PRESENTED TO THE MAINE TURNPIKE AUTHORITY

OPERATION AND MAINTENANCE ANNUAL REPORT

2011

Prepared By:

HNTB

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HNTB

October 1, 2011

Maine Turnpike Authority
2360 Congress Street
Portland, ME 04102

Ladies and Gentlemen,

We are pleased to submit our 2011 Operation and Maintenance Annual Report for the Maine Turnpike. This report sets forth our findings as to the condition of the Maine Turnpike and our recommendations concerning maintenance, operation, insurance, and deposits to be made to the Capital Improvement and Reserve Maintenance funds and the Operation and Maintenance budget.

Our findings and recommendations are based on a visual inspection of the turnpike facilities performed between May and July 2011; several additional visual inspections of turnpike facilities made during the year; and, on a careful evaluation of turnpike operation and maintenance procedures. We have periodically reported to the Executive Director on other items which warranted prompt attention.

We appreciate the opportunity to provide Consulting Engineering Services and we acknowledge the excellent cooperation of Authority members and personnel in the performance of these services.

Best regards,

Roland A. Lavallee

Roland A. Lavallee, P.E., PLS
Vice President
Director of Operations

HNTB

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1 INTRODUCTION

This 2011 Operation and Maintenance Annual Report is based on the findings of a visual inspection of turnpike facilities; a review of current operating practices; and a review of the insurance coverage currently in effect, all as conducted by the licensed Professional Engineers of HNTB Corporation. It sets forth observations, conclusions and recommendations concerning the condition, maintenance, repair, and operation of the turnpike and its associated structures. Additionally, this report includes recommendations for the amount of funding required for the proper maintenance, repair, and operation of the turnpike to be deposited into the Capital Improvement and Reserve Maintenance funds, and the Operation and Maintenance budget. Finally, recommendations regarding insurance coverage have also been provided.

In 1941, the Maine Turnpike Authority (Authority) was created as an independent state agency and given the mandate to construct a turnpike "from some point at or near Kittery to a point at or near Fort Kent." The legislature intentionally delegated the responsibility for turnpike construction, and operation and maintenance, to the Authority and precluded any financial commitment by the state.

The original 45 miles of turnpike from Kittery to Portland opened to traffic in 1947 and Section II, from Portland to Augusta, was completed in 1955. Almost two-thirds of the 109 mile turnpike is a four-lane divided highway; the other one-third is a six-lane divided highway. Turnpike facilities include 176 structures (166 bridges with concrete decks and 10 culverts), 19 interchanges, 19 toll plazas, an administration building including the E-ZPass customer service center, and the State Police offices, five service areas, nine maintenance facilities, and associated structures.

The Maine Turnpike, designated as I-95, is one of the major north-south highways in the state, extending from Kittery to Augusta, Maine. The turnpike is the only interstate highway from Kittery to Portland, making it one of the most critical elements of Maine's transportation network (see **FIGURE 1**). It also includes a three mile spur from the turnpike mainline to Route 1 and Interstate 295 in Falmouth. The turnpike is a safe and efficient highway that serves approximately one million motorists every year including commuters, truckers, and visitors to the State of Maine. These motorists accounted for over 61 million trips taken on the turnpike in 2010.

The demands placed on turnpike facilities are enormous. Its roadways, bridges, interchanges, toll plazas, service areas and maintenance areas are subjected to increasing stress due to age, traffic levels, high weight limit (100,000 lbs. trucks allowed), and the demands of the harsh northern New England climate. To ensure the sound condition and effective operation of the turnpike, the Authority funds and implements aggressive Operation and Maintenance, Reserve Maintenance, and Capital Improvement programs. The vigilance of the Authority through these programs has resulted in a well-maintained and efficiently-operated turnpike. The Authority looks to future initiatives such as pavement rehabilitation, bridge rehabilitations and replacements, and system modernization to assure that turnpike facilities meet current safety standards as well as projected demands.

ANNUAL INSPECTION PROGRAM

In accordance with Section 806 of the Bond Resolution dated May 1, 1991, HNTB

Corporation, as the consulting engineers, is required to inspect the turnpike at least once a year and submit to the Authority a report setting forth the following:

- Opinion as to whether the turnpike has been maintained in good repair, working order and condition;
- Advice and recommendations as to the proper maintenance, repair and operation of the turnpike during the ensuing fiscal year and an estimate of the amount of money necessary for such purposes;
- Advice and recommendations as to the amounts and types of insurance to be carried; and,
- Recommendations as to the amount of money that should be deposited into the Reserve Maintenance fund during the upcoming fiscal year.

To comply with the listed requirements, the engineers and staff of HNTB Corporation annually conduct a visual inspection of the entire Maine Turnpike. The inspection covers pavement, cut sections, embankments, bridges, roadway lighting, drainage structures, signs, pavement markings, toll plazas, utility buildings, service areas, maintenance areas, and other facilities. This report is based on observations made during the inspection which was conducted between May and July of 2011. The opinions, statements and recommendations made herein are based solely on conditions revealed by visual inspection. No representation or warranty is made that all defects have been discovered or that defects will not appear later. Inspections of specific turnpike facilities are conducted whenever special attention is warranted.

A detailed Annual Inspection Report was submitted to the Authority in July of 2011, in conjunction with this 2011 Operation and Maintenance Annual Report.

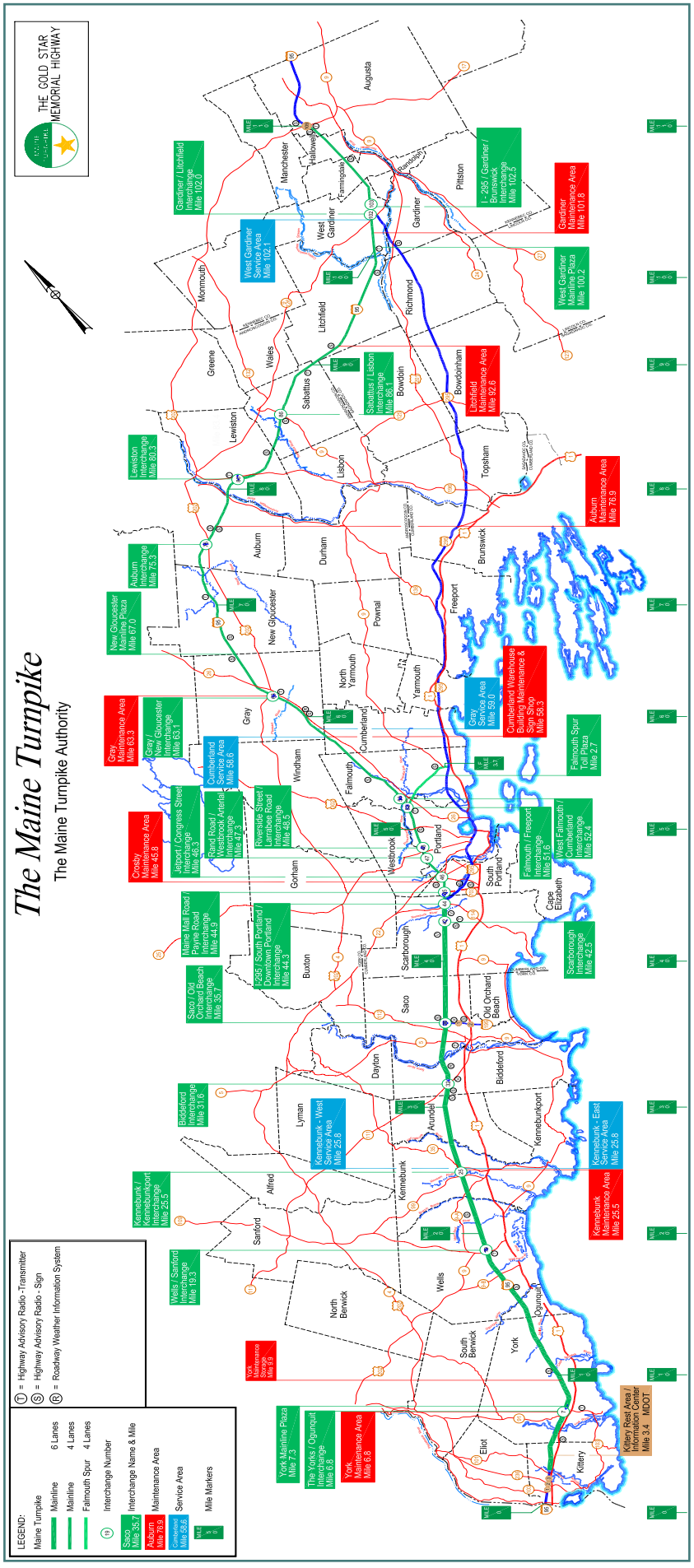

The Maine Turnpike
The Maine Turnpike Authority
THE GOLD STAR MEMORIAL HIGHWAY
LEGEND:
Maine Turnpike
Mainline 6 Lanes
Mainline 4 Lanes
Falmouth Spur 4 Lanes
Interchange Number
Interchange Name & Mile
Maintenance Area
Service Area
Mile Markers
T = Highway Advisory Radio - Transmitter
S = Highway Advisory Radio - Sign
R = Roadway Weather Information System
Kittery Rest Area / Information Center Mile 3.4 MDOT
York Maintenance Area Mile 6.8
The Yorks / Ogunquit Interchange Mile 6.8
York Mile 7.3
York Maintenance Storage Mile 6.9
Wells / Sanford Interchange Mile 19.3
Kennebunk / Kennebunkport Interchange Mile 25.5
Kennebunk Maintenance Area Mile 25.5
Kennebunk - West Service Area Mile 25.8
Kennebunk - East Service Area Mile 25.8
Biddeford Interchange Mile 31.5
Saco / Old Orchard Beach Interchange Mile 35.7
Maine Mall Road / Payne Road Interchange Mile 44.3
I-295 / South Portland / Downtown Portland Interchange Mile 44.3
Jetport / Congress Street Interchange Mile 46.3
Crosby Maintenance Area Mile 46.8
Gray Maintenance Area Mile 63.3
Gray / New Gloucester Interchange Mile 63.1
New Gloucester Mainline Plaza Mile 67.0
Auburn Interchange Mile 75.9
Lewiston Interchange Mile 80.3
Gardiner / Litchfield Interchange Mile 102.0
West Gardiner Service Area Mile 102.1
Gardiner Maintenance Area Mile 101.8
West Gardiner Mainline Plaza Mile 100.2
I - 295 / Gardiner / Brunswick Interchange Mile 102.3
Sabattus / Lisbon Interchange Mile 86.1
Litchfield Maintenance Area Mile 92.6
Auburn Maintenance Area Mile 76.9
Cumberland Service Area Mile 58.6
Rand Road / Westbrook Arterial Interchange Mile 47.3
Riverside Street / Larrabee Road Interchange Mile 46.5
Gray Service Area Mile 59.0
Cumberland Warehouse Building Maintenance & Sign Shop Mile 58.3
Falmouth Spur Toll Plaza Mile 2.7
Falmouth / Freeport Interchange Mile 53.5
West Falmouth / Cumberland Interchange Mile 52.4
Scarborough Interchange Mile 42.5
Augusta
Manchester
Hallowell
Farmingdale
Monmouth
Greene
Wales
Litchfield
Sabattus
Lewiston
Auburn
Durham
Pownal
New Gloucester
Gray
Windham
Falmouth
Westbrook
Portland
South Portland
Cape Elizabeth
Scarborough
Saco
Old Orchard Beach
Dayton
Biddeford
Arundel
Kennebunkport
Lyman
Alfred
Sanford
Kennebunk
North Berwick
Wells
Ogunquit
South Berwick
York
Eliot
Kittery
Bowdoin
Bowdoinham
Topsham
Brunswick
Freeport
North Yarmouth
Yarmouth
Cumberland
Richmond
Gardiner
West Gardiner
Pittston

FIGURE 1

2 INSPECTION FINDINGS AND CORRECTIVE MEASURES

The Maine Turnpike has been maintained in generally good condition and presents a favorable appearance. Traffic volumes and the age of the facility necessitate continued high levels of maintenance. The Authority's Maintenance forces undertake routine maintenance while private contractors normally construct larger projects which are publicly bid. These contracts include pavement resurfacing, bridge deck replacements, bridge repairs and painting, slope repairs, fuel system replacements and rehabilitations, and new building construction. The following sections summarize the findings of the 2011 turnpike inspection by HNTB Corporation.

VEGETATIVE COVER

Vegetative cover generally includes the grass median and side slopes of the roadway. The inspection revealed that most median slopes are in good condition and most side slopes are stable with good vegetative cover. Slope locations requiring minor corrective action are detailed in the Annual Inspection Report. In most instances, the Authority's maintenance forces can accomplish this work.

TURNPIKE MAINLINE

PAVEMENT

Roadway and shoulder pavement is in generally good condition and the riding quality of the turnpike continues to be acceptable. Approximately 39% of the turnpike pavement (based on centerline miles) is rated in good or new condition. To maintain pavement quality and roadway safety, the Authority has a planned program of pavement rehabilitation and the turnpike generally rehabilitates a pavement section every 12 to 15 years. **TABLE 1** illustrates pavement contracts over the past 16 years.

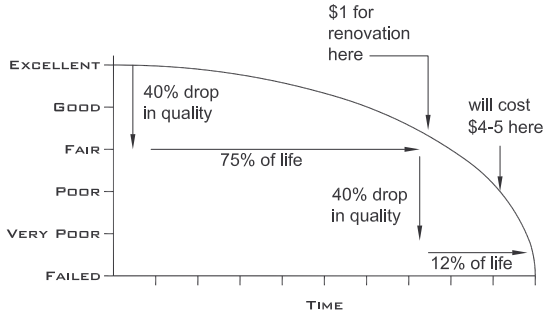
TABLE 1 - PAVEMENT CONTRACTS 1996 - 2011

Year	From MM	To MM	Roadway
2011	13.3	23.3	NB/SB
2011	Exit 19		
2011	Exit 48		
2010	2.2	7.0	NB/SB
2010	44.0	51.2	SB
	45.0	51.2	NB
2009	35.3	43.9	SB
	35.4	44.5	NB
2008	Int. 102 & 103		
2008	57.0	64.4	SB
	80.8	85.2	NB/SB
2007	59.0	Plaza	NB
	58.0	Plaza	SB
2007	25.0	Plaza	NB/SB
2007	64.4	68.5	NB/SB
	Int. 36		
2006	45.3	45.8	SB
	74.9	80.8	NB/SB
	Int. 80		
2005	59.4	64.8	NB
	85.2	88.6	NB/SB
2004	98.0	102.6	NB/SB
	102.6	109.1	NB/SB
2004	Int. 86		
2003	56.6	58.3	NB
	68.4	74.9	NB/SB
2002	99.6	106.2	NB/SB
2001	25.4	28.4	NB/SB
2000	86.0	90.0	NB/SB
1999	45.8	50.5	NB/SB
	Int. 35		
1998	Int. 63		
1998	28.4	33.4	NB/SB
	Int. 7	Ramps	NB
1997	33.35	42.36	NB/SB
1996	42.5	54.7	NB/SB
	90.0	95.0	NB/SB

Studies indicate that pavement maintained in good condition costs substantially less to preserve than pavement that is allowed to deteriorate to poor condition. Based on this concept, the Authority's resurfacing program consists of rehabilitating one or more sections of roadway, totaling approximately six to seven centerline miles each year, in order to minimize the cost of future repairs.

FIGURE 2 illustrates the rate of deterioration and relative cost of rehabilitation at various times throughout the life cycle of a section of pavement. Evidence that pavement requires rehabilitation includes wheel rutting, excessive cracking and poor ride quality.

FIGURE 2 - PAVEMENT LIFE CYCLE



Prior to 2008, pavement rehabilitation generally consisted of the removal of the top layer of pavement on the travel lanes and shoulders, establishment of a 1/4"/ft. cross slope to improve drainage, repair of damaged pavement, sealing of cracks, reconstruction of drainage structures, berm drop-off correction, and overlaying the roadway with new bituminous concrete pavement. However, the costs associated with this work have dramatically increased over the past several years, primarily due to the high and volatile pricing of liquid asphalt. To maintain a cost effective pavement rehabilitation program, the Authority modified the work in 2008 by eliminating the removal and replacement of the pavement surface on the shoulders when appropriate, and reduced the removal of existing pavement to 1-1/2". This program prioritizes the pavement rehabilitation of the travel lanes, which is the area most warranting repair and includes the vital elements of rehabilitation of drainage structures, and pavement repair as warranted. This is being evaluated with mixed results. Another cost saving measure introduced was the use of 15% Recycled Asphalt Pavement (RAP) which allows the use of a lower grade asphalt binder, PG 64-28 instead of a PG 70-28 binder. The use of RAP is also environmentally beneficial as less material needs to be mined or pumped and transported for use on the road. In 2011, the Authority specified the addition of a latex additive to the asphalt. The latex proposes to alter several characteristics of the asphalt, each of which help improve pavement durability, weatherability, and performance compared to an unmodified asphalt.

In 2011, the Authority issued one pavement rehabilitation contract. The pavement limits for Contract 2011.01 included the northbound and southbound travel lanes from Mile 13.3 to Mile 23.3 and included the ramps at Exit 19 in Wells. This project included seven miles of milling and replacing the old pavement surface with new bituminous pavement and three miles of shim and bituminous overlay over the old travel lane surface. In addition, the rehabilitation of the pavement at Exit 48 and Exit 53 is included in the ongoing bridge rehabilitation projects at the respective exits.

2012 RECOMMENDATION

Due to generally fair conditions of the pavement, and to maintain pavement quality and roadway safety, HNTB recommends the rehabilitation of the northbound and southbound roadway, from Mile 30 to Mile 35.5, and Mile 92.6 to Mile 98 in 2012. The rehabilitation should consist of the removal and replacement of the bituminous pavement in only the travel lanes, as well as pavement and drainage repair. In addition, HNTB recommends the rehabilitation of the pavement at Exit 52 as part of the planned Exit 52 Bridge Rehabilitation project, pavement rehabilitation of Exit 42 and Exit 45, and joint repair at Exit 44.

In addition to rehabilitating the bituminous surface, sealing cracks in pavement is another

method of maintaining the pavement in good condition to reduce future maintenance costs. This sealing reduces the water infiltration of the pavement into the subbase helping to extend the life of the pavement structure. In 2002, the Maine Turnpike's maintenance forces began a comprehensive crack sealing program. HNTB recommends continuing the crack sealing program in 2012 in locations where the surface pavement has opened-up.

DISPENSED AT OVER 350 DEGREES, THE RUBBERIZED ASPHALT SEALANT IS INJECTED DIRECTLY INTO THE PAVEMENT CRACKS

BRIDGES

The Maine Turnpike Authority's bridge operation and maintenance program involves multiple aspects. This effort includes developing and maintaining a detailed inventory of Authority-owned bridges, scheduling and completing bridge condition and safety inspections, compiling repair and replacement recommendations, and the development and execution of contracts for bridge work. The goals of this program are to accurately forecast bridge repair needs, identify critical bridge deficiencies, repair and upgrade bridges on a timely basis, and to help maintain the continued safe condition of MTA bridges.

BRIDGE INSPECTION PROGRAM

Inspections of Maine Turnpike bridges are completed by teams of qualified bridge inspectors in accordance with the National Bridge Inspection Standards established by the Federal Highway Administration (FHWA). Once these inspections are complete, the condition ratings for each bridge are compiled and transmitted to FHWA for inclusion in the National Bridge Inventory. The inspection data also becomes part of the Authority's bridge records which are used to develop the MTA's bridge repair program.

The following inspections were completed in 2011:

ROUTINE BRIDGE INSPECTIONS

All MTA bridges undergo routine inspections on an annual basis. The purpose of these inspections are to identify potential safety concerns, document areas of deterioration, and to record condition ratings for key bridge elements. The 2011 routine inspection by HNTB identified that the 176 bridges along the turnpike generally range from poor-to-very good condition. Bridges that have been rehabilitated or reconstructed during the past 20 years were found to be in fair-to-very good condition, while bridges that have never been rehabilitated were generally noted to be in fair condition.

DETAILED INSPECTIONS

Detailed inspections are completed on bridges with special features that warrant increased attention and inspection effort. Two sets of turnpike structures, the Androscoggin River Bridges and the York River Bridges, require detailed inspections.

The Androscoggin River bridges, each measuring 850 feet long, consist of roadway surfaces supported on stringer and floor-beam framing systems. The loads from these roadway framing systems are carried entirely by two primary girders. Because these structures are carried by only two primary girders, the bridge has insufficient redundancy to prevent a progressive collapse of all, or part of, the bridge if one of the primary girders were to fail. As a result, these structures are classified as "fracture critical" and are subject to more rigorous inspection requirements as outlined in FHWA's Bridge Inspection Standards. To achieve compliance with these inspection standards, the Androscoggin River bridges should have a fracture critical inspection completed at least once every 24-months. The last fracture critical inspection, completed by HNTB in July 2010, uncovered no significant deficiencies. The next fracture critical inspection should be completed in July 2012.

At the York River bridges, the girder framing system includes the use of pin-and-hanger assemblies. Because routine inspection procedures are insufficient to identify defects in the pins, ultrasonic testing of these elements is necessary. Detailed pin and hanger inspections on the York River bridges are currently scheduled for completion by December 2011 through the MaineDOT.

YORK RIVER BRIDGE PIN AND HANGER ASSEMBLIES

UNDERWATER INSPECTION

The Federal Highway Administration requires an inspection of underwater bridge sub-structures every five years. Accordingly, an underwater inspection was performed in November 2006 for the 12 bridges that carry the turnpike over rivers and water bodies. No serious structural deficiencies were noted during the 2006 underwater inspection. The overall conditions of the exposed portions of the underwater substructures were fair-to-good with most deficiencies attributed to freeze-thaw deterioration and abrasion from ice and debris. The 2011 underwater inspection is substantially complete. Deterioration previously noted at the York River Bridge and the Saco River Bridge has progressed and significant repairs in the near future are warranted. HNTB recommends repairs to these structures be programmed so that repairs are completed over the next five years. The next underwater inspection should be completed in 2016.

SPECIAL DAMAGE INSPECTIONS

Occasionally, an over height vehicle hits the underside of a bridge, or a vehicle collides with a section of bridge railing. When this occurs, HNTB conducts an immediate field investigation to determine the extent of the damage and whether it is safe for traffic to continue using the bridge. In some cases, emergency repairs or restrictions are required to maintain traffic on the bridge.

BRIDGE REHABILITATION

The Authority's planned bridge rehabilitation program is reviewed and adjusted following the conclusion of each year's bridge inspection program. During the inspection, bridge components such as the concrete deck, superstructure and substructure are assigned condition ratings. Using these ratings, bridges requiring repair are further separated into five groups based on the overall condition of the bridges and the safety implications of their deficiencies.

- **GROUP V** - bridges are not in need of any repair (typically new or recently rehabilitated).
- **GROUP IV** - bridges need repair, but of a minor nature. This work can most likely be done by maintenance crews.
- **GROUP III** - bridges need repair, but generally the structural safety is not jeopardized at present.
- **GROUP II** - bridges should be repaired as soon as possible. However, the problem is such that a short delay is not likely to create a safety problem. If left too long, it will become a Group I Bridge.
- **GROUP I** - bridges need immediate repair. The problem is such that the safety of the highway is in danger if the repair is not made quickly. For example, heavy concrete deterioration under bridge bearings, scour around bridge foundations, weakened girders due to impact, etc.

TABLE 2, Bridge Tabulation, on the following page illustrates the number of bridges in each

TABLE 2
BRIDGE TABULATION

YEAR	GROUP V BRIDGES	GROUP IV BRIDGES	GROUP III BRIDGES	GROUP II BRIDGES	GROUP I BRIDGES	TOTAL NUMBER OF BRIDGES
2011	9	66	100	1	0	176
2010	10	66	99	1	0	176

group category based on the 2011 Annual Bridge Inspection. 2010 data has also been provided for reference. The only Group II bridge is the Piscataqua River Relief Channel. Repairs to this bridge are currently ongoing. When complete, this bridge will no longer be a Category II bridge.

The grouped bridges are then further prioritized for repair or replacement considering factors such as safety, bridge age, importance, rate of deterioration, load capacity and traffic volumes.

In addition, higher priorities are typically assigned to bridges that are classified as “structurally deficient”. A bridge classified as structurally deficient is not necessarily unsafe; however, these bridges do require repair and maintenance in the near future to ensure their continued safe operation. There are several key structural components that are considered by FHWA in reaching this classification. These components primarily include: Deck, Substructure and Superstructure. If any one of these components has a condition rating of 4 or less (indicating that element is in ‘poor’ condition), the bridge is considered "structurally deficient".

2011 BRIDGE REHABILITATION AND REPLACEMENT PROJECTS

The focus of the Authority’s 2011 bridge program was to repair structurally deficient bridges.

During the 2011 bridge inspection, 15 structurally deficient structures were identified out of a total of 176 (8.5%). Repair and rehabilitation projects are currently under construction for nine of these 15 bridges and, once work is complete, the structures will no longer be classified as "structurally deficient".

TABLE 3, Structurally Deficient Bridge Summary, provides a listing of Maine Turnpike bridges currently classified as "structurally deficient". The table also identifies ongoing and programmed repairs for these bridges.

TABLE 3
STRUCTURALLY DEFICIENT BRIDGE SUMMARY

Bridge Name	Mile Marker	Status
Riverside St. / Larrabee Rd. Interchange 48 Underpass	48.5	Bridge replacement underway
Warren Avenue Overpass (Northbound)	49.00	Bridge repairs underway
Warren Avenue Overpass (Southbound)	49.01	Bridge repairs underway
Presumpscot River (Northbound)	51.8	Bridge rehabilitation underway
Presumpscot River (Southbound)	51.81	Bridge rehabilitation underway
West Falmouth / Cumberland Interchange 53 Underpass	52.4	Bridge rehabilitation underway
Piscataqua River - Structure # 28	55.5	Programmed for rehabilitation in 2015
Piscataqua River Relief Channel	55.57	Bridge repairs underway
Hurricane Road Underpass	56.6	Programmed for rehabilitation in 2012
Gray Interchange Underpass	63.1	Programmed for rehabilitation in 2014
Chandler Mill Road Underpass	70.2	Programmed for rehabilitation in 2012
Washington Street & MCRR Overpass (Northbound)	75.6	Bridge rehabilitation underway
Washington Street & MCRR Overpass (Southbound)	75.61	Bridge rehabilitation underway
Old Lisbon Road Underpass	81.8	Programmed for rehabilitation in 2013
Furbush Road Underpass	86.7	Programmed for rehabilitation in 2012

In addition, repair contracts were also issued for several other bridges not classified as structurally deficient. These contracts included repairing concrete deterioration, replacing substandard bridge elements such as railings and endposts, increasing bridge under clearance, and improving load capacity.

The following is a brief summary of the 2011 bridge work:

- **MILE 26.3 - EASTERN TRAIL BRIDGE UNDERPASS**

Construction of the new Eastern Trail Pedestrian Bridge at Mile Marker 26.3 was completed in August 2011. This new crossing, located just north of the Kennebunk Service Areas, was constructed as part of a larger joint MaineDOT and Eastern Trail Management District project. As part of the overall project, a new 6.2 mile segment of the Eastern Trail was constructed along the old Eastern Railroad Corridor in Biddeford, Arundel, and Kennebunk. The trail, and the new bridge over the turnpike, provides bicycle and pedestrian connections within and between the communities along the Eastern Trail Corridor.

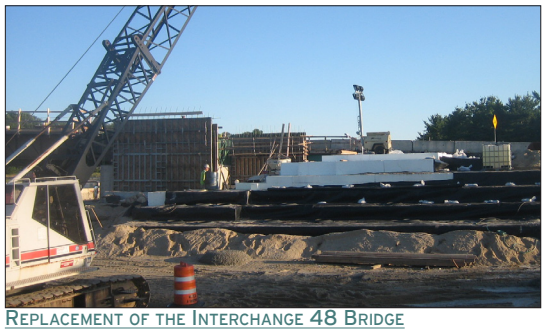
EASTERN TRAIL PEDESTRIAN BRIDGE CROSSING THE MAINE TURNPIKE

- **MILE 44.3 - I-295 OVER PAYNE ROAD OVERPASS**

This project includes substructure repairs to the abutments of the I-295 over Payne Road Overpass. This contract was issued for construction in July 2011 and is scheduled for completion in November 2011.

- **MILE 48.5 - RIVERSIDE STREET/LARRABEE ROAD INTERCHANGE 48 UNDERPASS** [Structurally Deficient]

Replacement of the Interchange 48 Bridge with a wider and longer structure is being completed as part of this project. The wider structure will allow for a median barrier and wider outside shoulders. The longer structure will accommodate additional capacity on the mainline in the future. This contract was issued for construction in February 2011 and the new bridge is scheduled to be open to traffic by November 1, 2011. Once the new bridge is opened, the original bridge will be closed and demolished. The project is scheduled to be complete by May 2012.



REPLACEMENT OF THE INTERCHANGE 48 BRIDGE

- **MILE 51.8 - PRESUMPSCOT RIVER BRIDGE OVERPASS (NB)** [Structurally Deficient]

- **MILE 51.8 - PRESUMPSCOT RIVER BRIDGE OVERPASS (SB)** [Structurally Deficient]

These existing bridges, one carrying northbound traffic and one carrying southbound traffic, have deteriorated and substandard metal "pork chop" bridge rails, bridge decks, abutments and piers. This contract was awarded for construction in April 2010 and is scheduled for substantial completion in November 2011. The work includes a complete deck replacement, removal of the existing metal bridge rails, widening of the existing bridge, joint replacement, substructure repair, and stream bank stabilization.

THE PRESUMPSCOT RIVER BRIDGE IS SCHEDULED FOR SUBSTANTIAL COMPLETION IN NOVEMBER 2011

- **MILE 52.4 - WEST FALMOUTH/ CUMBERLAND INTERCHANGE 53 UNDERPASS**
  [Structurally Deficient]

This contract includes rehabilitating the Interchange 53 Bridge and completing improvements to the interchange ramps. The bridge work involves substructure and deck widening to accommodate the addition of a median barrier and wider shoulders, replacement of the bridge deck, joint replacement and substructure repairs. The bridge will also be raised to reduce the potential for impacts by over height vehicles. The ramp work includes extending the existing acceleration lanes, lighting improvements and paving. This contract was awarded for construction in July 2011 and is scheduled to be complete by November 2012.

- **MILE 55.57 - PISCATAQUA RIVER RELIEF CHANNEL**
  [Structurally Deficient]

Repairs to the Piscataqua River Relief Channel are being completed to replace several failing wingwalls and to preserve the integrity of the mainline roadway embankment. This contract was issued for construction in July 2011 and is scheduled for completion in November 2011.

THE PISCATAQUA RIVER RELIEF CHANNEL, ORIGINALLY BUILT IN THE 1950'S, IS CURRENTLY UNDER REPAIR

- **MILE 74.5 - ST. LAWRENCE AND ATLANTIC RAILROAD OVERPASS (NB)**

- **MILE 74.5 - ST. LAWRENCE AND ATLANTIC RAILROAD OVERPASS (SB)**

These existing bridges, one carrying northbound traffic and one carrying southbound traffic, have deteriorated endposts, pavement and joints and are currently being rehabilitated as part of Contract 2011.07. This contract was awarded for construction in July 2011 and is scheduled for substantial completion in June 2012. The work includes concrete deck repairs, installation of new pavement and membrane, joint repairs, bearing modifications, endpost modifications and substructure repair.

- **MILE 75 - KITTYHAWK AVENUE UNDERPASS**

Repairs to the Kittyhawk Avenue Underpass were awarded for construction in July 2011 and are scheduled for completion in June 2012. This project includes concrete deck repair, joint repair, and replacement of the bituminous pavement and waterproofing membrane on the bridge deck.

- **MILE 75.6 - WASHINGTON STREET BRIDGE OVERPASS (NB)**
  [Structurally Deficient]

- **MILE 75.6 - WASHINGTON STREET BRIDGE OVERPASS (SB)**
  [Structurally Deficient]

These two 30' wide bridges carry northbound traffic and southbound traffic over Washington Street and the Pan AM Railroad. The bridges have metal "pork chop" bridge rails, the concrete decks are in poor condition, and the existing shoulder widths do not meet modern interstate standards. These bridges are being rehabilitated under a contract awarded for construction in August 2010. The proposed work, scheduled for completion in June 2012, includes a complete deck replacement, removal of the existing metal bridge rails, widening of the bridge to accommodate 10' outside shoulders and a northbound acceleration lane, construction of new concrete parapets, joint

replacement, and substructure repairs.

- **Mile 92.6 - Academy Road Underpass**

Work at the Academy Road Underpass, scheduled for completion in November 2011, includes a complete replacement of the existing bridge deck, railing and bridge beams, raising the bridge superstructure to provide improved clearance over the highway, substructure repair, and the installation of new waterproofing membrane and asphalt wearing surface on the bridge deck.

- **Mile 93.3 - Route 197 Underpass**

This project includes the rehabilitation of the bridge carrying Route 197 over the Maine Turnpike. The work includes substructure rehabilitation, joint rehabilitation, concrete deck repairs, and the installation of new waterproofing membrane and asphalt wearing surface on the bridge deck. This work is scheduled for completion in July 2012.

2011 Emergency Bridge Repairs

In 2011, repair contracts were issued to correct damage caused by over height vehicle hits at five bridges. In addition, plans are currently being developed to repair over height vehicle damage at two additional locations - the Exit 102 and Exit 103 underpasses.

Although the Authority is typically reimbursed for the cost of these repairs from its insurance or that of the vehicle operator, damage to bridges caused by over height vehicles continues to be a concern. The Authority is addressing these concerns by reviewing and often improving under clearance when bridges are rehabilitated.

The following bridge repair contracts were issued in 2011 to repair damage from over height vehicles:

- **Mile 49.0 - Warren Avenue Overpass (NB)**
  [Structurally Deficient]

- **Mile 49.0 - Warren Avenue Overpass (SB)**
  [Structurally Deficient]

The Warren Avenue bridge has been struck numerous times with the last two impacts causing significant damage. It was planned to repair and increase the clearance of the bridge in 2012, but the Authority has decided to repair the bridge and install overheight warning devices in lieu of increasing the vertical clearance.

This project includes repairs to several girders damaged by three separate over height vehicle impacts. This repair contract, which was issued for construction in July 2011, is scheduled for completion in October 2011. Once the damaged girders are repaired these bridges will no longer be considered structurally deficient.

- **Mile 56.6 - Hurricane Road Underpass**

Work at the Hurricane Road Underpass will repair multiple girders damaged by an over height vehicle. This repair contract was issued for construction in July 2011 and is scheduled for completion in October 2011.

- **Mile 76.9 - Hackett Road Underpass**

Repairs to the Hackett Road Underpass were completed in May 2011 and consisted of repairs to several girders damaged by an over height vehicle.

- **Mile 93.3 - Route 197 Underpass**

At this underpass, the work includes repairing several girders damaged by an over height vehicle. Completion of the work is scheduled for July 2012.

2012 Bridge Rehabilitation and Replacement Recommendations

Structurally Deficient Bridges

The repair or replacement of structurally deficient bridges has been, and should remain, a priority for the MTA. This focus has allowed the

TABLE 4
BRIDGES WITH METAL "PORK CHOP" BRIDGE RAILING

Bridge Name	Mile Marker	Status
South Portland Interchange Underpass	44.90	Currently in fair condition
Riverside St. / Larrabee Rd. Interchange 48 Underpass	48.50	Bridge replacement underway
Washington Street & MCRR Overpass (Northbound)	75.60	Bridge rehabilitation underway
Washington Street & MCRR Overpass (Southbound)	75.61	Bridge rehabilitation underway
Lewiston Interchange Overpass (Northbound)	80.30	Programmed for replacement 2014
Lewiston Interchange Overpass (Southbound)	80.31	Programmed for replacement 2014
Presumpscot River Overpass, Falmouth Spur (Eastbound)	FS 1.10	Programmed for rehabilitation in 2012
Presumpscot River Overpass, Falmouth Spur (Westbound)	FS 1.10	Programmed for rehabilitation in 2012

Authority to reduce the number of structurally deficient bridges in their inventory by nearly half over the past five years. Following completion of the programmed 2011 bridge projects, the percentage of structurally deficient bridges in the MTA's inventory is expected to drop to less than 5%. For comparison, on average, 11% of the nation's bridges are classified as structurally deficient.

METAL "PORK CHOP" BRIDGE RAILINGS

Over the past several years the MTA has rehabilitated many of their bridges with metal "pork chop" railing systems. These efforts typically include removal of the existing bridge rail system and replacing it with a modern system.

LISBON STREET BRIDGE PRIOR TO 2009-2011 RECONSTRUCTION

LISBON STREET BRIDGE AFTER THE COMPLETION OF CONSTRUCTION

Five bridges with the metal "pork chop" rails will remain in service after completion of the 2011 bridge repair program.

HNTB recommends a continued emphasis on these structures so that they are programmed for rehabilitation as soon as feasible. The rehabilitations should include the replacement of the existing bridge rail system with a rail system meeting current crash test standards.

TABLE 4, Bridges with Metal "Pork Chop" Bridge Railing, lists the remaining six bridges with this rail type. Ongoing and programmed repairs for these bridges are also listed.

BRIDGE PAINTING

The Authority has implemented an effective painting program by issuing painting contracts. This painting program is important because it reduces the potential for costly future repairs to correct steel corrosion. Since 1990, 48 bridges have been repainted, the last five in 2008. In 2009, HNTB recommended that the Authority temporarily suspend their bridge painting program since the bridges with the greatest amount of paint deterioration were also in need of significant rehabilitation. Accordingly, a decision was made to delay painting additional bridges until more definitive rehabilitation scopes could be developed for each bridge.

HNTB recommends that an analysis be completed to evaluate the cost of repainting versus replacing structural steel on all future bridge rehabilitation projects. This analysis should consider cost, the load capacity of the existing girders, and the condition of the existing paint system.

However, multiple bridges which are not scheduled for rehabilitation in the next five to 10 years are beginning to exhibit advanced deterioration of their paint systems. HNTB recommends that the Authority budget $1,700,000 for bridge painting in 2012, and that a study be conducted to determine the most appropriate candidates for bridge repainting.

RECOMMENDED BRIDGE PROJECTS

Based on the above priorities and the findings of the 2011 Bridge Inspection Program, HNTB recommends the rehabilitation of two structurally deficient bridges, Chandler Mill Road and Furbush Road, in 2012. The four remaining structurally deficient bridges should be scheduled for repair or rehabilitation over the next five years as part of the Maine Turnpike Authority's Capital Improvement Program.

In addition, the rehabilitation of several additional structures, including two with metal "pork-chop" railings, is recommended to repair areas of deterioration, to improve bridge under clearance, and to increase bridge load capacity. The following is a brief description of each bridge recommended for repair:

- **MILE 25.00 - MOUSAM RIVER OVERPASS**

Our inspection of the Mousam River Overpass identified significant erosion at the north abutment and deterioration of the substructure concrete. HNTB recommends the construction of a stone downspout and substructure repairs to the piers and abutments.

- **MILE 33.00 - SACO RIVER OVERPASS (NB)**

- **MILE 33.00 - SACO RIVER OVERPASS (SB)**

These two bridges, one carrying northbound traffic and one carrying southbound, have deteriorated substructures, bridge bearings and structural steel. In addition, the condition of the bridge pavement and membrane is deteriorating. The project should include the removal and replacement of waterproof membrane and bituminous overlay. The other repairs should be programmed over the next five years.

- **MILE 35.70 - SACO INTERCHANGE UNDERPASS**

Our inspection revealed that the joint seal has failed resulting in deteriorated bearings and the concrete wearing surface is reaching the end of its life. HNTB recommends joint and deck repairs, and the replacement of the concrete wearing surface.

- **MILE 42.5 - SCARBOROUGH INTERCHANGE BRIDGE**

The pavement on the bridge deck is deteriorated. HNTB recommends the removal of the existing pavement and waterproof membrane, deck repairs, the installation of new waterproof membrane, and the installation of a bituminous overlay. This work should be completed in conjunction with the Interchange 42 pavement rehabilitation project scheduled for 2012.

- **MILE 52.6 - LEIGHTON ROAD UNDERPASS**

The inspection of the Leighton Road Underpass identified several areas of deterioration including the concrete piers and abutments, deteriorated pavement and leaking bridge joints. The repair or rehabilitation of these elements should be undertaken as part of this project.

- **MILE 53.4 - MOUNTAIN ROAD UNDERPASS**

Similar to Leighton Road, the inspection of the Mountain Road Underpass identified several areas of deterioration including the concrete piers and abutments, deteriorated pavement and leaking bridge joints. The repair or rehabilitation of these elements should be undertaken as part of this project.

- **MILE 56.60 - HURRICANE ROAD UNDERPASS**

- **MILE 56.61 - HURRICANE ROAD OVER PISCATAQUA RIVER**

Our inspection of these structures identified several areas of deterioration including the concrete abutments, joints and pavement. HNTB recommends joint and deck repairs, substructure repair, installation of a new waterproof membrane, and the replacement of the bituminous wearing surface.

- **MILE 61.60 HUNTS HILL ROAD OVERPASS (NB)**

- **MILE 61.60 HUNTS HILL ROAD OVERPASS (SB)**

Our inspection of this structure identified deterioration of the abutment and the closure wall. HNTB recommends repairs to these areas.

- **MILE 70.2 - CHANDLER MILL ROAD UNDERPASS**
  [Structurally Deficient]

The 2011 inspection of the Chandler Mill Road Underpass, originally built in the 1950's, identified deterioration of the concrete deck, bridge girders and substructure concrete. Additionally, a load rating of the existing girders found them to be undersized by modern standards. Therefore, the work on this bridge should include replacement of the superstructure (steel girders, concrete deck and joints), and repairs to the bridge substructure. Raising the bridge superstructure is also recommended to minimize the potential for impacts by over height vehicles.

- **MILE 86.7 - FURBUSH ROAD UNDERPASS**
  [Structurally Deficient]

The 2011 inspection of the Furbush Road Underpass, originally built in the 1950's, identified deterioration of the concrete deck, bridge girders and substructure concrete. Additionally, a load rating of the existing girders found them to be undersized by modern standards. Therefore, the work on this bridge should include replacement of the superstructure (steel girders, concrete deck and joints), and repairs to the bridge substructure. Raising the bridge superstructure is also recommended to minimize the potential for impacts by over height vehicles.

- **MILE 107.70 - CENTRAL STREET OVERPASS (NB)**

- **MILE 107.70 - CENTRAL STREET OVERPASS (SB)**

Our inspection of these structures identified several areas of deterioration including the substructure concrete, end posts, and deck overhangs. HNTB recommends deck and substructure repairs, and construction of new end posts.

- **MILE FS1.1 - PRESUMPSCOT RIVER OVERPASS, FALMOUTH SPUR (EB)**

- **MILE FS1.1 - PRESUMPSCOT RIVER OVERPASS, FALMOUTH SPUR (WB)**

These two 30' wide bridges carry eastbound and westbound traffic over the Presumpscot River. Both bridges feature painted metal "pork chop" bridge rails. The recommended repairs to these bridges include replacement of the existing "pork chop" rail system, installation of stone downspouts, deck repairs, joint replacement, substructure repairs, and replacement of the existing bridge pavement and waterproofing membrane.

BRIDGE FILE UPDATE

In addition to completing bridge inspections and implementing a bridge repair program, the Authority also maintains detailed bridge files as part of their bridge operations and maintenance program. In accordance with FHWA requirements, these bridge files contain inventory and appraisal information such as bridge geometrics and age, as-built drawings, condition ratings, safe load capacities, and

scour evaluations.

In 2011 the following initiatives were undertaken to update the Authority's bridge files:

LOAD RATING OF IN-SERVICE BRIDGES

Together with the Maine Turnpike, HNTB is working to develop updated load ratings for all 176 Authority-owned bridges. Load ratings are used primarily to understand the safe load capacity of bridges and to identify structures that should be posted for load. Additionally, load ratings are used to evaluate overweight permit load requests and to prioritize bridge repair projects. These uses require that bridge load ratings are reliable, uniformly consistent, and current. This load rating initiative, which began in late 2010, is scheduled for completion in December 2013.

SCOUR EVALUATIONS

Bridge scour, the erosion of soil material from around foundations caused by flowing water, is the number one cause of bridge failure in the United States. Minimizing bridge damage and ensuring public safety during flood events requires assessing every bridge crossing a water body as to its vulnerability to scour. Where necessary, appropriate scour countermeasures should be installed and effective scour monitoring programs should be initiated. Realizing this need, the Federal Highway Administration has made the completion of scour evaluations a national priority. To that end, HNTB and the Maine Turnpike Authority have been working to complete scour evaluations for all turnpike-owned bridges crossing water bodies. These scour evaluations are anticipated to be complete in winter 2012.

DRAINAGE

The roadway surface drainage system, consisting of drainage ditches, catch basins and cross culverts, was inspected and found to be in fair-to-good condition. Catch basin repair is typically included as part of the pavement rehabilitation projects. This practice appears to be adequate to maintain the catch basins in fair-to-good condition. Routine ditch and side slope repairs are required for proper upkeep of the highway. Turnpike maintenance forces routinely clear debris from drainage ditches and regrade the surrounding areas as necessary. All ditches will continue to be evaluated and recommendations for reconstruction will be made as required.

Numerous rivers and streams pass under the turnpike through box culverts and culvert pipes. All box culverts and pipes 60 inches in diameter or greater are inspected every year. Pipes 36 to 54 inches in diameter are inspected on a five year cycle and were last inspected in 2008. All box culverts and all pipes 60 inches in diameter and larger were inspected in 2011 (a total of 89 individual culvert ends), and were found to be in satisfactory condition.

TWIN 8' X 8' CONCRETE BOX CULVERTS CARRY THACHER BROOK BENEATH THE MAINLINE IN KENNEBUNK

The Maine Turnpike periodically issues contracts to address erosion or drainage issues that are not able to be addressed by the Authority's maintenance forces due to their location and the type of equipment required to cost effectively complete the repair.

2012 RECOMMENDATIONS

HNTB identified several areas of significant erosion under the Mousam River Overpass and the Presumpscot River Overpass. HNTB recommends that these areas be repaired as part of 2012 scheduled bridge rehabilitation projects. We also recommend that the areas noted in the detailed inspection report be

monitored on a yearly basis.

GUARDRAIL

The Authority's program to improve large areas of guardrail (by issuing construction contracts) has changed over the years, and now includes guardrail improvements adjacent to both the outside and median shoulders. Issuing contracts allow for large sections of roadway to be upgraded quickly. On the outside shoulders, the leading end sections are removed and replaced with crash attenuating end treatments and the length of guardrail in many locations is increased. Median guardrail modifications include improving the safety of the median openings, which are the paved areas in the turnpike median without guardrail. These median openings are used by authorized vehicles to reverse direction. They are typically located adjacent to interchanges and at other locations generally four to five miles apart. The median guardrail modifications include closing some median openings that are not critical for authorized vehicles, and constructing new median openings at areas with adequate sight distance. The guardrail terminal end sections of the existing median openings, that remain, are replaced with impact attenuating units.

THE GUARDRAIL IMPROVEMENT PROGRAM HAS BEEN COMBINED WITH THE PAVEMENT REHABILITATION CONTRACTS

To date, the median and outside shoulder guardrail from Mile 2.2 to 6.8, Mile 13.4 to 43.2, Mile 62.6 to Mile 85.0, and Mile 100.0 to Mile 109.0 have been upgraded. Over the past several years, the guardrail improvement program has been included with the pavement rehabilitation contracts. Combining the guardrail and pavement work together reduces the overall cost of the work by improving the efficiency of the construction.

2012 RECOMMENDATION

In 2012, HNTB recommends the Authority include guardrail improvement, in conjunction with the 2012 Pavement Rehabilitation contract, from Mile 92 to Mile 98 and Mile 30 to 35.5. As part of this work, HNTB recommends the permanent closure of two seasonal median openings in the vicinity of Mile 35 and the construction of a new median opening that complies with current policies.

EMERGENCY VEHICLE RAMPS (EVRS)

To promote improved safety in conjunction with the closure of median openings, the Authority is constructing Emergency Vehicle Access Ramps (EVRs). The EVRs are gated ramps between the mainline and a local road that allows authorized vehicles such as MTA vehicles, fire trucks and police vehicles access to the mainline. Authorized vehicles are able to reverse direction without having to cross mainline traffic. The MTA and HNTB have identified critical locations along the Maine Turnpike where EVRs are desired and feasible. Locations are based upon criteria such as interchange spacing, plowing routes, and access for emergency vehicles.

In 2011, an EVR is under construction at Academy Road, Mile 92.6 in Litchfield, as part of the bridge rehabilitation project. Other locations where the Authority is considering ramps are:

- **CAPTAIN THOMAS ROAD, MILE 14.8 - OGUNQUIT**
- **HACKETT ROAD, MILE 76.9 - AUBURN**

2012 RECOMMENDATION

HNTB recommends the Authority study the feasibility of constructing Emergency Vehicle Ramps at the Captain Thomas Road and Hackett Road locations. The feasibility study

should address safety, cost, environmental and property impacts.

LIGHTING

In 2010 the MTA implemented a pilot study of LED lighting at various locations in order to determine the potential energy and maintenance savings that the investment would deliver.

In 2010, LED light fixtures were installed at the Cumberland Service Area, Exit 46 canopy, Exit 45 canopy, Crosby Maintenance, and Kennebunk Park & Ride. These locations are being monitored and evaluated to determine their cost effectiveness.

SIGNAGE

The MTA maintains its signs in generally good condition. Each year, the MTA routinely replaces signs that are damaged, faded, or otherwise in poor condition. A sticker with the month and year is affixed to each sign to allow MTA maintenance staff to readily assess the sign's age.

The MTA Sign Shop fabricates the majority of the regulatory, route marker, warning, and specialty signs on the Maine Turnpike. The Authority has also procured signs from the MaineDOT sign shop on a limited basis. Larger signs such as guide, recreational, or motorist service signs are generally fabricated an installed by others as part of separate or related contracts. Maine Logo, Inc. maintains all logo signs along the Maine Turnpike as part of a separate contract with the MTA.

HNTB RECOMMENDATION

HNTB recommends the Authority continue to annually monitor, maintain, and replace signs as needed.

ROADWAY MARKINGS

The MTA's maintenance forces re-stripe the turnpike once a year to maintain roadway markings in good condition. Double yellow lines in two-way traffic areas in the interchanges, as well as new pavement, are typically painted twice a year. The paint lines are adequately maintained.

HNTB RECOMMENDATION

HNTB recommends that the MTA continue their current practice.

TOLL PLAZAS

The MTA has 19 toll plazas that include tollbooths, canopies, utility buildings and other structures. The tollbooths and canopies are rated in fair-to-good condition while other components, such as concrete slabs, bumpers and tunnels, are rated in fair condition. Repairs to these components at various locations have been completed over the past several years both by MTA maintenance staff and through separate toll plaza repair contracts. Additional repairs to the concrete slab, bumpers and tunnels are likely to be warranted in the near future to maintain these facilities in fair condition.

The following sections specifically address the MTA's York and New Gloucester Toll Plazas which are currently being evaluated for conversion to highway speed toll collection facilities.

YORK TOLL PLAZA

In 2010, nearly 16 million vehicles passed through the York Toll Plaza. Approximately $38.5 million in revenue was collected at York in 2010, accounting for about 38% of the total Maine Turnpike Authority revenue. Truck traffic (MTA Classes 3 through 6) accounts for 11% of the toll plaza transactions at York. About 55% of all traffic through York Toll Plaza (including nearly 80% of all trucks) utilizes E-ZPass.

The existing York Toll Plaza was constructed in 1969 and is challenged by both operational

and safety issues. Recently, the MTA began the process of evaluating this toll plaza for a possible highway speed toll collection facility. Open Road Tolling allows E-ZPass customers to maintain highway speeds along the mainline to pay tolls, while non-E-ZPass customers must exit the mainline to pay their toll at a conventional stop-and-pay toll plaza. This feature improves customer service, aids in congestion relief, provides operational benefits, and provides environmental benefits in terms of air quality and noise. The need for this evaluation is based upon the existing deficiencies of the York Toll Plaza including the outmoded conditions, safety concerns, and ongoing maintenance of the existing tollbooths, canopy, tunnel and roadway approaches. A decision on the possible conversion of the York Toll Plaza to an Open Road Toll collection facility is currently on-hold pending the outcome of a feasibility study of all electronic tolling and a complete review of all studies previously compiled.

In 2008, the Authority's maintenance forces placed a bituminous asphalt shim on the approaches and tunnel at the York plaza to improve the riding surface as well as to mitigate the effects of ongoing settlement of the plaza approaches. In late 2009, a contract was issued for repairs consisting of bituminous shimming, slab repair, stair repair, lighting improvements, waterproofing, and a number of additional improvements to increase safety. This work was completed in late spring 2010.

THE EXISTING YORK TOLL PLAZA HAS NUMEROUS DEFICIENCIES AND SAFETY CONCERNS

NEW GLOUCESTER TOLL PLAZA

In 2010, about 7.2 million vehicles passed through the New Gloucester Toll Plaza. The plaza collected approximately $13.5 million in revenue, accounting for just over 13% of the total Maine Turnpike Authority revenue. Truck traffic (MTA Classes 3 through 6) accounted for nearly 12% of the toll plaza transactions at New Gloucester. Overall E-ZPass usage at New Gloucester was fairly modest in 2010, at 47.5%. However, among commercial vehicles at this plaza, E-ZPass usage was very high (85%).

The MTA has scheduled the opening date of mid-2013 for the conversion of the New Gloucester Toll Plaza to Open Road Tolling. This conversion will allow E-ZPass patrons to safely proceed through the toll plaza at highway speeds without slowing or stopping. Additionally, cash toll collection equipment will be upgraded and necessary plaza pavement rehabilitation will be performed. In addition to the necessary maintenance, the project will provide a cost effective next generation toll technology, create additional maintenance efficiencies for the future and enhance audit functions for toll operations monitoring.

SERVICE AREAS

There are five service plazas in four locations on the turnpike.

In 2007, the new buildings were completed, and parking was improved for cars and trucks at the Kennebunk northbound (NB) and Kennebunk southbound (SB) service plazas. Each location has a Mobil Service Station, Burger King, Starbucks, Z-Mart convenience store, and either a Popeye's Restaurant (NB) or a Sbarro's Restaurant (SB).

The new service plaza buildings at Cumberland (SB) and Gray (NB) opened in early 2007. Each location has a Mobil Service Station, Starbucks, and a Travel Mart convenience store.

Two service plazas on the turnpike, Lewiston (SB) and Litchfield (NB), were demolished in 2009.

A new service plaza located at the confluence of the turnpike (I-95) and I-295 in West Gardiner opened in November 2008. This project was developed in cooperation with the Maine Department of Transportation (MaineDOT). A craft center along with a small tourist information center is also included in the building.

In 2009, the MTA was awarded a grant from the Environmental Protection Agency as part of the American Recovery and Reinvestment Act to expand the existing truck parking area at the Gardiner Travel Plaza and install a Truck Stop Electrification (TSE) system for 30 trucks.

IN 2009 A TRUCK STOP ELECTRIFICATION (TSE) SYSTEM WAS INSTALLED AT THE GARDINER TRAVEL PLAZA

The project was completed and opened to the public in September 2010.

MAINTENANCE FACILITIES

Nine maintenance facilities are located along the turnpike. Each maintenance area has a unique combination of buildings ranging from maintenance garages to offices. A listing of buildings at the maintenance areas is shown in **APPENDIX A**. These areas are in fair-to-good condition.

Due to the increasing age of the turnpike, traffic, safety, driver expectations, and environmental requirements, substantially more maintenance efforts are necessary which require more materials and equipment resulting in the need for additional covered operations and storage spaces. Covering de-icing material stockpiles is essential to minimizing environmental impacts and maximizing the effectiveness of the material.

The existing equipment maintenance facility, body shop and material storage buildings at the Gray Maintenance Area are undersized and outdated. To mitigate these issues, the MTA plans to demolish the existing body shop and salt storage building, construct a new equipment maintenance facility, convert the old equipment maintenance facility into the body shop, and build a new material storage building starting in 2012. The planning and design for this project has commenced.

3 TOLL COLLECTION SYSTEM

ELECTRONIC TOLL COLLECTION

The MTA operates its Electronic Toll Collection (ETC) system as a closed-barrier toll system from the York Toll Plaza north to the New Gloucester Toll Plaza, and an open-barrier toll system from the New Gloucester Toll Plaza north to the turnpike terminus in Augusta. The open-barrier toll system allows free travel between interchanges within the limits of the mainline barrier toll plazas on the northern section of the turnpike. All trips between Exit 75 in Auburn and Exit 86 in Sabattus are toll-free. It is estimated that toll-free trips account for roughly 3% of all Maine Turnpike trips.

E-ZPASS GROUP

On February 1, 2005, the Maine Turnpike Authority implemented its current ETC system, E-ZPass. One of the greatest benefits to the Authority for converting to E-ZPass was admittance into the E-ZPass Group, formerly known as the Inter Agency Group (IAG). The E-ZPass Group includes 24 toll agencies that operate over 46 toll roads, bridges and tunnels in 14 states from Maine to Virginia to Illinois. The E-ZPass Group's primary objective is the operation of a regionally compatible toll system with seamless travel based on common operating protocols and policies. The backbone of the E-ZPass Group's system is a network of multiple customer service centers and computer systems used to support the 21 million E-ZPass toll tags currently in circulation.

Membership in the E-ZPass Group allows the Authority a voice in one of the largest interoperable and reciprocal ETC systems in the world. This group collectively manages the procurement and deployment of the E-ZPass technology. Started in 1990 with seven agencies, today the E-ZPass Group boasts 12.5 million active accounts.

ONGOING ACTIVITIES

Lessons have been learned in the years since the deployment of E-ZPass, and strategic goals have been set to improve the services available to E-ZPass account holders, the Maine Turnpike Authority's E-ZPass Customer Service Center (CSC), and various departments within the organization in the future. More specific goals to be accomplished include:

- Deployment of Open Road Tolling (ORT) whereby E-ZPass customers would be provided specific toll lanes at mainline toll plazas to allow for ETC at highway speeds. Cash collection would continue to be offered at the plaza with a physical barrier between the lanes for safety.
- Continuous improvement of the E-ZPass retail center, including enhancements to customer account handling and processing.
- Improved customer features, including features of the E-ZPass website and the options for customers, such as electronic account statements.
- Focus on system and operations audit.
- Continued system monitoring and attention to customer feedback to maintain the high level of accuracy of the system.
- Improved customer education regarding plan options and toll rates.

Tasks accomplished to date include:

- Additional payment options including debit cards and Automatic Clearing House (ACH).
- Enhanced system maintenance oversight.
- Expansion of violation enforcement efforts.

TOLL SCHEDULE

Toll rates remained steady in 2010. No further changes were made following the most recent toll rate adjustment implemented on February 1, 2009. For cash-paying passenger vehicles, the toll is currently $2.00 at the York Toll Plaza; $1.75 at the New Gloucester Toll Plaza; $1.25 at the W. Gardiner/I-95 Toll Plaza; and $1.00 at all other locations. E-ZPass rates, for the most part, are structured as distance-based fares, with fares assessed on a per-mile basis. The E-ZPass fares are also structured in such a way that they are always equal to or less than the cash rate for a particular movement.

TOLL RATE ADJUSTMENTS WERE IMPLEMENTED ON FEBRUARY 1, 2009

A passenger car traveling the full length of the turnpike now pays $5.00 in tolls, up from $4.00 prior to the February 2009 toll adjustment. This equates to a per-mile rate of 4.7 cents. A five-axle tractor-trailer traveling the full length of the turnpike now pays $20.00, or 18.7 cents per mile. E-ZPass patrons who have an E-ZPass tag from other toll system highways are charged the current cash fare.

For those who acquire their E-ZPass tag from the Maine Turnpike Authority, the following discount programs are available:

* COMMUTER

The Commuter program is oriented toward patrons who use the turnpike on a daily basis. Patrons pay a quarterly fee for unlimited turnpike usage between the two interchanges of their choice. In 2010, commuter quarterly passes contributed a total of $5.2 million in revenue to the Authority. If these commuters had paid the full cash fare for their trips, they would have generated approximately $12.7 million in revenue. Therefore, commuters effectively received a 59% discount (compared to the cash rate) for their trips.

* PERSONAL

Personal accounts are designed for occasional turnpike travelers. Trips are charged based on the lesser of the current cash fare or the rate per mile fare. In 2010, personal accounts contributed a total of $12.3 million in revenue to the Authority. If all personal trips had been charged the full cash fare, they would have generated approximately $17.2 million in revenue. Therefore, personal accounts effectively received a discount of nearly 29% over the cash fare.

* BUSINESS

The Business program is intended for commercial vehicles. As with passenger cars, commercial vehicles having an E-ZPass tag from the Maine Turnpike Authority are charged the lesser of the current cash fare or the underlying per-mile rate. The average discount received by five-axle vehicles in this program is 21%. Commercial vehicles that enroll in this program can establish either a pre-paid or a post-paid account. The post-paid account requires a $5,000 surety bond, and it qualifies the account holder for a volume discount (see below). The pre-paid account does not require a surety bond, but neither does it provide a volume discount.

* POST-PAID PLAN VOLUME DISCOUNT

Commercial vehicles having a post-paid E-ZPass account with the Maine Turnpike Authority receive additional discounts based on their usage. By combining the average in-state E-ZPass discount of 21% with the "volume discount", the average in-state commercial vehicle with a post-paid E-ZPass

account saves an average of 33% over the cash rate.

This discount follows the below schedule.

Monthly E-ZPass Charges	DISCOUNT
Between $0 and $50	No discount
Between $50 and $100	10% discount off everything over $50
Between $100 and $300	$5 discount plus 15% off everything over $100
Over $300	$35 discount plus 20% off everything over $300

4 TRAFFIC MANAGEMENT AND TECHNOLOGY

Since opening in 1947, the Maine Turnpike has served as the transportation lifeline for the state. Turnpike traffic has grown steadily during the past half century. In 1956, a total of 3.8 million vehicles traveled on the turnpike. This volume rose to over 60 million in 2003, and it has stayed at or above this level throughout the decade and into the 2010's.

Two common measures of turnpike traffic are annual Vehicle-Miles Traveled (VMT) and average trips per day (also known as Average Annual Daily Traffic, or AADT). In 2009, the Maine Turnpike logged 1.23 billion vehicle-miles traveled, while serving an average of just over 167,000 trips per day.

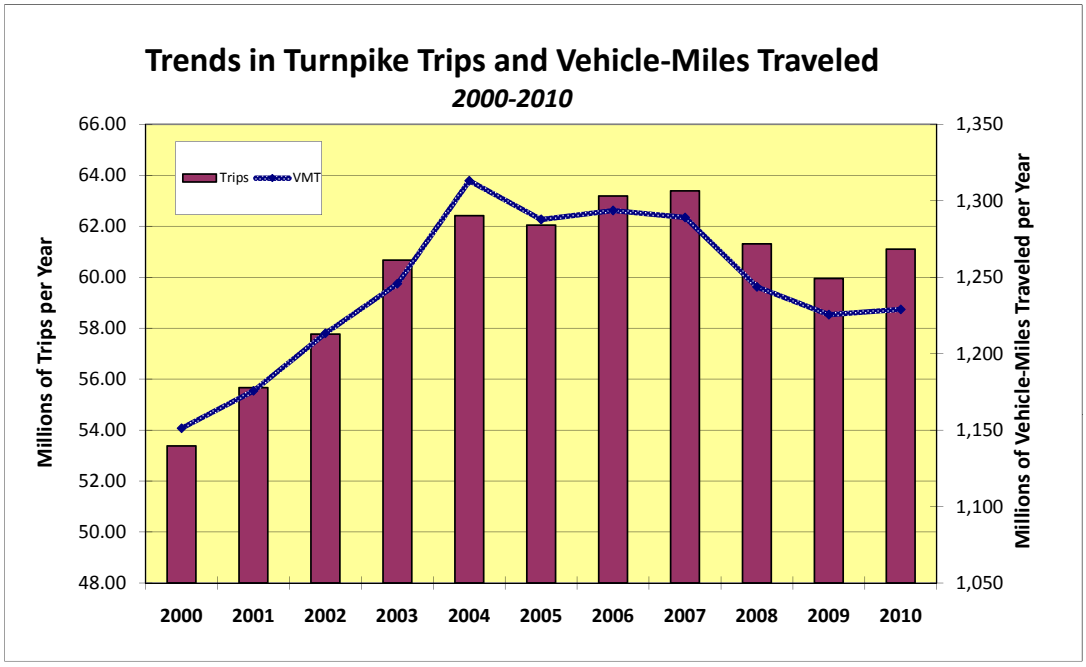
FIGURE 3 illustrates the trends of both of these measures over the past 11 years. It is interesting to note that neither trips nor VMT has experienced much growth since 2004. In 2010, the number of annual trips and VMT increased 1.9% and 0.3% respectively from 2009 to 2010. There are several factors that continue to limit growth, such as high fuel prices, the continued sluggish economy, and the most recent toll increase.

The average trip length on the Maine Turnpike continues to decline, down 1.5% from 2009 to 2010. The average trip length on the Maine Turnpike is approximately 20.1 miles per trip. This is down about 1.5% since 2000. Much of this reduction in trip length is attributed to the growth in shorter trips on the Maine Turnpike, particularly in the Greater Portland area.

TRAFFIC COUNT STATIONS

To gather accurate and timely traffic data, the Authority began installing traffic count stations at interchanges in 1996. Each station is composed of a Type 170 Controller housed in a traffic cabinet. The controller utilizes loop detectors placed in each mainline lane and on each entrance and exit ramp to continuously record traffic volume and speed data. The system, via software and dial-up telephone connections, enables the Authority to collect the data automatically

FIGURE 3



at predetermined intervals. The data is then transferred to a database for analysis. By 2004, all interchanges were equipped with traffic count stations.

With the more frequent failure of the aging traffic loops, and the more regular disruption of the traffic loops during paving projects, the Authority and HNTB determined that upgrading the traffic count stations to newer technology was necessary to provide continued count and speed data to the Authority. The Maine Turnpike Authority is upgrading the count stations to side-fired radar technology to replace the loops. Upgrades to the count stations were approximately 75% complete in 2011 and are anticipated to be completed in 2012.

ROADWAY SENSORS

Roadway Weather Information Systems (RWIS) were installed in the fall of 2008 at the Saco River Bridge Overpass in Saco and at the Eagles Nest Bridge Overpass in Gray. The RWIS measures the surface temperature of the road, road state (wet, dry, snow, ice), and roadway friction. These RWIS units provide information that can help maintenance supervisors make cost effective decisions regarding frost, chemical applications, and whether any precipitation on the pavement will freeze or thaw. The pavement sensors are also used to understand road conditions. Road conditions can be reported as dry, damp, wet, frost, or ice based on the friction measurement.

A RWIS WAS INSTALLED ADJACENT TO THE SACO RIVER BRIDGE OVERPASS

VARIABLE MESSAGE SIGNS (VMS)

The Authority currently maintains a network of Variable Message Signs (VMS) to provide motorists with critical real-time traffic information. The VMS are installed at 14 different locations along the turnpike, primarily focused in the more heavily traveled southern section. The signs typically advise turnpike patrons of current traffic conditions, weather restrictions, accidents, delays, etc. Message displays are controlled by turnpike dispatchers from the communications center at the Maine Turnpike Authority Headquarters.

Eleven Portable Changeable Message Signs (PCMS) have been deployed long-term throughout portions of the turnpike for incident management purposes and can be controlled from the communication center in the same manner as the fixed VMS.

HIGHWAY ADVISORY RADIO

The Maine Turnpike Authority installed its first Highway Advisory Radio (HAR) transmitter in Saco in 1997.

HIGHWAY ADVISORY RADIO

Today, 11 transmitters along the turnpike are located in strategic locations to provide information at critical decision points along the highway, typically at or near interchanges. The radios are supplemented by signs advising motorists to tune their radios to 1610 AM to receive real-time turnpike information. Prerecorded messages are continually broadcast to provide information about traffic conditions, weather, and construction zones. The communications center has the ability to control and quickly update messages. The HAR system is a significant resource for providing information to motorists. In 2007, the Authority upgraded the 11 transmitter sites and the software platform located in the communications center. This upgrade synchronized all the

TABLE 5 - HIGHWAY ADVISORY RADIO TRANSMITTER LOCATIONS

TOWN / CITY	GENERAL LOCATION	MILE MARKER
York	I-95 SB at York Toll Plaza	7.3
Wells	I-95 SB at Sanford Road Overpass	19.1
Kennebunk	I-95 NB at Fletcher Street Overpass	25.3
Saco	I-95 NB at Boom Road Underpass	33.4
Scarborough	I-95 NB at Holmes Road Underpass	43.0
Falmouth	Exit 53 On-Ramp	53.0
Gray	I-95 SB at Gray Maintenance	63.3
Auburn	Exit 75 NB On-Ramp	75.4
Lewiston	Exit 80 SB On-Ramp	80.3
Litchfield	I-95 NB at Marsh Road Underpass	89.2
West Gardiner	I-95 NB at West Gardiner Toll Plaza	100.2
Augusta	I-95 SB, N. of Winthrop Street Underpass	108.7

HAR transmitters improving coverage on the mainline. The locations of these transmitters are summarized in **TABLE 5** above.

An additional HAR transmitter was installed in 2011 in the vicinity of the Kennebunk Service Plazas to better cover the gap in reception between the two adjacent transmitters.

CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM

There are currently 12 CCTV cameras transmitting streaming video 24-hours a day, seven days a week, to monitors located in the communications center at turnpike headquarters. Still images from these cameras are also viewable on the Maine Turnpike web site. The CCTV cameras are located at the following locations:

- **YORK TOLL PLAZA - NB & SB**
- **EXIT 25 (ROUTE 35) - NB & SB**
- **EXIT 32 (ROUTE 111) - NB & SB**
- **BETWEEN EXITS 32 & 36 (BOOM RD) - NB ONLY**
- **BETWEEN EXITS 36 & 42 (FLAG POND RD) - NB & SB**
- **EXIT 42 (HOLMES RD) - NB ONLY**
- **EXIT 63 (GRAY) - NB & SB**

These cameras allow the communications center to view traffic in the vicinity of these heavily traveled interchanges.

Two additional CCTV cameras are located with the RWIS that were installed in the fall of 2008 at the Saco River Bridge in Saco and Eagles Nest overpass in Gray. These cameras are providing still images viewable through the RWIS web site only at this point in time, but the cameras do have the capability to provide streaming video. It is anticipated that these cameras will be incorporated into the CCTV system in the near future.

Three additional trailer-mounted CCTVs were purchased in 2010 for temporary work zone monitoring and incident management.

ZOOM TURNPIKE EXPRESS

The Authority provides partial funding for the ZOOM Turnpike Express, a commuter bus service operating between Biddeford/Saco and Portland. The commuter bus provides an alternative to driving on the most heavily traveled commuter route in the state. An average of about 67,000 vehicles per day travel this section of the turnpike. The Authority also provides designated bus pick-up and drop-off areas in the Exit 32 and Exit 36 Park & Ride lots.

Traditionally, the ZOOM bus has served about 100 travelers per weekday. However, the tenth year of ZOOM saw a dramatic spike in ridership to the highest levels ever. The increase in the number of passengers began in September 2007 with continual monthly

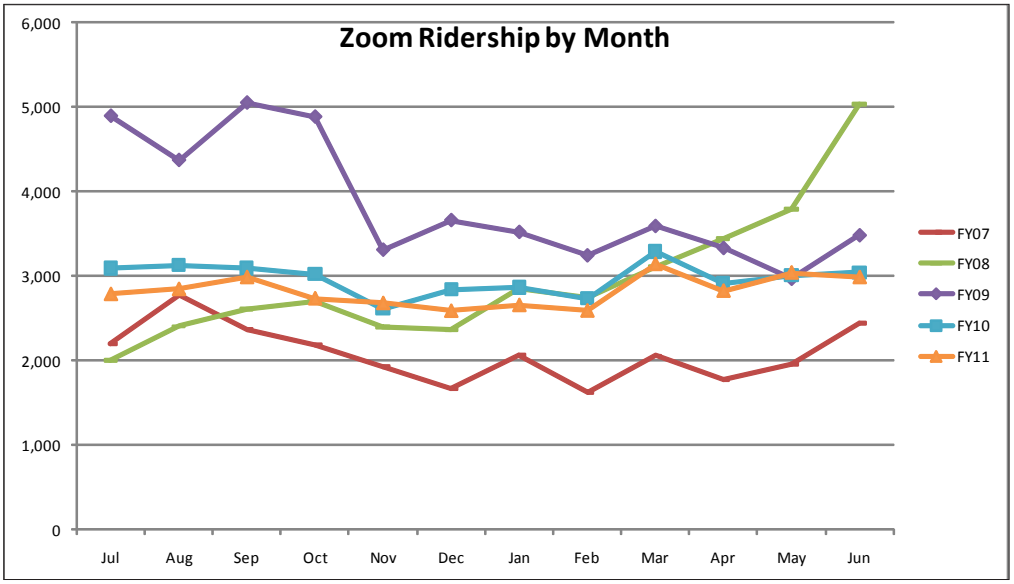
increases to July 2008. While ridership on the ZOOM Turnpike Express for FY11 was 27% below the record set in FY09, the ridership levels remain significantly above the pre-FY08 average.

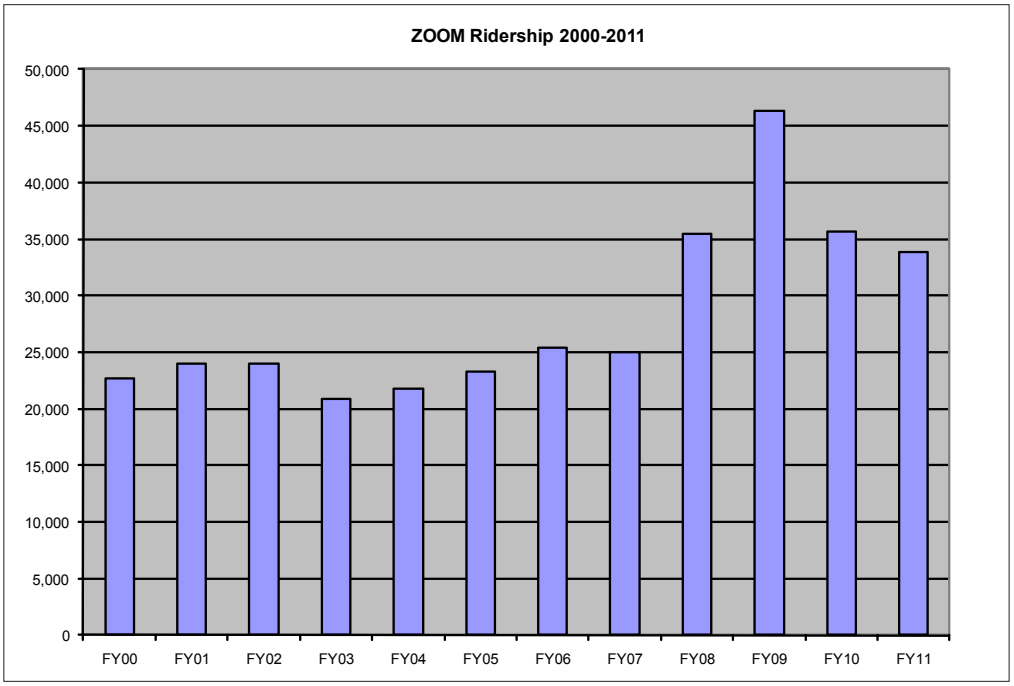
FIGURE 4 summarizes annual ZOOM bus ridership since the service began. The data is grouped by monthly trends and by fiscal year, which runs from each July through the following June.

As a commuter service, the ZOOM is affected by economic factors such as gas prices, unemployment, and the recent recession. As Figure 4 illustrates, ZOOM bus ridership had hovered between 20,000 and 25,000 travelers per year from FY2000 - 2007. Since FY08, yearly ridership has been above 33,000.

Biddeford-Saco-Old Orchard Beach Transit (operator of ZOOM) and MaineDOT have acquired two new buses with coach style

FIGURE 4 - ZOOM RIDERSHIP SUMMARY





seating to replace aging buses. The MTA provided $60,000 in matching funds to the MaineDOT for the purchase.

In addition to newer buses, an immediate concern of ZOOM operations is having sufficient parking at the Park & Ride commuter lots. The Exit 36 Park & Ride Lot in Saco is regularly at capacity with the increased number of ZOOM riders, and other commuters, competing for a limited number of spaces. The Maine Turnpike Authority, MaineDOT, and the City of Saco opened an auxiliary lot at the MTA's old Exit 5 Ramp near the Holiday Inn to accommodate excess demand. However, this lot is used only when requested by a rider.

GO MAINE PROGRAM

The GO MAINE Commuter Connections program, administered by GPCOG and funded by MaineDOT and the MTA, provides healthy, economical, and eco-friendly ways for Maine citizens from Kittery to Fort Kent to get to and from work. Major services for commuters and employers include: carpool and vanpool ride matching via the interactive website at **www.gomaine.org**; an express commuter vanpool program; promotion of and partnership with transit, bicycling and pedestrian entities; and, the Emergency Ride Home Guarantee.

GO MAINE commuter registrations and program activity levels continue to increase despite the challenging economy. In the last year, an additional 776 commuters registered for services, bringing the total number of commuters in the database to 8,646, a record high number. The number of registered carpool participants is now 1,362. More than 8,300 request for ride matches were made by registered commuters. The impact of GO MAINE commuters has resulted in 25,827,436 less vehicle miles traveled, and a reduction of $13,843,708 in commuting costs.

GO MAINE placed two new accessible buses into service this year for Waterville to Augusta commuter corridor. There are now 42 registered vanpools in the GO MAINE system; 28 are administered by GO MAINE, and eight are privately owned and operated. Of the GO MAINE vanpools, 16 are registered with an E-ZPass and regularly use the Maine Turnpike. There are a total of 366 registered vanpool riders.

GO MAINE continues to increase market penetration statewide through its highly successful GO MAINE Nation outreach campaign. GO MAINE continues to work with employer, transportation, business, state, and municipal partners, and other key stakeholders to increase market penetration, primarily along the Maine Turnpike, I-95, and I-295 corridors from Bangor to York. More than 500 such contacts were made by outreach staff including the following:

- GO MAINE collaborated with Maine Medical Center to produce a video that promotes commuter benefit planning for employers.
- GO MAINE also assisted in the development of the PACTS-funded **www.TDM2go.info** website to guide employers with the TDM planning process.

In addition to its state-of-the-art interactive, online ridematching system, GO MAINE has developed an online rideboard for non-commute travel. This new feature is seeing high demand from colleges and universities seeking to relieve on-campus parking issues, and has applications for persons traveling for meetings, conferences, events, recreation and other needs. Also developed was a new web portal dashboard which allows employers to manage and report on their custom employee commute programs.

PARK & RIDE LOT PROGRAM

The Authority strongly encourages motorists to utilize its Park & Ride lots to reduce congestion on the turnpike through ridesharing. Currently, the Authority maintains a network of Park & Ride lots located at or near most

interchanges. The Authority monitors the use of these lots to assure that adequate capacity is available.

TABLE 6 - PARK & RIDE LOT USAGE - 2001 THROUGH 2010

Location	# of Spaces	# of Parked Vehicles									
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Chases Pond Road, US-1 Connector	**26**	20	17	16	9	21	8	11	26	22	15
Maine Turnpike Exit 19, adj. to Wells Trans Ctr.	**100**	35	30	32	16	28	33	49	54	70	27
Maine Turnpike Exit 25 SB, on Rt. 35	**52**	24	24	22	19	19	26	19	22	35	21
Maine Turnpike Exit 32, on Rt. 111	**155**	138	115	114	105	97	99	120	100	108	90
I-195 Exit 1, on Industrial Park Road	**135**	112	105	94	98	80	117	106	110	103	95
Maine Turnpike Exit 42, adj. to toll plaza	**23**	25	16	13	24	21	18	27	17	23	22
Maine Turnpike Exit 45, on Rt. 703	**111**	24	23	42	29	33	22	24	28	20	21
Maine Turnpike Exit 46, adj. to toll plaza	**68**	8	14	8	21	17	17	21	20	19	27
Larrabee Road, near Maine Turnpike Exit 47	**91**	n/a	n/a	46	43	58	51	43	53	47	33
Maine Turnpike Exit 53, adj. to toll plaza	**19**	4	14	15	14	14	13	15	20	15	12
Maine Turnpike Exit 63, on US-202	**74**	45	29	41	57	41	46	34	77	50	82
Maine Turnpike Exit 75, on US-202	**137**	57	81	75	68	84	76	71	106	72	72
Maine Turnpike Exit 80 NB on Plourde Pkwy	**62**	61	44	41	53	36	56	28	47	27	39
Maine Turnpike Exit 80 SB on Plourde Pkwy	**27**	26	17	23	22	16	21	21	28	22	21
Maine Turnpike Exit 102, near Rt. 126	**54**	16	25	28	34	32	27	28	50	29	24
Total		**595**	**554**	**610**	**612**	**597**	**630**	**617**	**758**	**662**	**601**
% Usage		**52%**	**49%**	**54%**	**54%**	**53%**	**56%**	**54%**	**64%**	**56%**	**51%**

TABLE 6 summarizes Park & Ride utilization at the 15 lots located along the turnpike. Eleven lots are owned and maintained by the Authority, while the remaining four lots are owned and maintained by the MaineDOT. The following observations may be drawn from Table 6:

- Park & Ride lot usage has remained relatively steady from 2001 through 2011. Overall usage typically has been in the 50% - 60% range.

- Two relative spikes in usage have been noted over the past decade:

  - The first was in the fall of 2005, when fuel prices rose rapidly in the wake of Hurricane Katrina.
  - The second was in the spring of 2008, when fuel prices hit record highs. Since that price spike, usage has settled back into the more typical 50% - 55% range.

- The Saco (Exit 36), Biddeford (Exit 32), and Auburn (Exit 75) lots have consistently been the busiest lots over the past decade. In fact, heavy usage at the Saco lot on Industrial Park Road has triggered the creation of a new lot on the west side of Route 112, just across from Lund Road.

- The Park & Ride lot at Exit 63 was relocated in 2006, from its previous location at the interchange to its new location at the southern terminus of the Gray bypass. This relatively new lot is already operating over-capacity during some periods.

TURNPIKE SAFETY AND LAW ENFORCEMENT

In 2010, approximately 773 crashes were reported on the Maine Turnpike and its ramps. This is a 6% increase from 2009 (727 crashes) as reported by the Maine Turnpike Authority. The majority of crashes are in the northbound direction (320 vs. 315), with approximately 18% of the crashes occurring on the Maine Turnpike ramps.

From 2008 to 2010, there were eight (8) high crash locations (HCL) on the Maine Turnpike, which includes the mainline, toll plazas, and interchange ramps. This is an increase over the seven (7) HCL's from 2007-2009. A High Crash Location is defined as a roadway node or segment that has more than eight crashes and a Critical Rate Factor (CRF) in a three-year period (a summary of locations is shown on the following page). HNTB recommends that the crash data be reviewed to understand if mitigation measure are warranted.

Law enforcement services on the turnpike are provided by Troop G of the Maine State Police. Troop G is funded entirely by the MTA. Troop G recently relocated to the new MTA administration building which opened in the spring of 2009. With access at Exit 46, Troop G will have a much safer entry/exit to the turnpike mainline, and has vastly improved accessibility to the public. In addition, Troop G now benefits from a modern facility with state-of-the-art law enforcement components similar to other recently constructed state police facilities.

In 2010, Troop G had an average of 27 troopers assigned to the turnpike. At full strength, Troop G has 35 troopers. They patrol the entire turnpike, 24-hours a day, 365 days per year. This provides turnpike patrons with a very high level of coverage. These troopers are dedicated to making the road safer by enforcing speed limits; assisting disabled motorists; detecting and apprehending operators who are under the influence of drugs or alcohol; and, enforcing other Maine State laws.

HCLs (2008- 2010)

Town	Location Description	Direction	Critical Rate Factor (# of crashes per three year period in parenthesis)
York	York Toll Plaza	NB	5.40 (13)
York	York Toll Plaza	SB	5.84 (14)
Cumberland	Blackstrap Road to Gray Town Line	NB	1.20 (14)
New Gloucester	Gray Town Line to Mayall Road Bridge	NB	1.27 (9)
New Gloucester	Mayall Road Bridge to Gray Town Line	SB	1.40 (10)
New Gloucester	Bennett Road Bridge to Mayall Road Bridge	SB	1.44 (20)
Litchfield	Stevenstown Road Bridge to 1 mile north	NB	1.05 (8)
West Gardiner	Farmingdale Town Line to High Street Bridge	SB	1.08 (15)

HCL designation is defined by MaineDOT

5 MAINE TURNPIKE AUTHORITY/MAINEDOT JOINT INITIATIVES

The Maine Turnpike Authority and the Maine Department of Transportation (MaineDOT) have a long history of working together to provide an efficient transportation system. Since 1995, the Authority has been providing winter maintenance and litter patrol for a fee on a two mile stretch of I-95 (from Kittery to York) owned and maintained by the MaineDOT (sharing with NHDOT, the winter maintenance of the Piscataqua River Bridge). In 2004, the two agencies agreed that the Maine Turnpike Authority would provide winter maintenance on I-195, and the MaineDOT would provide winter maintenance at the Kittery Rest Area and the Park & Ride lot in South Portland. Additional discussions occur annually to confirm that all overlap points are being covered in the most efficient manner.

The Authority has also procured signs from the MaineDOT sign shop on a limited basis. The MTA utilizes MaineDOT paving expertise when developing Pavement Rehabilitation projects. The MTA uses the MaineDOT testing lab in Freeport when needed to assist with quality assurance testing. This relationship has provided more consistent Interstate paving specifications between the two agencies.

The MTA and MaineDOT also work together regarding storm-water issues. Permitting processes through MaineDEP are reviewed jointly by both agencies and three party agreements are signed so that MaineDOT and MTA are treated the same for transportation purposes.

This working relationship also involves the planning and construction of projects. Both agencies worked together on the previously constructed MaineDOT Gray Bypass project and the new Maine Turnpike Gardiner Service Plaza project. In 2010, the two agencies coordinated their paving and construction projects in the greater Portland area to minimize traffic disruptions.

In addition, the MTA included the paving of a two mile section of MaineDOT-owned I-95 in Kittery in their 2010 Mainline Pavement and Rehabilitation project. MaineDOT reimbursed the MTA the cost of this work.

PARK & RIDE STUDY

The MTA, in coordination with MaineDOT, performed an updated inventory of all Park & Ride lots throughout the state in the spring of 2010. This involved an inventory of available parking spaces, an assessment of signing and amenities, and a count of the number of vehicles served by each lot.

In the fall of 2010, HNTB prepared a report that focused on the usage characteristics of the lots that were surveyed. The following is a summary of the findings:

- Statewide, about 40% of the spaces available in the Park & Ride lot system are used on a daily basis.
- Park & Ride lot usage has declined somewhat over time.
- About two-thirds of all vehicles that use the Park & Ride lot system do so at the Maine Turnpike lots.
- The percent utilization at the Maine Turnpike lots is higher than at all other location types.
- Four of the five busiest lots in the state are located along the Maine Turnpike.
- Only the Park & Ride on US-202 in Gray, just off the Maine Turnpike Exit 63, is over-capacity.
- Six of the 49 lots surveyed had no vehicles in them. However, half of those lots had utilization rates of 40% or more in 2009.
- Adding signing both on-site and off-site would help raise awareness of Park & Ride lots and improve their usage.

Findings indicate that for carpooling to take place, it must be convenient. The busiest lots

are those that are located on busy routes which are directly adjacent to interchanges on the interstate (both Maine Turnpike and non-turnpike). This suggests that if an existing lot is nearing capacity, it would be more advantageous to expand the lot than to create a new lot nearby.

The Maine Turnpike Authority and MaineDOT agree to continue to work to identify future Park & Ride lot needs through the continued inventory of these lots.

REGIONAL TRAFFIC IMPACT FEE POLICY

The Maine Turnpike Authority does not have a formal process or the mechanism to independently charge impact fees at interchanges or toll plazas. Currently, impact fee opportunities are through invitation from the MaineDOT as part of their Traffic Movement Permit process when a development is shown to impact turnpike operation. The MTA, working with MaineDOT, completed a report in 2011 that recommended a traffic impact fee policy that is compatible with the traffic impact fees that are assessed by MaineDOT.

The final report provided documentation to support the Maine Turnpike Authority issuing fair and reasonable impact fees when turnpike interchanges are affected by development. The report also serves as a public resource document which is available for all potentially affected parties to consult when development is being considered within the corridor of the Maine Turnpike.

ALTERNATIVES PROGRAM POLICY

The Maine Turnpike Authority has, over time, participated in and funded all or part of Alternative Programs that were deemed to have a direct or indirect benefit to the Maine Turnpike. Examples of these Alternative Programs include GO Maine, ZOOM, Park & Ride Lots, and MOVE! (formerly Kids in Transportation).

The MTA is currently developing an "Alternatives Program Policy" to provide a consistent method of evaluating all alternative programs where MTA funding or participation is requested.

This Policy is anticipated to be completed in 2012.

6 PLANNING STUDIES

As the Authority evaluates possible new transportation projects, various planning studies must be undertaken to evaluate and identify the best available alternatives. Recent or ongoing planning studies are described in the following paragraphs.

THE CENTRAL YORK COUNTY AND GORHAM EAST-WEST CORRIDOR STUDIES

In response to growing pressures to improve east-west connections in York and Cumberland Counties, the 123rd Maine State Legislature directed the MaineDOT and MTA to study the opportunity to enhance, expand, and preserve highway connections west of Route 1 in York and Cumberland Counties, specifically noting the Gorham and Sanford areas.

Jointly, the MaineDOT and MTA have developed a scope of services for two separate studies to directly address this resolve. The resolve specifically requires that these studies assess all modes of transportation in addition to land use strategies, in accordance with the Sensible Transportation Policy Act (STPA) and the Growth Management Act (GMA).

Both the York and Cumberland County studies are referenced in the MaineDOT's Long Range Plan and the PACTS Destination Tomorrow Long Range Plan, and are consistent with the mission statement in the MTA's 10 Year Plan. Each study is noted in detail below:

- **GORHAM EAST-WEST CORRIDOR STUDY**

The Gorham East-West Corridor Study began in the spring of 2009 and is a major new transportation and land use study of the corridor immediately west of Portland. This area is the location of what has historically been the fastest-growing residential market in Maine. The study's goal will be to evaluate all the options and find the right package of alternatives to protect homeowners' quality of life over the long-term, without adding excess transportation capacity.

The Study began when the municipalities of Gorham, Westbrook, Scarborough, and South Portland signed a joint resolution in 2007 asking for such a study, specifically to assess the feasibility of a new Turnpike Spur that will connect to the new Gorham Bypass. The resolution states that existing ways to manage traffic congestion, such as widening roads and adding turning lanes, will have a negative effect on their downtowns, village centers and neighborhoods. Both the Maine Turnpike Authority and Maine Department of Transportation officials believe that integrating all modes of transportation (transit, bike, pedestrian) is an integral part of the study.

A draft Study Report was completed in the spring of 2011. Study findings determined that a combination of land use, transit, and roadway actions could help to improve transportation mobility, mode choice, and community quality of life. Study recommendations included identification of additional tasks to further evaluate and identify possible funding for specific land use, transit, and roadway actions. The Maine Turnpike Authority Board is currently reviewing the Study findings and recommendations and is anticipated to decide on next steps in the fall of 2011.

A Final Study Report is anticipated to be completed in the fall of 2011. A copy of the draft Study Report can be found at **www.gorhamcorridor.org**.

- **CENTRAL YORK COUNTY STUDY**

The Central York County Study began in September of 2010 and will focus on connections between Central York County and the Maine Turnpike, with Route 1 forming a southeastern border of the analysis area. Traffic considerations along Route 1 itself will be a subject of the study to assess whether proposed improvements elsewhere have the

potential to increase or decrease traffic levels on Route 1. This study will seek to integrate transportation and land use decision-making that will result in more effective connections between Central York County communities and the larger transportation network.

Current Study progress includes identification, evaluation, and screening of preliminary strategies to improve mobility along major transportation corridors in the Study Area. Strategies currently being evaluated include improvement to existing roadway corridors, as well as construction of new roadway corridors with new connections to the Maine Turnpike.

The Study is anticipated to be completed in 2012. Current Study information can be found at **www.connectingyorkcounty.org**.

PORTLAND AREA MODERNIZATION & WIDENING

In 2006, HNTB prepared a report on the Portland Area Modernization and Widening. The report investigated the feasibility of upgrading an 8.7 mile section of the Maine Turnpike, from Mile 44 (Exit 44) to Mile 52 (Exit 53), to current safety and capacity standards to safely and efficiently accommodate existing and anticipated auto, truck, and bus traffic.

The traffic section of the report was reviewed in 2009 to account for more recent traffic volumes and travel trends in the region and noted that traffic growth should be revised, and lowered to 0.9% per year. The new analysis still results in future capacity impacts if no additional travel lanes are added, however, these capacity impacts are predicted at a later time.

HNTB recommends that the Authority monitor the traffic growth in this corridor.

LEWISTON/AUBURN DOWNTOWN CONNECTOR & INTERCHANGE STUDY

The Lewiston/Auburn Downtown Connector & Interchange Study was completed in the fall of 2010. This Study concluded that a new interchange was not warranted, however, improvements to Exit 80 were needed to address existing capacity, safety, and design deficiencies.

Currently, the MTA is designing and permitting Exit 80 interchange improvements to address these deficiencies. Construction is anticipated to begin in the winter of 2012. Parallel to this effort is the evaluation of improvements to the Plourde Parkway/Route 196 interchange by MaineDOT. Improvements to this interchange are anticipated to coincide with the completion of Exit 80 by Year 2014.

EXIT 75 TRANSPORTATION IMPROVEMENT STUDY

The Exit 75 Transportation Improvement Study was completed in 2010. Purpose of this Study was to evaluate the immediate and future transportation needs of the Exit 75 area as well as the needs of Greater Auburn.

The Study recommended that the local intersection improvements only alternative would provide the most benefit for the cost, would have the least impact, and is permittable. Some of the other identified alternatives could be built at a later time, if the transportation needs of the area outgrew the capacity for the intersection improvements.

As a result of this Study's recommendations, MaineDOT will begin construction of these local intersection improvements in 2012. Additionally, the MTA will make recommended improvements to the southbound on-ramp by extending the existing acceleration lane.

7 FUNDING

Funds for the operation, maintenance and improvement of the Maine Turnpike are deposited into accounts designated for specific purposes. These accounts are:

- **CAPITAL IMPROVEMENT FUND:** Includes specific projects to upgrade roadway facilities and improve highway safety, such as the Electronic Toll Collection system.
- **RESERVE MAINTENANCE FUND:** Includes projects that exceed the constraints of normal maintenance, such as bridge reconstruction programs.
- **OPERATION AND MAINTENANCE FUND:** Includes routine Operation and Maintenance work carried out by Authority personnel such as daily operations, repairs, and improvements.

The details of each fund are described below, as well as the recommended amounts of money to be deposited for fiscal year 2012. The Maine Turnpike Authority has begun the process to implement a toll adjustment. The recommended deposits to the funds as stated below anticipate this adjustment. In addition, the recommendation regarding insurance coverage is included.

CAPITAL IMPROVEMENT FUND

As part of the Sensible Transportation Policy Act, the Authority identified projected deficiencies in turnpike facilities that needed to be addressed in the near- and long-term. From this planning effort, the Authority developed a Capital Improvement Program which detailed the need to significantly expand the extent of rehabilitation and maintenance work. It was clear that routine maintenance programs could no longer stem the deterioration of turnpike facilities nor provide the higher level of operational efficiency made possible by current technologies.

The Capital Improvement Program was proposed for projects that require a faster pace of reconstruction work due to compelling public safety interests and for projects intended to significantly enhance operations. We recommend $45,000,000 be deposited in the Capital Improvement Fund for 2012 projects.

RESERVE MAINTENANCE FUND

The Reserve Maintenance Fund dedicates the revenue required to keep turnpike infrastructure safe and in proper operational condition. This category normally funds contract work, which exceeds the scope of routine maintenance such as bridge rehabilitation, bridge painting, and annual paving projects. The recommended deposit to the Reserve Maintenance Fund for fiscal year 2012 is $30,000,000.

OPERATION AND MAINTENANCE FUND

Operation and Maintenance work is usually carried out by Authority staff and includes activities such as administration, toll collection, snow plowing, minor repair work, sign replacements and other activities. We estimate that the cost of Operation and Maintenance during 2012, exclusive of Reserve Maintenance and Capital Improvement expenditures, will be in the amount of $43,968,654. This estimate is based on careful examination of 2011 expenditures and an evaluation of factors expected to influence these costs during 2012.

INSURANCE

Based on the replacement values provided by HNTB, the current turnpike insurance coverage appears to adequately protect the properties, interests, and operations of the Authority. Insurance is provided under a number of policies including a comprehensive commercial package; worker's compensation; and public officials and employee's liability. A detailed schedule of insurance is presented in **APPENDIX B**.

APPENDIX A - MAINTENANCE AREA BUILDINGS

DESCRIPTION	York	Old York	Kennebunk	Crosby	Sign Shop	Gray	Auburn	Litchfield	Gardiner	TOTAL
	Mile	Mile	Mile	Mile	Mile	Mile	Mile	Mile	Mile	
	7	10	25	46	58	63	77	93	102	
Maintenance Garage, 3 Bay		1						1		**2**
Maintenance Garage, 4 Bay			1			1			1	**3**
Maintenance Garage, 5 Bay				1						**1**
Maintenance Garage, 8 Bay			2	1		1	1	1		**6**
Maintenance Garage, 10 Bay			1	1						**2**
Salt Shed	1		1	1		1	1	1	1	**7**
Sand/Salt Storage Building	1		1	1		1	1	1	1	**7**
Flammable Storage Building	1		1	1						**3**
Storage/Body Shop Building						1				**1**
Cold Storage Building	1	1	2	1	1		1	1	1	**9**
Hazardous Waste Storage Vault						1				**1**
Central Inventory Building					1					**1**
Sign Shop					1					**1**
Storage/Tool Shed					1		1			**2**
Office Building				1						**1**
Office Building, 3 Bay Garage						1				**1**
Office Building, 7 Bay Garage							1	1	1	**3**
Office Building, 10 Bay Garage			1							**1**
Office Building, 14 Bay Garage	1									**1**
Fuel Distribution System	1			1			1			**3**
Generator Building	1		1	1		1	1	1	1	**7**

APPENDIX B - SCHEDULE OF INSURANCE

Comprehensive Package Policy Including Turnpike Property
Underwritten by the Acadia Insurance Company: Agent: Cross Insurance

Premium Amt
Commercial Package **Policy No. CNP1000627-29** **Term: October 1, 2011 to October 1, 2012**
$244,702.00

Risk	Coverage	Limit	Remarks
Fire and Related Blanket	Buildings	$ 79,405,000	Agreed Amount and
	Contents	$ 36,951,551	Replacement Cost
	Extra Expense & Business Income	$ 3,611,500	
	Boiler and Machinery	$ 20,000,000	
	Scheduled Property:		
	Miscellaneous Unscheduled Locations**	$ 500,000	
	Bridges, Overpasses and Underpasses	$236,100,000	
	Ordinance of Law Coverage	$ 10,000,000	
	Fine Arts**	$ 200,000	
	Property In Transit*	$ 100,000	
Business Income	Loss of Rents Only	Included with Extra Expense	
Inland Marine			
a. Direct Physical loss or damage	Scheduled Maintenance Equipment *	$ 7,249,927	
b. Direct Physical loss or damage	Valuable Papers*	$ 500,000	
	EDP Includes E-ZPass Equipment*	$ 7,525,440	
	Radar Counters, Radios, Camera Equipment, Signs and Transmitting Equipment		
	Message Boards*	$ 311,184	
	Flood & Earthquake	$ 10,000,000	

**Included in the Contents Limit

Premium Amt
Business Auto **Policy No. CAA1000628-29** **Term: October 1, 2011 to October 1, 2012**
$134,971.00

Comprehensive	Bodily Injury Liability, CSL, BI & PD	$ 1,000,000	Each Occurrence
	Uninsured Motorist	$ 1,000,000	Each Occurrence
	Medical Payments	$ 5,000	Per Person
	Hired & Non-Owned Liability	$ 1,000,000	
	MCS-90		Included
Auto Physical Damage	Comprehensive and Collision	$ 1,000	
	Deductible Applies to PPT and applies to light trucks	$ 3,000	
	Hired Physical Damage	$ 200,000	
	Garagekeepers	$ 100,000	

Comprehensive General Liability Policy
Underwritten by Hanover Insurance: Agent: Cross Insurance

General Liability	**Policy No. LBP - 8842196-01**	**Term: October 1, 2011 to October 1, 2012**	
	Comprehensive General Liability		
	Each Occurrence Limit	$ 500,000	
	General Aggregate Limit	$ 1,500,000	
	Fire Legal Liability	$ 500,000	
	Premises Medical Payments	$ 10,000	

Commercial Umbrella Liability Policy
Underwritten by Hanover Insurance: Agent: Cross Insurance

Commercial Umbrella	**Policy No. UHP - 8842506-01**	**Term: October 1, 2011 to October 1, 2012**	
	Limit of Liability	$10,000,000	Each Occurrence

Comprehensive Crime and Fidelity
Underwritten by Travelers Casualty & Surety Co. of America; Agent TD Insurance, Inc.

	Policy No. 104834551	**Expires: November 1, 2011**	
Crime	Coverage includes forgery theft/disappearance, destruction	$500,000	
	Computer fraud, Funds transfer fraud and employee dishonesty	$2,000,000	

Worker's Compensation Self-Insurance Excess Policy

Underwritten by ACE USA: Cannon, Cochran Management Service, Inc.

Policy No. WCL C46447311 **Expires: February 1, 2011 to February 1, 2012**

Policy in keeping with the laws of the State of Maine; cancellation; 60 days

$750,000 Insurers retention for each accident or each employee for disease insurer's Limit of Indemnity for each employee for disease

1. As respects Coverage A (worker's compensation)
   - $25,000,000 Each Accident
   - $25,000,000 Aggregate - Disease

2. As respects Coverage B
   - $1,000,000 Each Accident
   - $1,000,000 Aggregate - Disease

$24,203,000 Total Estimated Annual Remuneration - February 2011-2012

Claim Service: Cannon, Cochran Management Service, Inc.

Public Officials and Employees Liability

Underwritten by State National Insurance Co.
Agent: Cross Insurance

	Policy No. UDA1040406.10	**Term: October 1, 2011 to October 1, 2012**	
Public Officials Employee Liability	Elected and appointed officials and all full-time and part-time employees	$5,000,000 each loss and aggregate for each policy year	Retention: $50,000 loss

Fidelity Bond-Public Officials

Underwritten by Travelers Insurance Company: Agent TD Insurance , Inc

Member of Authority	**Term**	**Amount of Bond**	**Remarks**
Peter S. Mills Executive Director Policy No. 105619973	May 24, 2011 - 2012	$500,000	Insures faithful performance of duties by the individual
Douglas D. Davidson Treasurer Policy No. 105220484	January 1, 2011 - 2012	$500,000	
Jonathan Arey Secretary Policy No. 105220456	January 2, 2011 - 2012	$500,000	

Fiduciary Responsibility
Underwritten by Fidelity & Deposit Company of Maryland.; Agent Sargent Tyler & West Insurance Agency

	Policy No. FRP 0004004 03	**Term: November 7, 2010 - 2011**
		Limit $2,000,000 Provides protection for your errors/omissions or negligent acts in connection with handling of employee benefit plans: Maine State Health Insurance Plan; Maine State Dental Insurance Plan; Maine Turnpike Group Life Insurance Plan; and Maine State Retirement System

Group Hospital-Surgical
Effective April 1999

Primary Coverage	Anthem Blue Cross of Maine State Select Program	Full semi-private room allowance

Self-Insured Workers Compensation Bond
Underwritten by Travelers Insurance Company

	Policy No. 103464379	**Term: December 2011**
	Obligee: Maine Insurance Bureau	

HNTB