



Spaulding Turnpike Improvements NHS-027-1(37), 11238

Newington to Dover
New Hampshire
November 2007



Volume 2



Federal Highway
Administration



New Hampshire
Department of Transportation

Figure	Description
1.2-1	Project Location Map
1.2-2	Project Study Area
1.3-1	Socio-economic Study Area
1.3-2	Functional Classification Map
2.3-1	Typical Roadway / Bridge Cross Sections
2.4-1	Temporal Distribution of 2000 and 2025 Average Weekday Traffic, Little Bay Bridges, Southbound
2.4-2	Temporal Distribution of 2000 and 2025 Average Weekday Traffic, Little Bay Bridges, Northbound
2.4-3	Dover TSM, Exit 6, Northbound
2.4-4	Dover TSM, Exit 6, Southbound
2.4-5	Newington Interim Safety Improvements
2.4-6	Newington TSM Options, Exit 3, Southbound and Exits 3-4, Northbound
2.4-7	Six, Seven and Eight-Lane HOV Typical Section Alternatives
2.4-8	Six-Lane Contraflow (Zipper Lane) and Six-Lane Plus Two Shoulder Lanes Typical Section Alternatives
2.4-9	Rail Alternatives
2.4-10	Bus Alternatives
2.4-11	Proposed Relocated Fox Run Mall Bus Transfer Point, Newington
2.4-12	Exit 9 / Indian Brook Drive Park-and-Ride Facility, Dover
2.4-13	Potential Park-and-Ride Facility, Exit 13 / Washington Street, East of Spaulding Turnpike, Rochester
2.4-14	Potential Park-and-Ride Facility, Exit 13 / Washington Street, West of Spaulding Turnpike, Rochester
2.4-15	Six-Lane and Eight-Lane Comparison
2.4-15a	Six-Lane Overview
2.4-15b	Eight-Lane Overview
2.4-16	Segment Breakout Map
2.4-17	Newington Alternative 6 Revised
2.4-18	Newington Alternative 7
2.4-19	Newington Alternative 9
2.4-20	Newington Alternative 10
2.4-21	Newington Alternative 10A
2.4-22	Newington Alternative 11
2.4-23	Newington Alternative 12
2.4-24	Newington Alternative 12A
2.4-25	Newington Alternative 13
2.4-26	Dover Alternative 1
2.4-27	Dover Alternative 2
2.4-28	Dover Alternative 3
2.4-29	Widen Little Bay Bridges to East Side and Rehabilitate General Sullivan Bridge
2.4-30	Widen Little Bay Bridges to East Side with Multi-Use Path and Remove General Sullivan Bridge
2.4-31	Widen Little Bay Bridges to West Side and Rehabilitate General Sullivan Bridge
2.4-32	Widen Little Bay Bridges to West Side with Multi-Use Path and Remove General Sullivan Bridge
2.4-33	Widen Little Bay Bridges to Both Sides and Rehabilitate General Sullivan Bridge
2.4-34	Widen Little Bay Bridges to Both Sides with Multi-Use Path and Remove General Sullivan Bridge
2.4-35	Construct New Bridge with Multi-Use Path - Replace Little Bay Bridges and General Sullivan Bridge
2.4-36	Conceptual Elevations of New Signature Bridge Alternatives
2.4-37	Existing Little Bay Bridges Plan and Elevation
2.5-1	Summary of Environmental Impacts
2.6-1	Summary of Costs (FY 2007), Six-Lane Alternatives
2.6-2	Summary of Costs (FY 2007), Eight-Lane Alternatives
3.2-1	2003 Existing Conditions, Weekday AM Peak Hour Volumes (2 sheets)
3.2-2	2003 Existing Conditions, Weekday PM Peak Hour Volumes (2 sheets)
3.2-3	Level of Service Summary, 2003 Existing Conditions, Weekday AM Peak Hour
3.2-4	Level of Service Summary, 2003 Existing Conditions, Weekday PM Peak Hour
3.2-5	Spaulding Turnpike - Crash Summary (1997-2003)
3.2-6	Existing General Sullivan Bridge Plan and Elevation
3.2-7	Existing General Sullivan Bridge Cross Section
3.2-8	Existing Little Bay Bridges Cross Section
3.2-9	Existing Park-and-Ride Facilities
3.2-10	Existing Bus Services
3.3-1	Zoning Districts, Newington and Dover
3.4-1	Major Soil Associations
3.5-1	Important Farmland Soils

Figure	Description
3.6-1	Wetland Classification System, (Cowardin, <i>et al.</i> 1979)
3.6-2	Terrestrial Wetland Resources
3.6-3	Wetland Systems Functions and Values (8 Sheets)
3.6-4	Summary of Wetland Resources (2 Sheets)
3.7-1	Wildlife Habitat Cover Types
3.8-1	Threatened and Endangered Species
3.9-1	Watersheds and Surface Water Resources
3.10-1	Intertidal and Subtidal Habitats
3.11-1	Study Area Floodplain Map
3.12-1	Groundwater Resources
3.13-1	Microscale Study Area Intersections, Newington Alternatives
3.13-2	Microscale Study Area Intersections, Dover Alternatives
3.13-3	Microscale Receptor Locations, Newington Alternatives
3.13-4	Microscale Receptor Locations, Dover Alternatives
3.14-1	Noise Sensitive Receptor Locations
3.15-1	Community Resources
3.17-1	Historical Structures
3.17-2	Areas of Archaeological Sensitivity, Dover
3.17-3	Areas of Archaeological Sensitivity, Newington
3.18-1	Confirmed and Potential Contaminated Sites
3.18-2	Registered AST/UST Sites
4.2-1	2025 No Build, Weekday AM Peak Hour Volumes (2 sheets)
4.2-2	2025 No Build, Weekday PM Peak Hour Volumes (2 sheets)
4.2-3	Level of Service Summary, 2025 No Build Condition, Weekday AM Peak Hour
4.2-4	Level of Service Summary, 2025 No Build Condition, Weekday PM Peak Hour
4.6-1	Wetland Impacts (Noise Barrier Locations) North of Exit 6, Dover
4.6-2	Potential Newington Mitigation Sites
4.6-3	Potential Dover Mitigation Sites
4.6-4	Railway Brook Restoration Conceptual Plan
4.10-1	Current Velocity Modeled Data Locations
4.10-2	Tidal Height Locations
4.10-3	Maximum Flood Currents For Case Study 1 (Existing Conditions)
4.10-4	Maximum Ebb Currents For Case Study 1 (Existing Conditions)
4.10-5	Maximum Flood Currents For Case Study 2 (Hydraulic Alternative 1)
4.10-6	Maximum Ebb Currents For Case Study 2 (Hydraulic Alternative 1)
4.10-7	Maximum Flood Currents For Case Study 3 (Hydraulic Alternative 2)
4.10-8	Maximum Ebb Currents For Case Study 3 (Hydraulic Alternative 2)
4.10-9	Maximum Flood Currents For Case Study 4 (No Piers)
4.10-10	Maximum Ebb Currents For Case Study 4 (No Piers)
4.10-11	Maximum Flood Currents For Case Study 5 (Combined Piers)
4.10-12	Maximum Ebb Currents For Case Study 5 (Combined Piers)
4.10-13	Maximum Flood Currents For Case Study 6 (General Sullivan Bridge Removed)
4.10-14	Maximum Ebb Currents For Case Study 6 (General Sullivan Bridge Removed)
4.10-15	Pier Impacts on Intertidal and Subtidal Habitats, Selected Alternative
4.10-16	Water Quality Sampling Stations of NHDES Shellfish Program
4.10-17	Tidal Buffer Zone Impact
4.14-1	Dover Alternative 3, Noise Impact Locations
4.14-2	Newington Alternative 13, Noise Impact Locations
4.14-3	Proposed Noise Mitigation, Dover - South of Exit 6
4.14-4	Proposed Noise Mitigation, Dover - North of Exit 6
4.17-1	Potential Archaeological Impacts, Newington Alternative 10A
4.17-2	Potential Archaeological Impacts, Newington Alternative 12A
4.17-3	Potential Archaeological Impacts, Newington Alternative 13
4.17-4	Potential Archaeological Impacts, Widen West/Remove Alternative
4.17-5	Potential Archaeological Impacts, Widen West/Rehabilitate Alternative
4.17-6	Potential Archaeological Impacts, Dover Alternative 2
4.17-7	Potential Archaeological Impacts, Dover Alternative 3
5.4-1	Section 4(f) Impacts NWN 0228, Newington
5.4-2	Section 4(f) Impacts NWN 0204, NWN 0205, Newington
5.4-3	Section 4(f) Impacts DOV 0158, General Sullivan Bridge, Dover
5.4-4	Section 4(f) Impacts Hilton Park, DOV 0093, Dover
5.4-5	Section 4(f) Impacts Bayview Park, Dover



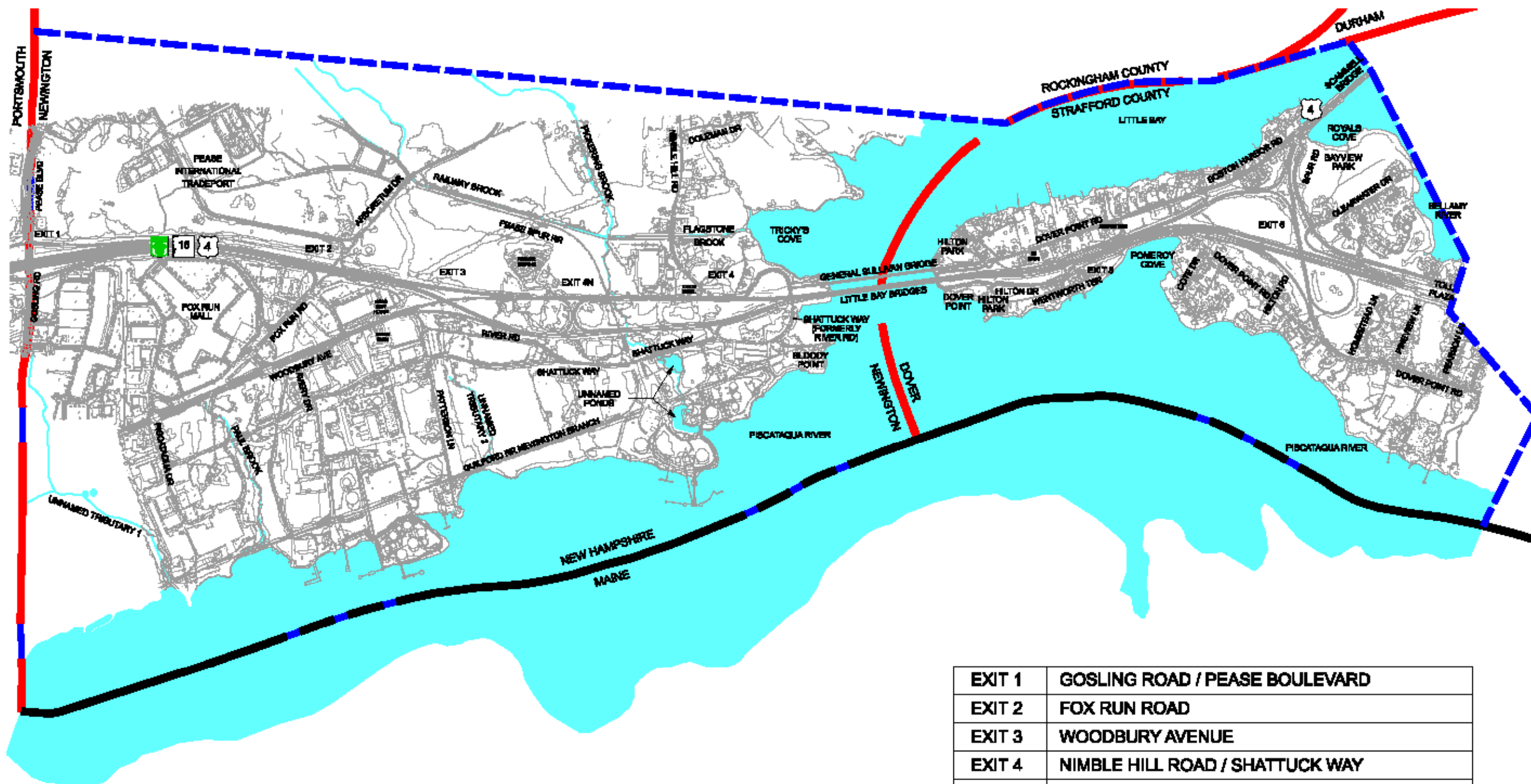
Vanasse Hangen Brustlin, Inc.

**Figure 1.2-1
Project Location Map**

0 5 10 15 20 MILES
0 5 10 15 20 KILOMETERS

Legend:

- SURFACE WATERS
- TOWNLINE
- STATELINE
- STUDY AREA BOUNDARY



EXIT 1	GOSLING ROAD / PEASE BOULEVARD
EXIT 2	FOX RUN ROAD
EXIT 3	WOODBURY AVENUE
EXIT 4	NIMBLE HILL ROAD / SHATTUCK WAY
EXIT 4N	MEDIAN TURNAROUND (DISCONTINUED IN 2005)
EXIT 5	WENTWORTH TERRACE (HILTON PARK)
EXIT 6	US ROUTE 4 / DOVER POINT ROAD



0 750 1500 Feet

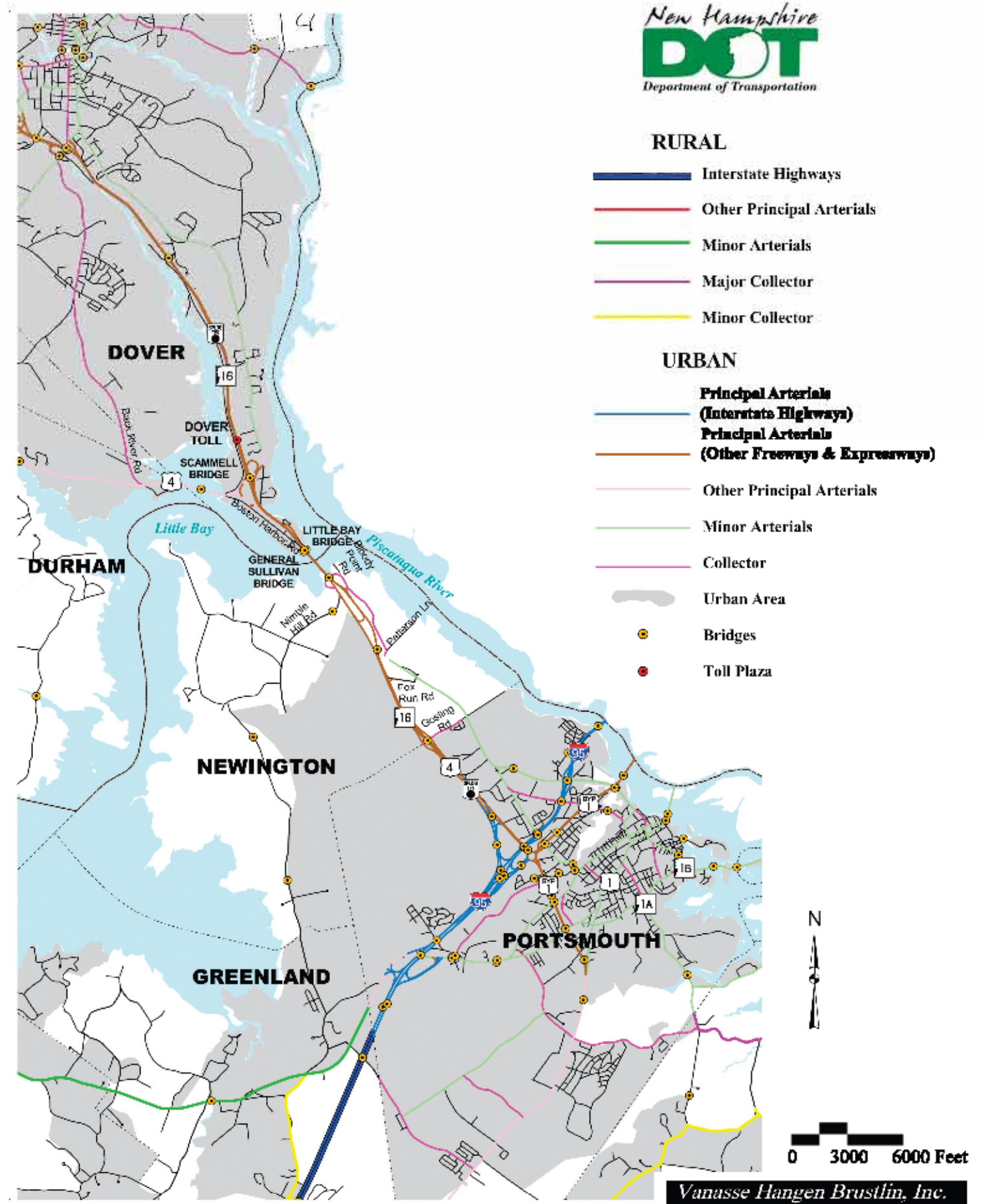
Vanneste Hangan Brustlin, Inc.

Figure 1.2-2
Project Study Area



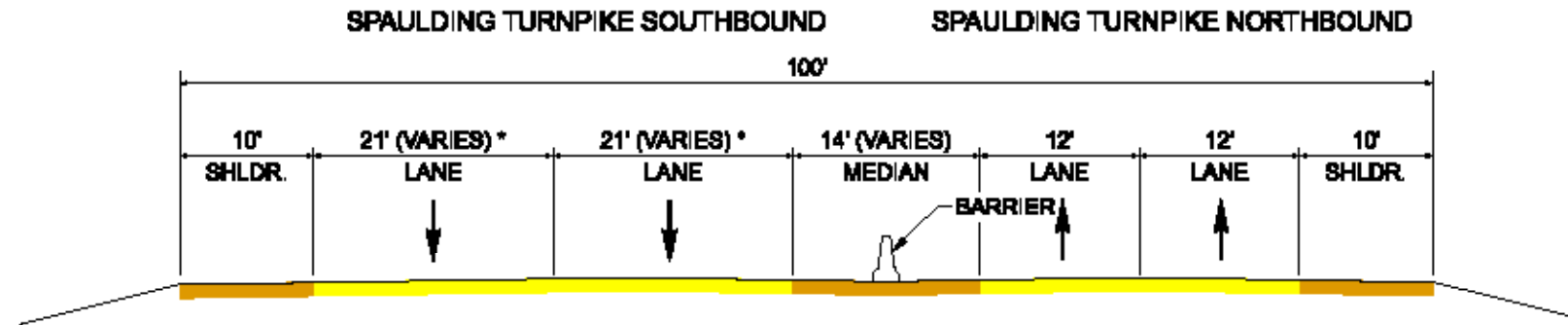
Vanasse Hangen Brustlin, Inc.

Figure 1.3-1
 Socio-economic Study Area



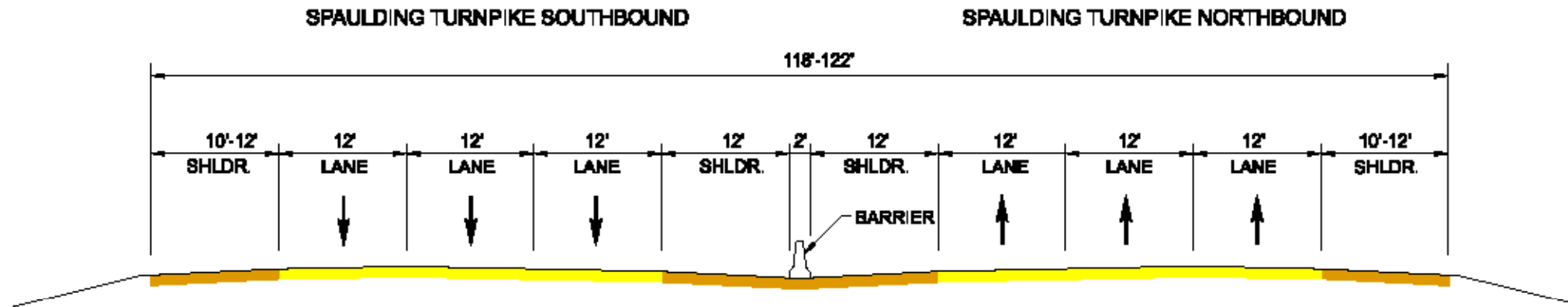
Vanasse Hangen Brustlin, Inc.

Figure 1.3-2
 Functional Classification Map

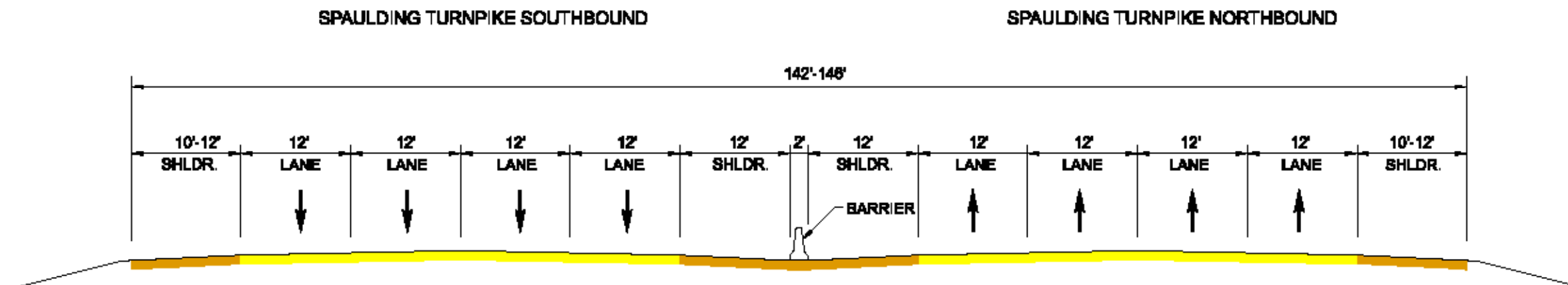


EXISTING FOUR - LANE ROADWAY CROSS SECTION (NORTH OF LITTLE BAY BRIDGES)

* TAPERS TO 12' APPROACHING BRIDGE



SIX - LANE TYPICAL SECTION



EIGHT - LANE TYPICAL SECTION

Figure 2.4-1
Temporal Distribution of 2000 and 2025 Average Weekday
Traffic, Little Bay Bridges, Southbound

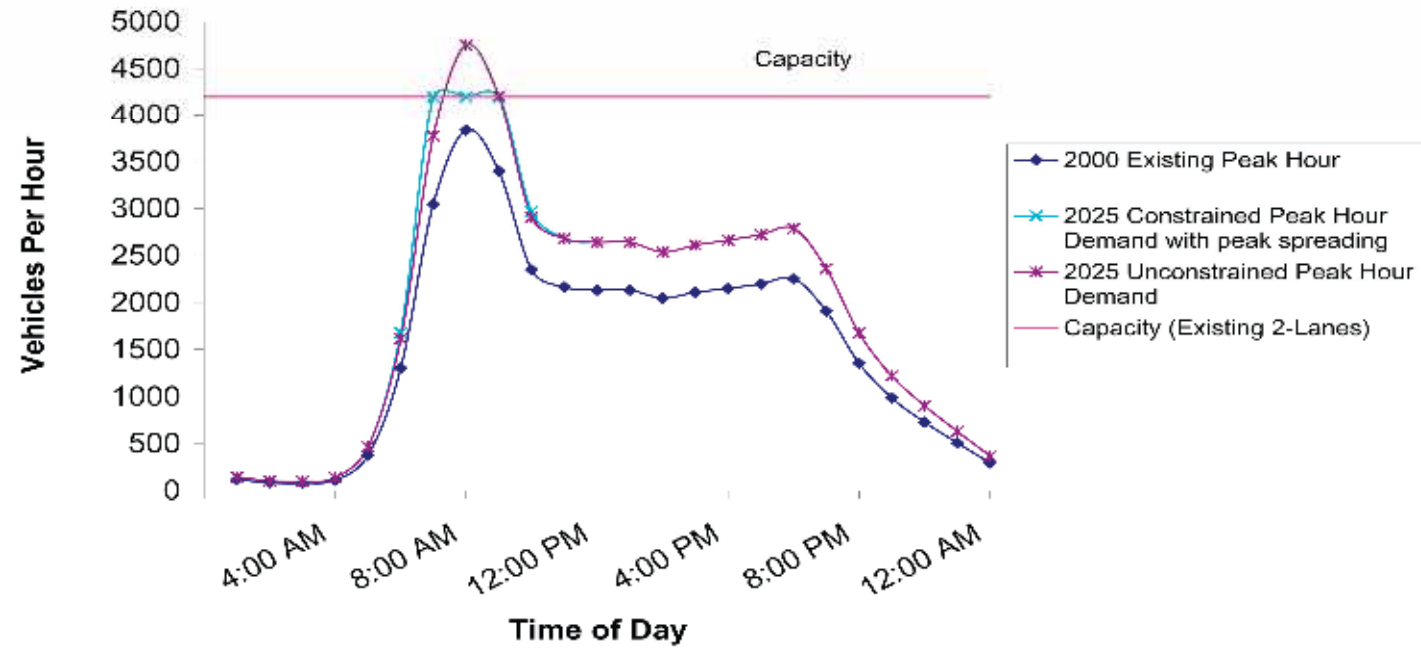
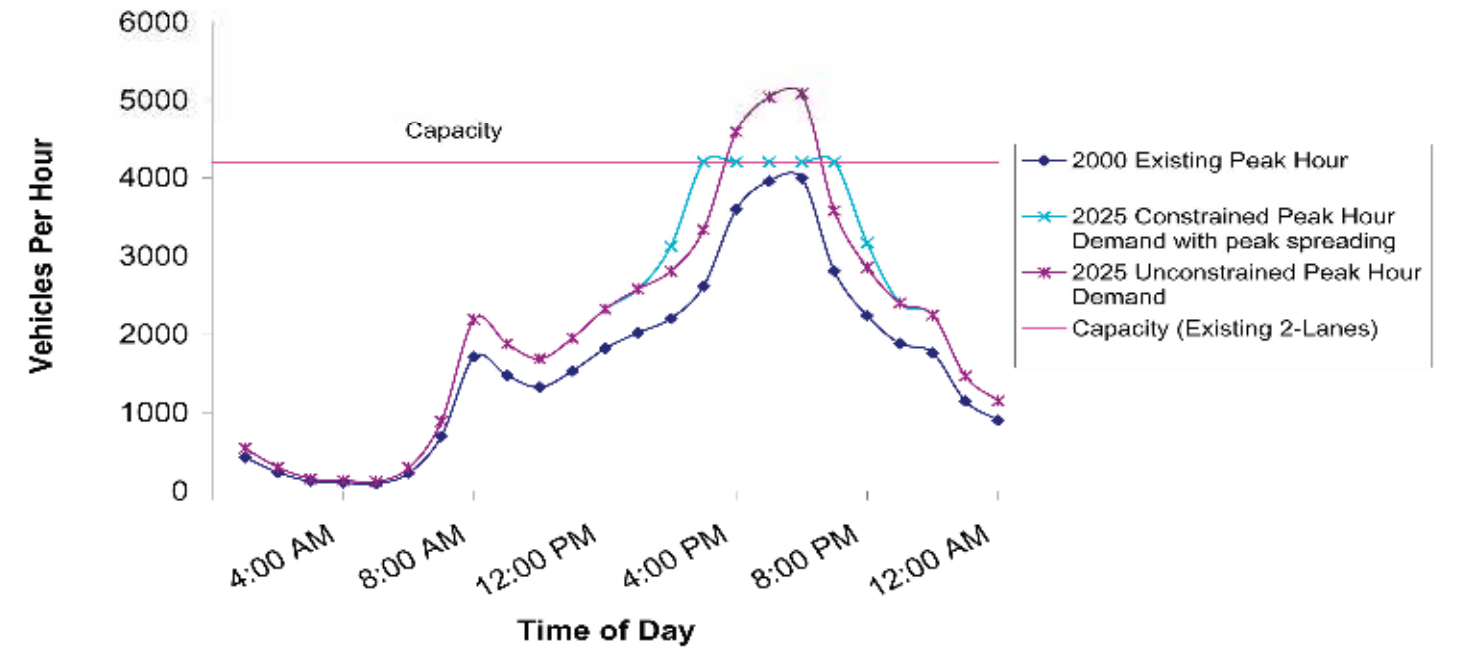


Figure 2.4-2
Temporal Distribution of 2000 and 2025 Average Weekday
Traffic, Little Bay Bridges, Northbound



June 10, 2003

Vanasse Hangen Brustlin, Inc.
 Temporal Distribution of 2000 and 2025
 Average Weekday Traffic
 Little Bay Bridges, Southbound
 Figure 2.4-1

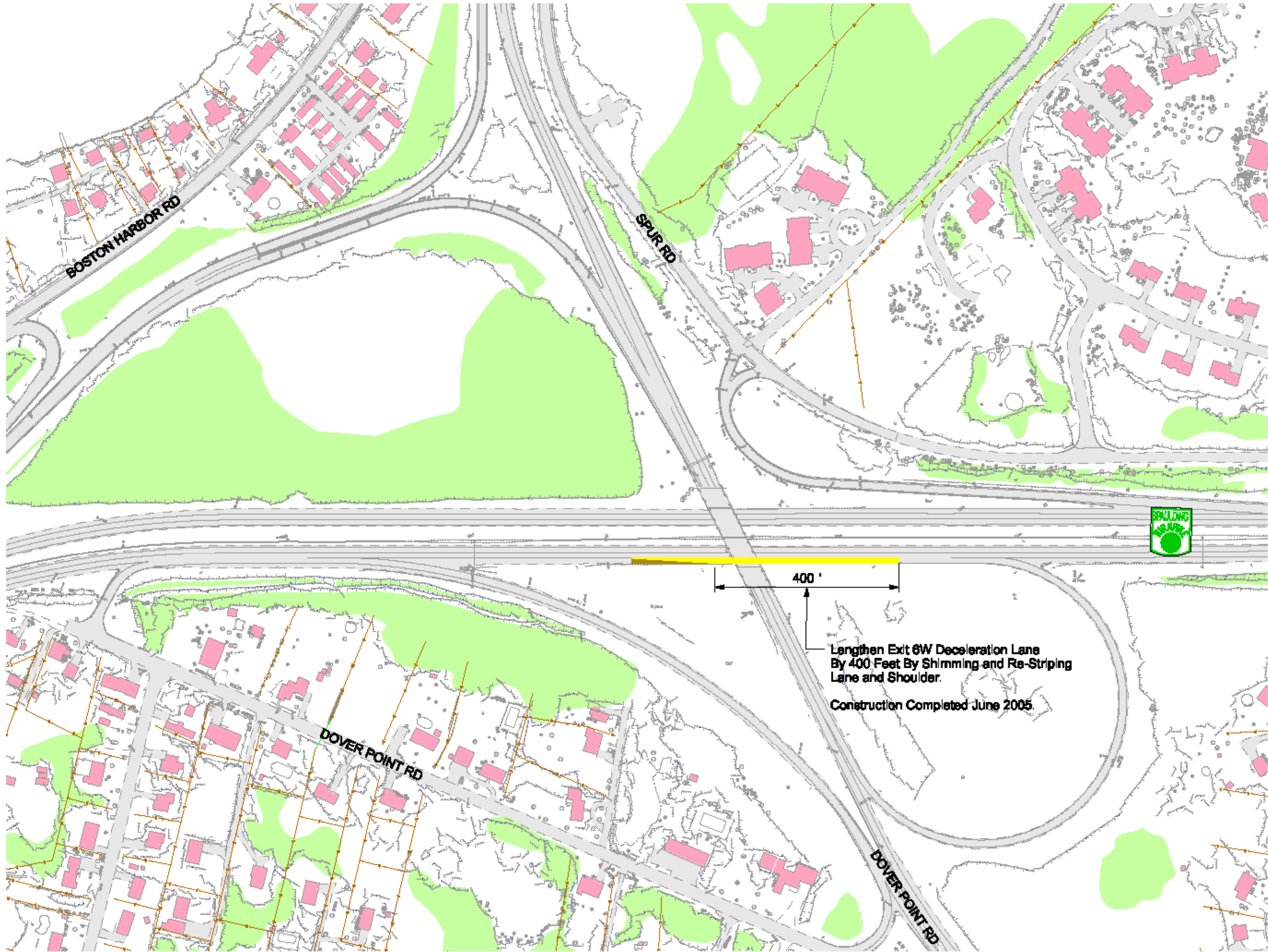


June 16, 2003

Vanasse Hangen Brustlin, Inc.
 Temporal Distribution of 2000 and 2025
 Average Weekday Traffic
 Little Bay Bridges, Northbound
 Figure 2.4-2

Legend:

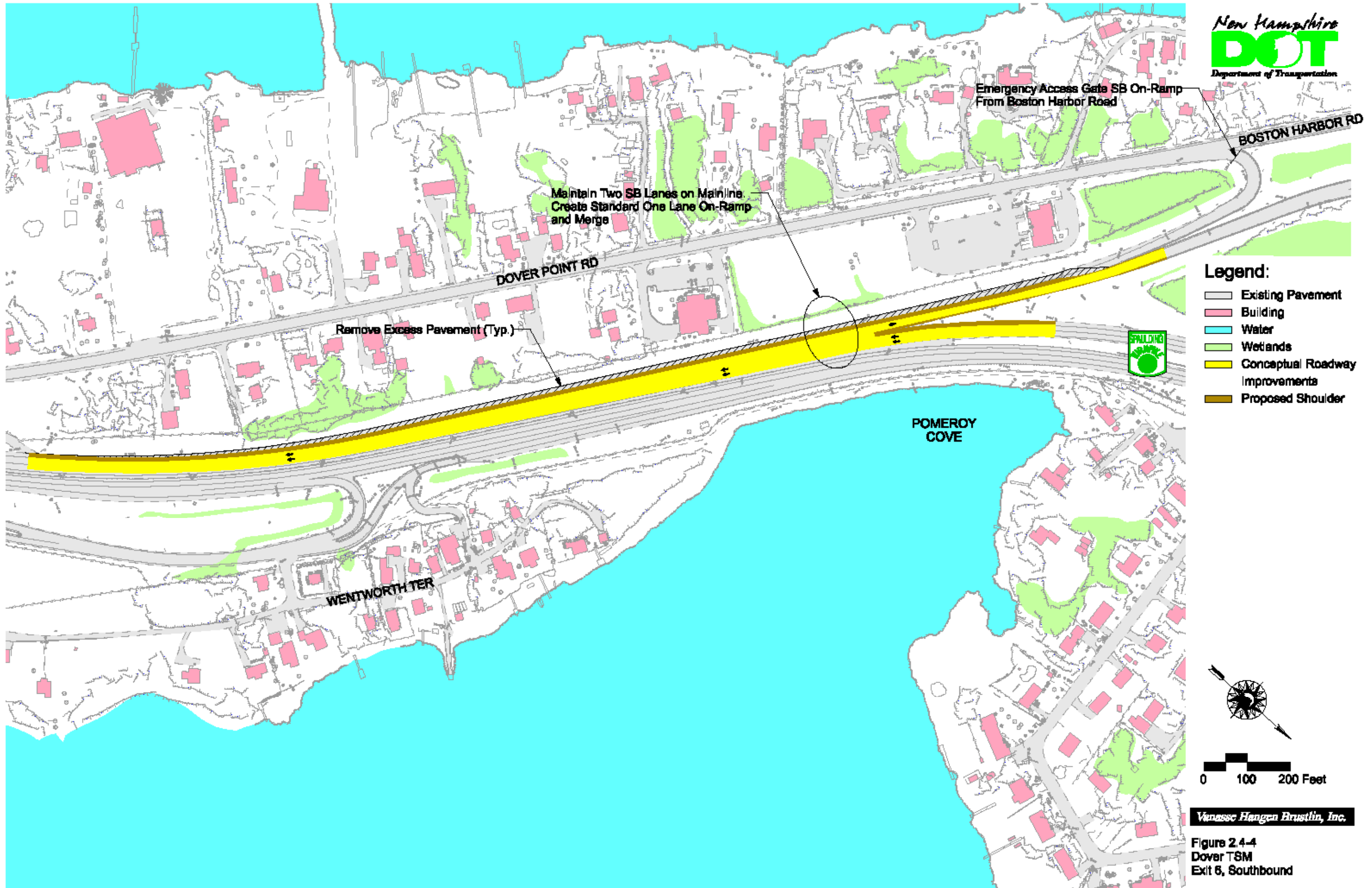
-  Existing Pavement
-  Building
-  Water
-  Wetlands
-  Conceptual Roadway Improvements
-  Proposed Shoulder



0 100 200 Feet

Vanasse Hangen Brustlin, Inc.

Figure 2.4-3
Dover TSM
Exit 6, Northbound

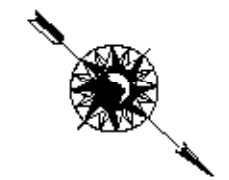


Emergency Access Gate SB On-Ramp
From Boston Harbor Road

Maintain Two SB Lanes on Mainline
Create Standard One Lane On-Ramp
and Merge

Remove Excess Pavement (Typ.)

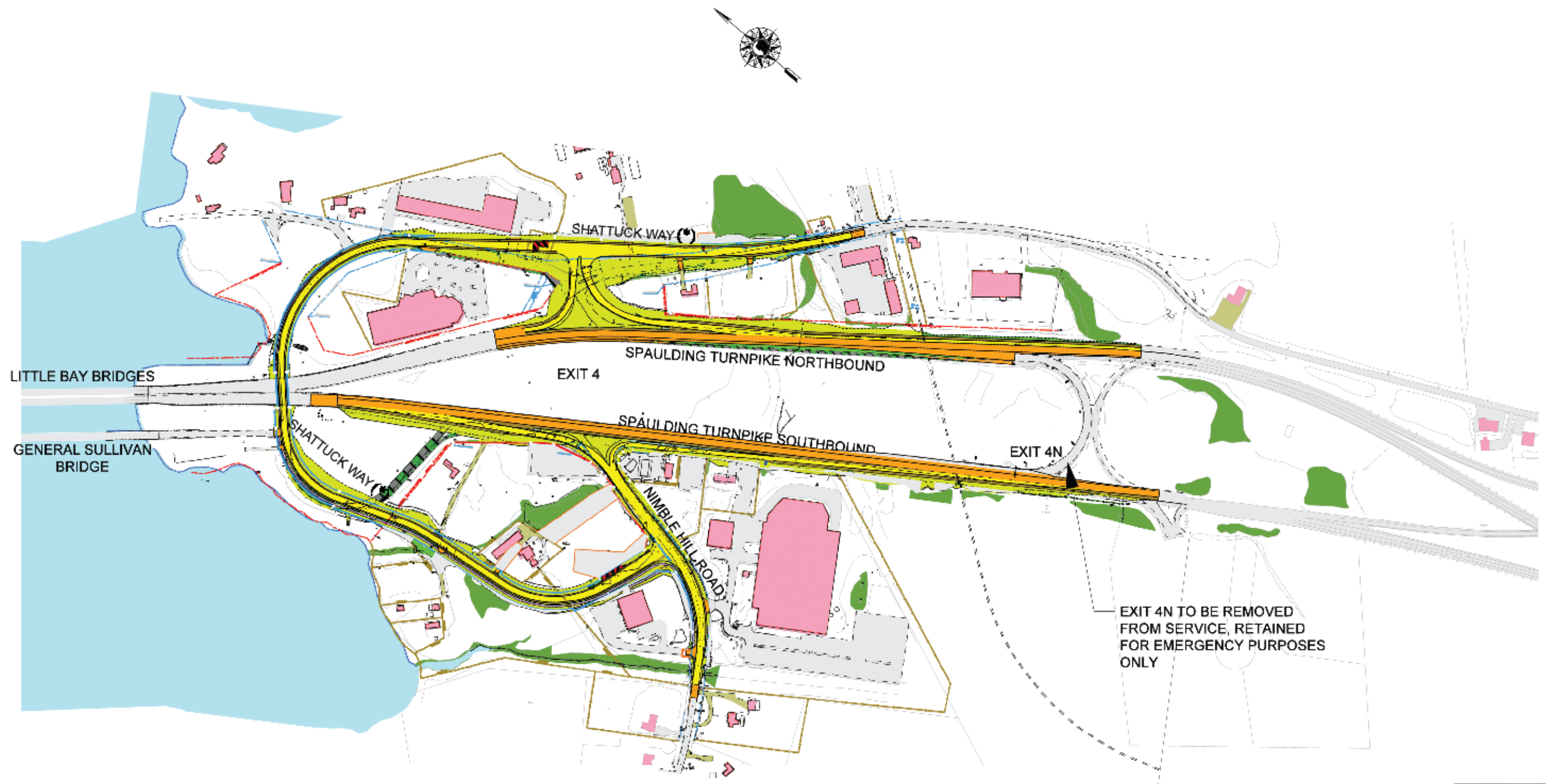
- Legend:**
- Existing Pavement
 - Building
 - Water
 - Wetlands
 - Conceptual Roadway Improvements
 - Proposed Shoulder



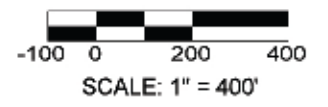
0 100 200 Feet

Vanasse Hangen Brustlin, Inc.

Figure 2.4-4
Dover TSM
Exit 6, Southbound



(*) Note: Segments formerly known as River Road and River Road Extension now known as Shattuck Way



- | | |
|--|---|
|  Proposed Work |  Existing Pavement |
|  Wetlands |  Resurfacing / Driveway Improvements |
|  Existing Buildings |  Water |

Newington Interim Safety Improvements

Proposed Interchange Improvements
Exit 4 / River Road / Nimble Hill Road
Newington, New Hampshire
A000(115), 11238-C

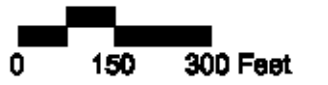
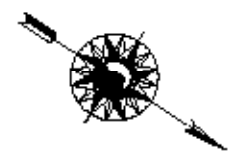
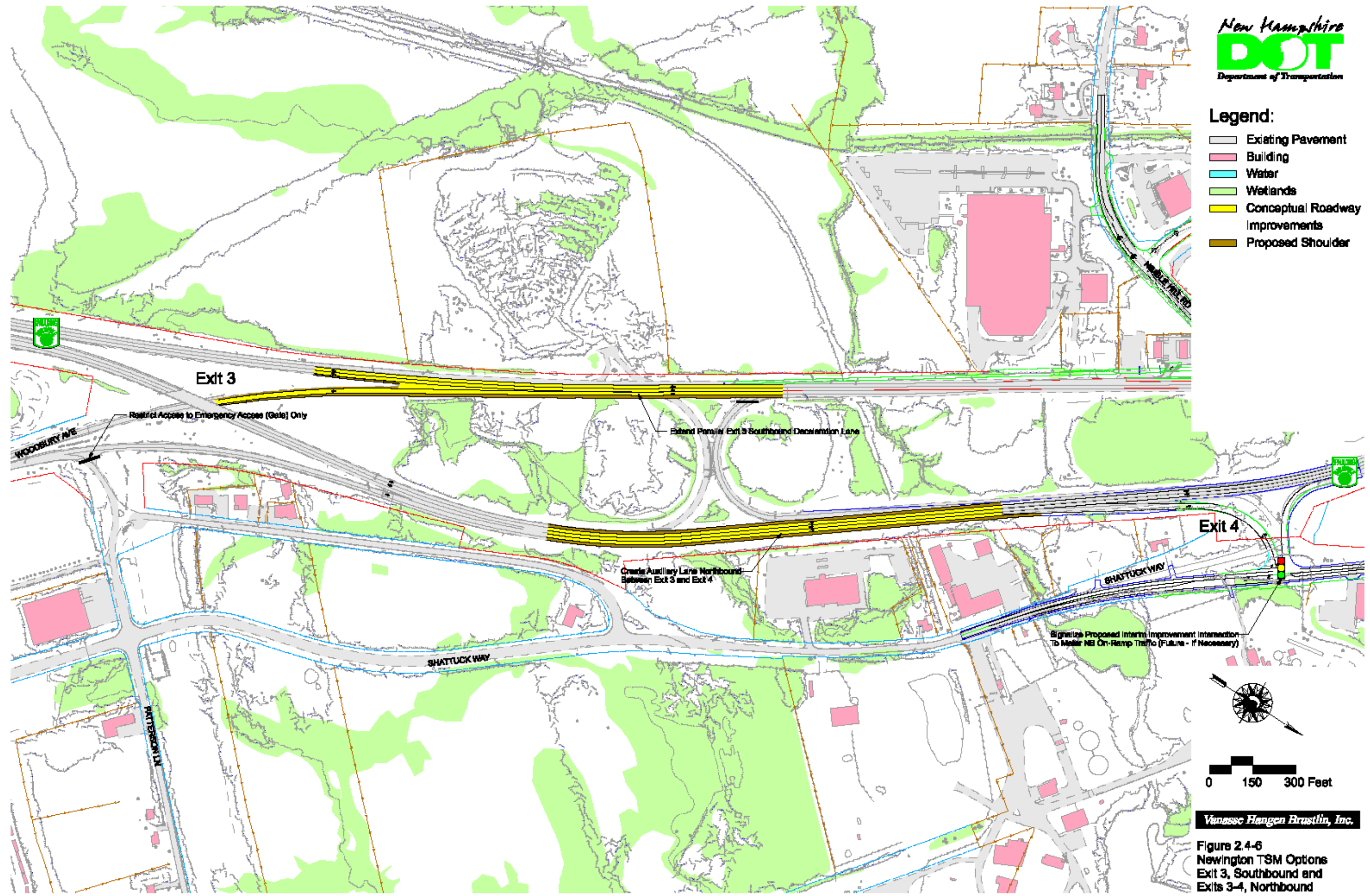
- | |
|---|
|  Buildings to be Removed |
|  Pavement Removal |



Figure 2.4-5

Legend:

-  Existing Pavement
-  Building
-  Water
-  Wetlands
-  Conceptual Roadway Improvements
-  Proposed Shoulder



Vanasse Hangen Brustlin, Inc.

Figure 2.4-6
Newington TSM Options
Exit 3, Southbound and
Exits 3-4, Northbound

Legend:

- ALT. 1 Alignment/Station Expanded Downeaster Service
- ALT. 2A Alignment/Station Rochester-Portsmouth via Rockingham Junction
- ALT. 2B Alignment/Station Rochester-Portsmouth via Tumble
- ALT. 3 Alignment/Station Conway Branch
- ALT. 4 Alignment Pease Spur



Vanasse Hangen Brustlin, Inc.

Figure 2.4-9
 Rail Alternatives

