developed based on available right of way, environmental restrictions and topography. It was found that over 600 additional spaces could be added at 20 existing rest areas. The final strategy involved looking for sites where new rest areas could be constructed. A number of sites were considered., many of which were found to have environmental or other problems. A smaller number of sites were identified for further consideration. Only one site, in Middlebury, was considered to have a high potential for implementation. There is no firm plan for implementation of these projects; the subject is still under discussion and consideration.

ConnDOT is aware of discussions about privatizing rest areas at the national level, and in general is prepared to wait for a national consensus to emerge before considering this approach. There are no present plans for additional private sector involvement.

In conclusion, two aspects of Connecticut's experience that are extractable for application elsewhere. The first is that the number of additional parking spaces possible may be limited by practical considerations, so that it may not be possible to fully satisfy demand.

Another is that they have developed a useful heirarchy of strategies that discovers the most practical and cost-effective ways to provide more capacity first.

3.6.2 Vermont

The responsibility to operate and maintain rest areas along Vermont's expressways has been transferred from the Vermont Agency of Transportation (VAOT) to the Department of Travel and Tourism to the Department of Buildings and General Services over the last ten years. An interview was conducted with an official of this Department.

The Department has recently completed and opened a Welcome Center on the northbound side of Route I-91 south of Brattleboro. The Center contains a spacious room with tourist information and brochures, rest rooms and vending machines. There are also a picnic area, children's playground and trail/walking area. It is open 24 hours per day and staffed for 16 hours. Construction of the Welcome center required connection to water and sewer lines, which was accomplished in conjunction with an upgrade to the local water and sewer systems. The Welcome Center has parking spaces for 12-15 large trucks and 100 cars.

The Welcome Center was constructed with Federal Surface Transportation Program funds. The State currently operates and maintains 20 rest areas along Interstate Routes 91 and 89, including 6 welcome centers. They currently have plans to open another Welcome Center at the Interchange of Routes 7 and 9 near Bennington in the southwestern corner of the state. They plan to fund this project the same way and will wait for it to work its way through VAOT and MPO programming processes and priorities.

The Department acknowledged that their current priority for rest areas is to address tourist needs and that they do not "encourage or accommodate" truck parking. Although aware of reported safety problems with truck parking nationwide, they believe that the truck safety problems in Vermont are "not severe". They also do not encourage development of truck stops at interchanges because of concerns about suburban sprawl. The Department considers that truck needs are a "bigger issue" that needs to be addressed by the Governor and State Legislature.

3.6.3 Massachusetts

The Massachusetts Highway Department is implementing a program of improvements to rest areas statewide. This includes increasing the numbers of Visitors' Centers, adding sanitary facilities where they do not now exist, and increasing the number of parking spaces where possible. Although these improvements are eligible for federal funds (STP program), they would be subject to MPO planning and programming priorities. The state has elected to complete the projects with state funds. The Visitor's centers are operated by Convention and Visitors' Bureaus in the areas where they are located. The vending machines are operated and maintained by the Association for the Blind. Mass Highway is responsible for all other maintenance activities.

3.6.4 Maine Turnpike

The Maine Turnpike was first opened in 1947. There were two full-service rest areas initially; four more were constructed in 1955-56. These rest areas included private concessionaires. The Turnpike was subsequently designated as part of the Interstate Highway System. While federal law ordinarily prohibited the operation of private concessionaires on the Interstate Highway System, the Turnpike was permitted to retain these facilities because it was constructed before the Interstate Highway System was established.

The concessions for food and fuel services are currently held by two separate organizations. In addition to fuel, the fuel concessionaire provides limited road service to disabled vehicles. The food concessionaire provides fast food, family dining and snack facilities as well as comfort facilities. The concessionaires maintain the facilities they operate, and the Maine Turnpike Authority (MTA) maintains the other parts of the rest areas. The MTA considers the current method of operation cost-effective because revenues from concessionaires generally offset operating costs of the rest areas.

The MTA has noticed a substantial increase in truck traffic in the past five years, and parking spaces at rest areas are often fully occupied. In addition, MTA has noticed that trucks park in wide spots along the right of way and sometimes at toll plazas. MTA and the Maine State Police recognize truckers' need to rest, and only direct the trucks to move if they cause a hazard. MTA has studied the rest areas over the past several years and expanded them to utilize all available land, as well as implemented a re-striping program to maximize capacity. They believe they have reached the limits supportable with current facilities. MTA is studying possible locations for additional or relocated travel service areas. Several possibilities are under consideration, particularly in the northern part of the Turnpike.

3.6.5 New Brunswick

The system for building and maintaining roads in Canada differs from that in the USA mainly in that there is only a very limited national government role in roadway planning and funding at the provincial level. Although Canada has a national gasoline tax, the receipts are deposited into the general fund rather than a roadway or transportation trust fund. The same is generally true of provincial gas taxes. Therefore, roadway construction, maintenance and improvements must compete with other items in the annual budget process. This results in a disparity of facilities among provinces, depending on resources and priorities. The national government will occasionally share costs for new or upgraded roads on a 50-50 basis if the project can be shown to have a strong justification in terms of economic development.

A report was prepared for the New Brunswick Department of Transportation in 1990, recommending a network of roadside rest areas. The report and planning efforts related to it were a response to complaints from visitors and tourists that the road network was

not user-friendly with respect to information and comfort facilities. Rest areas were originally to be spaced at two hour driving time intervals, with subsequent infill to one-hour driving time as resources permitted. The report proposed a three-tier system of rest areas:

1. Welcome Centers – with tourist information, restrooms, and vending machines.
2. Rest Areas – with restrooms and vending machines
3. Scenic Lookouts –without facilities

The report looked at the possibility of public-private partnerships, but concluded that the traffic volumes on New Brunswick highways were not high enough to attract the interest of the private sector.

In the intervening decade, the NB DOT acknowledged that very little progress on rest areas has been made. The province's first priority is to upgrade the main highways to four-lane dual carriageways. A 140 kilometer segment of the Trans-Canada Highway was opened earlier this month.

In summary, considerations of rest areas in New Brunswick are limited by budget resources and primarily driven by tourist considerations.

3.7 Private Operators

Interviews were conducted with Travel Centers of America and the Irving Corporation to learn about their operations and appreciate their perspective on rest areas and truck stops.

3.7.1 Travel Centers of America

Travel Centers of America (TA) operates 160 truck stops throughout the USA. These stops can be categorized in three ways: company-owned and operated (125 locations); company-owned and franchise-operated (25 locations) and franchisee-owned and operated (9 locations). TA does not presently operate any truck stops in Maine. Interviews were conducted with the general manager of the TA truck stop in Branford, CT (company-owned and franchise-operated), and with the Vice President for Development of the national organization, based in West Lake, Ohio.

Local Franchised Truck Stop

The TA truck stop in Branford has been open for 28 years and has capacity for about 90 trucks. They are presently expanding on an adjacent parcel of land to develop 20-25 more parking spaces, in conjunction with a ConnDOT project to relocate the southbound entrance and exit ramps at the nearby I-95 interchange (Exit 56). The busiest times of day are around 3 p.m. and around 7 p.m. The lot is frequently full. The manager believes that his business would increase if he could provide more spaces. There is another vacant parcel of land across the road from the truck stop, but there are no plans to buy and develop it because the manager believes the costs, in part related to

environmental and zoning issues, would be prohibitive. More generally, he noted that land in urban and suburban areas is expensive. The manager estimated that it would cost approximately $10,000 to $30,000 per parking space to "buy and pave" land for truck parking. The manager suggested that states could facilitate expansion of truck stops by buying the land and leasing it to the truck stop operators.

The truck stop is a full-service facility, with fuel, repairs, restaurant, convenience store, truck scale, showers, laundry and game room facilities. He characterized the business as successful, but with a relatively low profit margin. All of the above amenities are required to attract customers, but they are not lucrative businesses. Profit margins on fuel have been declining because environmental concerns have required more sophisticated technology, and some trucking organizations buy fuel in bulk, negotiating lower rates. They charge for parking, but not for the first four hours and not if the trucker buys 100 gallons or more of fuel. The truck stop performs standard maintenance, cleaning snow removal, etc., but has no budget for preventive maintenance. There is no schedule for resurfacing the lot; it will be done when deterioration reaches a point that causes problems and complaints. A re-striping plan will also occur at this time, to account for the increased length of trucks (to 74 feet) and to facilitate movements without reversing maneuvers. The manager believes that no one would invest in a brand new truck stop **as a stand-alone operation** at the present time.

National Operations

The Vice President for Development spoke from a corporate perspective. They have a formal development program where the entire Interstate Highway system in the USA has been broken down into 150 mile segments. Some segments are presently served by TA truck stops; those that are not served have been characterized according to potential for development (high, medium, low) based on truck traffic volumes, freight movements and "four-wheeler considerations", i.e. general traffic volumes. The section of Interstate Route 95 between Portland and Houlton, ME has been classified as having "medium" potential. TA considers itself a hospitality company first and has invested $300 million in upgrades to its facilities since 1996. They have done market research and developed new architecture, food courts and greatly improved bathrooms and showers. They have become franchisees of Starbucks, Subway, Burger King, Popeye Chicken and other outlets. In the course of this change their customer base has shifted from approximately 80 percent truckers and 20 percent auto traffic to 60/40. The Company prefers to operate facilities rather than franchise them because they wish to "control the customer's experience" and benefit from the "synergy" between different components of the business.

They do not have a generic layout for parking areas, but plan for truck parking spaces in the range of 100 – 220 and car parking spaces in the range of 60 –110. For each location, layout and orientation, ingress, internal circulation, parking and egress are all developed by CADD.

When asked how state governments can influence decisions to locate in certain areas, the VP said that there is relatively little that can influence selection of off-highway sites. These are primarily related to good intersecting routes and good locations with easy ingress and egress and good visibility from the expressway. TA does operate on-highway truck stops in some locations around the country and feels they can offer government and the consumer a superior experience.

The manager and the VP were in agreement about the factors that influence truckers' use of rest stops. Ease of parking is important. Commercial vehicles have grown in size over the years with some trucks now reaching lengths of at least 74 feet. At service areas with tight parking areas, truckers have a difficult time parking their vehicles due to constrained parking areas and being forced to back their rigs rather than just pulling in.

Safety is another issue that must be examined. Twenty-four hour service areas offer increased safety with lighting and other people around. This is untrue with small service areas with limited facilities that are usually deserted at night. Prostitution and drug trafficking can occur if security is not provided. The Branford Travel Center of America offers a security guard at night plus a security gate at the truck parking area.

The manager feels that truckers do not have enough advance knowledge about their itinerary for the day. This makes it difficult for them to plan when they can take a rest. Also, some truckers have a certain time period when they must arrive at a facility. If the driver misses that time, then he or she must wait until the next day. The driver then needs a place to spend that time while waiting for the facility to reopen.

The maximum driving time for a trucker is ten hours, after which he or she must rest. A trucker's fuel tanks will hold enough diesel fuel to travel approximately 500 miles; the decision to stop is usually not based on fuel needs along but also considerations of hunger and need for comfort facilities. It was also acknowledged that rest areas on interstates and private truck stops at interchanges are not in direct competition with each other. Drivers decide which type of facility to use depending on the services they require.

TA is opposed to privatizing Interstate rest areas because they believe that such a practice would give operators of these facilities an unfair advantage over existing truck stops, which compensate for the inconvenience of having to exit the expressway by offering additional services.

3.7.2 Irving Corporation

The Irving Oil Company, as it is formally known, operates many businesses, including truck stops in the USA and Canada. Their website indicates over 700 separate truck stops, but many of these are partner organizations that share credit and frequent user programs. Irving directly operates 15 full service truck stops in Canada, 6 in Maine and one in New Hampshire. The facilities are known as Mini-travel Plazas in the USA and Big Stops in Canada. A list of the facilities is shown in Table 3-8. Interviews were

conducted with the US Retail Marketing Manager and Fleet Services Marketing Manager.

Irving has been operating in Maine since the late 1970s, with most current facilities having been in operation for 15-20 years. The facilities are often full. Locations in Newport, Auburn and Houlton, Maine were cited as being frequently "maxed out" in the evenings. Irving also believes that more business would come their way if more parking were provided. Irving is currently considering expanding operations in Maine, primarily in terms of expanding facilities at existing locations. The cost of development is a continuing concern. They do not currently charge truckers for parking, realizing revenue from fuel, restaurant and convenience store operations. They acknowledged an internal debate about the number of parking spaces – considering them a necessary item to bring in business vs. being an investment which does not generate revenue directly.

Many of Irving's locations are located as much as a mile away from the Interstates because of the availability and cost of land. Operating revenue is sufficient to support a budget for preventive maintenance on buildings and pavement. They consider the environment highly competitive (mentioned Dysart in particular) and are in the midst of upgrading their facilities, although they declined to give details about this. They have noted a substantial increase in truck traffic and business in the previous 4-5 years, but also stated that business has leveled off in the last 6-9 months. They attribute this development to the high cost of fuel and general downturn of the economy. Asked to characterize business conditions in general, they responded that profit margins have shrunk, due to the factors above and the collective buying power of their customers. This is similar to the comment from TA above. It was stressed that their capacity to expand is limited due to availability and cost of land.

Table 3-8
Location of Irving Corporation Truck Stops

State/Province	City	Destination	Major Highway	Interchange
Maine	Auburn	Irving US	I-495	Exit 12
Maine	Augusta	Irving US	I-95	Exit 31
Maine	Bangor	Irving US	301 Odlin Road	
Maine	Biddeford	Irving US	I-95	Exit 4
Maine	Fairfield	Irving US Big Stop	I-95	Exit 36
Maine	Farmington	Irving US Big Stop	Route 2	
Maine	Houlton	Irving US Big Stop	I-95	Exit 62
Maine	Medway	Irving US	I-95	Exit 56
Maine	Newport	Irving US Big Stop	I-95	Exit 39
Maine	Scarborough	Irving 24 International	I-95	Exit 6
Maine	Searsport	Irving US Big Stop	Route 11	
Maine	Sherman Mills	Irving US	Route 158	
Maine	Woodland	Irving US Big Stop	Route 1	
New Brunswick	Aulac	Irving 24 Big Stop	Highway 2	Exit 550A
New Brunswick	Bathurst	Irving 24 International	Highway 11	Vanier Blvd
New Brunswick	Chatham	Irving 24 International	Highway 11	
New Brunswick	Chipman	Irving 24 International	Route 10	
New Brunswick	Fredericton, Princess Margaret	Irving 24 International	Highway 2	
New Brunswick	Moncton, Industrial Park	Irving 24 International	Highway 2	Exit 482
New Brunswick	Pennfield	Irving 24 International	Highway 1	
New Brunswick	Plaster Rock	Irving 24 International	Route 385	
New Brunswick	Pokiok	Irving 24 International	Highway 2	
New Brunswick	Rothesay	Irving 24 International	Route 1	
New Brunswick	Saint John Lancaster	Irving 24 International	Highway 1	Exit 107B
New Brunswick	Salisbury	Irving 24 Big Stop	Highway 2	Exit 470
New Brunswick	St. Basile	Irving 24 International	Highway 2	Exit 32 West
New Brunswick	St. Quentin	Irving 24 International	Route 17	
New Brunswick	Sussex 4 Corners	Irving 24 International	Highway 2	Exit 416
New Hampshire	Bow Junction	Irving US	I-93	Exit 12 S
New Hampshire	Dover	Irving US	Route 155	
New Hampshire	Gorham	Irving US	US Highway 2	
New Hampshire	Greenland	Truckstops of America	I-95	Exit 3
New Hampshire	Hookset	Irving US	I-93	Exit 10
New Hampshire	Lebanon	Coastal/Champlain, Boise's	I-89	Exit 18
New Hampshire	New Hampton	Irving 24 International	I-93	Exit 23
New Hampshire	Portsmouth	Hanscoms Truck Stop	Route 1 Bypass	South
New Hampshire	Portsmouth	Hanscoms Truck Stop	Route 1 Bypass	North
Vermont	St. Albans	Wagon Wheel	I-89	Exit 19
Vermont	Wells River	P&H Truck Stop	I-91	Exit 17

Source: Irving Corporation, 2001.

Irving also expressed concern about possible privatization of highway rest areas. They pointed out that private operators have invested a lot of capital in developing and upgrading their operations. The competitive disadvantage of being off the Interstates would be magnified in their case, with some locations up to a mile away, as mentioned above. While calling it a "sensitive issue", they indicated a willingness to participate in an open discussion to explore the issue. The importance attached to this issue is such that the General Manager of the company would be willing to participate.

3.8 Public/Private Issues

Truck movements and parking are an example of how a private industry and public agencies must work together and are dependent on each other to achieve results and conditions that are desirable for both. The private sector wants successful business operations, while government is concerned with public objectives such as safety, appropriate use of resources and fairness.

The literature and the interviews conducted for this project have touched on the interaction of public and private interests, and these are summarized in this section. Two main subjects are discussed: privatization or commercialization of rest areas, and other possibilities for public-private partnerships.

3.8.1 Privatization of Rest Areas

In its desire to encourage safety and provide a positive experience for the traveler, the public sector may find it desirable to privatize highway rest areas because of the perceived high cost of operating full service public rest areas and the relative scarcity of public sector funds dedicated to this activity. It has been observed that operations of TSRAs on tolled facilities have been successful in providing good service and are considered cost-effective by the state DOTs or Turnpike Authorities that have granted the concessions. This has led to consideration of broader application of the TSRA concept.

A study to explore experiences with current and opportunities for future commercialization of rest areas was sponsored by FHWA and performed by the University of Arkansas in 1997-8. It summarized the advantages and disadvantages of privatization as follows:

FHWA Study Advantages to Rest Area Commercialization

1. Save taxpayers' money;
2. Increase flexibility;
3. Improve service quality;
4. Increase efficiency and innovation (this is consistent with the federal policy of innovative approaches to public services;
5. Allow policymakers to "steer, rather than row";
6. Streamline and downsize government; and,

7. Improve maintenance.

The Final Report of the AASHTO Standing Committee on Highways – Task Force on Commercialization of Interstate Highway Rest Areas states that not only can rest areas services be provided by the private sector at less cost to the public, the leasing and royalty agreement with the vendor can provide a source of revenue for the highway improvement and/or maintenance fund.
The AASHTO report noted the following disadvantages to public rest areas:

1. Government entities may have difficulties overseeing and regulating a venture when it is handed over to the private sector (this was stated in the Texas study as a concern for the provision of the "public good".
2. Government may be left unprotected against monopolistic contractors who can manipulate price (this was also recognized in the Texas study);
3. Social considerations, such as environmental issues and equal employment opportunity, may not receive adequate consideration from private enterprise; and,
4. Public services are the responsibility of public agencies, and therefore should not be turned over to private providers.

Opposition to privatization has been expressed by NATSO and the private operators contacted for this study on the grounds that it gives an unfair competitive advantage to the rest area operators. The University of Arkansas study indicated possible responses to these concerns:

1. The operator of the rest area may compensate the local businesses for their losses.
2. Preference may be given to local business in considering contracts for the rest area.
3. The rest area operator may buy competing businesses.

The AASHTO report also offered a general methodology for an approach to commercialization:

1. Project planning
   a. Select candidate sites.
   b. Determine policies and explore possibilities for solving key problems.

2. Site and Joint Development Business Partner Selection
   a. Invite statements of interest through an aggressive marketing effort to encourage interest.
   b. Screen prospective business partners considered qualified to participate in a commercial services rest area and receive request for proposals.
   c. Invite and evaluate proposals.
   d. Negotiate with at least three prospective business partner candidates.

3. Development, design and engineering

a. Acquire land.
b. Apply for rezoning, if necessary.
c. Prepare detailed site plan, including soils engineering report, geology report, hydrology report, grading and landscape plans, street and utility improvements and specifications.
d. Meet review and permit applications.
e. Arrange financing.

4. Construction
5. Maintenance Plan
6. Monitoring plan addressing business selection; development, design and engineering; construction and public use, financial returns to private businesses, and operation and maintenance costs.

The State of California signed a lease for the first TSRA with commercial services on Interstate Route I-15 in San Bernadino County in 1990. Under the agreement, the private partnership was to build, operate and maintain the rest area for 35 years, after which it would become state property. The agreement puts responsibility for insurance and all mishaps on the operator. Caltrans was able to overcome opposition to the project from local commercial interests by working with local communities and exploring possibilities for them to financially participate in the project.

Rest areas have been considered by AASHTO over the years. An AASHTO guide for development of rest areas published in 1968 does not mention private operations at all. In 1990, an AASHTO Task Force on Commercialization of Interstate Highway Rest Areas issued a report with recommendations. The key recommendations included;

1. Changing existing law to allow states to enter joint development agreements with private operators to provide full services at Travel Services Rest Areas (TSRAs).
2. Long-term parking for trucks and other large vehicles should not be routinely provided at TSRAs. If states elect to do so, separate facilities should be provided within the site.
3. Truck Inspection and weighing should not occur at TSRAs.
4. Local involvement in the commercialization process is critical to ensure that need and benefits of such facilities are understood.
5. Feasibility of commercial operations should be studied before a program is committed to.

AASHTO published an updated Guide for the Development of Rest Areas on Major Arterials and Freeways, (Third Edition) in 2001. This report did not address privatization issues. The guidelines are developed within the context that provision of rest areas along Interstate highways will continue to be a public responsibility, and that commercial services such as fuel sales and restaurants will continue to occur at private facilities at highway interchanges. The report acknowledges privatizations undertaken by some states and that the issue is under study in several areas. It also notes that privatization would have design implications “beyond the scope of this guide”.

3.8.2 Public- Private Partnerships

Ideas for public-private partnerships have been suggested by private operators and mentioned in the literature. Many of these have been advanced as alternatives to privatization of rest areas. The industry has noted that approximately 90 percent of truck parking spaces nationwide are in private truck stops.

The Iowa government entered into a public/private partnership in 1994 to develop and maintain a welcome center on Interstate 35. The developer is responsible for operating and maintaining the center; the Iowa Department of Transportation shares the cost. The State will save about $3.43 million in maintenance costs over 30 years. Legislation has since been passed to prevent future partnerships because of the unfair competitive advantage that exists for commercial entities operating directly on the interstate.

Vermont has recently formed a partnership with a private truck stop to provide better service to the driving public. The private truck stop welcomes all drivers (those who purchase goods and those who do not) and, in return, the State has placed a sign on the interstate and at the private truck stop directing drivers to the facility. The State has saved hundreds of thousands of dollars because it did not have to make capital improvements and estimates savings of $100 thousand in maintenance costs each year per facility.

Some examples of additional proposals include:

1. Government assistance to truck stop operators in the form of land purchase and lease-back to truck stop operators. This was suggested by both of the private operators consulted for this project.

2. Government use of Intelligent Transportation Systems in the form of signage and communications to inform the travelling public, particularly truckers, where private facilities exist and where spare capacity for truck parking is available.

3. The National Association of Truck Stop Operators (NATSO) has recommended an “Oasis Program” which consists of closing rest areas on stretches of highway that are deemed to have sufficient private development to serve trucker and motorist needs. Private truck stops would be asked to provide services such as distributing tourist information. This will allow government funds to be reallocated to areas of greater need. NATSO indicates that arrangements like this have taken place in Vermont and Utah.

4. NATSO also believes that this idea should be expanded and applied more broadly. States should develop criteria and standards (such as distance, types of services provided, hours of operation, cleanliness, etc.) and permit any existing operator that meets these standards to participate in a program of providing

services in lieu of state-run facilities. The state would provide signs and information materials to direct motorists to these sites.

Consideration of these concepts is related to the idea that truck parking spaces in private sector truck stops are direct substitutes for those on highway rest areas. As discussed earlier in this report, this is not always the case. Truckers perceive needs for various types of services and plan their stops accordingly. The literature suggests that the types of services overlap to some extent and conditions vary throughout the country. The common element is that public and private interests need to communicate and cooperate to achieve best results.

Chapter 4. Recommendations -- The Commercial Vehicle Service Plan

4.1 Truck Parking Needs at Current Public Facilities

Until recently, most public rest area facilities had undergone little to no modification since their inception when the interstate system was constructed. While considered adequate at their time, many of the design standards adopted from older guidelines (1968 AASHTO) have become outdated and no longer reflect today's traffic volume, composition, and class of vehicles, namely, the use of larger trucks. A more recent set of guidelines (2001 AASHTO) have developed a more comprehensive set of recommendations for rest area development and design.

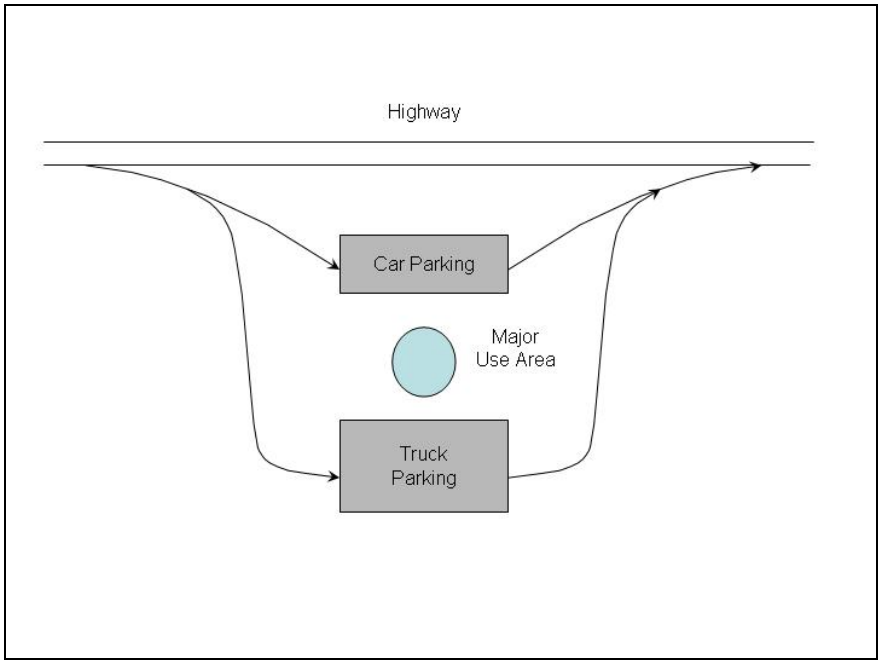
Chapter 5 discusses site specific recommendations for Interstate (non-Turnpike) public rest areas. The design considerations discussed below should be assessed for their applicability and compatibility at state-owned non-Interstate facilities. These assessments should be done in concert with a review of recommendations in two recent MaineDOT reports: "Evaluation of Maine's Non-Interstate Roadside Facilities" (Bureau of Environmental Services, January 2002) and "A Plan for Maine's State Visitor Information Centers: A Needs Assessment for Existing Centers and A Proposal for New Centers" (Bureau of Planning, September 2002).

4.1.1 Overall Site Layout

Rest area layout recommendations rely on two basic types of design in terms of the relationship between parking locations and usage areas. Normally, parking for trucks, buses, and recreational vehicles is separated from parking for cars. The AASHTO rest area guide refers to these as inward-oriented and outward-oriented design. These designs are explained and illustrated in Figures 4-1and 4-2 below.

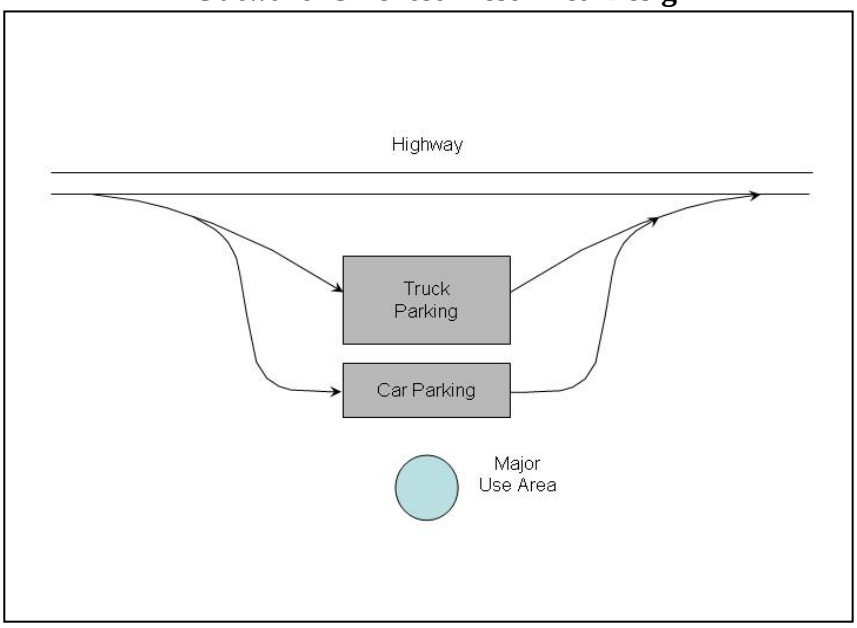
Inward-oriented rest area design involves locating the car and truck parking on opposite sides of the major use area. The major use area, comprising most of the rest area facilities such as restrooms, picnic tables, and traveler information, is easily accessible for pedestrians from either vehicle lot with inward-oriented design. The major use area should be large enough such that it accommodates demand, yet does not appear too crowded with closely spaced picnic facilities, shelters, and buildings. The site should not feel too constricted by the surrounding parking lots. Therefore, with the parking areas, the entire site requires a sizeable land area.

Figure 4-1
Inward-Oriented Rest Area Design



Source: 1999 AASHTO Guide for Development of Rest Areas on Major Arterials and Freeways

Figure 4-2
Outward-Oriented Rest Area Design



Source: 1999 AASHTO Guide for Development of Rest Areas on Major Arterials and Freeways

Outward-oriented design involves placing the parking lots between the major use area and the highway. This type of design provides for the most flexibility at a rest area site, and allows for easier expansion. It is also useful if land availability is a constraint. There is also the possibility of incorporation of natural resources, scenic outlooks, or historical sites into the major use area.

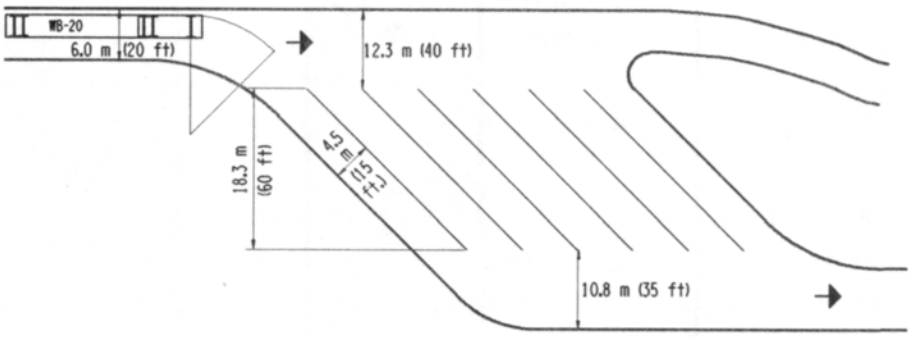
4.1.2 Guidelines for Truck Parking

Some older rest area sites have parking configurations that have become unsuitable as commercial vehicles have increased in size, and commercial traffic has increased in volume. Spaces are too small in size and number, and turning radii have become obsolete. Comments from driver surveys that were circulated as part of this study have shown that lack of parking space and maneuverability are an issue at some of the major public rest area facilities along I-95 in Maine.

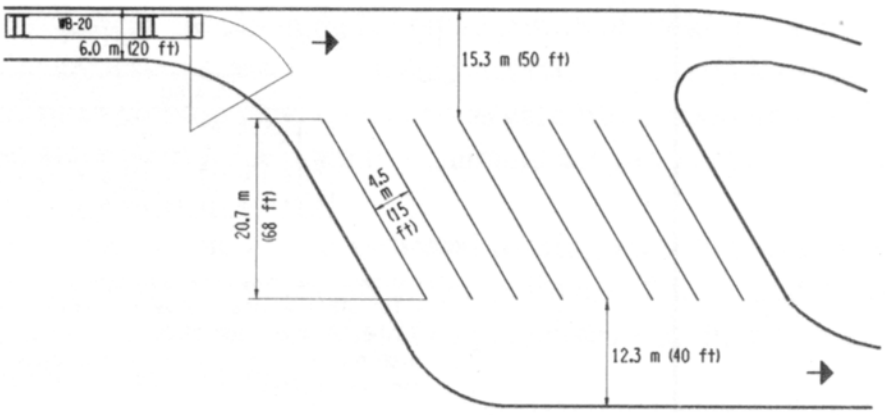
Current guidelines suggest parking design should accommodate a truck with an overall length of 74 feet. The most desirable type of parking is a diagonal pull-through space so that trucks need not back up or negotiate tight turns. Aisle or parallel parking is desirable only in low demand areas or where land availability is an issue. For parallel truck parking, each truck requires a length of 135 feet, and a width of 17 feet. The diagonal parking dimensions vary depending on the angle at which the spaces are aligned. In each case, the parking space width is recommended to be 15 feet wide, and ramp width is 20 feet wide. For 45 degree diagonal parking, the recommended overall depth including access to and from the stalls is 135 feet. For 60 degree diagonal parking, the recommended overall depth is 158 feet. The recommended dimensions for truck parking bays are shown in Figure 4-3.

Also of note are the turning radii requirements at rest area facilities. AASHTO guidelines suggest for a truck with a length of 74 feet, the minimum turning radius should be 45 feet.

Figure 4-3
Recommended Truck Parking Bay Dimensions

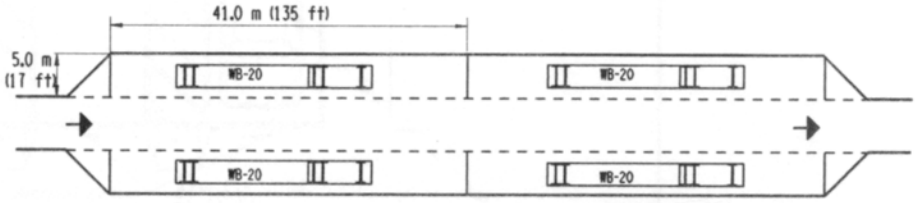


45° Truck Parking



60° Truck Parking

NOTE:
All dimensions shown are minimums.



Truck Aisle Parking

Source: 1999 AASHTO Guide for Development of Rest Areas on Major Arterials and Freeways

4.1.3 Facilities Development

Rest areas were initially constructed to serve the most basic of drivers' needs, featuring limited facilities such as restrooms, picnic shelters, and pay telephones. In some instances, these facilities have become outdated, and have become worn out over time. An increase in traffic has increased demand on these facilities as well as an increase in expectation of what services a rest area should provide.

Buildings should be of a design that is low maintenance and low impact, yet able to cope with demand at the rest area. At smaller sites, building may house restrooms and custodial facilities. However, at larger sites along Interstate Highways and state highways on the National Highway System, they may also contain travel information centers, and vending areas, and in some instances gas and food services are available. Traveler information could include construction information, weather conditions, and parking availability at other rest areas. These types of information would be of particular importance to commercial vehicle drivers.

A survey completed for the 2002 FHWA report on truck parking reported on the importance of particular features that truck drivers look for when looking for a place to park and rest. The most important features included well-maintained restrooms, well-lit parking areas, showers, public telephones, and a location convenient to the highway. Other important features included fuel, food, vending facilities, and a security presence. Least important features in the survey included entertainment facilities, travel information, and internet connections.

Drivers will tend to rest at a site which meets their needs – safety, security, and services. Image is important but must be kept in perspective. Attractive building design, landscaping, as well as a wealth of traveler information will reinforce a positive image to drivers of all vehicles.

4.1.4 Security and Lighting

In addition to drivers feeling welcome at a clean, attractive rest area site, they also want to feel safe. Many truck drivers feel uneasy parking for long periods at public rest areas overnight due to higher incidence of criminal and unsociable behavior.

A key factor in maintaining a secure site is ensuring good visibility throughout. This is achieved by correct placement of buildings, tables and shelters, and maintenance of vegetation such that there are no areas where visibility is compromised.

Proper illumination is also an important factor in maintaining a sense of security during the nighttime hours, particularly for truck drivers whose primary rest period is often during these hours. Illumination should be considered at the entrance and exit ramps, parking areas, and pedestrian areas.

In addition to visibility and lighting, a security presence has been successful at public rest areas in many states. Security can be provided through a private firm, or through state highway patrol stations relocated to some of the larger rest areas. Security has been a key part of rest area development in Florida and New York.

4.1.5 Sanitary and Potable Water Considerations

The MaineDOT provides several levels of sanitary facilities at public rest areas across the State. Level of usage of the facility is the usual criteria for determining the type of toilet facilities that are provided. For a lightly used facility such as a rest area in a more remote section of the State, a privy would be provided. Maintenance requirements would generally require a cleaning twice per week at an estimated cost of $7,000 per year. Flush toilets are provided at more heavily trafficked areas. A flush toilet facility that gets moderate use costs the MaineDOT about $100,000 per year to maintain and requires daily maintenance.

Wells in public rest areas that supply potable water to 25 or more people for at least 60 days per year are considered a “public water supply”. Such wells must comply with all applicable public health regulations in the same way as larger entities such as the Augusta Water District. Presently, the MaineDOT manages 32 such “public water supplies”.

4.2 Identification of Priority Corridors

The first step in evaluating the possible alternatives which address the needs of commercial vehicle drivers was to determine where these needs are most apparent. Priority locations were determined by analyzing truck volume data by road type on the Heavy Haul Truck Network (HHTN). These locations were classified into corridors including interstate highway and other major long haul routes. These priority corridors -- Long Haul Routes -- are described below and shown in Figure 4-4.

4.2.1 Interstate Highway

The interstate highway system consists of the following segments:

- Interstate 95 -- Kittery to Gardiner to Houlton
- I-495 -- Falmouth to Gardiner via Lewiston Auburn
- I-295 -- South Portland to Falmouth
- I-395 -- Bangor to Brewer
- I-195 -- Saco.

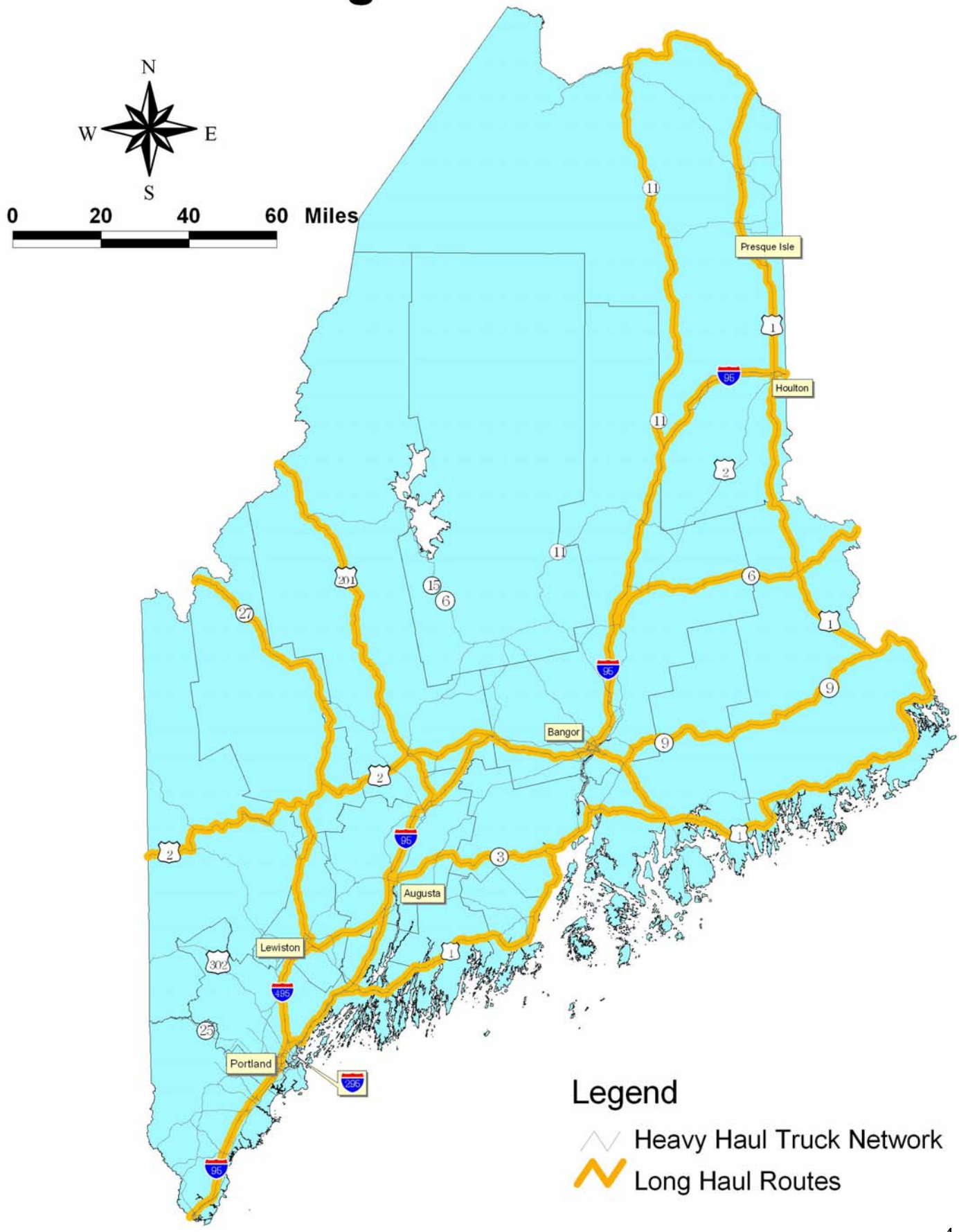
I-95 runs approximately 290 miles from Kittery in the south to Houlton in the north. It provides access from the northeastern United States to the easternmost provinces of Canada. Along the way, it serves some of Maine's largest cities including Portland, Augusta, and Bangor. In the southern section from Kittery to Falmouth, I-95 is a part of the Maine Turnpike. The Maine Turnpike takes on the I-495 designation from Falmouth to Gardiner, and then is once again I-95 from Gardiner to Augusta. Some of the highest truck volumes on the HHTN occur along I-95, I-495 and the Maine Turnpike with in excess of 2000 trucks per day to the south of Portland. I-295 provides access to the downtown and waterfront of Portland and south coastal Maine. I-195 in the Saco area and I-395 in the Bangor area are shorter interstate segments.

4.2.2 Non-Interstate Long Haul Routes

In addition to interstate highway, other high volume routes crossing the state were identified as corridors where meeting rest area needs should be focused. Long haul routes were considered significant because the increased amount of driving time yields more time required by federal regulations to rest. In addition to the interstates, these routes also serve many larger trip generators for truck traffic as well as provide access to major border crossings for truck traffic in and out of the state. There are several routes in central and northern Maine not served by interstate highway where significant truck volumes were noted. Major north-south routes include routes 1, 4, 11, 27, and 201. Major east-west routes include routes 2, 3, 6, and 9.

Figure 4-4

Long Haul Routes



4.3 Functional Characteristics

4.3.1 Spacing Requirements

Current national guidelines recommend spacing between rest areas of approximately 60 to 75 miles or one hour of driving time. This spacing can be affected by factors such as the sizing of current rest area facilities, driving conditions along a particular segment, availability of other services, and proximity of urban areas. There is also the possibility that nearby private truck stop facilities may meet demand. Closer spacing may be required between rest areas if more than one facility is needed to meet the demand.

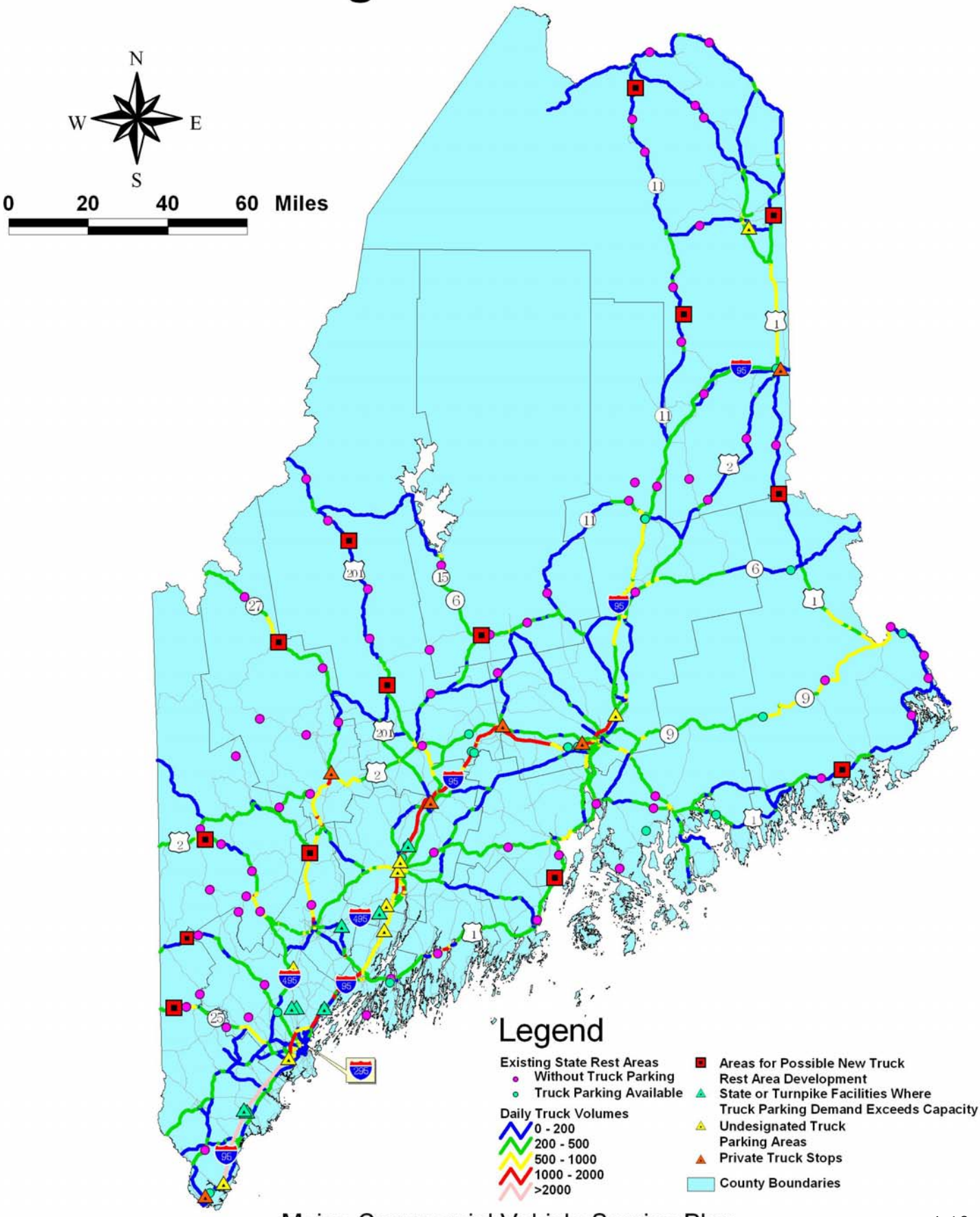
The spacing issue is particularly important for commercial vehicle operators who drive for long periods of time and have to stop and rest at certain periods to fulfill their hours of service regulations. An assessment of the current rest area spacing along the Maine Turnpike and Interstate 95 north of Gardiner finds that the spacing falls within the spacing guidelines. Thus it was deemed that new rest areas were not required to fulfill spacing needs on these roads if demand could be accommodated at existing facilities. A preliminary assessment of these sites will determine an order of magnitude demand and a determination of the extent to which current facilities can be expanded to meet any unmet need.

Assessment of other long haul routes, however, showed that there were locations where there is in excess of 75 miles between rest area facilities which can accommodate truck parking. Lack of facilities has caused situations where trucks will pull over in undesignated pull-outs or parking areas which can interfere with private property owners.

Figure 4-5 shows the location of roadway segments where spacing issues and unmet parking demand may indicate the need for truck rest area facilities or truck parking capacity.

Figure 4-5

Truck Parking Needs and Deficiencies



4.3.2 Demand For Parking

Demand analysis was based on overall demand on public rest area facilities. This demand represents daytime usage of rest areas when overall demand is at its highest. However, consideration was given to nighttime parking demand, particularly for trucks. The number of trucks parking at a rest area is higher during the daytime, but the duration of trucks staying at the rest area is longer during the nighttime hours due to required rest intervals. It is this increased duration which leads to capacity issues at rest areas. This was confirmed during nighttime observations conducted during accumulation surveys.

The field parking accumulation surveys showed that observed demand exceeded designated truck parking space capacity at many rest areas, particularly in southern Maine along I-95 and the Maine Turnpike. Specific locations where demand was observed to exceed capacity include the Kennebunk, Gray, Mile 81, and Mile 95 service areas on the Turnpike; and the Augusta and Sidney rest areas on I-95. This issue was particularly noticeable during the nighttime observations, where truck parking would spill over on to ramps and shoulders and to undesignated spaces within rest areas. Truck parking demand was calculated to confirm the field observations, and to show where the need exists for improvements to be made. The calculation process is as follows.

As part of the Heavy Haul Truck Network database, 1999 factored average annual daily traffic (AADT) figures are included for segments of a given roadway. The priority routes were divided into analysis segments, or design section lengths (DSLs), at logical break points such as borders, major crossroads, or key municipalities along the route. These segments were between 35 and 100 miles long. An average AADT was calculated for each DSL on the network. Using this value, the current demand for truck spaces was determined along a given DSL. The calculation process made certain assumptions, recommended for constant usage in the AASHTO Rest Area Guide. These assumptions are listed below.

- 12% of mainline traffic will stop at rest area.
- Design hourly factor is 0.15 (the percent of daily traffic in the peak hour)
- Average percentage of cars using the facility is 75%.
- Average percentage of trucks using the facility is 25%
- Peak day usage factor is determined to be 1.8
- Average length of stay per hour is 15 minutes for cars, 20 for trucks
- Base section length is 60 miles

The design hourly factor is defined as the ratio of the design hourly volume to the average annual daily traffic along a given segment. The peak day usage factor is defined as the ratio of the average daytime usage over the busiest five months to the average daytime usage over the entire year.

Demand calculations estimate demand for truck parking over the given DSL. The calculations and demand are shown in (Appendix C). A summary of the demand and

capacity on major routes is shown in Table 4-1. It is important to stress that the capacity shown is at public rest area facilities only, and in some instances there are private truck stops nearby to alleviate some of the demand.

Table 4-1
Estimated Supply and Demand for Truck Parking Spaces along Major Corridors

Route	Design Segment Location	Length (miles)	Estimated Truck Parking Demand (number of spaces)	Current Capacity at Public Facilities (number of spaces)
I-95	*Kittery to S. Portland/Exit 6A (Northbound)*	45	46	35
I-495/I-95	*S. Portland/Exit 6A to Augusta (Northbound)*	60	39	16
I-95	*Augusta to Old Town (Northbound)*	85	45	24
I-95	*Old Town to Sherman (Northbound)*	65	13	10
I-95	*Sherman to Houlton (Northbound)*	40	4	7
I-95	*Houlton to Sherman (Southbound)*	40	4	7
I-95	*Sherman to Old Town (Southbound)*	65	13	10
I-95	*Old Town to Augusta (Southbound)*	85	45	29
I-95/I-495	*Augusta to S. Portland/Exit 6A (Southbound)*	60	40	8
I-95	*S. Portland/Exit 6A to Kittery (Southbound)*	45	47	15*
I-95/I-295	*S. Portland/Exit 6A to Augusta (Northbound)*	55	38	12
I-95/I-295	*Augusta to S. Portland/Exit 6A (Southbound)*	55	39	4
I-495	*Portland to Gardiner (Northbound)*	50	19	12
I-495	*Gardiner to Portland (Southbound)*	50	19	6
Route 1	*Brunswick to Ellsworth*	110	57	13
Route 1	*Ellsworth to Calais*	110	21	1
Route 1	*Calais to Houlton*	90	11	3
Route 1	*Houlton to Presque Isle*	40	10	7
Route 1	*Presque Isle to Fort Kent*	80	11	0
Route 2	*New Hampshire Border to Farmington*	60	18	0
Route 2	*Farmington to Newport (I-95)*	50	15	6
Route 4	*Lewiston to Route 2*	40	16	0
Route 6	*Lincoln (I-95) to Canadian Border*	70	7	2
Route 9	*Bangor to Calais*	90	13	8*
Route 11	*Fort Kent to Sherman*	100	7	0
Route 27	*Farmington (Rte. 2) to Canadian Border*	70	6	0*
Route 201	*Skowhegan (Rte. 2) to Canadian Border*	90	10	0

Source: Wilbur Smith Associates
Note: In some locations, notably, along the Maine Turnpike, existing observed nighttime truck parking usage exceeds estimated demand figure.
(*) Not including weigh station spaces

The parking demand estimate above was used to screen for locations where new or expanded truck parking should be considered. In many instances, there is more than one rest area facility along a given DSL. In this case, demand was distributed among the existing facilities. The recommendations for specific rest areas are detailed in Chapter 5.

Demand is influenced by several factors which were taken into account before specific recommendations were made. Since demand is derived from average annual daily traffic,

seasonal variation in these figures can influence the demand. For example, along a given route where there is a high population density, a higher amount of local trips will increase the AADT, therefore potentially skewing demand along that route.

Another impact on demand is time of day. The above calculations are based on an overall demand on rest area facilities of both trucks and cars. During the daytime, rest areas are primarily used for short stops for gas, food, restrooms, or a short nap. However, during the overnight hours, they serve as stops for truck drivers to meet long term required rest needs.

Provision of overnight parking at public rest areas is the subject of current debate among various agencies nationwide. There are many, particularly in the private truck stop business, who feel that public facilities should serve as places for short term stops where truck drivers can fulfill basic needs, and private truck stops should cater to drivers as locations for long term rest stops. This debate has led to various policies by states on how, if at all, to accommodate overnight truck parking demand. MaineDOT does not have a set policy or criteria for providing rest areas with overnight truck parking and toilet facilities. However, a desirable "rule of thumb" might be to consider those locations that are at least 75 miles from the nearest public or private facility that provide overnight truck parking. The Department's view is that public-private partnership options should be explored before expansion of an existing public facility or construction of a new public facility is considered. Needs, costs and priorities for truck rest areas would be evaluated as part of the Department's regular planning process for the two year, six year and twenty year plans. Figure 5-1 indicates possible locations for new truck parking.

To accommodate increased demand for overnight truck parking at public rest areas, facilities may warrant upgrade to cater to 24-hour demand and provide a safe place where truck drivers can rest and satisfy basic needs. These facilities should have:

- Clean, well-lit, accessible restrooms open 24 hours
- Adequate parking capacity
- Adequate lighting, particularly in parking and pedestrian areas
- Nighttime security at larger facilities
- Telephones and vending facilities.

Chapter 5 discusses specific roadway segments that might be considered for new truck parking capacity or increased truck parking capacity at an existing rest area.

For a location to move forward in the project development process, a more detailed rest area demand study should be conducted to determine a more precise estimate on peak commercial vehicle demand at rest areas. This study may include gathering more in-depth data such as vehicle classification counts at individual rest areas to measure the time distribution for the majority of truck traffic. The assessment should also include an evaluation of the potential for existing private facilities to meet the identified need. For the interstate corridor, this may include facilities just off the interstate highway system.

As the field survey described in Chapter 2 indicated, a large percentage of the demand in the northern portion of the interstate corridor appears to be met by private truck stops. If no private facility exists that can meet demand, an assessment of the opportunities for a public-private partnership should be explored.

4.4 Potential Short Term Solutions

To address the concerns of truck parking demand exceeding current capacity, there are several short term improvements which could be implemented at minimal cost. These improvements take advantage of other locations available for truck parking without expansion or construction of new public facilities. It is anticipated that these types of improvements could be implemented within one to three years. These improvements include Part-time Truck Parking, Parking Opportunities at Weigh Stations, Signage Recommendations, and Raising Awareness of the Location of Public and Private Truck Stops/Rest Areas.

4.4.1 Part-Time Truck Parking

Peak demand at rest areas appears to vary depending on the type of vehicle. For cars, peak demand is higher during the day when drivers want to make rest stops, and falls during the nighttime hours as automobile traffic volumes fall. For trucks, the peak demand time is observed to be during the nighttime hours when drivers wish to make a long-term rest stop of several hours for sleeping. With car parking demand lower during the nighttime hours, there is the potential to assign portions of the car parking area over to trucks during those hours. This option may require reconfiguration and restriping of the car parking area as well as enforcement of the truck parking hours at that location.

Another opportunity may exist for part-time truck parking at park and ride lots, particularly those at entrances/exits to the interstate highways and adjacent to major highways. Once again, different demand times may allow for dual usage at these sites. However, policy issues, and the ability to upgrade park and ride lots to accommodate truck parking would need to be addressed. Careful consideration of the potential impacts of allowing nighttime truck parking is required at these locations. Policy issues may include: hours that truck parking is allowed; enforcement; and, minimum allowable distance from sensitive land uses (due to noise and/or exhaust). Further evaluation of these park and ride lots is recommended.

4.4.2 Opportunities for Parking at Weigh Stations

While truck parking at many of the major public rest area facilities was at or over capacity at peak periods during field surveys, there are nearby locations with other uses which could serve an additional purpose as places where truck drivers can stop and rest. Weigh stations are one such underutilized opportunity. They are designed to accommodate a sizeable amount of truck parking and queuing during inspection programs. When inspections are not being conducted, many of these facilities remain

largely unused either because they are closed, or due to drivers' unease of parking in a location where an inspection may take place. There are opportunities for these sites to be promoted as truck rest areas during non-inspection periods. Policies regarding the use of these weigh stations, particularly related to inspections of drivers using the station to meet rest requirements, should be posted.

There are also opportunities for incorporating a formal rest area into a weigh station site, or vice versa. Recent AASHTO guidelines suggest that incorporating other operations into rest areas provides efficient service and operation since maintenance and operational costs may be shared. Opportunities for truck parking exist at the Kittery and Old Town weigh areas.

4.4.3 Signage and Information Recommendations

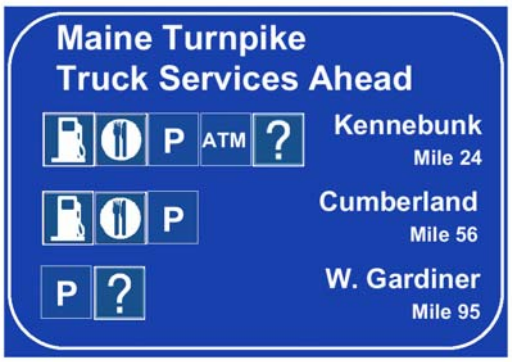
With the co-existence of public and private truck rest facilities, and the potential of other parking opportunities available, a signage and information program would aid in directing truck drivers to locations with facilities to suit their particular needs at the time. Furthermore, nighttime accumulation surveys found that while some of the public rest area facilities were over capacity, other facilities -- public and private -- had parking available. A signage program could help to distribute the parking demand among other available sites. This plan could be implemented in three stages. Figure 4-7 shows potential signage location and implementation in Maine.

A *gateway signage system* may show locations along a specific route where truck parking may be found. It is anticipated that this type of signage would be implemented at border crossings and welcome centers as well as at the start or intersection of long haul routes. This type of sign would list major truck rest area facilities along the route and give their distances from the current location. The signage would be in accordance with standards in the *Manual on Uniform Traffic Control Devices (MUTCD) Millennium Edition.* The signs would be of general service standard with white lettering on a blue background. Figure 4-6 shows an example of signage which provides distance information. It is anticipated that this program would provide increased guidance to drivers to be able to plan when and where to stop to fulfill their rest requirements; instead of pulling over at an undesignated location which may be an unsafe location, or unsuitable due to nearby concerns such as residents or businesses. The signage would be broadened to give specific notice of locations where truck parking is available.

On the MaineDOT system, only the parking or information symbols would appear on the services sign. In some instances, this may be readily accomplished by the addition of the "services available" symbols to the existing "Rest Area" or "Visitor Information Center" signs on the system today. The symbols would simply be added to the bottom of the exit message sign, with an indication of the distance to the next area, placed on a slat below the major sign. In some locations, this distance information exists but the indication of truck parking availability does not.

Figure 4-6

Example of Distance Signage to Interstate Rest Areas/Service Areas



Potential interstate locations for Gateway signage include:

Maine Turnpike

- I-95 NB at Kittery
- I-95 NB at 6A
- I-95 SB at 6A
- I-95 NB at Gardiner
- I-95 SB at Gardiner.

I-95 (Non-Turnpike jurisdiction)

- I-95 NB north of I-295 at Falmouth
- I-95 NB at Waterville (indicating Pittsfield, Hampden rest areas)
- I-95 SB at Bangor (indicating Hampden, Pittsfield rest areas)
- I-95 NB north of Bangor (Medway rest area & Old Town weigh station)
- I-95 SB at Route 11 (indicating Medway rest area)
- I-95 SB at Houlton

A *general wayfinding signage* system would complement the gateway plan with specific directional signage to guide truckers to each specific facility. This type of signage would appear at specific intervals along a specific route and at major intersecting truck routes to identify the location of and reinforce the availability of truck parking and traveler information. These signs would be in accordance with standards as put forth in the Manual on Uniform *Traffic Control Devices Millennium Edition.* The signs would use standard symbols to show available facilities, and provide direction at upcoming intersections, where appropriate. A cautionary note here is needed to ensure that any signage system not give preferential treatment to any particular business or that conflicts of interest are not created. Any signage program must conform to the rules in the MaineDOT's Official Business Directional Signs manual. The emphasis of this system is direction to parking resources and traveler information.

Potential signage locations for the general wayfinding system include:

- Rte. 1 EB at I-95
- Rte. 1 NB at Calais
- Rte. 1 SB at Calais
- Rte. 1 NB at Houlton
- Rte. 1 SB at Houlton
- Rte. 3 EB at I-95 (signs to services near Ellsworth)
- Rte. 6 EB at I-95
- Rte. 6 WB at Canadian border
- Rte. 9 EB at Bangor
- Rte. 9 WB at Rte. 1
- Rte. 27 NB at Rte. 2
- Rte. 27 SB at Rte. 2.

In addition, the more heavily traveled I-95/I-495 corridor from the New Hampshire state line to Bangor may benefit from the implementation of a system or systems that convey real-time information to drivers in the corridor or for pre-trip planning. These may include the use of Highway Advisory Radio (HAR), 511 telephone network and more sophisticated intelligent transportation systems (ITS). All could convey information regarding the availability of parking and service availability to drivers. The HAR is a very expandable and flexible system that provides information to those that personally choose to access the information. It is recommended to be one of the primary systems implemented to enhance real-time information regarding truck parking and services. All of these systems can provide traffic, weather, and construction information when conditions warrant.

It is worth exploring whether these systems could be effectively used to provide parking information for truck drivers, particularly at night when rest area demand for trucks is at its highest. This ITS technology may also be implemented into the potential for part-time truck parking at weigh stations. These ITS facilities would alert drivers as to whether the weigh station is closed and available for truck parking, or open with cargo inspections being conducted. Some of the signage and ITS improvements may take longer to implement due to their more sophisticated nature.

Other opportunities for the guidance of truck drivers include the publication of maps and brochures which show locations where truck parking is available. In addition, this information would show parking capacity and the availability of facilities and services at each location. This information could be available at welcome centers and rest areas as well as mailed to interested parties. Individuals may include those who subscribe to the Maine Turnpike Transpass Program, those truck drivers who are registered with the Department of Motor Vehicles as doing business in the state, and members of organizations such the Maine Motor Transport Association, and the Maine Professional Drivers Association. This information may also be posted on the Maine DOT's website and other related sites.

4.4.4 Increased Awareness of Private Facilities

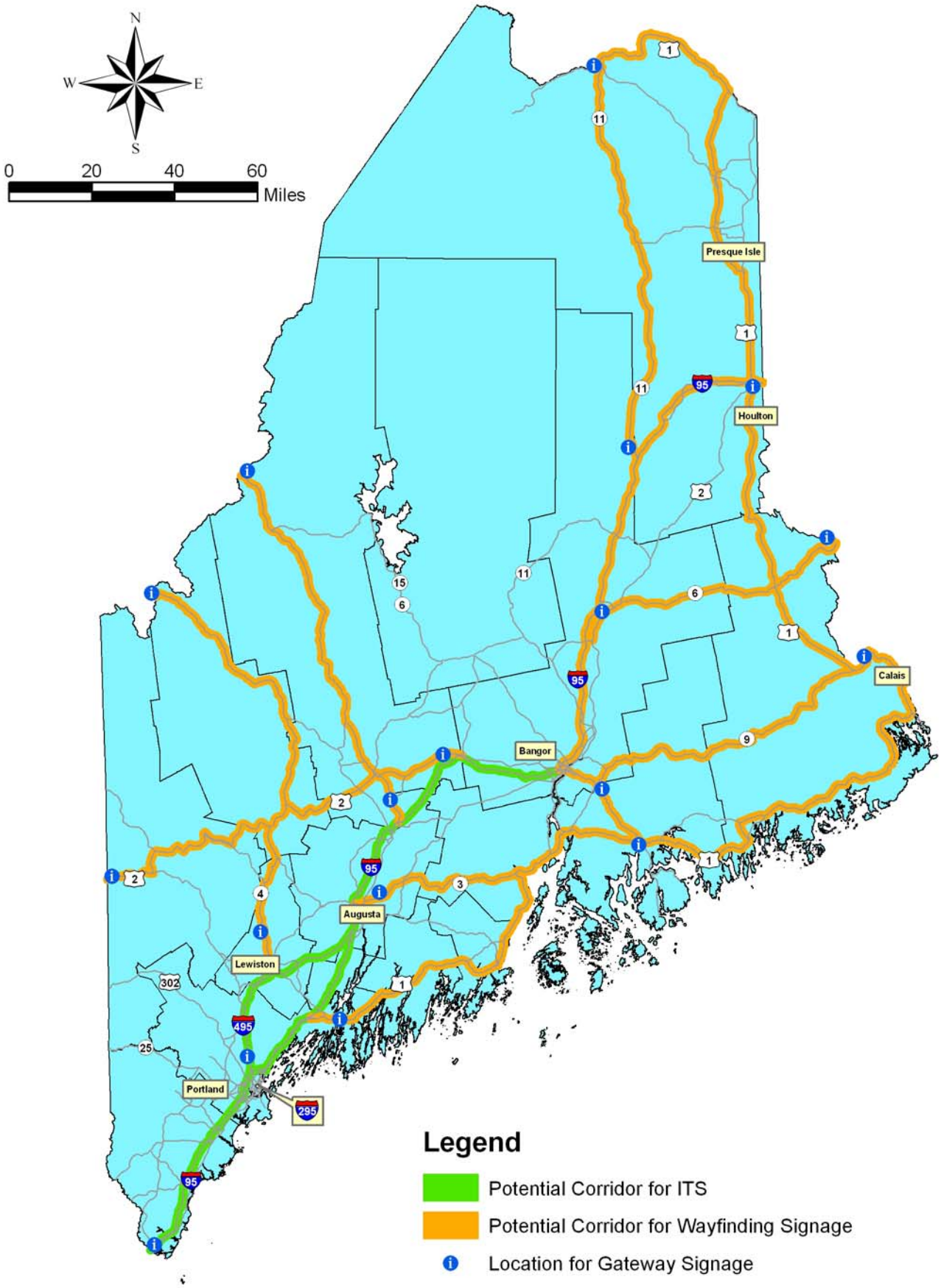
As part of developing a signage plan, it would be useful to have improved knowledge of private facilities which provide for truck drivers. The 2002 FHWA report on truck parking facilities shows a shortage of parking at public facilities and a reported surplus of parking spaces at private facilities. Surveys conducted as part of the FHWA study show that drivers prefer to stop during the overnight for long term rest at private truck stops because their facilities cater more toward truckers needs. The major disadvantage to private facilities is that their off-highway location makes them less 'visible' than public rest areas.

There are databases commercially available which provide extensive information regarding private truck stops. This information ranges from parking capacity to the types of facilities they provide. The Federal Highway Administration's *Study of Adequacy of Parking Facilities* used such a database to assist in the inventory of private truck stop facilities for its truck parking supply and demand analysis. This database may be used to get more precise mapping of available private truck parking spaces in Maine. This will further facilitate the recommendations relative to signage throughout the state and may result in a more efficient distribution of resources which go toward addressing the needs of commercial vehicle drivers.

The development of public/private partnerships would also aid in heightened awareness of private truck stops. A partnership could be developed whereby private truck stops could be listed in addition to the public rest areas on the publications discussed in the previous section. It will be important to structure the program fairly so as not to promote one business over another. The private facility would pledge to maintain certain standards with regard to hours of operation, services/facilities provided and cleanliness to participate in the program. The public benefits by not having to build, maintain and operate duplicative facilities to serve truck parking and rest area needs.

Signage Recommendations

Figure 4-7



4.5 Intermediate and Long Term Solutions

While the short term improvements discussed above may solve some of the current issues related to truck parking, capital improvements to improve rest areas should be considered as commercial vehicle traffic increases. These intermediate improvements address some of the deficiencies at current public rest area facilities, taking full advantage of current layouts without major expansion or construction. Some of the more sophisticated signage and ITS improvements may also be completed in this intermediate time frame. The funding, programming, and installation of these facilities may require more significant investment. It is anticipated that intermediate improvements would be implemented within approximately 6 to 10 years.

More significant longer term improvements would be required at locations where current truck parking capacity is either inadequate or does not currently exist. These types of improvements may include significant construction and would require larger capital investment. They may also require policy changes regarding land use zoning and purchase of land if improvements impact current rights of way. It is anticipated that these long term improvements may take over ten years to implement. The next chapter discusses these recommendations in more detail, along with their associated costs.

4.5.1 Facilities Improvements

Facilities at major public rest areas such as Visitor Information Centers, Maine Turnpike Service Areas, State-owned Interstate Rest Areas and Welcome Centers should fulfill the basic needs of all travelers such as restrooms, phones, and vending machines. These facilities are of particular importance to commercial vehicle drivers who must rest to fulfill their hours of service regulations. A clean, spacious, well-lit rest area facility will attract more truck drivers to stop and rest at such a location, rather then parking in potentially unsafe, undesignated areas such as ramps and shoulders. Upgrades of facilities should be considered particularly along the most heavily traveled corridors such as interstates 95 and 495 where overnight demand is highest.

4.5.2 Improvements to Existing Rest Areas With Truck Parking

Several major public rest areas are over capacity for truck parking during high demand periods, and demand analysis has shown that there is a need for more truck parking spaces. These facilities are along the most heavily-traveled sections of I-95, and I-495, particularly to the south of Bangor. At these locations, reconfiguration of parking areas is recommended to accommodate more truck parking.

4.5.3 Development of New Rest Areas

Where a probable need for the construction of a public rest area has been determined in accordance with the “rule of thumb” described in section 4.3.1, feedback from the Freight Transportation Advisory Committee and other private sector sources should be sought at

an early stage in the planning process. Preference should be given for private facilities to meet unmet needs on non-Interstate state highways.

4.5.4 Public Private Partnerships

To make the most efficient use of public resources, the concept of public-private partnerships should be explored more fully. These partnerships should explicitly recognize the roles that the private sector and public sector best fulfill. The private sector is best able to respond in an entrepreneurial and timely way to emerging needs. The public sector is best suited to perform a coordinating role, provide capital investment assistance (as opposed to operating funds) and lease publicly owned land. These partnerships could take various forms:

- Long term lease of publicly owned land in partnership with a private operator to site a new facility or expand an existing facility
- Collaborate in the development of signage and information systems with other State agencies and private stakeholders such as the Maine Motor Transport Association, Maine Professional Drivers Association and gas station/truck stop owners
- Locate tourist information kiosks/booth at private facilities
- Provide low interest loans to private sector truck stop operators who wish to expand parking lots
- Provide infrastructure grants or funds to local communities who permit private parking development in their communities

4.5.5 MaineDOT Rest Area Operations and Maintenance Plan

It is recommended that the MaineDOT develop an Operations and Maintenance Plan for each public rest area. It would identify in one document:

- Inventory of all equipment and facilities (compiled by MaineDOT Environmental Services)
- Available services (compiled by MaineDOT Environmental Services)
- Emergency contacts
- Maintenance schedules
- Responsibilities of agencies and personnel
- Facility maintenance and operations costs.

The Plan could be used as a systems planning tool to ensure that adequate resources are devoted to maintaining the system. It would build upon recent facility inventories and provide a facilities management database for all non-linear transportation facilities.

Chapter 5: Costs and Implementation

This chapter describes implementation issues such as phasing and costs for signage and information system recommendations, site specific recommendations at interstate public rest areas to enhance available facilities and increase truck parking capacity and recommendations to address potential truck parking and services deficiencies along state highway corridors. Estimated costs for these recommendations were also calculated and used to prioritize implementation based on time frame, and financial commitment. As discussed in the previous chapter, short term recommendations are anticipated to be completed within 1 to 5 years; intermediate improvements are anticipated to be completed within 6 to 10 years; and long term improvements are anticipated to be completed within after ten years. The lower cost improvements are expected to be the first completed. Figure 5-1 summarizes potential alternatives statewide, and the next sections describe improvements at specific locations.

5.1 Signage and Information Program Cost and Implementation

5.1.1 Gateway and General Wayfinding Program

Implementation of the Interstate Gateway and Off-interstate General Wayfinding signage programs would primarily require different levels of investment. The Interstate Gateway program would primarily identify publicly-owned interstate truck parking and services within the interstate corridor. Eleven locations have been identified (see section 4.4.3). The General Wayfinding signage would be located off the interstate system at junction locations along the Long Haul Routes. This would require more coordination with local businesses and require conformance to the rules of the Official Business Directional Signs program. (See Figure 4-7.)

Table 5-1
Estimated Costs for Signage Program

Type of Signage	Number of Locations	Cost per Sign *	Estimated Cost	Time Frame
Interstate Gateway Signage	11	$11,500	$126,500	Short Term
General Wayfinding Signage	12	$2,300	$ 27,600	Short Term

* Includes 15% contingency.
Source: Wilbur Smith Associates.

An option for implementing the Interstate Gateway Signage system would be to add a placard to the bottom of existing exit signs. These placards would indicate the distance to the next facilities. This could also be implemented as a supplement to the broader gateway sign program.

Time and costs should also be allotted for staff time to research the contents of the signs.

5.1.2 Information and Brochure Program

Implementation of the truck parking and services information program should be coordinated with and supplement existing information programs of the MaineDOT, Maine Turnpike Authority, Maine Office of Tourism and other stakeholders such as the Maine Motor Transport Association. The aim of the program is to more widely disseminate truck parking and services information.

This information should be added to:

- The www.511Maine.com website
- Links provided from Office of Tourism website and other truck industry partners.

Program costs may vary considerably depending upon the type of web content created and the amount of research needed to gather the needed information for the information brochure.

5.2 Improvements at Current Interstate (non-Maine Turnpike) Rest Areas with Truck Parking

Opportunities for improvements at sites where truck parking is currently available on the Interstate System (non-Maine Turnpike) include reconfiguration and expansion of parking areas to increase capacity, and enhancement/upgrade of available facilities to cater to overnight demand. A summary of these improvements is shown in Table 5-1 and locations identified in Figure 5-1. Annual operating and maintenance costs are also shown.

The recommendations at these facilities are based on the demand analysis and observed parking accumulation noted during daytime and nighttime field surveys. An evaluation of the layout of these sites was performed using aerial photography provided by MaineDOT. Engineering judgment was used to determine how best to apply each of these factors in each specific case. Additional site specific studies will be required to gain a more precise evaluation of feasibility. For a location to move forward in the project development process, a more detailed rest area demand study should be conducted to determine a more precise estimate on peak commercial vehicle demand at rest areas. This study may include gathering more in-depth data such as vehicle classification counts at individual rest areas to measure the time distribution for the majority of truck traffic.

Annual operating and maintenance costs for these areas are typically $150,000 to $200,000 per year. These areas require intensive maintenance and monitoring.

Potential Truck Parking Improvement Locations

Figure 5-1

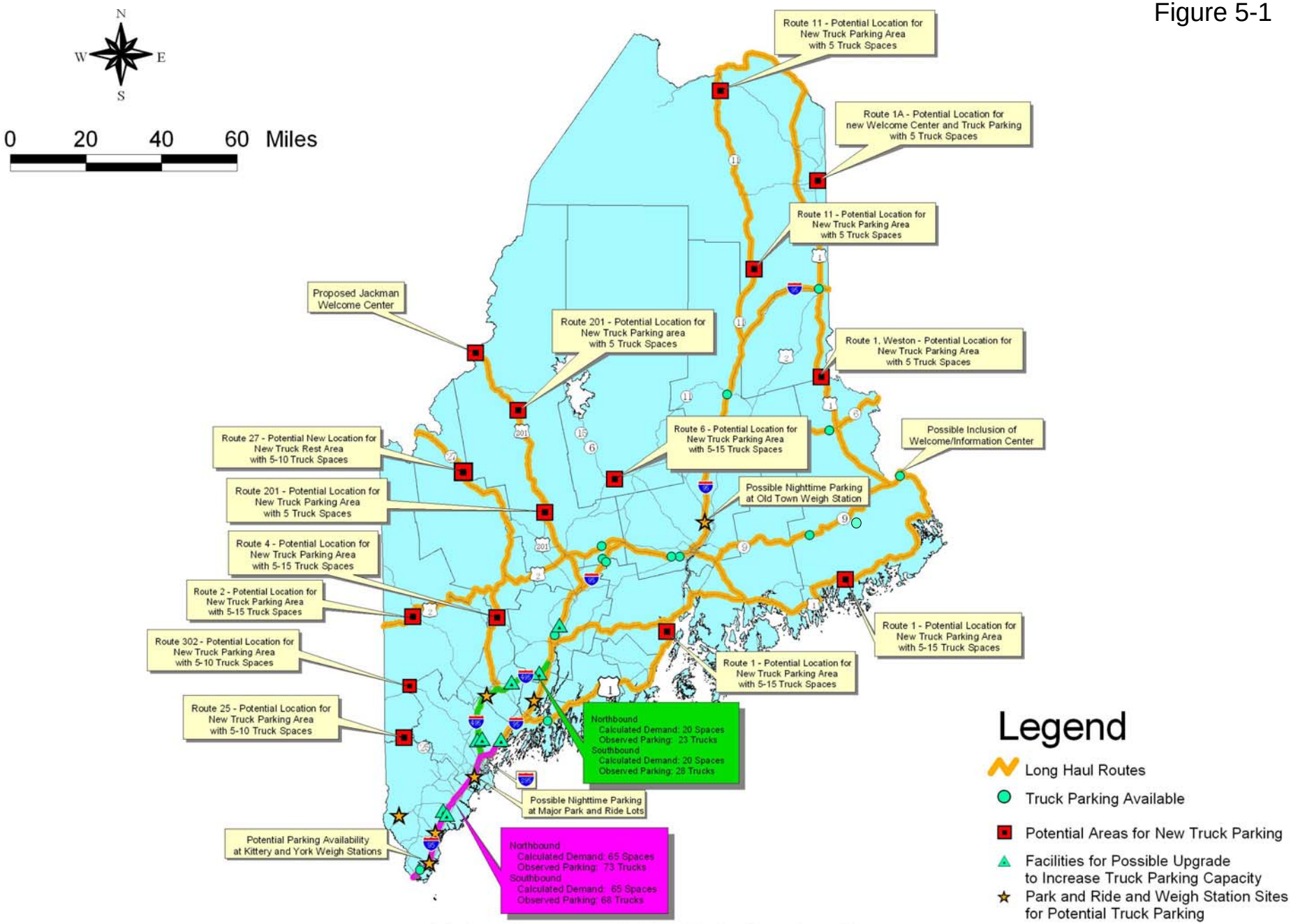


Table 5-2
Summary of Potential Improvements at Existing Interstate Rest Areas with Truck Parking

Location	Improvement	Preliminary Cost	Annual Operating and Maintenance	Time Frame
Pittsfield (I-95 Northbound)	Facilities Upgrade	$150,000	$150,000 - $200,000	Intermediate Term
	Truck Parking Reconfiguration to Include 16 Total Spaces	$500,000		Long Term
Pittsfield (I-95 Southbound)	Facilities Upgrade	$150,000	$150,000 - $200,000	Intermediate Term
	Truck Parking Reconfiguration to Include 16 Total Spaces	$400,000		Long Term
Medway (I-95 Northbound)	Truck Parking Reconfiguration To Include 14 Total Spaces	$300,000	$150,000 - $200,000	Long Term
Medway (I-95 Southbound)	Truck Parking Reconfiguration to Include 14 Total Spaces	$200,000	$150,000 - $200,000	Long Term

Source: Wilbur Smith Associates; MaineDOT.

Pittsfield, (I-95 Northbound and Southbound)

The northbound and southbound rest areas lie opposite each other on I-95, in the town of Pittsfield. Currently, these rest areas have the recommended segregation of car and truck parking, and the truck spaces are of the diagonal pull though style. Restroom facilities are available at each rest area the major recommendation at each site is reconfiguration of truck the parking areas to increase capacity. At the northbound rest area, the mainline on ramp would require realignment and relocation approximately 150 feet north. The ramps at the southbound rest area would require minor realignment, but relocation would not be necessary. Upgrade of existing available facilities may be required to accommodate overnight truck demand. Buildings at the site require replacement. Figure 5-2 shows the proposed recommendations at these rest areas.

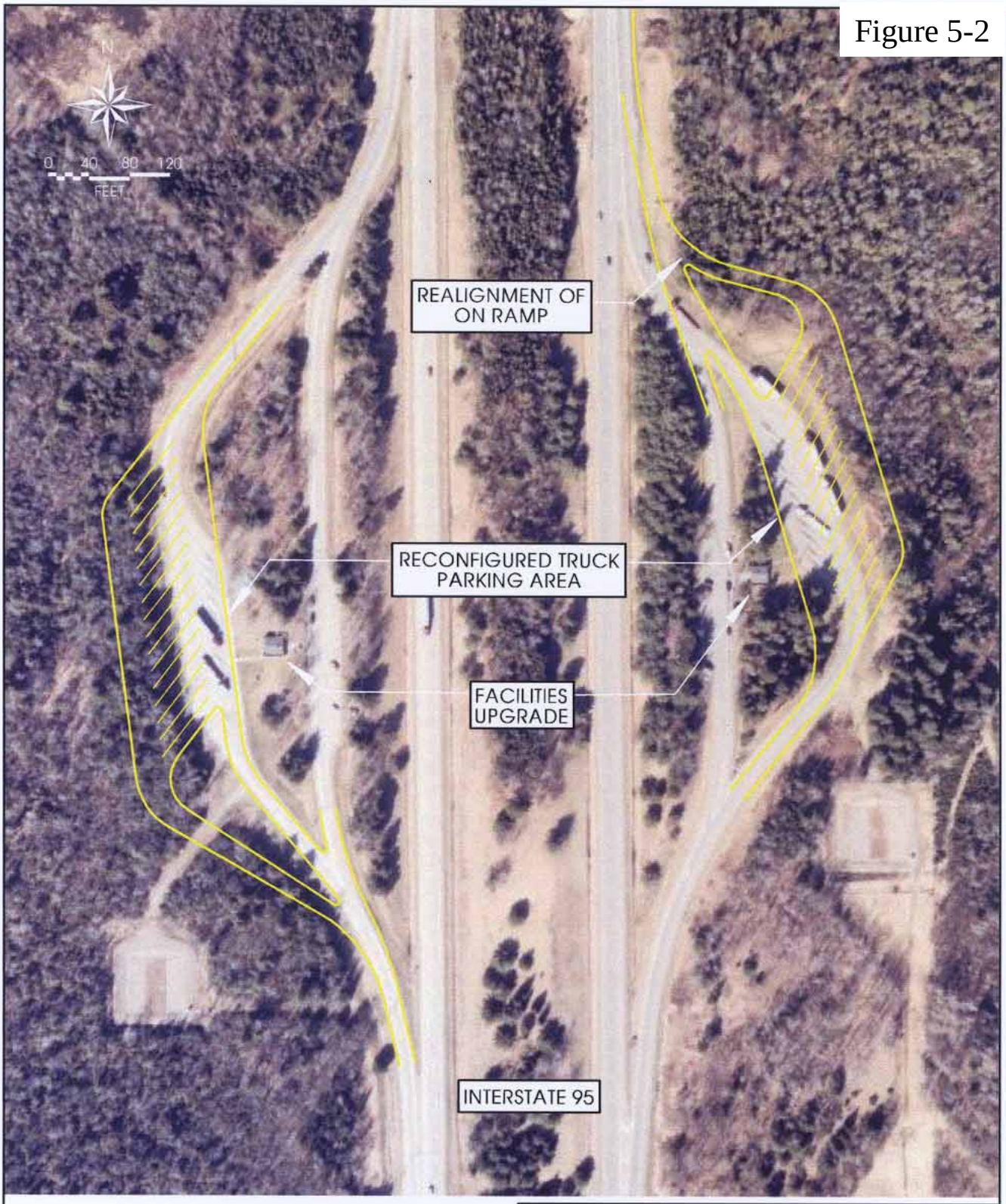
Medway, (I-95 Northbound and Southbound)

The northbound and southbound rest areas at Medway lie opposite each other and are approximately 70 miles south of Houlton. This location is among the most rural of the interstate rest areas that currently have truck parking, with nearby facilities being few and far between. The current parking layout at each rest area follows recommended guidelines, with segregated parking and diagonal bays for trucks. The major recommendation at each site includes minor reconfiguration of the truck parking areas to increase capacity. Minor ramp realignment may be required, but no relocation is necessary. Upgrade of existing available facilities may be required to accommodate overnight truck demand. The building at the rest area has been recently rehabilitated. Figure 5-3 shows the proposed recommendations at these rest areas. A private truck stop is located near Exit 56 in Medway.

5.3 Maine Turnpike Service Plaza I-95/I-495

The Maine Turnpike Authority is conducting a study evaluating the need for improvements to its six service plazas. Part of this study will assess the use and viability of the four northerly plazas. In addition MTA is considering the consolidation/ elimination of these four plazas and the construction of a new facility, operated jointly with MaineDOT, at the confluence of I-95 and I-495 in Gardiner. The preliminary concept of the facility is that it will include rest rooms, an information center, a restaurant, and a fuel station on the Turnpike side of the facility, with parking for both trucks and passenger vehicles. The financing and construction details relating to this proposed facility have not yet been determined.

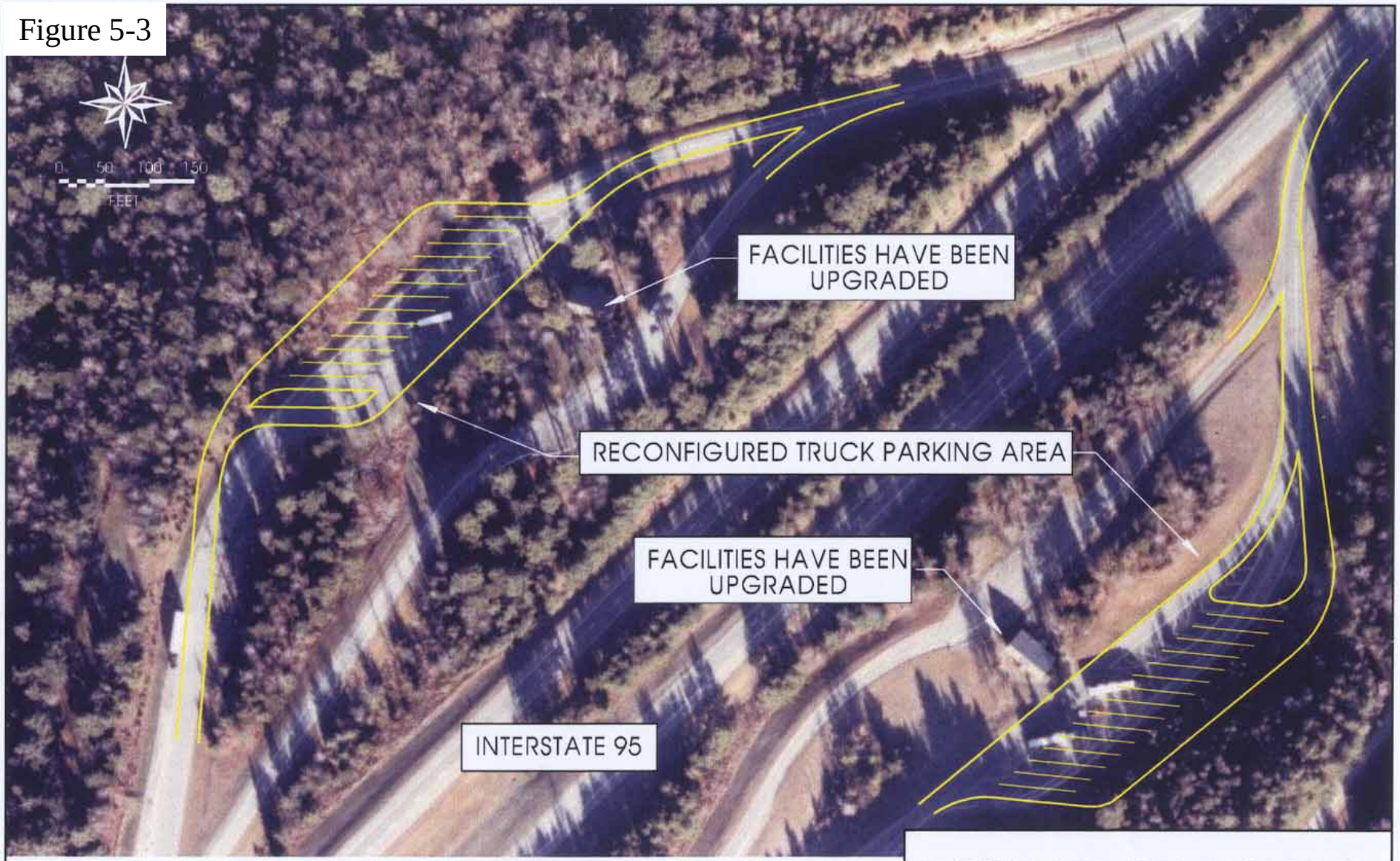
Figure 5-2



PITTSFIELD REST AREA (I-95 NB & SB)
COMMERCIAL VEHICLE SERVICE PLAN

WILBUR SMITH ASSOCIATES

Figure 5-3



MEDWAY REST AREA (I-95 NB & SB)

COMMERCIAL VEHICLE SERVICE PLAN

WILBUR SMITH ASSOCIATES

5.4 Identified Truck Parking Needs along State Highway/Off-Interstate Corridors

Initial analysis of truck parking needs revealed that there were several of the long haul truck routes off of the interstate system where public truck rest areas were not readily available, or spacing between them exceeded the recommended 75 miles. The State of Maine operates a number of rest area facilities along these routes; however many of them do not have the space or facilities to accommodate truck parking.

Where a potential truck parking deficiency has been identified along a corridor, a sequential five step process is recommended to screen for the need for further action. These steps are:

1. Verify the demand or need for a facility by performing additional analysis of truck demand along a corridor, including vehicle classification counts, time of day use analysis to corroborate nighttime usage, and truck accident data.
2. Identify potential existing private truck services/facilities in the corridor that may meet the need.
3. If there is no existing private resource, identify potential businesses to build and operate new facilities.
4. Identify and screen existing public resources such as existing public rest areas that may be able to meet the need for truck parking.
5. Identify and screen locations for new public rest areas.

If demand is not warranted, the process stops with step 1. If there is an existing private facility identified in step 2, the process stops there. This process establishes/reinforces that strong preference is given to meeting the overnight parking needs of trucks off of the interstate corridors by private entities. In most cases, these private areas can better meet the needs of truck drivers, reduce public operating and maintenance costs, and minimize disruption due to expansion of existing rest areas beyond their current use.

Table 5-2 provides estimated capital costs for expanding existing facilities, creating new public facilities and annual maintenance and operating costs for 'picnic style' rest areas (no flush toilets). Operating and maintenance costs rise dramatically if flush toilets are provided in a location.

Table 5-3
Estimated Costs for Providing Off-Interstate Truck Parking

Type of Facility	Estimated Capital Costs *	Annual Operating and Maintenance Costs **
Expansion of Existing Rest Area, 5 - 10 truck parking spaces	$100,000 - $300,000	$15,000 to $20,000
Expansion of Existing Rest Area, 10 - 15 truck parking spaces	$200,000 - 400,000	$15,000 to $20,000
New truck parking area, 5 - 10 spaces	$200,000 to $4000,000	$15,000 to $20,000

* Does not include land costs. ** Assumes 'picnic area' style rest area.
Source: Wilbur Smith Associates; MaineDOT Bureau of Maintenance.

Table 5-3 identifies the off-interstate corridors where a potential demand for truck parking exists. The table identifies the corridor, the estimated level of demand, potential private resources to meet the need and potential existing public resource(s) to meet that need. None of the corridors have known private resources. It should be noted that no specific efforts to identify private resources were part of the scope of work for the project. Existing potential public resources are known existing public rest areas or weigh stations located in the corridor.

A preliminary assessment of the existing public rest areas revealed that in many cases, the possibility exists to expand the appropriate rest areas to accommodate truck parking. In some instances where it was clearly apparent that physical constraints prevented expansion,

Five truck parking spaces, for the purposes of this study, was considered a minimum number in order to deem any truck parking facility worth pursuing.

5.5 Potential Funding for Public Facilities

Capital costs for truck parking and facility on interstate highways are eligible for National Highway System and Interstate System funds. Capital costs for facilities off of the interstate highway system on the National Highway are eligible for National Highway System and Surface Transportation Program funds. Capital costs for facilities on state highways are eligible for Surface Transportation Program funds. For facilities located on scenic byways, there are specific federal funding programs for improvements along these corridors. State general funds may be used for all capital costs or as matching funds for federal funds.

Operating and maintenance costs are not eligible for federal funding.

Table 5-4
Summary of Potential Needs on Off-Interstate Corridors without Public Truck Parking

Location	Estimated Demand Truck Parking Demand	Existing Potential Private Resource	Potential Public Resource
Route 201 *	5-10 spaces	None known	Arnold's Way and Parlin Pond Rest Areas; Future new Jackman Visitor Information Center
Route 27 **	5-10 spaces	None known	Eustis Weigh Station
Route 1, Downeast	5-15 spaces	None known	Blueberry Hill Rest Area
Route 1, Mid-coast	5-15 spaces	None known	Northport Rest Area
Route 11, Aroostook County **	5-10 spaces	None known	Cold Spring and Soldier Pond Rest Areas
Route 302	5-10 spaces	None known	Moose Pond Rest Area; The to be Relocated Fryeburg Visitor Information Center
Route 25	5-10 spaces	None known	Ossipee Trail Rest Area
Route 2, west of Route 4	5-15 spaces	None known	Riverside Rest Area; Existing or relocated Bethel Visitor Information Center
Route 4, between I-495 and Route 2	5-15 spaces	None known	None known
Route 6, near Dover-Foxcroft	5-15 spaces	None known	None known
Route 1, near Weston **	5-10 spaces	None known	None known
Route 1A, near Fort Fairfield	5-10 spaces	None known	None known

* This corridor is a ***National Scenic Byway*** and any truck parking facility will need to be developed with utmost sensitivity and compatibility with the qualities of the corridor.
** A portion of this corridor is a ***State Designated Scenic Highway*** and any truck parking facility will need to be developed with utmost sensitivity and compatibility with the qualities of the corridor.
Not in order of priority.
Source: Wilbur Smith Associates, 2002.

Appendices

APPENDIX A

REFERENCES

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14. Truck Stop and Rest Area Parking Study, Connecticut Department of Transportation, October 2000.

15. Rural Rest Area Privatization Conditions, University of Arkansas, 1997.

16. Highway Special Investigation Report: Truck Parking Areas, National Transportation Safety Board, May 2000.

17. Guide for Development of Rest Areas on Major Arterials and Freeways, Third Edition, AASHTO Task Force on Geometric Design, 2001.

APPENDIX B

INTERVIEWS

Public Sector

1. Ms. Margaret Trueworthy, Maine Turnpike Authority

2. Mr. John Valengavitch, Office of Intermodal Project Planning, Connecticut Department of Transportation

3. Mr. Jeffrey Harper, Office of Concessions, Connecticut Department of Transportation.

4. Mr. Bruce Bender, Vermont Agency of Transportation

5. Mr. Richard Foster, Vermont Department of Buildings and General Services

6. Mr. Peter Collett, Highway Operations, Massachusetts Highway Department

7. Massachusetts Turnpike Authority, to be determined.

8. Mr. Brian McEwing, Director of Planning and Land Management, New Brunswick Department of Transportation, New Brunswick, Canada.

Private Sector

1. Mr. David Wheeler, General Manager, Travel Centers of America Truck Stop, Branford, CT

2. Mr. Peter Greene, Vice President for Development, Travel Centers of America, Inc.

3. Ms. Lisa Powellson, US Retail Marketing Manager, Irving Oil Corporation

4. Mr. Stephen Lewelling, Fleet Services Marketing Manager, Irving Oil Corporation

5. Mr. Scott Imus, Vice President for Governmental Affairs, National Association of Truckstop Operators.

Appendix C
Truck Parking Demand Estimation

Design Section:	Interstate 95 Northbound		
From:	Kittery	To:	Yarmouth
Design Section Length (DSL):	96	km	
P = 12% x (DSL/100) =	11.5	%	
Approx. ADT =	23100	vehicles	
N_t = ADT x P x .023 =	61	Truck Spaces	

Design Section:	Interstate 95 Southbound		
From:	Yarmouth	To:	Kittery
Design Section Length (DSL):	96	km	
P = 12% x (DSL/100) =	11.5	%	
Approx. ADT =	23500	vehicles	
N_t = ADT x P x .023 =	62	Truck Spaces	

Design Section:	Interstate 95 Northbound		
From:	Yarmouth	To:	Waterville
Design Section Length (DSL):	96	km	
P = 12% x (DSL/100) =	11.5	%	
Approx. ADT =	14400	vehicles	
N_t = ADT x P x .023 =	38	Truck Spaces	

Design Section:	Interstate 95 Southbound		
From:	Waterville	To:	Yarmouth
Design Section Length (DSL):	96	km	
P = 12% x (DSL/100) =	11.5	%	
Approx. ADT =	14600	vehicles	
N_t = ADT x P x .023 =	39	Truck Spaces	

Design Section:	Interstate 95 Northbound		
From:	Waterville	To:	Old Town
Design Section Length (DSL):	96	km	
P = 12% x (DSL/100) =	11.5	%	
Approx. ADT =	12000	vehicles	
N_t = ADT x P x .023 =	32	Truck Spaces	

Design Section:	Interstate 95 Southbound		
From:	Old Town	To:	Waterville
Design Section Length (DSL):	96	km	
P = 12% x (DSL/100) =	11.5	%	
Approx. ADT =	12200	vehicles	
N_t = ADT x P x .023 =	32	Truck Spaces	

Design Section:	Interstate 95 Northbound		
From:	Old Town	To:	Sherman
Design Section Length (DSL):	112	km	
P = 12% x (DSL/100) =	13.4	%	
Approx. ADT =	4600	vehicles	
N_t = ADT x P x .023 =	14	Truck Spaces	

Design Section:	Interstate 95 Southbound		
From:	Sherman	To:	Old Town
Design Section Length (DSL):	112	km	
P = 12% x (DSL/100) =	13.4	%	
Approx. ADT =	4600	vehicles	
N_t = ADT x P x .023 =	14	Truck Spaces	

Design Section:	Interstate 95 Northbound		
From:	Sherman	To:	Houlton
Design Section Length (DSL):	64	km	
P = 12% x (DSL/100) =	7.7	%	
Approx. ADT =	1900	vehicles	
N_t = ADT x P x .023 =	4	Truck Spaces	

Design Section:	Interstate 95 Southbound		
From:	Houlton	To:	Sherman
Design Section Length (DSL):	64	km	
P = 12% x (DSL/100) =	7.7	%	
Approx. ADT =	1900	vehicles	
N_t = ADT x P x .023 =	4	Truck Spaces	

Source: Guide for Development of Rest Areas on Major Arterials and Freeways

Above calculations are derived from the following equation:

N_t = (ADT x P x DH x D_t x PF x VHS) / 60

Where:

P = Percentage of mainline traffic stopping at rest area, assumed to be 12%.
DH = Design hourly factor, assumed to be 0.15.
D_t = Average percentage of truck using facility, assumed to be 25%.
PF = Peak day usage factor, assumed to be 1.8.
VHS = Average daytime length of stay for trucks, assumed to be 20 minutes.

Appendix C
Truck Parking Demand Estimation

Design Section:	Interstate 495 Northbound		
From:	Portland	To:	Gardiner
Design Section Length (DSL):	80	km	
P = 12% x (DSL/100) =	9.6	%	
Approx. ADT =	9000	vehicles	
N_t = ADT x P x .023 =	19	Truck Spaces	

Design Section:	Interstate 495 Southbound		
From:	Gardiner	To:	Portland
Design Section Length (DSL):	80	km	
P = 12% x (DSL/100) =	9.6	%	
Approx. ADT =	9000	vehicles	
N_t = ADT x P x .023 =	19	Truck Spaces	

Design Section:	Route 11		
From:	Fort Kent	To:	Sherman
Design Section Length (DSL):	165	km	
P = 12% x (DSL/100) =	19.8	%	
Approx. ADT =	1600	vehicles	
N_t = ADT x P x .023 =	7	Truck Spaces	

Design Section:	Route 1		
From:	Fort Kent	To:	Presque Isle
Design Section Length (DSL):	123	km	
P = 12% x (DSL/100) =	14.8	%	
Approx. ADT =	3300	vehicles	
N_t = ADT x P x .023 =	11	Truck Spaces	

Design Section:	Route 1		
From:	Presque Isle	To:	Houlton
Design Section Length (DSL):	64	km	
P = 12% x (DSL/100) =	7.7	%	
Approx. ADT =	5400	vehicles	
N_t = ADT x P x .023 =	10	Truck Spaces	

Design Section:	Route 1		
From:	Houlton	To:	Calais
Design Section Length (DSL):	147	km	
P = 12% x (DSL/100) =	17.7	%	
Approx. ADT =	2800	vehicles	
N_t = ADT x P x .023 =	11	Truck Spaces	

Design Section:	Route 1		
From:	Calais	To:	Ellsworth
Design Section Length (DSL):	176	km	
P = 12% x (DSL/100) =	21.1	%	
Approx. ADT =	4300	vehicles	
N_t = ADT x P x .023 =	21	Truck Spaces	

Design Section:	Route 1		
From:	Ellsworth	To:	Brunswick
Design Section Length (DSL):	112	km	
P = 12% x (DSL/100) =	21.5	%	
Approx. ADT =	11500	vehicles	
N_t = ADT x P x .023 =	51	Truck Spaces	

Source: Guide for Development of Rest Areas on Major Arterials and Freeways

Above calculations are derived from the following equation:

N_t = (ADT x P x DH x D_t x PF x VHS) / 60

Where:

P = Percentage of mainline traffic stopping at rest area, assumed to be 12%.
DH = Design hourly factor, assumed to be 0.15.
D_t = Average percentage of truck using facility, assumed to be 25%.
PF = Peak day usage factor, assumed to be 1.8.
VHS = Average daytime length of stay for trucks, assumed to be 20 minutes.

Appendix C
Truck Parking Demand Estimation

Design Section:	Route 9		
From:	Bangor	To:	Calais
Design Section Length (DSL):	149	km	
P = 12% x (DSL/100) =	17.9	%	
Approx. ADT =	3200	vehicles	
N_t = ADT x P x .023 =	13	Truck Spaces	

Design Section:	Route 6		
From:	Lincoln (I-95)	To:	Canadian Bdr.
Design Section Length (DSL):	118	km	
P = 12% x (DSL/100) =	14.2	%	
Approx. ADT =	2100	vehicles	
N_t = ADT x P x .023 =	7	Truck Spaces	

Design Section:	Route 201		
From:	Skowhegan	To:	Canadian Bdr.
Design Section Length (DSL):	138	km	
P = 12% x (DSL/100) =	16.6	%	
Approx. ADT =	2700	vehicles	
N_t = ADT x P x .023 =	10	Truck Spaces	

Design Section:	Route 27		
From:	Farmington	To:	Canadian Bdr.
Design Section Length (DSL):	115	km	
P = 12% x (DSL/100) =	13.8	%	
Approx. ADT =	2000	vehicles	
N_t = ADT x P x .023 =	6	Truck Spaces	

Design Section:	Route 2		
From:	NH Border	To:	Farmington
Design Section Length (DSL):	98	km	
P = 12% x (DSL/100) =	11.8	%	
Approx. ADT =	6600	vehicles	
N_t = ADT x P x .023 =	18	Truck Spaces	

Design Section:	Route 2		
From:	Farmington	To:	Newport (I-95)
Design Section Length (DSL):	82	km	
P = 12% x (DSL/100) =	9.8	%	
Approx. ADT =	6700	vehicles	
N_t = ADT x P x .023 =	15	Truck Spaces	

Design Section:	Route 4		
From:	Lewiston	To:	Route 2
Design Section Length (DSL):	54	km	
P = 12% x (DSL/100) =	6.5	%	
Approx. ADT =	10600	vehicles	
N_t = ADT x P x .023 =	16	Truck Spaces	

Source: Guide for Development of Rest Areas on Major Arterials and Freeways

Above calculations are derived from the following equation:

N_t = (ADT x P x DH x D_t x PF x VHS) / 60

Where:

P = Percentage of mainline traffic stopping at rest area, assumed to be 12%.
DH = Design hourly factor, assumed to be 0.15.
D_t = Average percentage of truck using facility, assumed to be 25%.
PF = Peak day usage factor, assumed to be 1.8.
VHS = Average daytime length of stay for trucks, assumed to be 20 minutes.