

NEWINGTON-DOVER

Spaulding Turnpike / Little Bay Bridge Improvements

WELCOME

Stafford Regional Planning Commission
Technical Advisory Committee

July 9, 2010

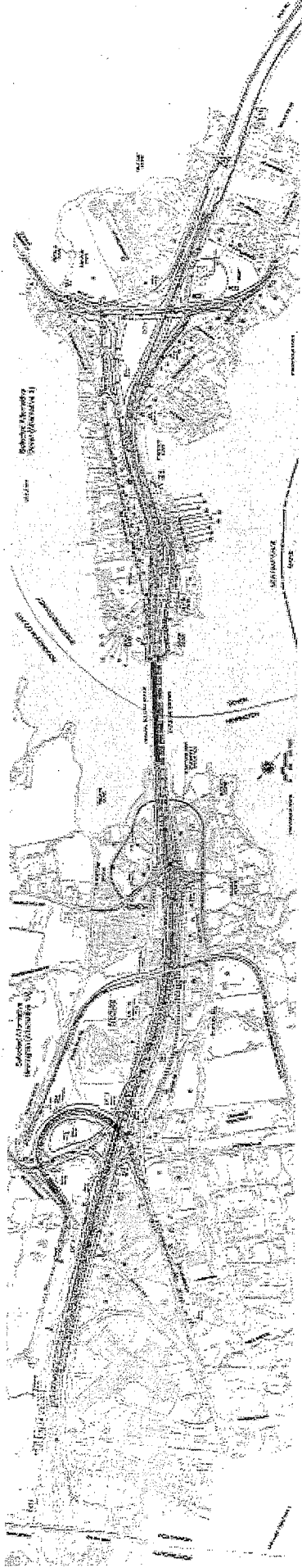
Project Purpose

- Reduce Safety Problems
- Improve Transportation Efficiency

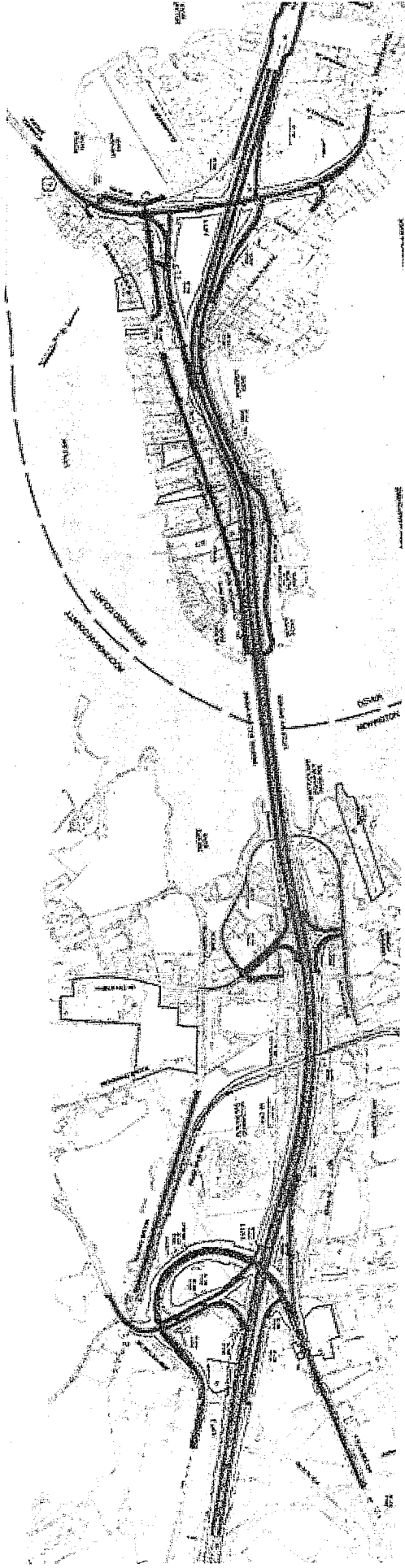
Project Need

- Spaulding Turnpike
 - Limited Capacity – Chronic Congestion
 - ❖ Four Lane Facility – 2 Lanes in each direction
 - ❖ High Traffic Volumes
 - ❖ 30,000 (1980) 70,650 (2003) 71,000 (2005)
 - ❖ Projected 94,300 (2025)
 - Level of Service E & F (during peak hours)
 - High Number of Interchanges
 - ❖ 5 Interchanges in 2 ½ miles
 - Geometric Deficiencies
 - ❖ Substandard Shoulders (Little Bay Bridges)
 - ❖ Substandard Ramp Geometry, Accel & Decel Lanes
 - ❖ Inadequate Weave Areas
 - Poor Local & System Connectivity
 - Accident Data – Long Delays

Newington-Dover Selected Alternative



- Reconstructs & Widens Turnpike
 - 8 Lanes – Exit 3 to Exit 6
 - 6 Lanes south of Exit 3 (match into 6 lanes at Exit 1)
 - 6 Lanes north of Exit 6 (match into width at Toll Plaza)
- Consolidates & Reconfigures the Interchanges
 - Eliminate Exit 2 (Fox Run Road ramps)
 - Reconstruct Exit 3 (Full service interchange with northern access into Pease)
 - Maintain Exit 4 Ramps (Nimble Hill Road & Shattuck Way)
 - Eliminate Exit 5 (Hilton Park & Wentworth Terrace)
 - Reconstruct Exit 6 (Full service interchange with US 4 & Dover Point Road)



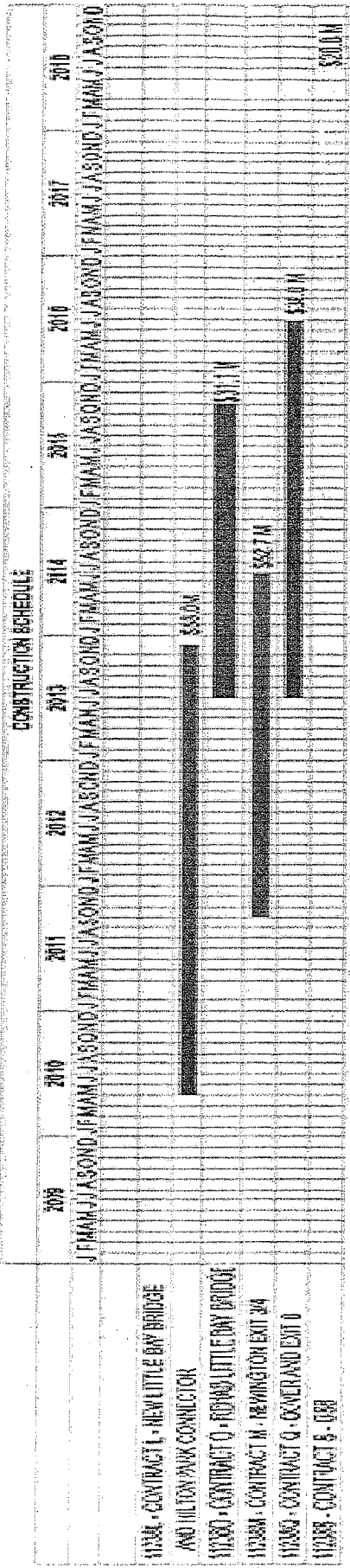
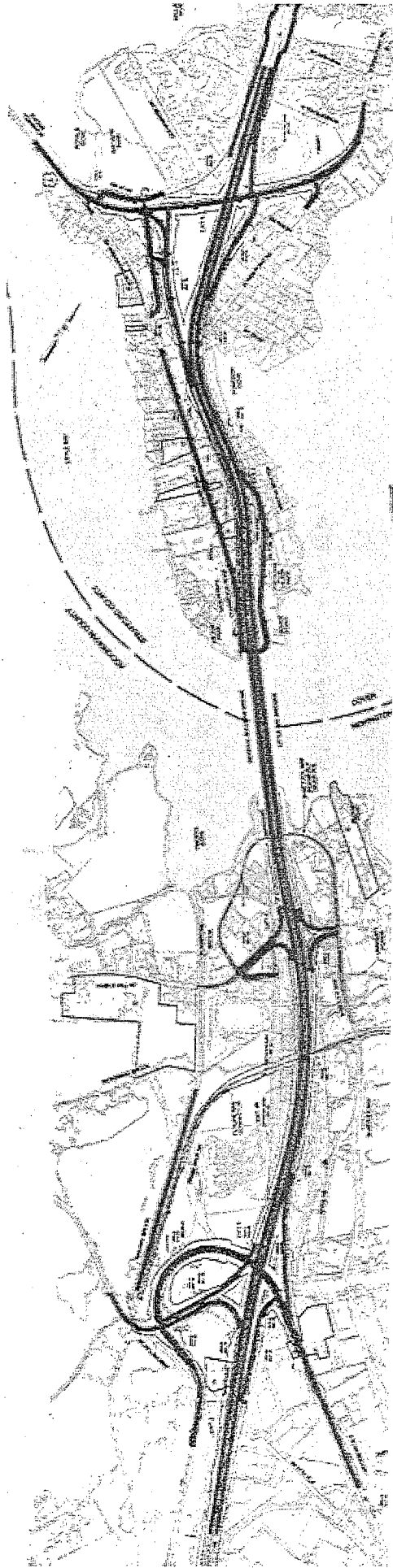
■ Construction Contract Breakouts

- Contract L – SB Little Bay Bridge - \$58.0M (adv 5/2010)
- Contract M – Exits 3 & 4 - \$52.7M (adv 10/2011)
- Contract O – Existing LBB Rehabilitation - \$31.1M (adv 7/2013)
- Contract Q – Exit 6, Dover Mainline & Soundwalls - \$38.6M (adv 7/2013)
- Contract S – GSB Rehabilitation - \$26.8 M (adv 9/2015)

Total Construction Cost = \$207.2M (2010 Dollars)

\$219.5M (with Inflation)

Current Contract Breakout & Schedule



TOTAL COST ALL CONTRACTS = \$307.2 M

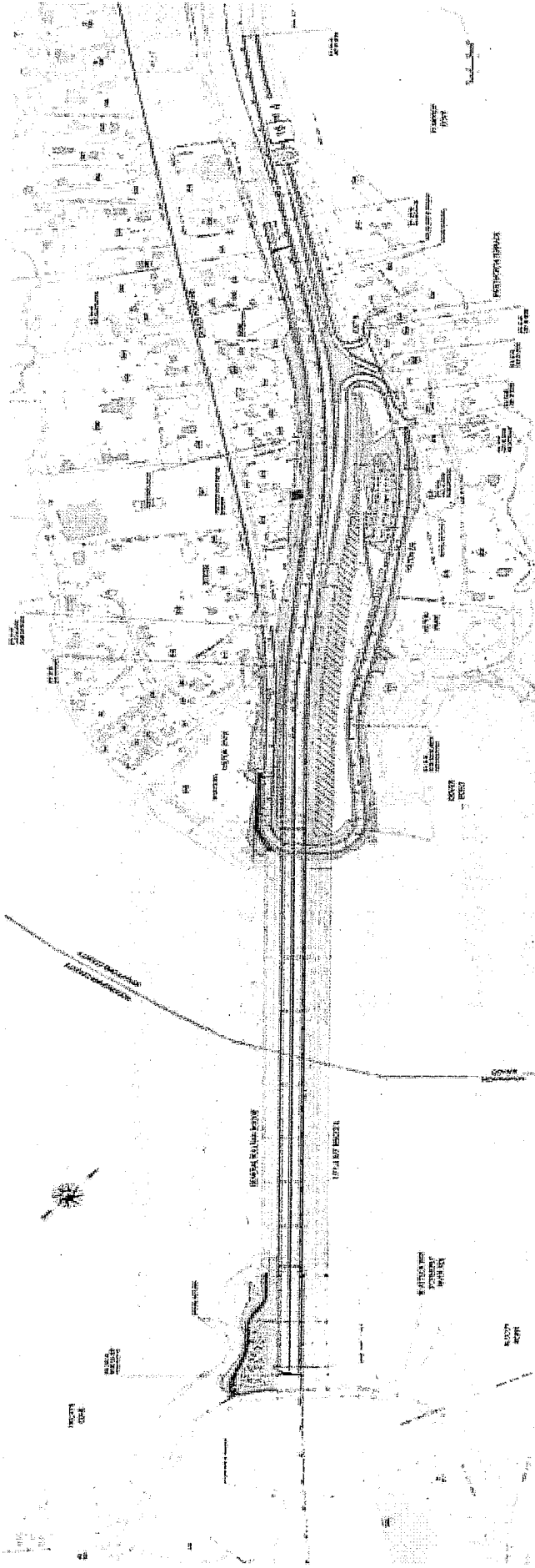
NOTE: CONSTRUCTION SCHEDULE INCLUDES ADVERTISING, BID PERIOD, AND CONSTRUCTION GUARANTEE COSTS ARE DEPICTED IN 2010 DOLLARS.

Project Funding & Estimated Cost

- Total Estimated Project Cost - \$269.7M
 - Engineering - \$20.4M
 - ROW - \$8.9M
 - Environmental Mitigation & TDM (Bus, Park'n'Rides) - \$20.9M (2010 Dollars)
 - ❖ \$12.66M federal CMAQ & Advanced ROW funding
 - Construction - \$207.2M (2010 Dollars)
 - \$219.5M (w/ inflation)
- Engineering, ROW, & \$151M Construction funded in Tpk Capital Program
- \$65M Construction not funded (Dover End & GSB)
- HB391 (2009 LS) increased authorization to \$275M for Project
- Project Primarily Funded with Turnpike Toll Revenue & Bond Proceeds
 - \$31.4M dedicated Federal Earmarked Funds & Grants
 - Seeking CMAQ Federal Funding for TDM Elements
 - Additional Bonding & future system wide toll increase is required to fully fund N-D project and the \$575M Turnpike Capital Program.

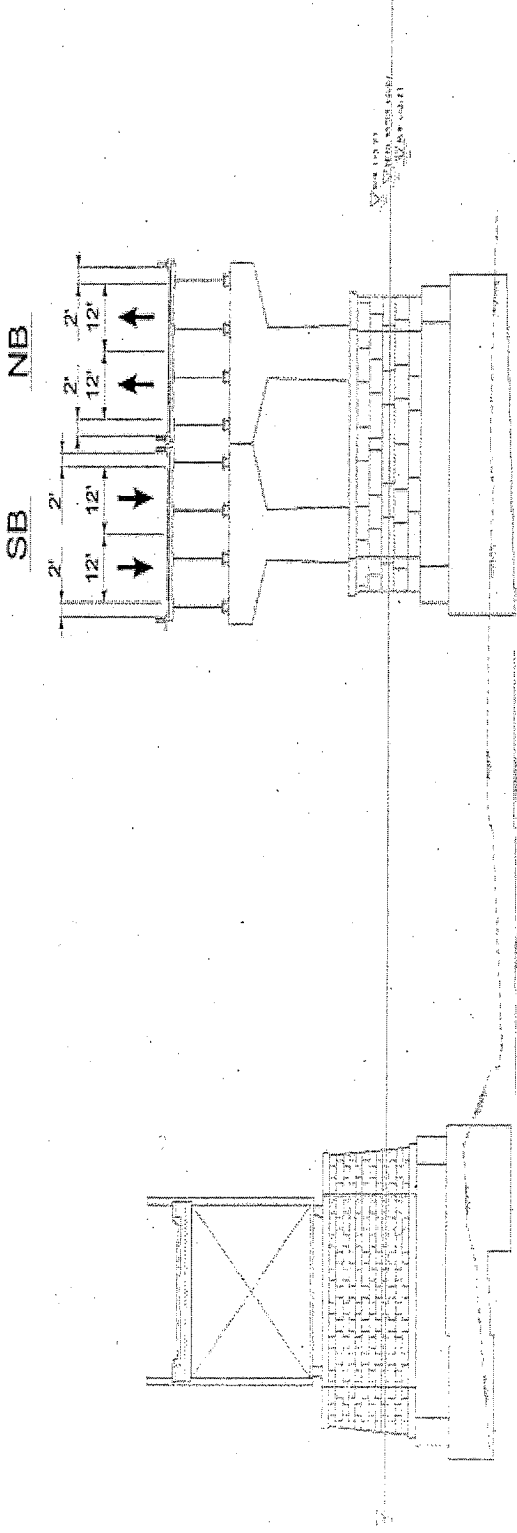
Mitigation Components (Envir & TDM)

- Environmental Mitigation - \$4.37M
 - 120-acre Preservation of Tuttle Farm (Joint Effort w/ City, SRC, DOT) – completed (\$1.34M)
 - 40-acre Preservation of Day Property in Blackwater Brook Watershed – completed (\$0.23M)
 - 64 acres of Preservation in Knight Brook Watershed – underway (est.\$2.0M)
 - Railway Brook Restoration & Preservation – underway (est. \$0.8M)
- Travel Demand Management (TDM) Efforts - \$16.56M
 - Park'n'Ride at Exit 9 in Dover – completed (\$3.49M)
 - Park'n'Ride at Exit 13 in Rochester – CMAQ application submitted (est. \$1.6M)
 - Multi-use Park'n'Ride in Lee – CMAQ application submitted (est. \$85k)
 - Improved Downeaster Rail Service – completed (CMAQ funded \$2.0M)
 - Improved Transit Service (COAST & WILDCAT) – CMAQ application submitted (est. \$8.88M)
 - Financial Support for Seacoast TMA –CMAQ application submitted (est. \$0.5M)



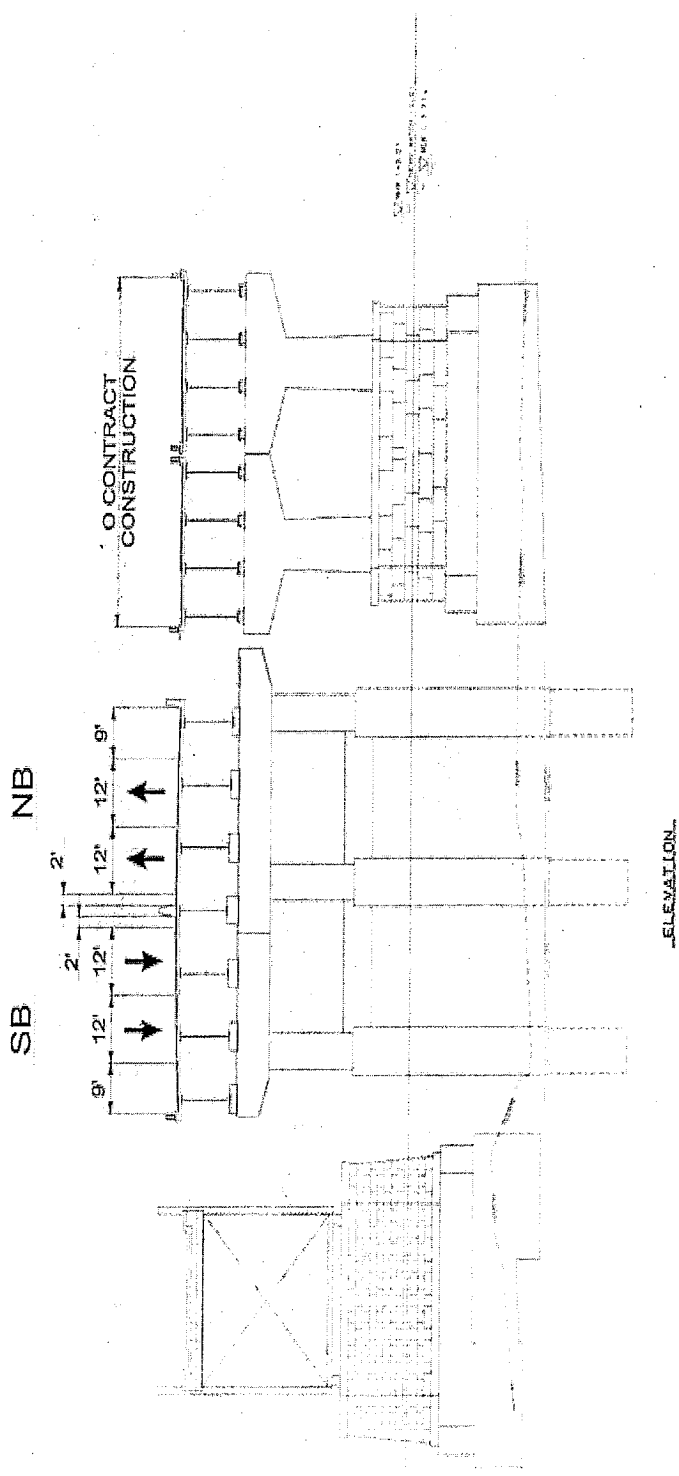
Contract L - SB Little Bay Bridge Construction - \$58.0 M

- Targeted Advertising Date: May 2010
- SB Little Bay Bridge
- Spaulding Turnpike Dover Interim Roadway Connections
- Spaulding Turnpike Newington Roadway Approach
- Exit 5 Ramp Reconstruction
- Hilton Drive
- General Sullivan Bridge Dover Abutment
- Pedestrian & Bicycle Structure



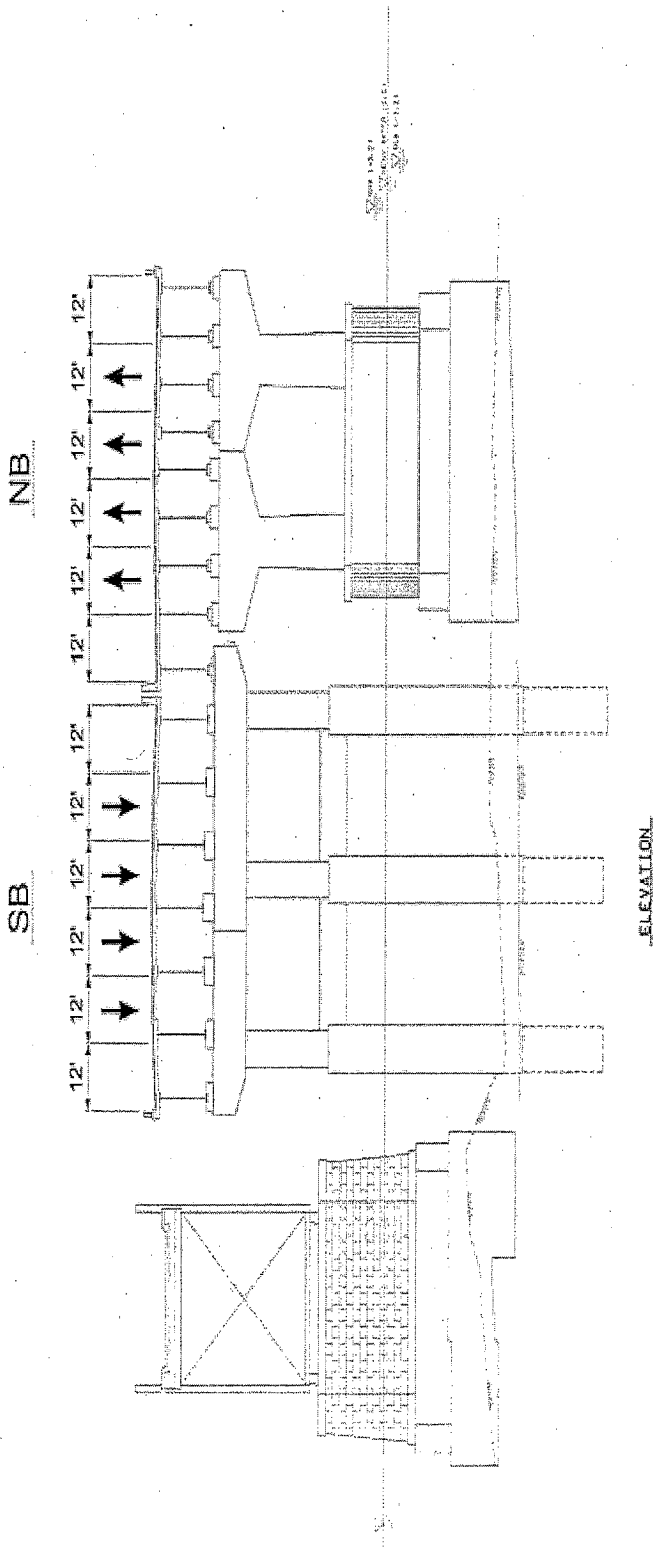
EXISTING GENERAL SULLIVAN AND LITTLE BAY BRIDGE

- Mass pier foundations
- Little Bay Bridge - 2 NB & SB lanes with 2' shoulders
- General Sullivan Bridge – pedestrian and recreational use



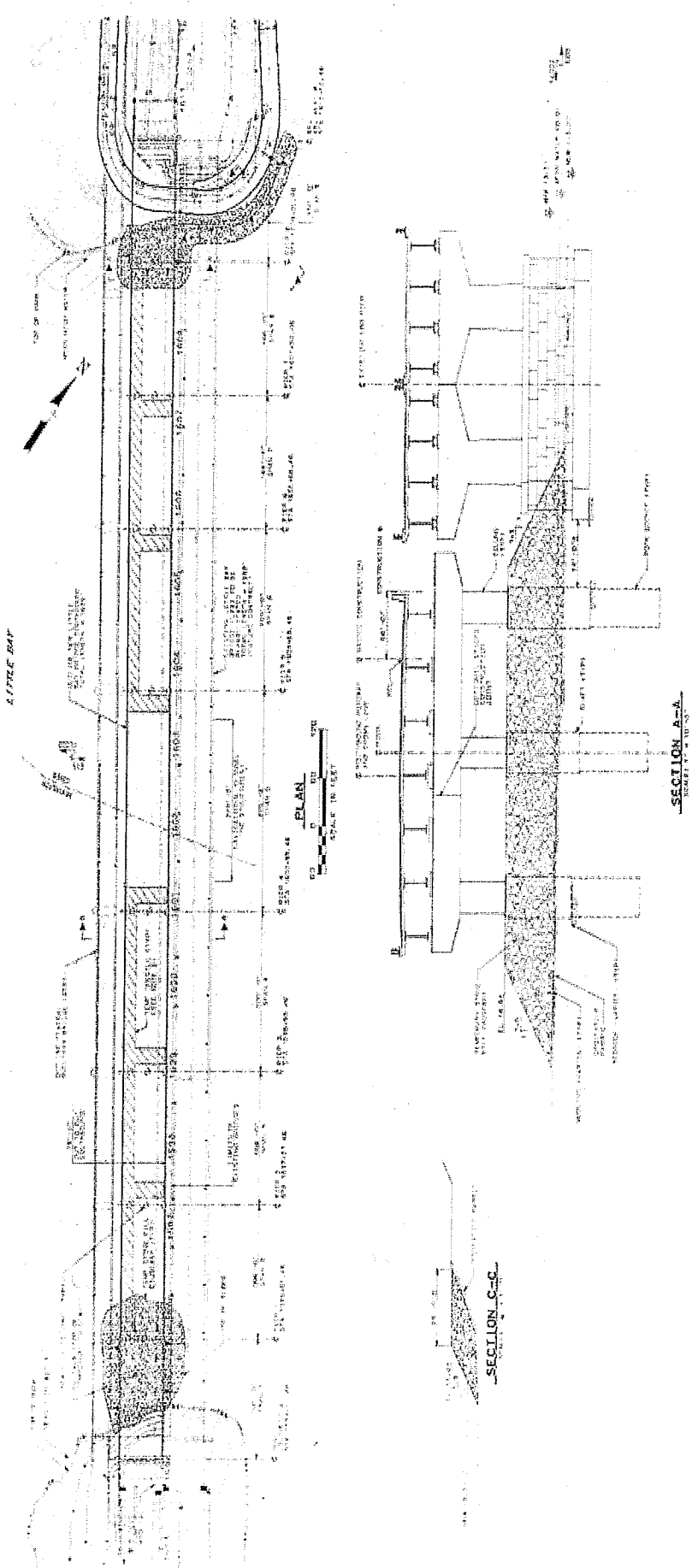
CONTRACT L CONSTRUCTION

- Close proximity to existing bridges – 15’ or less
- Drilled shaft foundations
- Reduced construction and environmental impacts
- 2 lanes NB & SB with 9’ outside shoulders



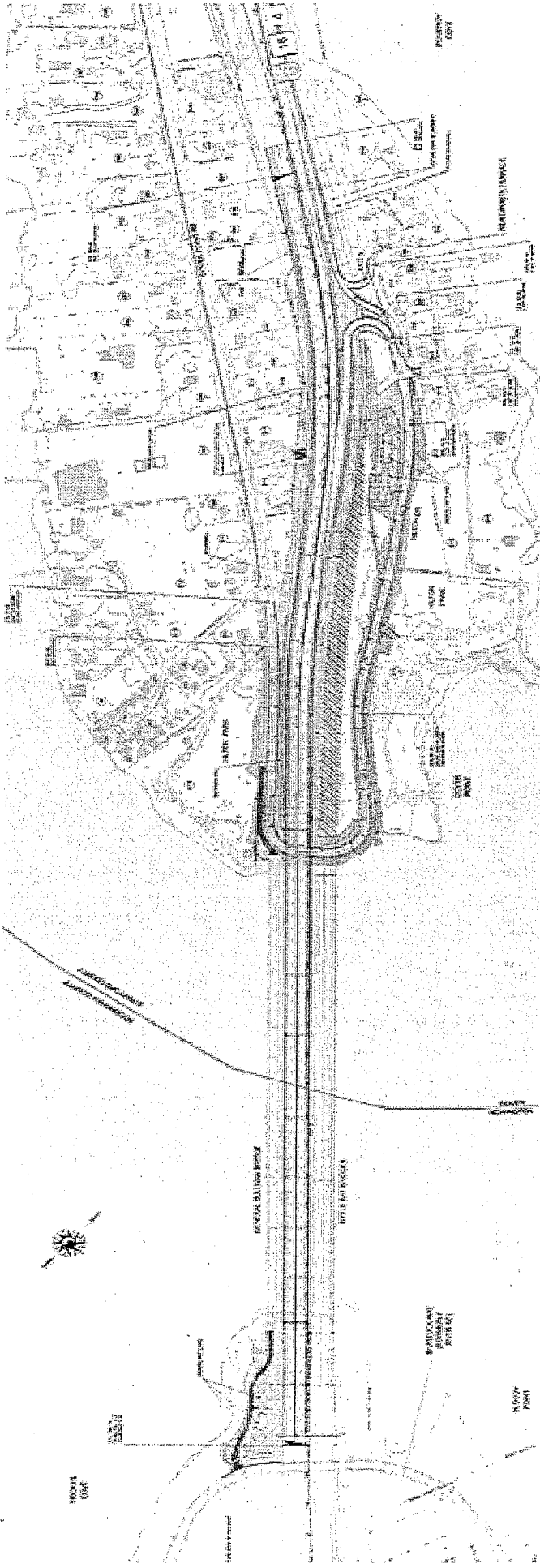
PROPOSED ULTIMATE CONDITION

- 4 lanes NB & SB with 12' inside and outside shoulders
- LBB Rehabilitation construction completed in 2015



BRIDGE CONSTRUCTION

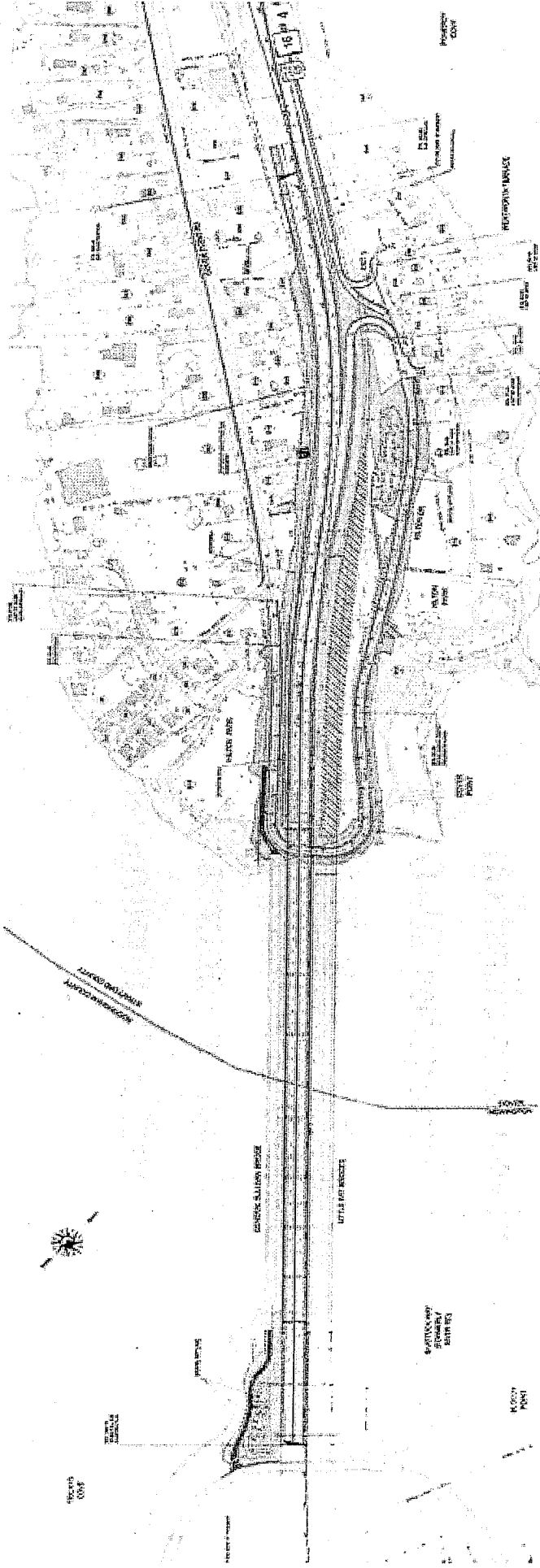
- Temporary stone causeway to provide access from shoreline
- Temporary trestle work platform to access pier locations
- Ultimately, contractor to determine bridge construction methodology



Construction

Construction duration

- September 2010 to November 2013
- 1,600' long bridge constructed between two existing bridges
- Steel or concrete girder superstructure
- Difficult construction in strong tidal currents



Traffic Control & Construction

Major traffic shifts (anticipated target dates)

- Hilton Drive opened to two way traffic in May 2013
- SB traffic onto new bridge in August 2013
- NB traffic onto new bridge in November 2013

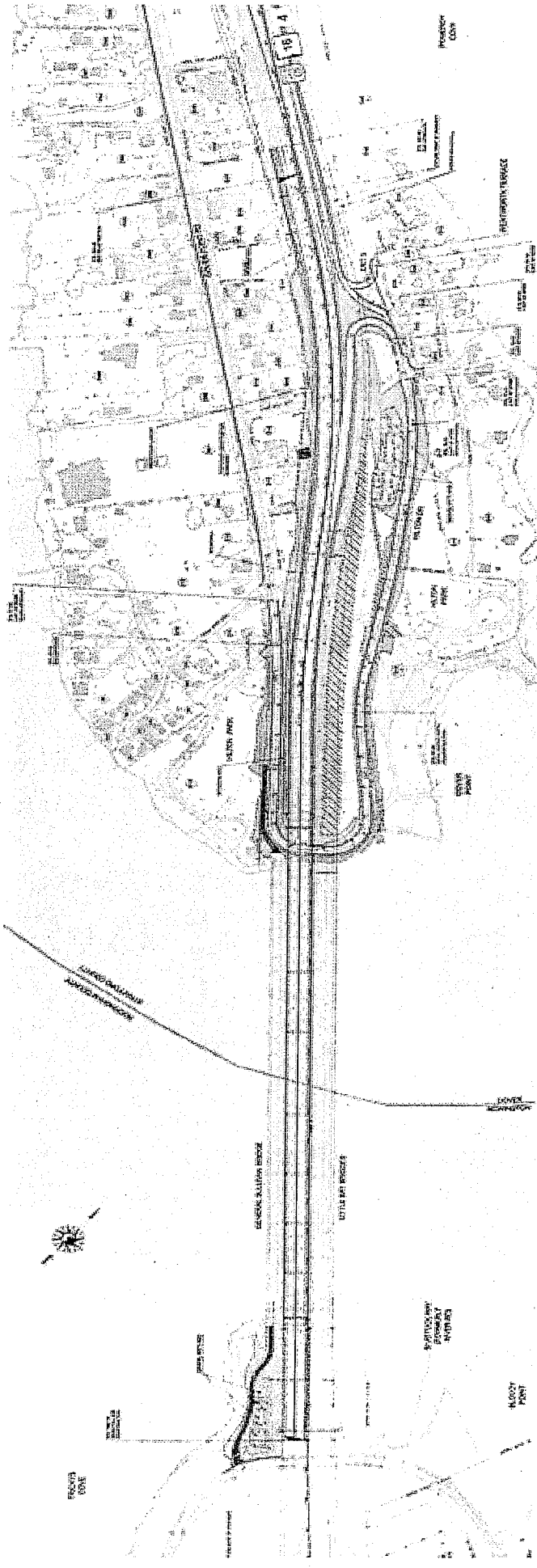
General Sullivan Bridge Access

General Sullivan Bridge Access Closure

- Dover side - November 1, 2010 to May 1, 2011
 - Newington side – occasionally
- Sidewalk beneath GSB and LBB closed during construction

An architectural rendering of a bridge deck. The foreground shows a wide, paved path with a metal railing on the right side. The path leads towards a large, multi-story building with a grid-like facade. The building has several windows and a prominent entrance. The overall scene is a perspective view of the bridge deck and the building it connects.

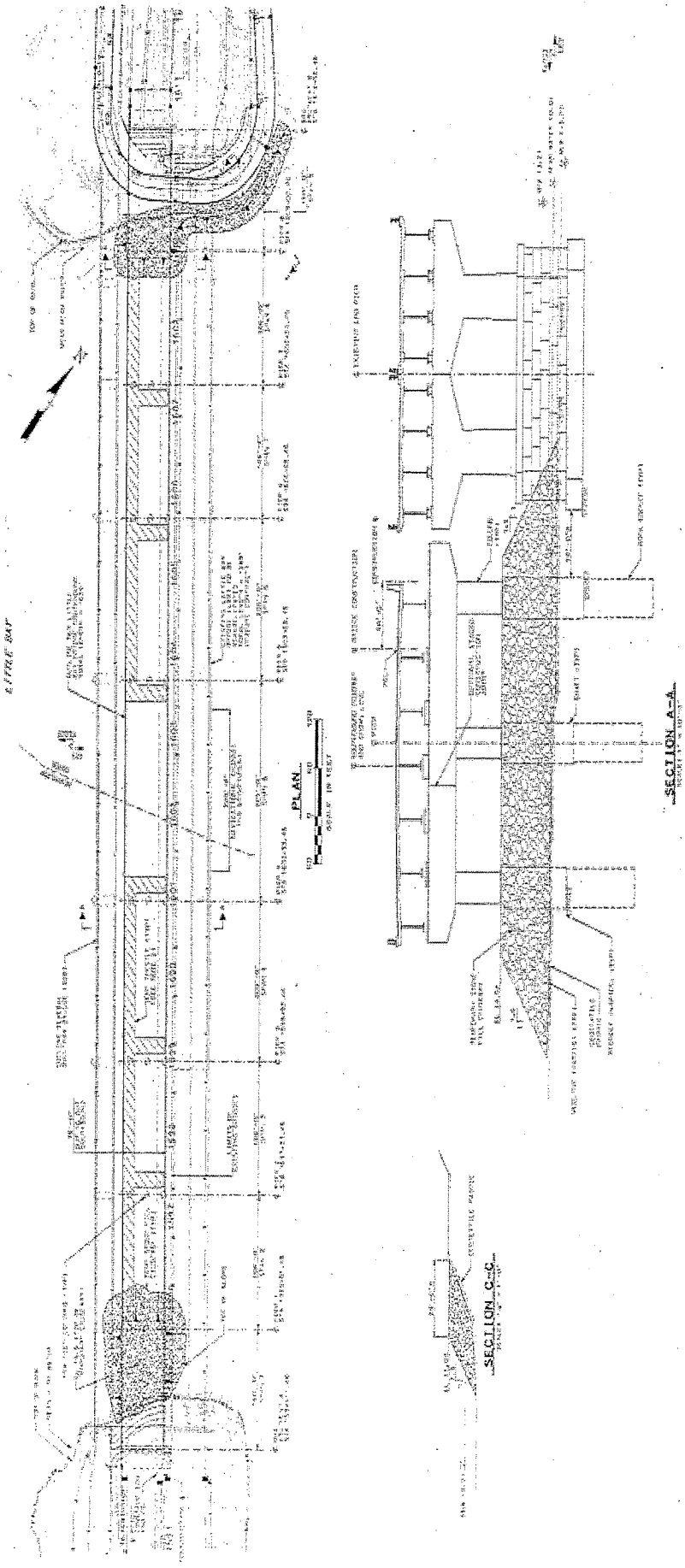
Pedestrian / Bicycle Access to
General Sullivan Bridge
Option 2



Traffic Control & Construction

Roadway Closures

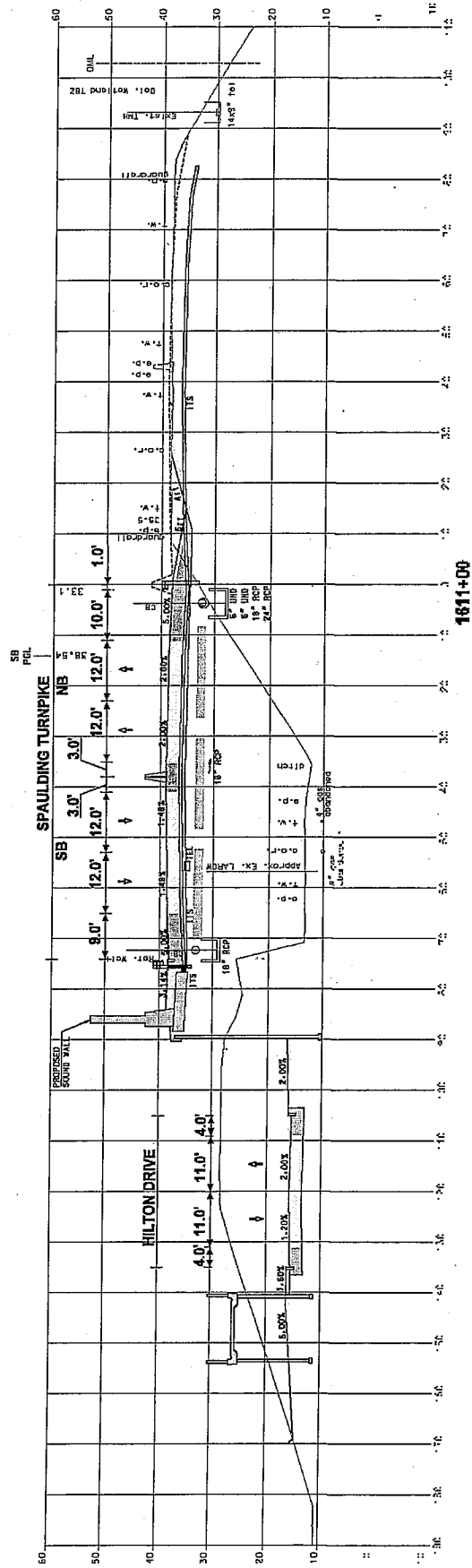
- Exit 5 ramps
 - August & September 2013
 - Reconstruction of ramps required
 - Hilton Drive open for two way traffic
- Hilton Drive between Hilton Park driveways
 - September 2010 to May 2013
 - Reduces construction difficulties and constraints resulting in time and cost savings
 - Access to Hilton Park and Wentworth Terrace via Exit 5
 - Continuous construction activity for LBB, Hilton Drive, pedestrian access bridge, GSB abutment retrofit and GSB approach removal



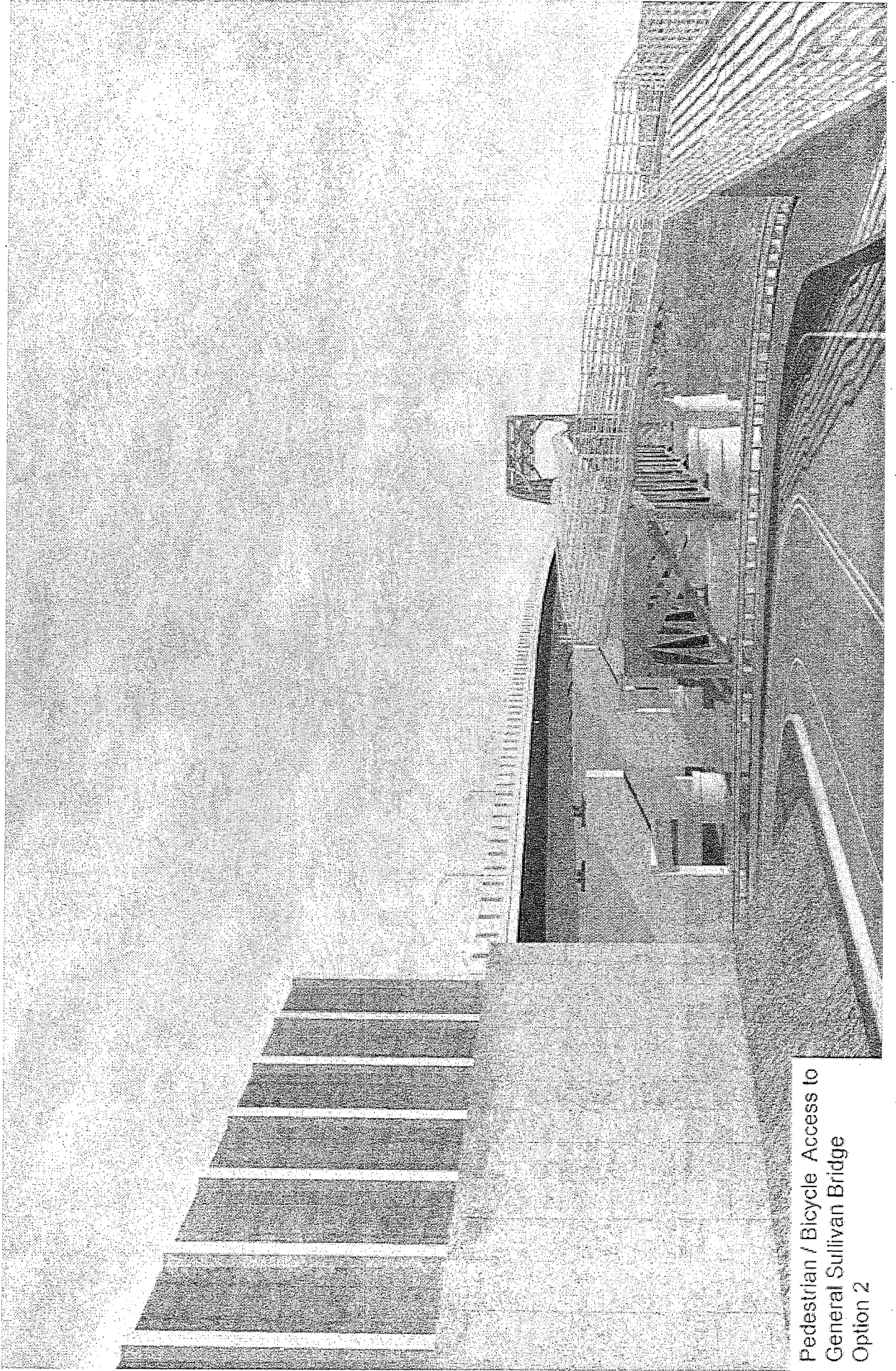
Bridge & Roadway Construction

- Temporary stone causeway and trestle provides daily access to piers from shoreline
- Bridge and Hilton Drive construction directly in conflict with existing Hilton Drive

Contract L Critical Cross Section



Bridge & Hilton Drive Construction



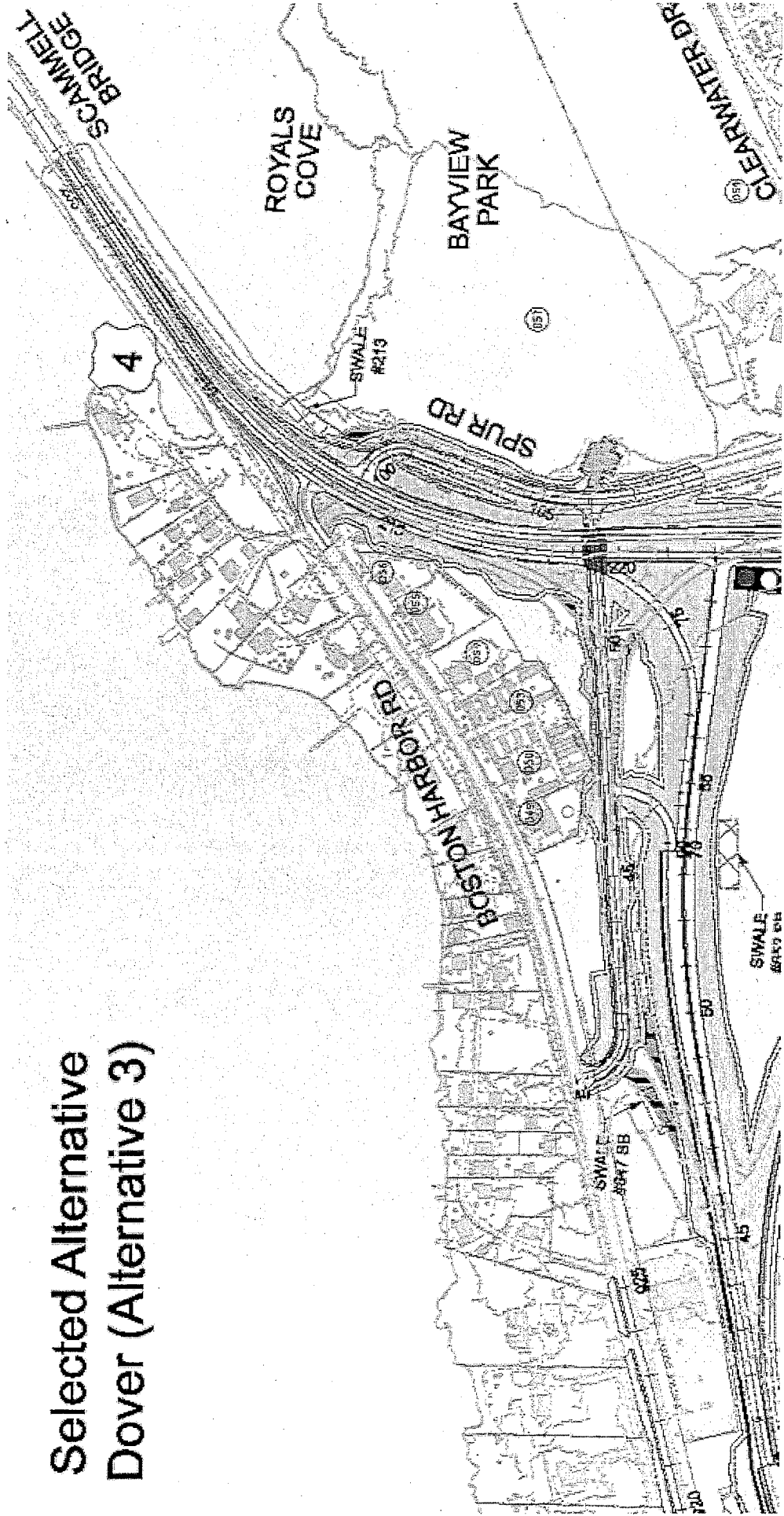
Pedestrian / Bicycle Access to
General Sullivan Bridge
Option 2

US Route 4 & Boston Harbor Road Roundabout Alternative

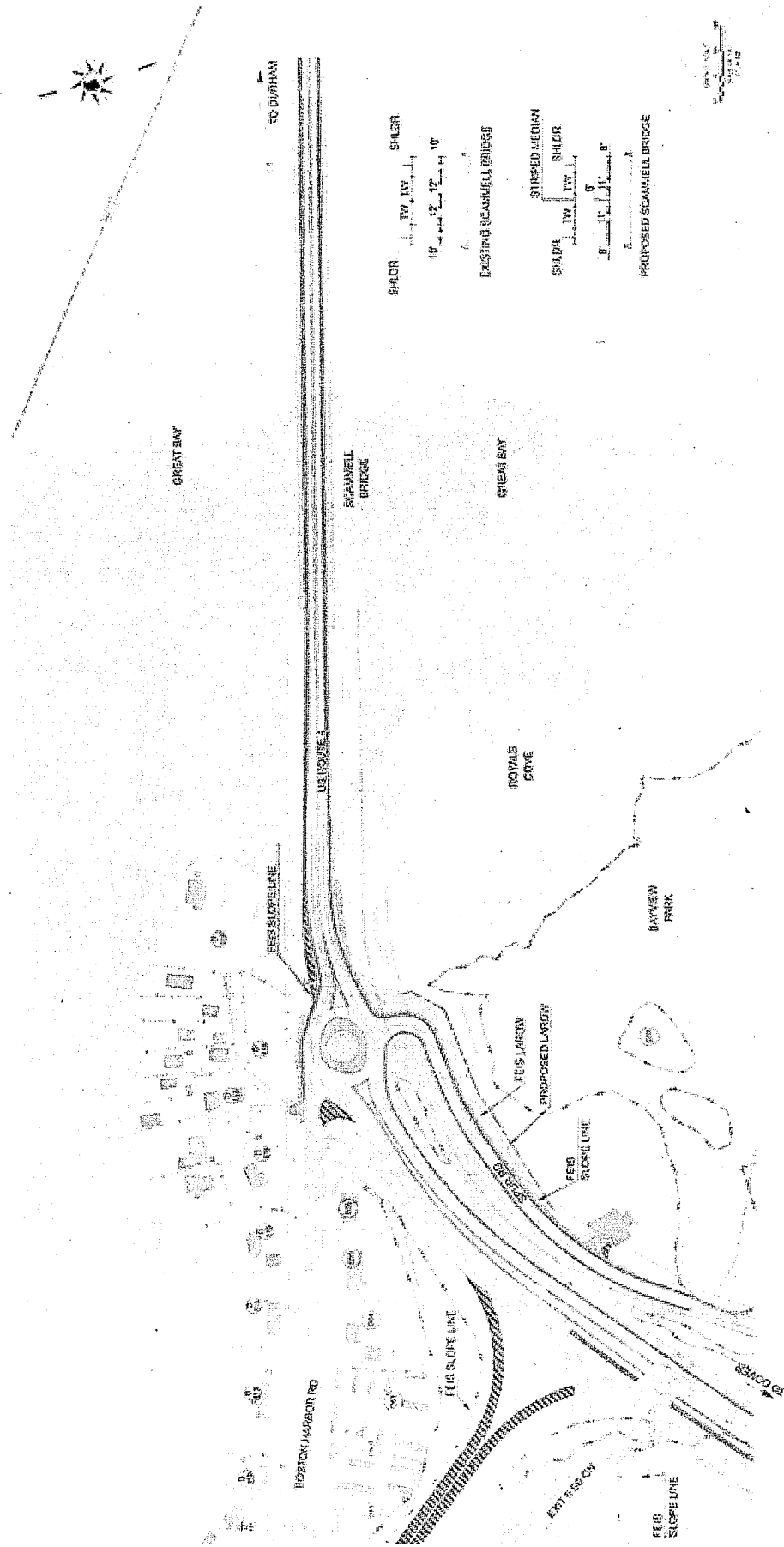
- Impetus from VE Study
- Eliminates Circuitous Movements

Selected Alternative

Selected Alternative
Dover (Alternative 3)



Roundabout Alternative



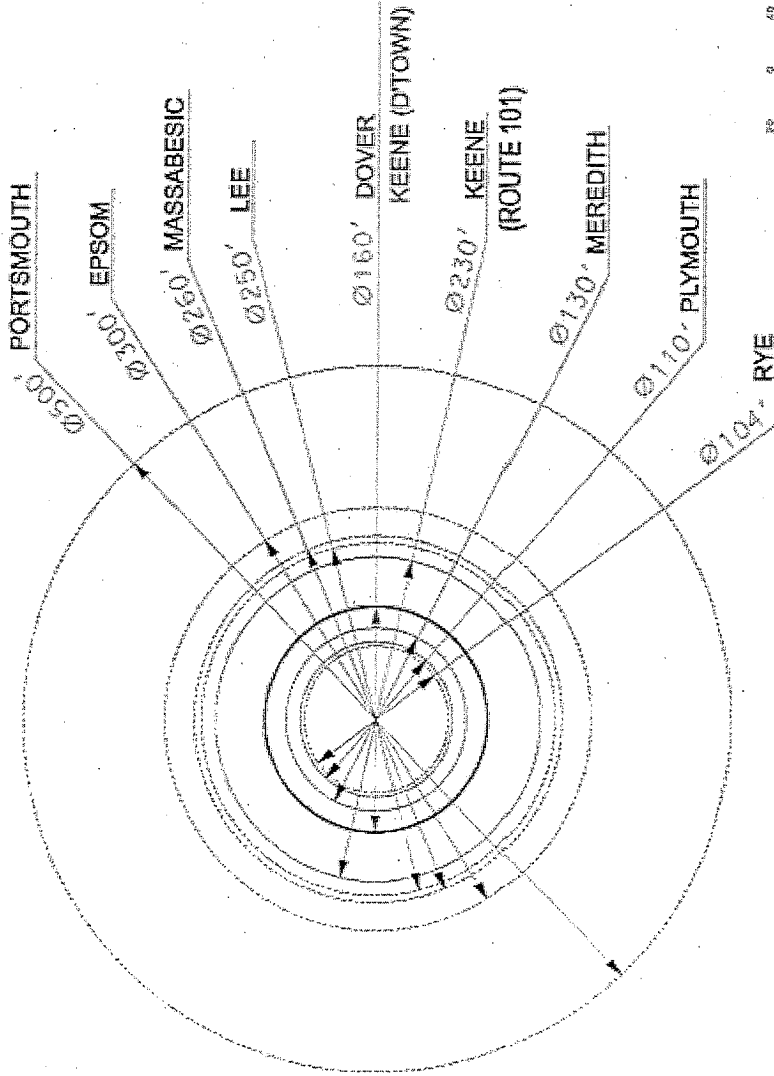
Roundabout / Traffic Circle Comparisons

TRAFFIC CIRCLES

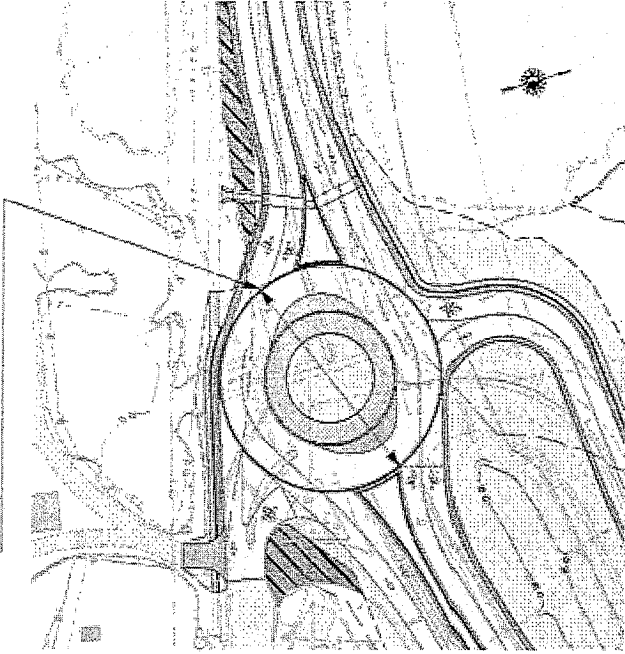
- LEE (250' O.D.)
- MASSABESIC (260' O.D.)
- EPSOM - (300' O.D.)
- PORTSMOUTH (500' O.D.)

ROUNDBABOUTS

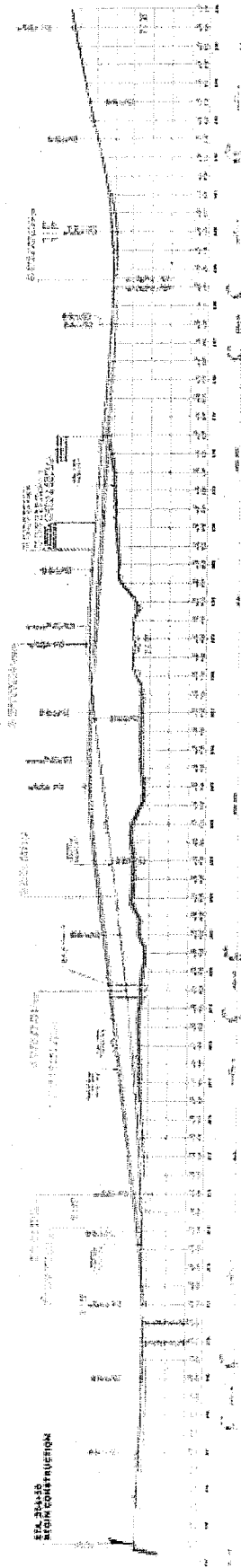
- RYE - 1 LANE (104' O.D.)
- PLYMOUTH - 1 LANE (110' O.D.)
- MEREDITH - 1 LANE (130' O.D.)
- KEENE (DOWNTOWN) - 2 LANE (155' O.D.)
- KEENE (ROUTE 101) - 2 LANE (230' O.D.)



160' DIAMETER ROUNDABOUT



Roundabout Profile



US ROUTE 4

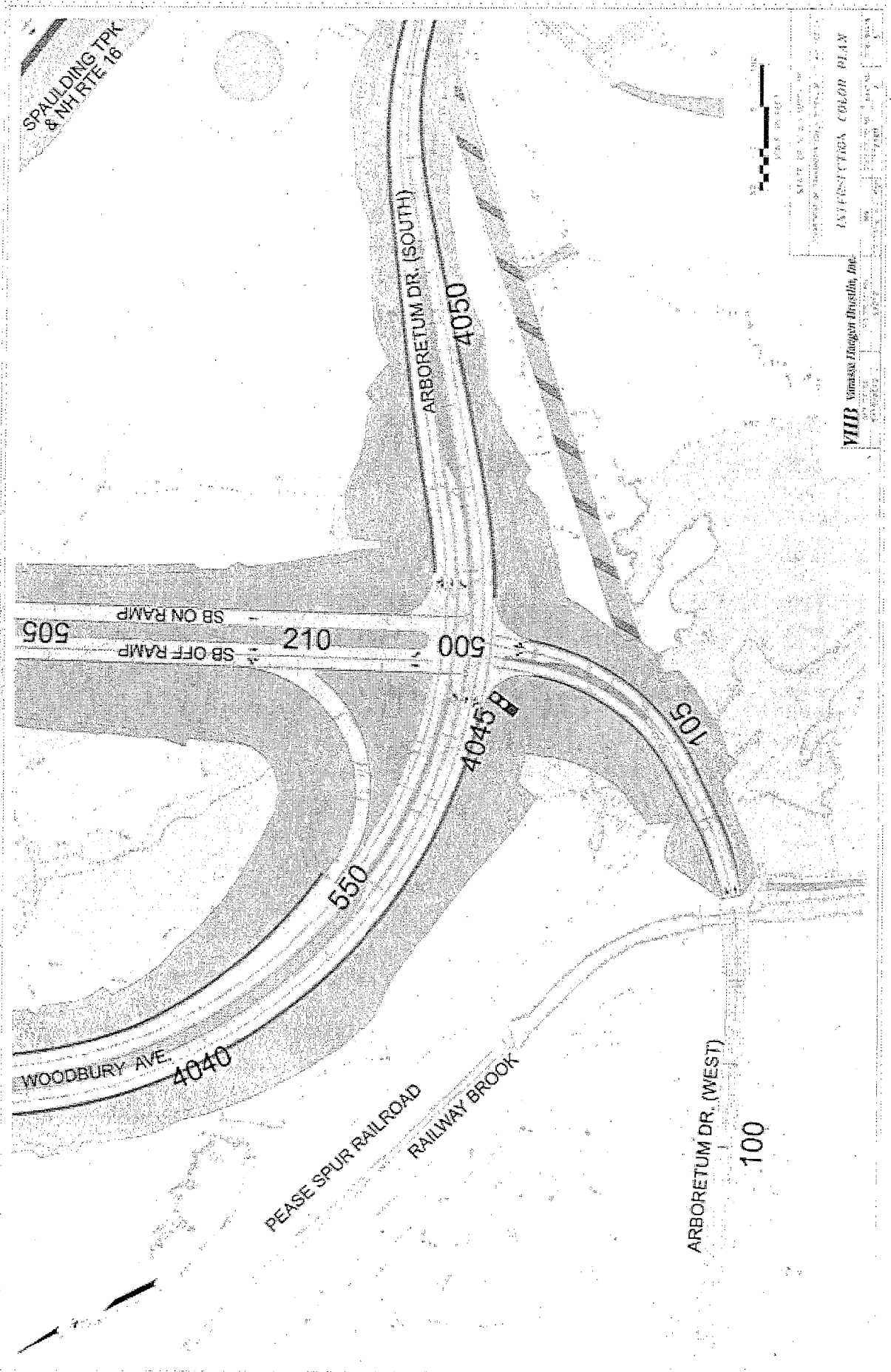
Roundabout Alternative Comparison

Issue	FEIS Alternative	Roundabout
Wetlands Impacts	2.6 Acres	2.2 Acres – Reduced Impacts due to elimination of connector road and reduced slope limits
Safety	Sidewalk located adjacent to connector road Incompatible Speeds at SB On-Ramp and slip ramp	Pedestrians cross 2-lane roundabout Provides traffic calming / reduced speeds
Traffic Operations	≥ LOS C Free Flow on Rte 4 30 sec. travel time from west end of Scammell Bridge to SB On-ramp	≥ LOS C 90 sec. travel time from west end of Scammell Bridge to SB On-ramp
Drainage	Larger closed drainage system Water Quality Treatment difficult	Similar patterns as existing Less pavement area = Less Pollutant Loading
Right of Way Impacts		+0.3 Acres Bayview Park
Construction Sequencing	Multiple traffic shifts / phases	Roundabout to be constructed under traffic
Maintenance	Increased maintenance due to additional bridge, increased pavement area and closed drainage system	New Maintenance Operation w/ Roundabout
Cost	\$2.65 Million	0.85 Million

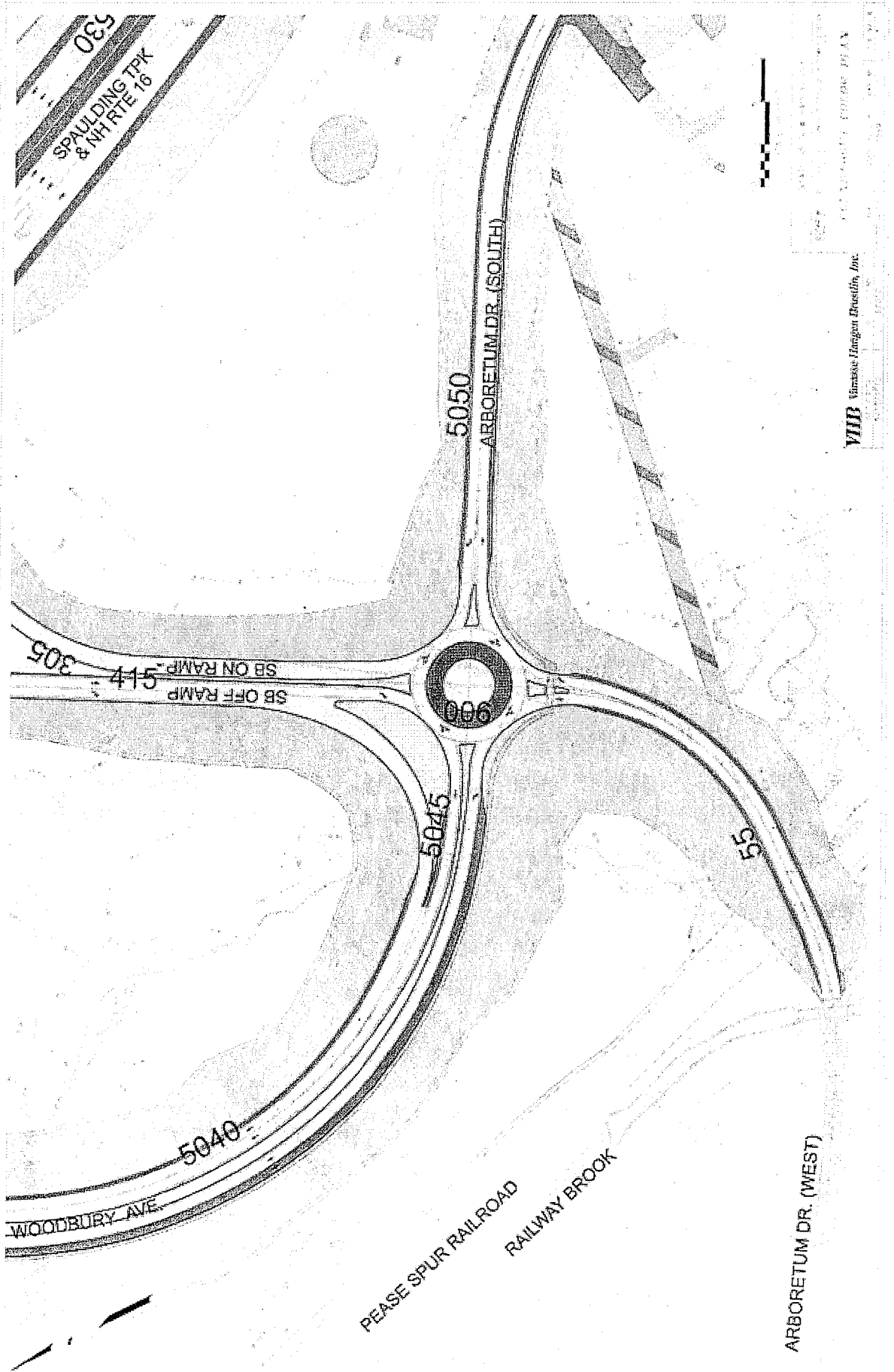
Woodbury Avenue and Arboretum Drive Roundabout Alternative

- Alternative design investigation
- Reduces construction cost and future maintenance while improving traffic operations

Selected Alternative Design



Roundabout Alternative Design



Roundabouts in NH

- Nashua – NH 130 Broad Street 16,000 ADT
- Nashua – Main Street 12,000 ADT
- Keene – Court Street 10,000 ADT
- Hanover (2) – NH 10 8,000 ADT
- Plymouth – US 3/NH 175A 12,000 ADT
- Meredith – US 3/ NH 106 14,000 ADT
- Keene – NH 101 50,000 ADT
- Rye – Foyes Corner (Const.) 20,000 ADT
- Keene – Downtown 24,000 ADT

Incident Management and Traffic

Management Plans

*Both on
Newington/Dover
website*

- An Incident Management Plan was developed to address incidents that occur during construction
- A Traffic Management Plan was developed to gain an improved understanding of where traffic may be at critical milestones throughout the course of construction

Incident Management Plan

- Initial plan developed in 2003 to address incidents that occurred on the narrow Little Bay Bridges
- 11 different scenarios developed
 - NB and SB incidents
 - One or two lane closures
 - Catastrophic closure of both bridges – 26 mile detour to NH 108
 - Durations of incident
 - » 0-6 hours
 - » 6-48 hours
 - » 48+ hours

Incident Management Plan

- NH Department of Transportation and Department of Safety are developers of plan and first responders
- Modifications to plan occurring for each Newington-Dover construction contract
- Working Group consists of NHDOT, NHDOS, communities, SRPC, RPC
- Contractor's involved as support role, as needed

Traffic Management Plan

- Mission Statement: The NHDOT intends to manage the work zone impact from the Newington-Dover Project by implementing a Transportation Management Plan that includes the following components:
 - Traffic Control Plans
 - Traffic Operations
 - Public Outreach Campaign

Traffic Management Plan

- Traffic Control Plans
 - Concurrent construction contracts
 - 8 years of construction
 - On and off line construction of the Spaulding Turnpike and the interchanges
 - Coordinated traffic shifts over Little Bay bridges is critical element

Traffic Management Plan

- Traffic Operations
 - Intelligent Transportation Systems (ITS)
 - Smart Work Zones
 - Incident Management Plan
 - Coordination with the Traffic Management Center

Traffic Management Plan

- Public Outreach Campaign
 - Project website (www.newington-dover.com)
 - Email notifications – *Can sign up for*
 - 511
 - Twitter
 - Information provided via TV, radio, newspaper and public meetings

Final Design Meetings & Communication Vehicles

- Final Design Meetings
 - Public Informational Meetings
 - Project (construction contract) Specific Meetings w/ communities, Pease
 - Neighborhood Meetings (I.e. Soundwall discussion)
- Communication Vehicles
 - Project Website – www.newington-dover.com
 - Project Newsletters
 - Press Releases - Construction Alerts
 - Smart Work Zone – VMB Traffic Information
 - E-mail Blasts – for e-mail subscribers to project website

Contact Information

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THANK YOU

Questions/Comments

For More Project Information Visit:

www.newington-dover.com

