

Project Mobility - Route 3 South Express Toll Lanes

Industry Day Overview

October 15, 2014

Today's Agenda

- Project Mobility Overview
- Design Alternatives and Construction Estimates
- Existing Traffic Congestion/Project Demand
- Environmental Review and Timetable



Project Mobility Overview

- Project Mobility will provide Express Toll Lanes on Route 3 South
- Currently exploring both a single, dedicated lane in each direction as well as a two-lane facility that would operate at peak hours northbound in the AM and southbound in the PM

Express Toll Lanes Overview

Express Toll Lanes (or “Managed Lanes” as the terms are used interchangeably) are defined as tolled lanes running parallel to existing toll-free general purpose lanes where the toll rate will adjust based upon demand. Only one of two toll setting protocols can be utilized on Express Toll Lanes:

- “Dynamic Pricing”: Rates are set in real time based upon current traffic conditions; or
- “Time of Day Pricing”: Rates are fixed by hour and adjusted periodically based upon congestion levels.

Tolls would be charged to all vehicles using the Express Toll Lanes, except public transit bus service



Time of Day Pricing

Express Lanes Toll Schedule
Effective July 1, 2014 Eastbound
SR-55 to Riverside Co. Line

	Sun	M	Tu	W	Th	F	Sat
Noon	\$3.35	\$2.25	\$2.25	\$2.25	\$2.25	\$3.45	\$3.35
1:00 pm	\$3.35	\$3.20	\$3.20	\$3.20	\$3.45	\$5.40	\$3.35
2:00 pm	\$3.35	\$4.55	\$4.55	\$4.55	\$4.70	\$3.10	\$3.35
3:00 pm	\$2.85	\$4.90	\$3.70	\$3.95	\$4.60	\$9.85	\$3.35
4:00 pm	\$2.85	\$4.70	\$5.95	\$7.20	\$9.50	\$9.65	\$3.35
5:00 pm	\$2.85	\$4.85	\$5.40	\$6.70	\$8.80	\$6.20	\$3.35
6:00 pm	\$2.85	\$4.90	\$3.60	\$3.60	\$4.40	\$5.80	\$2.85
7:00 pm	\$2.85	\$3.45	\$3.45	\$3.45	\$5.00	\$5.45	\$2.25
8:00 pm	\$2.85	\$2.25	\$2.25	\$2.25	\$3.20	\$5.00	\$2.25
9:00 pm	\$2.25	\$2.25	\$2.25	\$2.25	\$2.25	\$3.20	\$2.25
10:00 pm	\$1.45	\$1.45	\$1.45	\$1.45	\$1.45	\$2.25	\$1.45
11:00 pm	\$1.45	\$1.45	\$1.45	\$1.45	\$1.45	\$1.45	\$1.45



Project Mobility Objectives

Mobility

- Improve travel time reliability along Route 3 South in both the north and south bound directions

Safety

- Improve the safety of the corridor by restoring the shoulder

Bus Transit

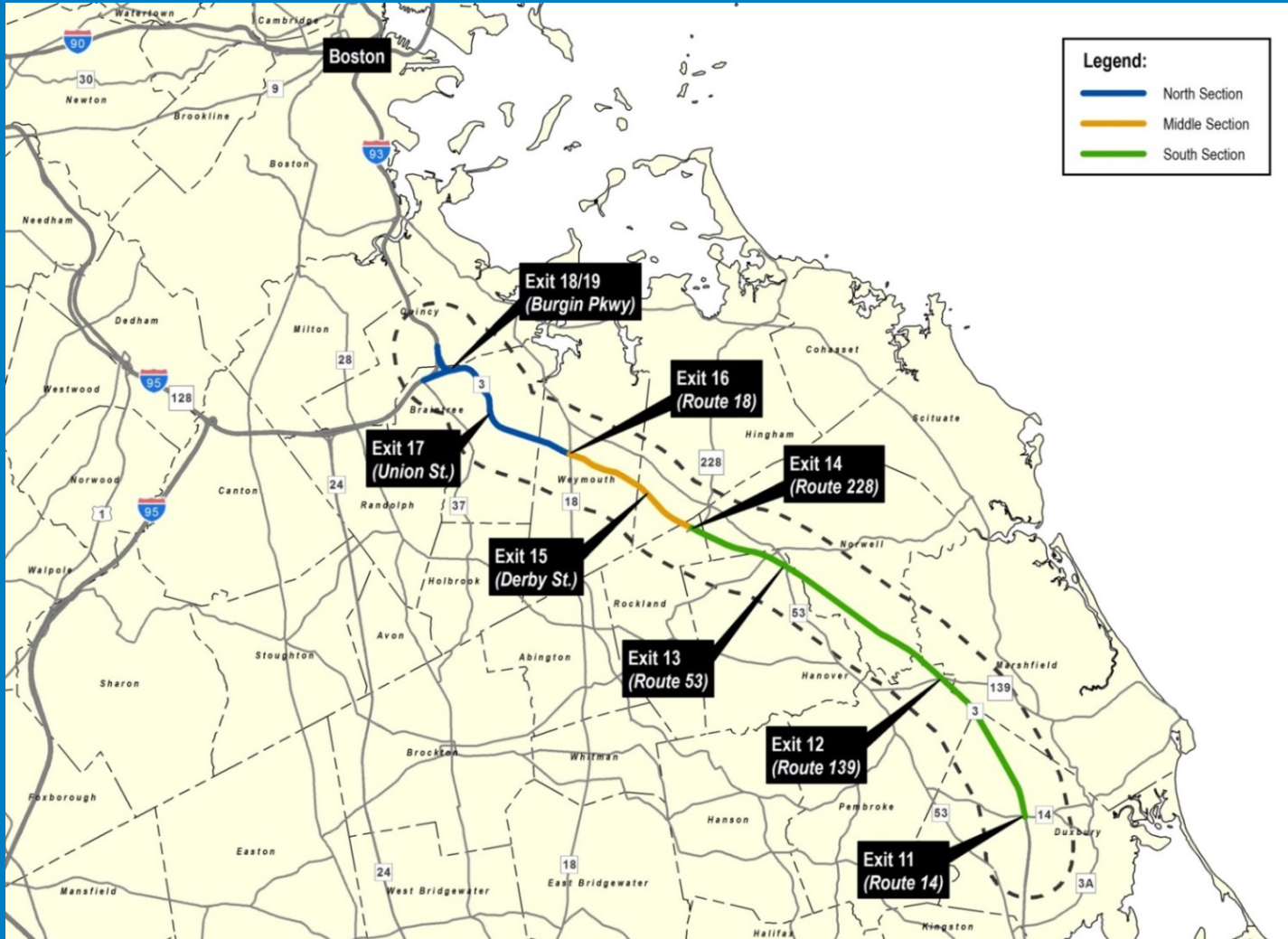
- Enhance existing bus transit alternatives and increase ridership

Project Delivery

- Demonstrate the viability of alternative delivery options in Massachusetts and provide opportunity for private investment

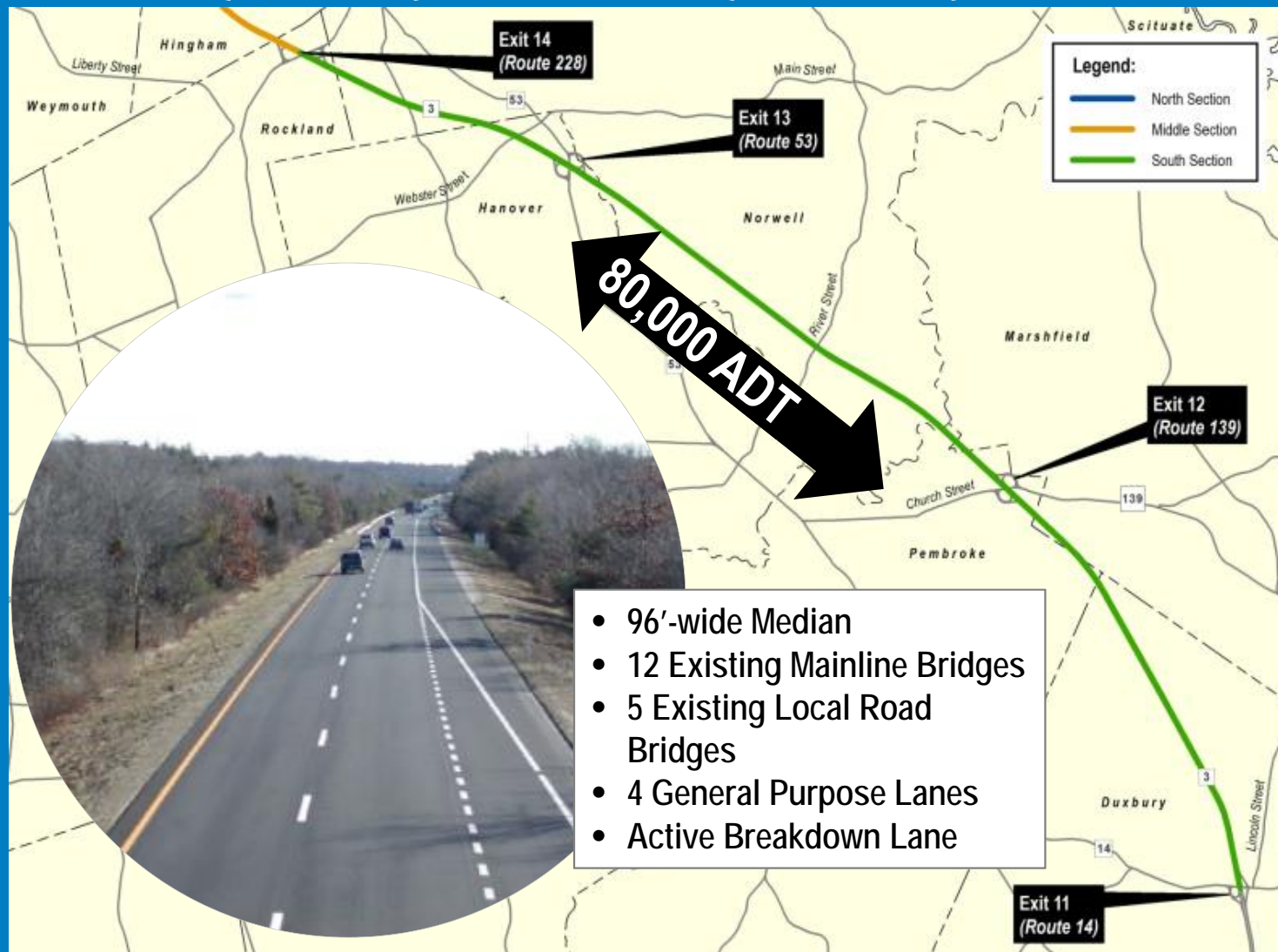
Design Overview

Route 3 South Sections



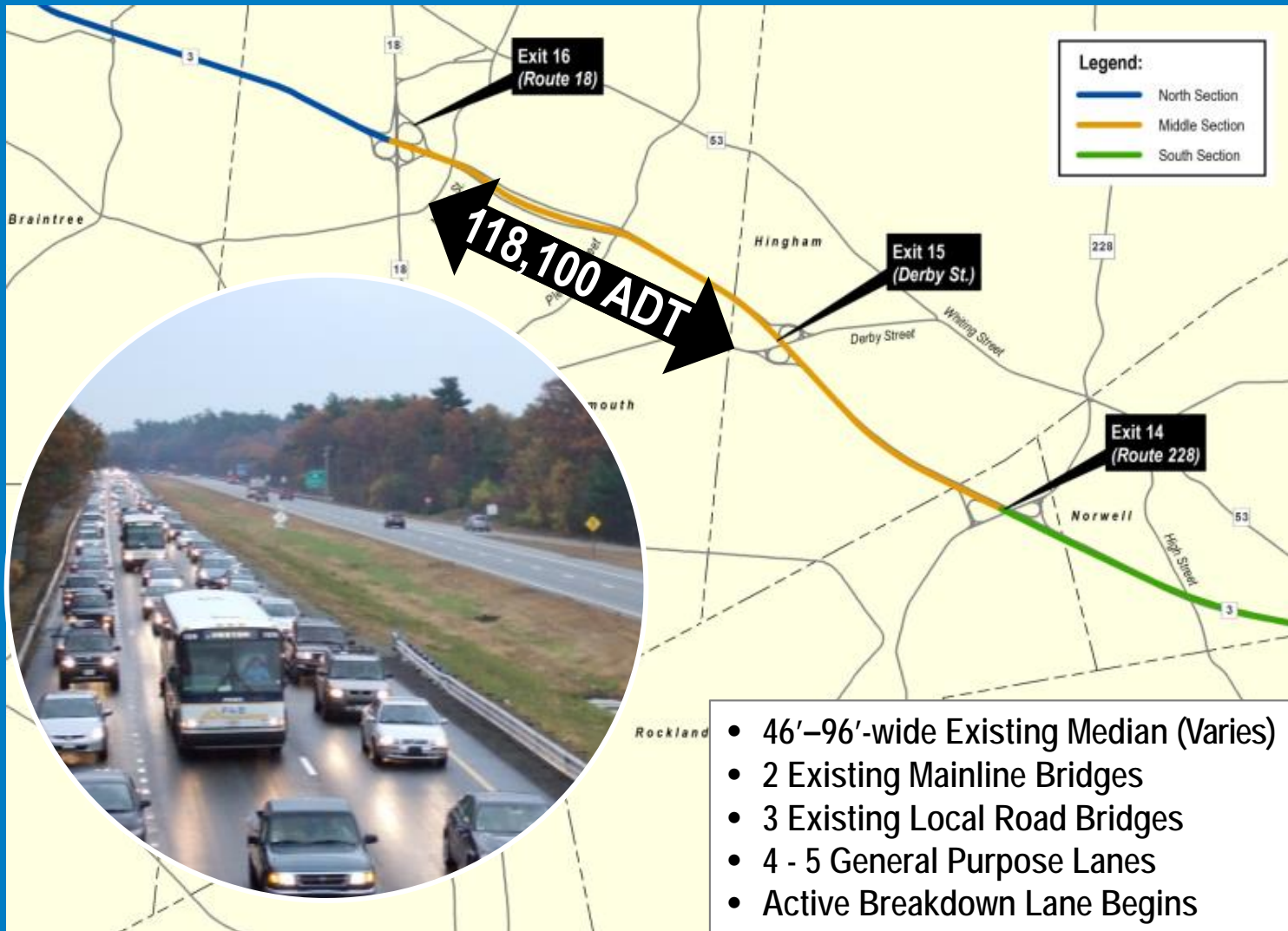
South Section

Exit 11 (Rte. 14) to Exit 14 (Rte. 228)



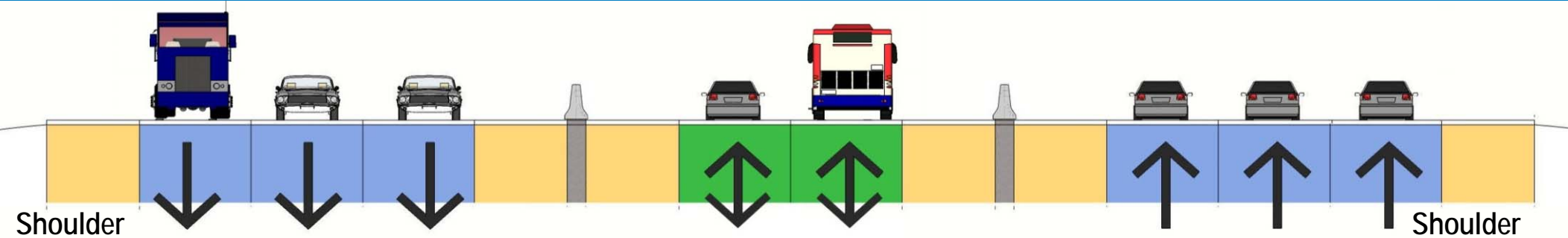
Middle Section

Exit 14 (Rte. 228) to Exit 16 (Rte. 18)

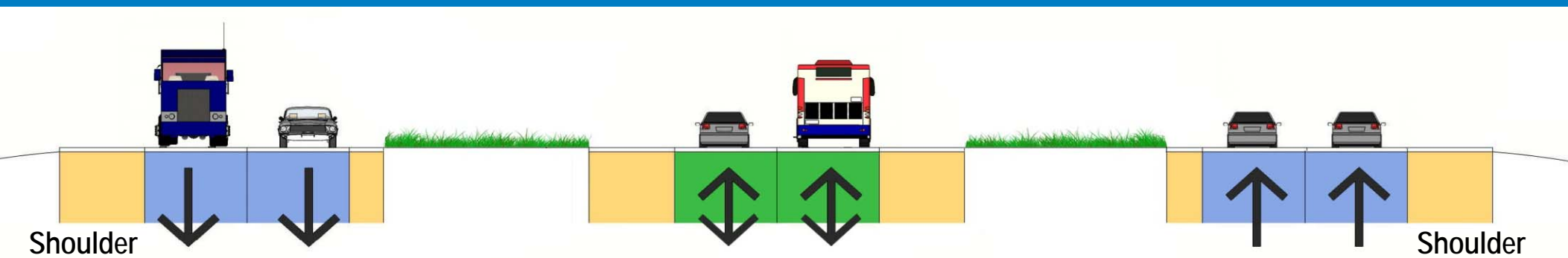


Option 1

Two Reversible Express Toll Lanes



North Section

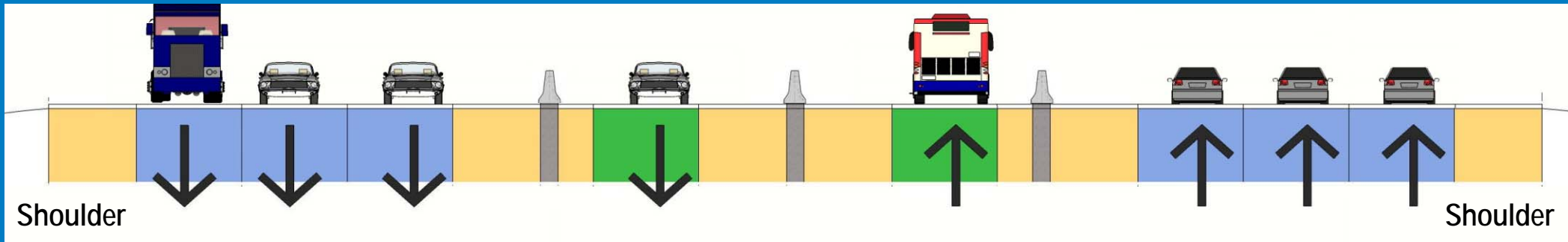


South / Middle Section

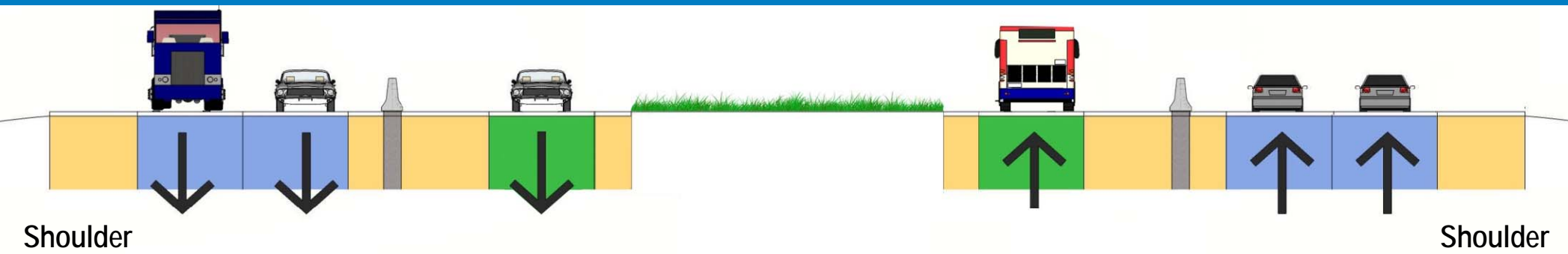
Express Toll Lane
Shoulder
General Purpose Lane

Option 2

Single Express Toll Lane in Each Direction



North Section



South / Middle Section

Express Toll Lane
Shoulder
General Purpose Lane

Braintree Split

Rte. 3/I-93 Southbound Concept

Key Issues

- Close to ½ of northbound Rte. 3 traffic exits to Rte. 128/93 Southbound (SB)
- Existing high-occupancy vehicle lane on Southeast Expressway must remain
- Severe ROW constraints on I-93 prohibit extension of toll lane north of Braintree Split

Options

- Continue express toll lane through Braintree Split to Rte. 128/93 SB
- Provide single express toll lane SB from Southeast Expressway
- Toll lane coming from Rte. 128/93 SB would likely be reversible

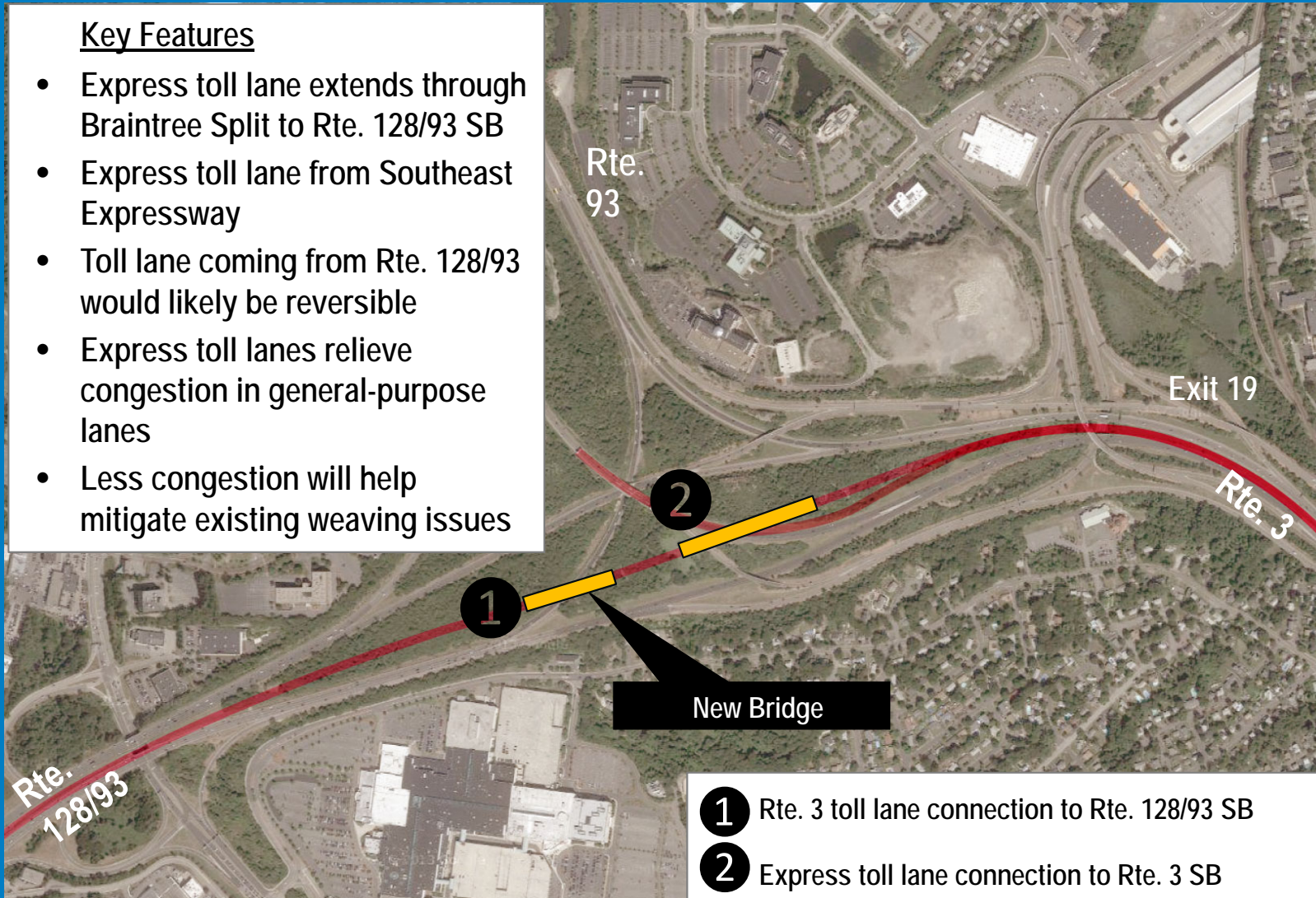


Braintree Split

Rte. 3/I-93 Southbound Detail

Key Features

- Express toll lane extends through Braintree Split to Rte. 128/93 SB
- Express toll lane from Southeast Expressway
- Toll lane coming from Rte. 128/93 would likely be reversible
- Express toll lanes relieve congestion in general-purpose lanes
- Less congestion will help mitigate existing weaving issues



Conceptual Design Cost Estimate*

- Cost in 2014 dollars
- Based on typical MassDOT highway and bridge construction
- 20% construction contingency included
- 7% engineering cost included

*ESTIMATES ARE PRELIMINARY AND SUBJECT TO CHANGE



Conceptual Cost Range by Corridor Section

ITEMS	OPTION 1			OPTION 2		
	TWO EXPRESS TOLL LANE REVERSIBLE AT GRADE			SINGLE EXPRESS TOLL LANE IN EACH DIRECTION		
	NORTH SECTION	MIDDLE SECTION	SOUTH SECTION	NORTH SECTION	MIDDLE SECTION	SOUTH SECTION
STRUCTURES						
EXISTING MAINLINE BRIDGES	\$45.9	\$4.4	\$46.7	\$45.9	\$4.7	\$47.8
EXISTING LOCAL ROAD BRIDGES	\$46.1	\$22.6	\$26.0	\$46.1	\$23.0	\$26.0
NEW BRIDGES	\$7.9	\$0.0	\$0.0	\$7.9	\$0.0	\$0.0
CULVERTS	\$4.0	\$3.0	\$2.8	\$4.0	\$3.0	\$2.9
RETAINING WALLS	\$25.2	\$6.1	\$0.0	\$25.2	\$8.1	\$0.0
STRUCTURES SUBTOTAL:	\$129.2	\$36.1	\$75.5	\$129.2	\$38.8	\$76.6
ROADWAY						
NEW EXPRESS TOLL LANE CONSTRUCTION						
FULL DEPTH CONSTRUCTION	\$19.1	\$8.7	\$38.9	\$21.0	\$10.6	\$45.4
EARTHWORK/EMBANKMENT (20% of Full Depth Const.)	\$3.8	\$1.7	\$7.7	\$4.1	\$2.1	\$9.0
DRAINAGE	\$7.7	\$4.3	\$13.0	\$7.7	\$4.3	\$13.0
EXISTING RTE. 3 ROADWAY						
MILL & OVERLAY	\$0.0	\$0.5	\$10.2	\$0.0	\$0.5	\$10.2
FULL DEPTH CONSTRUCTION	\$33.7	\$11.5	\$5.1	\$33.7	\$11.5	\$5.1
EARTHWORK/EMBANKMENT (20% of Full Depth Const.)	\$6.7	\$2.3	\$1.0	\$6.7	\$2.3	\$1.0
LIGHTING & SIGNING	\$1.5	\$0.8	\$2.8	\$1.5	\$0.8	\$2.8
UTILITY RELOCATION	\$3.8	\$0.9	\$2.0	\$3.8	\$0.9	\$2.0
MAINTENANCE OF TRAFFIC (4.5% of Hwy & Bridge Costs)	\$9.2	\$3.0	\$7.0	\$9.3	\$3.2	\$7.4
ROADWAY SUBTOTAL:	\$85.5	\$33.6	\$87.7	\$87.8	\$36.1	\$95.9
ITS						
STRUCTURES (AET GANTRIES, HUB BLDG., GATES)	\$5.7		\$5.5	\$3.4	\$1.6	\$2.7
ITS/TOLLING FACILITIES	\$5.5	\$2.5	\$7.0	\$5.6	\$2.6	\$7.1
ITS EQUIPMENT	\$2.0	\$1.0	\$1.8	\$2.9	\$1.5	\$2.3
TOLLING EQUIPMENT & SOFTWARE	\$12.6	\$9.5	\$18.9	\$11.2	\$8.4	\$13.4
TOLLING SIGNING	\$0.6	\$0.3	\$0.4	\$0.6	\$0.2	\$0.5
ELECTRICAL	\$9.2	\$5.7	\$8.0	\$9.2	\$5.7	\$8.0
ITS, TOLLING, DETECTION SUBTOTAL:	\$35.5	\$22.2	\$41.7	\$33.0	\$20.0	\$34.0
ENVIRONMENTAL						
WETLAND MITIGATION	\$0.0	\$10.0	\$15.0	\$0.0	\$10.0	\$15.0
STORMWATER MANAGEMENT	\$2.7	\$1.5	\$5.6	\$2.7	\$1.5	\$5.6
NOISE BARRIERS	\$15.5	\$10.0	\$9.7	\$15.5	\$10.0	\$9.7
ENVIRONMENTAL SUBTOTAL:	\$18.2	\$21.5	\$30.3	\$18.2	\$21.5	\$30.3
SUBTOTAL:	\$268.4	\$113.4	\$235.2	\$268.2	\$116.4	\$236.9
20% CONSTRUCTION CONTINGENCY	\$53.6	\$22.6	\$47.0	\$53.6	\$23.2	\$47.3
ENGINEERING (7% of Const. Cost incl. Contingency)	\$22.5	\$9.5	\$19.7	\$22.5	\$9.7	\$19.8
ROW (LAND ACQUISITION)	\$8.0	\$1.5	\$0.5	\$8.0	\$1.5	\$0.5
TOTAL ESTIMATED COST BY SECTION:	\$352.5	\$147.0	\$302.4	\$352.3	\$150.8	\$304.5
OPTION TOTAL:	\$801.9			\$807.6		

Daily Traffic Count Data - June 2014

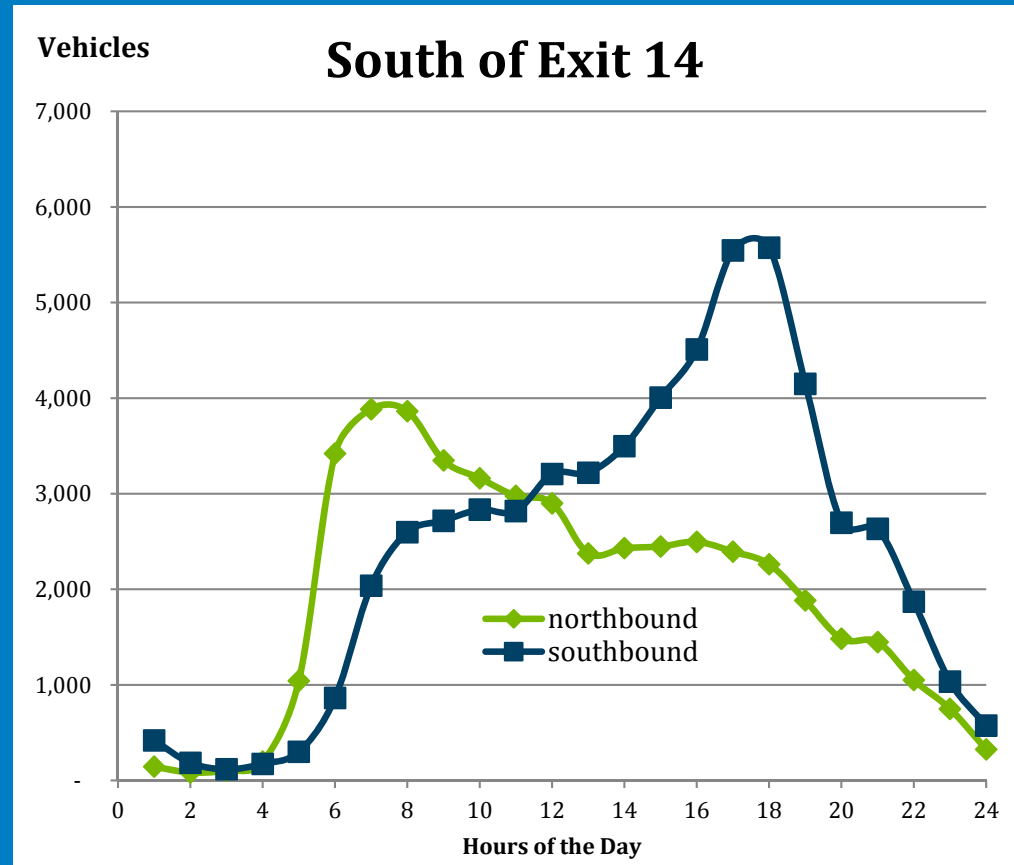
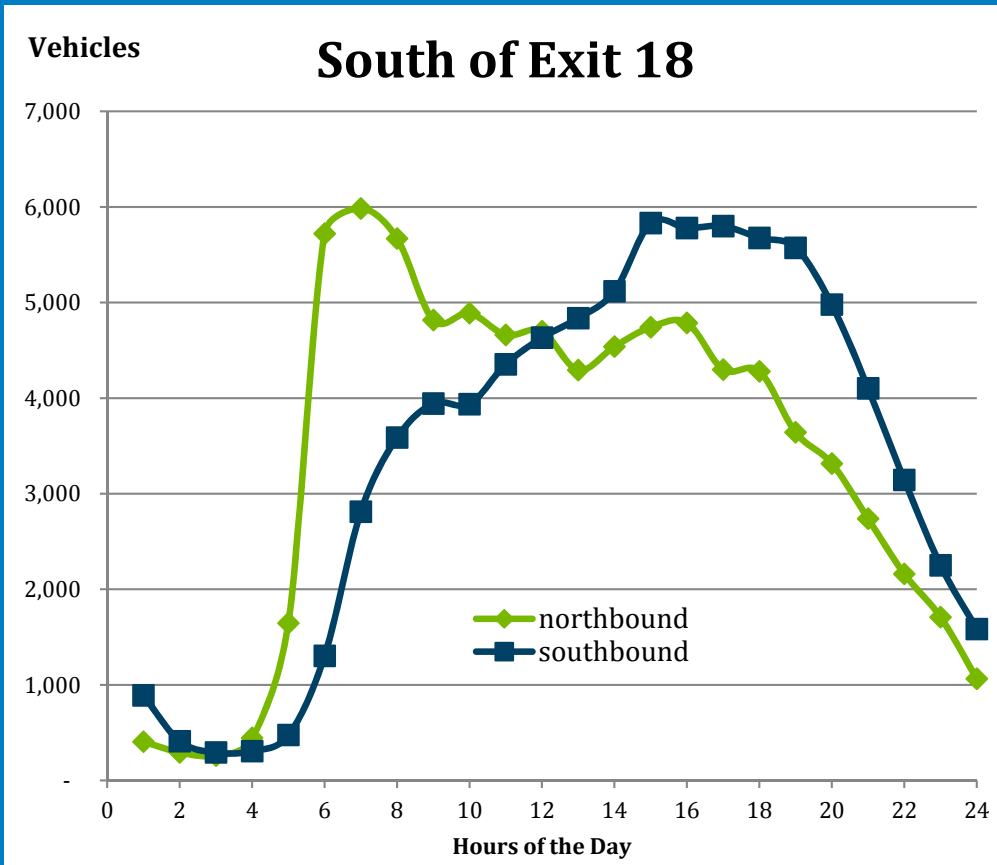
Route 3 South of		Daily Traffic (thousands)	Number of Lanes*
Exit No:	Arterial		
Exit 19	Burgin Parkway	162.7	6
Exit 17	Union Street	149.7	6
Exit 16	Main / Rte. 18	126.1	6
Exit 15	Derby Street	118.1	4*
Exit 14	Hingham / Rte. 228	104.1	4*
Exit 13	Washington Rte. 53	90.9	4*
Exit 12	Church Rte. 139	80.0	4
Exit 11	Congress Rte. 14	80.3	4

*Breakdown lane use during peak hour period



Daily Traffic Profiles

Peak Traffic Congestion







Northbound Hourly Speed Data

By Ranking

June 2013-July 2014 (Weekdays AM Peak Period)

Total hours less than:		Exit 16 to 19		Exit 13 to 16		Exit 12 to 13		Exit 10 to 12		Total	
		TT (min)	Speed (mph)	TT (min)	Speed (mph)	TT (min)	Speed (mph)	TT (min)	Speed (mph)	TT (min)	Speed (mph)
worst	0	41.6	6.5	46.0	8.5	25.3	8.8	44.4	10.0	71.3	18.6
5th percentile	61	13.0	20.8	15.5	25.1	4.2	53.3	7.1	62.4	39.9	33.2
15th Percentile	182	10.8	24.9	10.5	37.1	3.9	57.7	6.7	66.6	32.2	41.1
25th percentile	304	9.8	27.4	8.2	47.8	3.8	58.7	6.6	67.8	28.5	46.5
50th Percentile	608	6.2	43.5	5.5	71.1	3.7	60.5	6.4	69.6	22.3	59.5
85th Percentile	1,033	4.2	64.0	5.1	76.5	3.5	63.1	6.2	72.0	19.3	68.6
best	1,215	3.6	75.7	4.7	83.0	3.2	70.5	5.6	79.3	17.7	74.8
FF speed		4.2	65.0	6.0	65.0	3.4	65.0	6.8	65.0	20.4	65.0
length		4.5	4.5	6.5	6.5	3.7	3.7	7.4	7.4	22.1	22.1





Legend	
	55 mph or greater
	45 to 55 mph
	35 to 45 mph
	Less Than 35 mph

Southbound Hourly Speed Data

By Ranking

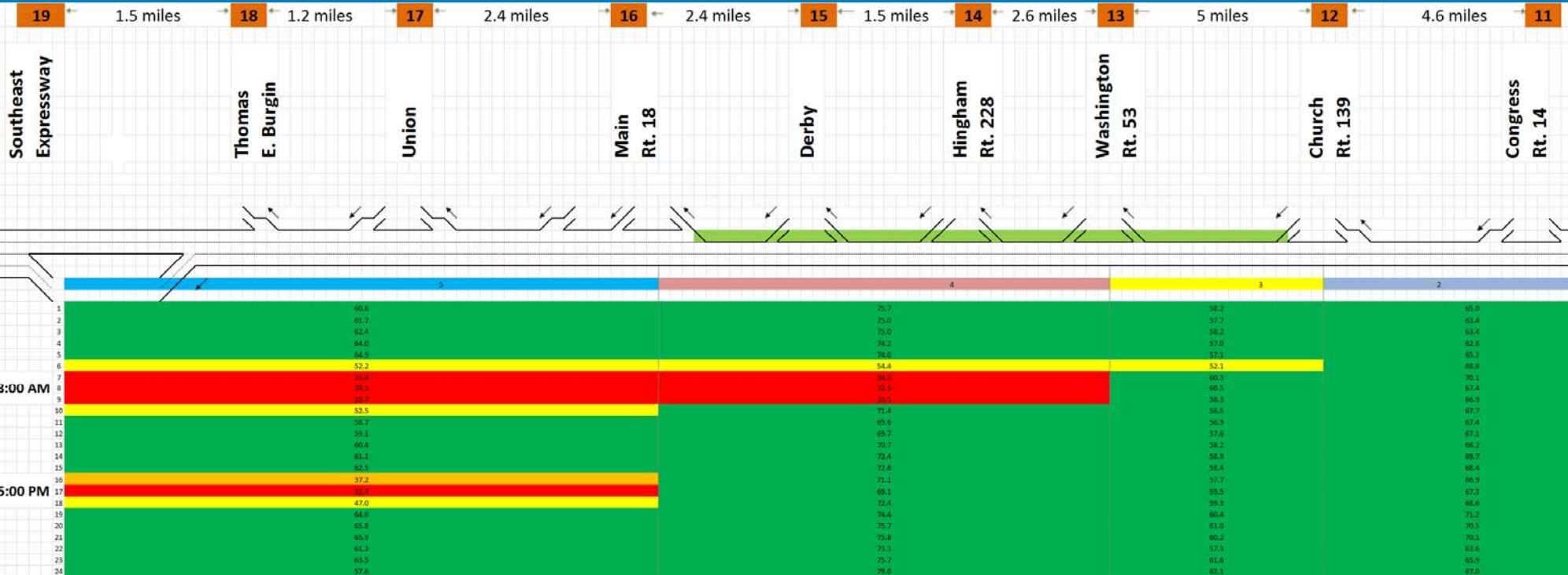
June 2013-July 2014 (Weekdays PM Peak Period)

Total hours less than:		Exit 18 to 16		Exit 16 to 13		Exit 13 to 12		Exit 12 to 10		Total	
		TT (min)	Speed (mph)	TT (min)	Speed (mph)	TT (min)	Speed (mph)	TT (min)	Speed (mph)	TT (min)	Speed (mph)
worst	0	27.6	9.6	52.9	6.6	46.2	7.7	86.0	5.0	103.9	13.4
5th percentile	61	10.2	25.9	9.9	35.3	7.1	49.6	9.5	45.1	36.0	38.6
15th percentile	182	8.8	30.2	7.3	48.0	5.6	63.4	7.1	59.9	28.3	49.2
25th percentile	304	8.2	32.1	6.1	56.7	5.4	66.0	6.8	63.1	26.5	52.5
50th Percentile	608	7.0	37.9	5.6	62.5	5.2	68.7	6.5	66.0	24.6	56.7
85th Percentile	1033	4.4	59.5	5.2	66.5	4.9	71.8	6.2	69.3	21.5	64.9
best	1215	3.6	73.3	4.5	77.0	4.5	78.4	5.2	82.5	18.9	73.7
FF speed		4.1	65.0	5.4	65.0	5.4	65.0	6.6	65.0	21.4	65.0
length		4.4	4.4	5.8	5.8	5.9	5.9	7.1	7.1	23.2	23.2

Legend	
	55 mph or greater
	45 to 55 mph
	35 to 45 mph
	Less Than 35 mph

Northbound Speeds

Thursday June 19, 2014

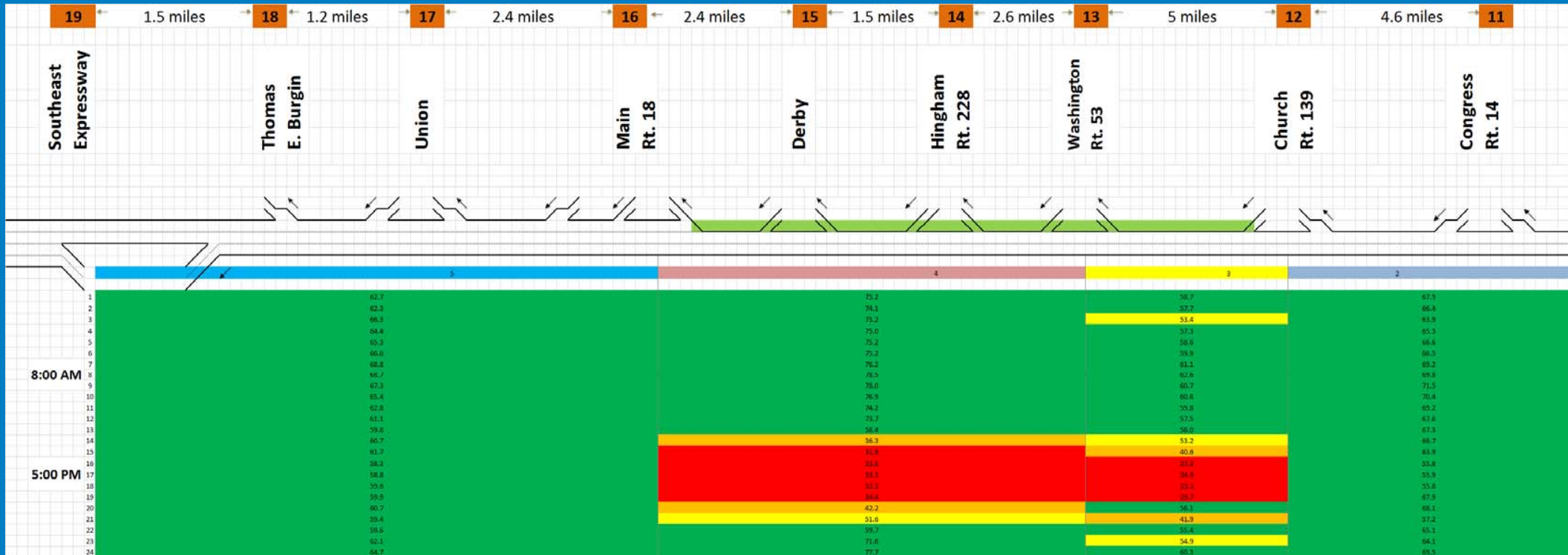


Legend	
■	55 mph or greater
■	45 to 55 mph
■	35 to 45 mph
■	Less Than 35 mph



Northbound Speeds

Sunday June 22, 2014

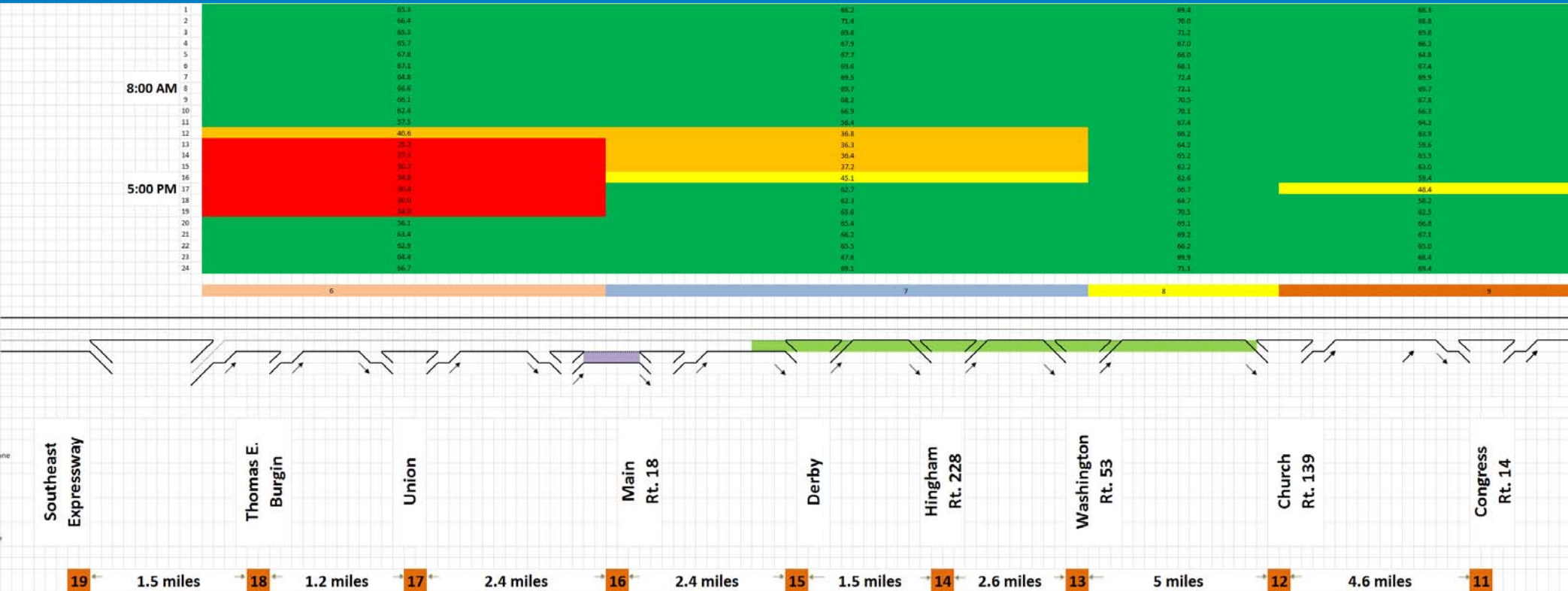


Legend	
■	55 mph or greater
■	45 to 55 mph
■	35 to 45 mph
■	Less Than 35 mph



Southbound Speeds

Friday June 20, 2014



Legend

	55 mph or greater
	45 to 55 mph
	35 to 45 mph
	Less Than 35 mph



Environmental Process - NEPA

Federal Environmental Review Documentation

- FHWA will identify the type of documentation necessary to comply with NEPA
- The project will require an Environmental Impact Statement (EIS) or Environmental Assessment (EA) depending on Right-of-Way impacts, wetland impacts and controversy
- FHWA will document compliance with NEPA at the completion of the EIS with a Record of Decision (ROD)
- If the project requires an EA, the outcome would be the issuance of a Finding of No Significant Impact (FONSI)

*Public involvement will be a large component
of the environmental process*

Environmental Process - MEPA

State Environmental Review Documentation

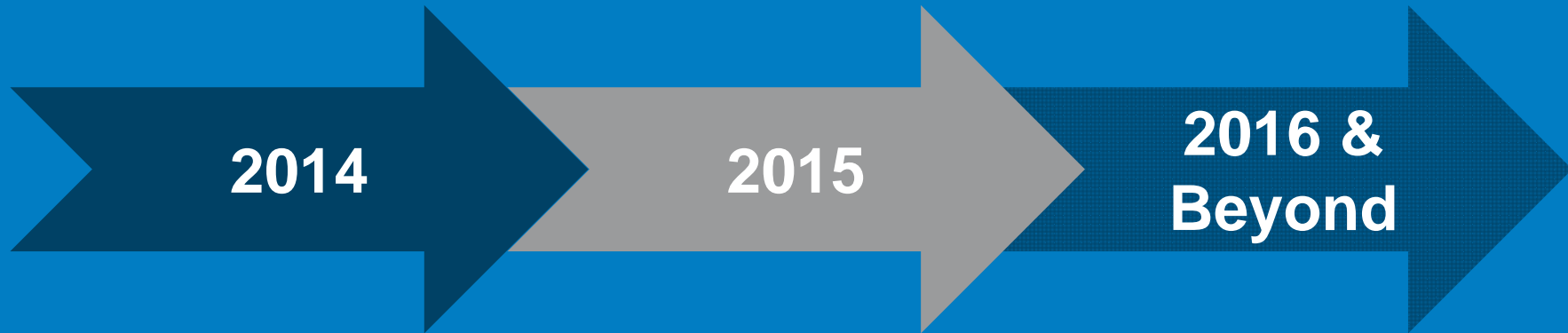
- The Massachusetts Environmental Policy Act (MEPA) process begins with the filing of an Environmental Notification Form (ENF)
- The ENF outlines the project and its potential impacts in a broad range of categories
- The project exceeds thresholds in MEPA and will require the preparation of an Environmental Impact Report (EIR). The EIR will be combined with the NEPA document
- Similar to NEPA, MEPA looks for avoidance and minimization of impacts through alternatives analyses, followed by mitigation for unavoidable impacts

Project Mobility Permits

ANTICIPATED PERMIT APPROVALS

- Federal
 - US Coast Guard Bridge Permit for Route 3 over the North River (may be exempt)
 - Section 404 Permit from US Army Corps of Engineers for 10+ acres of wetland impacts
 - Coastal Zone Management Consistency Determination
 - Section 106 compliance and Section 4(f) documentation if needed for historic resource impacts, yet to be determined
- State:
 - Section 401 Water Quality Certificate
 - Public Waterfront Act (Chapter 91 Waterways License)
 - Mass DEP Variance from the Wetlands Protection Act

Indicative Project Timeline



- Legislative Outreach
- Preliminary Construction Costs
- Industry Day
- MEPA ENF prepared
- Public Outreach
- RFI
- MEPA Environmental Notification Form filed
- NEPA process initiation
- RFQ
- RFP & Formal Procurement
- ROD (EIS) or FONSI (EA)
- Permit approvals
- Financial Close