

Craigie Dam Bridge and Craigie Drawbridge



June 11, 2009 6:30-8 PM
MIT, Cambridge, MA



Commonwealth of Massachusetts

Governor

Deval L. Patrick

Lieutenant Governor

Timothy Murray

Energy and Environmental Secretary

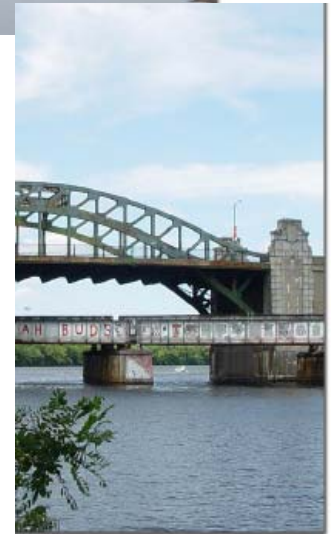
Ian A. Bowles

Department of Conservation and Recreation Commissioner

Richard K. Sullivan, Jr.

Accelerated Bridge Program Overview

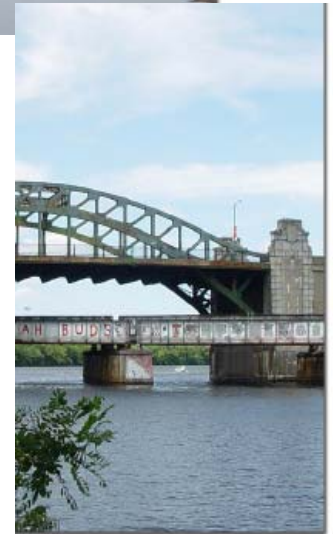
- Authorization:
 - C. 233 of the Acts of 2008
- Program Goals:
 - Improve the condition of the Commonwealth's bridges
 - Stimulate economic development and job creation
 - Save money by completing projects sooner
 - Complete projects efficiently and innovatively
 - Transparency and accountability



Accelerated Bridge Program Overview

- Size and Scope
 - MassHighway: \$2.078 billion
 - Rehabilitation or replacement of 191 bridges
 - Preservation of 305 bridges
 - DCR: \$906 million
 - Rehabilitation or replacement of 29 bridges
 - Preservation of 50 bridges

Total Program: \$2,984,000,000



Craigie Dam Bridge and Craigie Drawbridge Rehabilitation Project

Consultant Design Team:

Hardesty & Hanover, LLP

- Ted Long, P.E. (Team Leader)

Howard/Stein-Hudson Associates, Inc.

- Nijdeh H. Havan, P.E., PTOE

Contractor:

J. F. White Contracting Company

- Craig Bateman, Project Superintendent
- Robert Collari, Project Manager
- Greg Labrum, Project Manager

Project Location



Craigie Dam Bridge-History and Description

- Constructed in 1906
- Used in conjunction with the drawbridge to control the Charles River water level prior to 1978.
- Consists of 9 sluice ways, one of which was a small boat lock.
- Supported on timber piles which are capped by a 2' thick concrete apron.



Craigie Drawbridge - History and Description

- DCR - Owned Bridge
- Originally constructed in 1910 and replaced in 1962
- Twin Double-Leaf Bascule Bridge
 - 45 ft. span over navigation channel
 - 3 “Boston Bound” traffic lanes
 - 2 “Cambridge Bound” traffic lanes
 - Sidewalks on each side
 - Abutted by the MBTA Green Line and the Museum of Science



Considerations for Design

- Improved public safety
- Restoration of a historic structure
- Improved flow for pedestrian, bicycle, and vehicular traffic

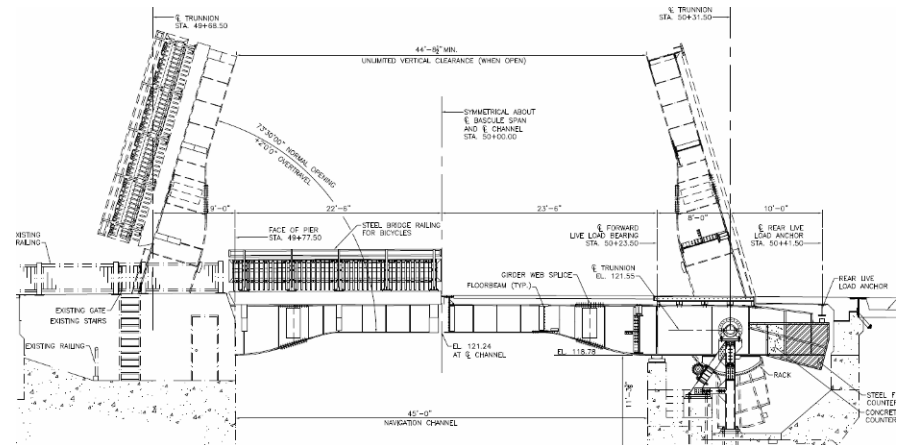
Craigie Dam Bridge - Project Scope

- Replace all damaged and deteriorated structural members.
- Remove temporary shoring that is currently in place.
- Reconstruct bridge deck at the curb line and the existing sidewalks.



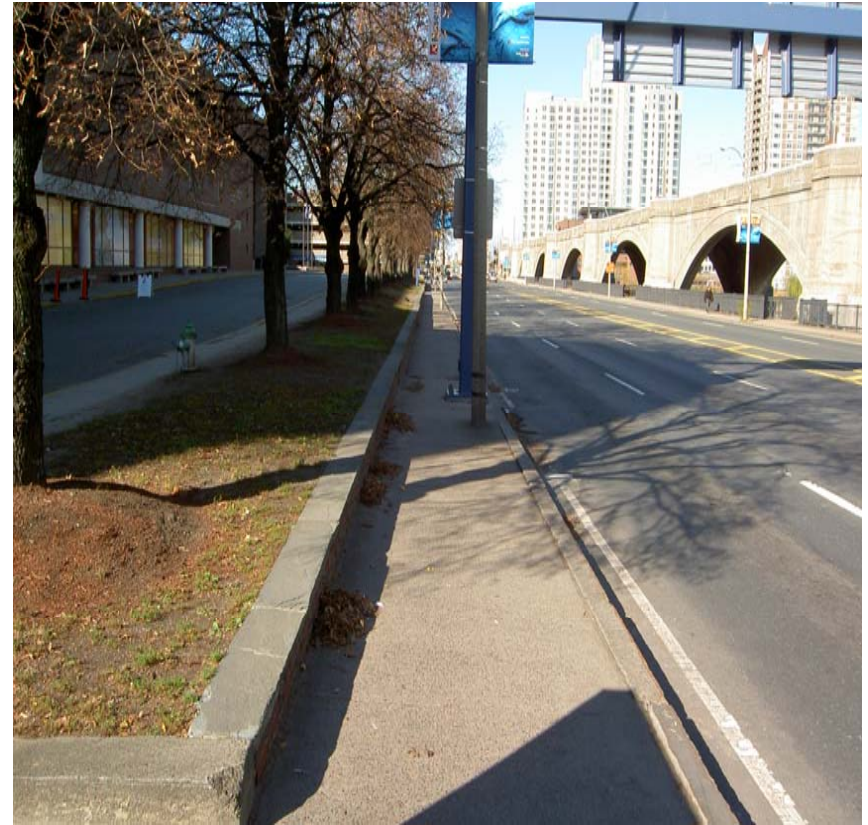
Craigie Drawbridge - Project Scope

- Demolish the existing superstructure
- Provide a temporary bridge structure to carry traffic
- Repair substructure and modify as required to accept new superstructure
- Install new superstructure and solid bridge deck, which will provide better weathering protection for machinery and comfort of vehicular and pedestrian traffic
- Replace all machinery components and electrical components



Streetscape Improvements

- Improve bike and pedestrian flow on multi-use path
- Widen the existing sidewalk abutting the Museum of Science
 - Remove existing retaining wall. And existing 5' wide pedestrian path.
 - Construct a new expanded multi-use path, with a new retaining wall at the back edge.
 - Install new sustainable landscape feature in front of museum of science



Streetscape Improvements

- Improve bike and pedestrian flow on multi-use path
- Widen the existing sidewalk abutting the Museum of Science
 - Remove existing retaining wall. And existing 5' wide pedestrian path.
 - Construct a new expanded multi-use path, with a new retaining wall at the back edge.
 - Install new sustainable landscape feature in front of museum of science



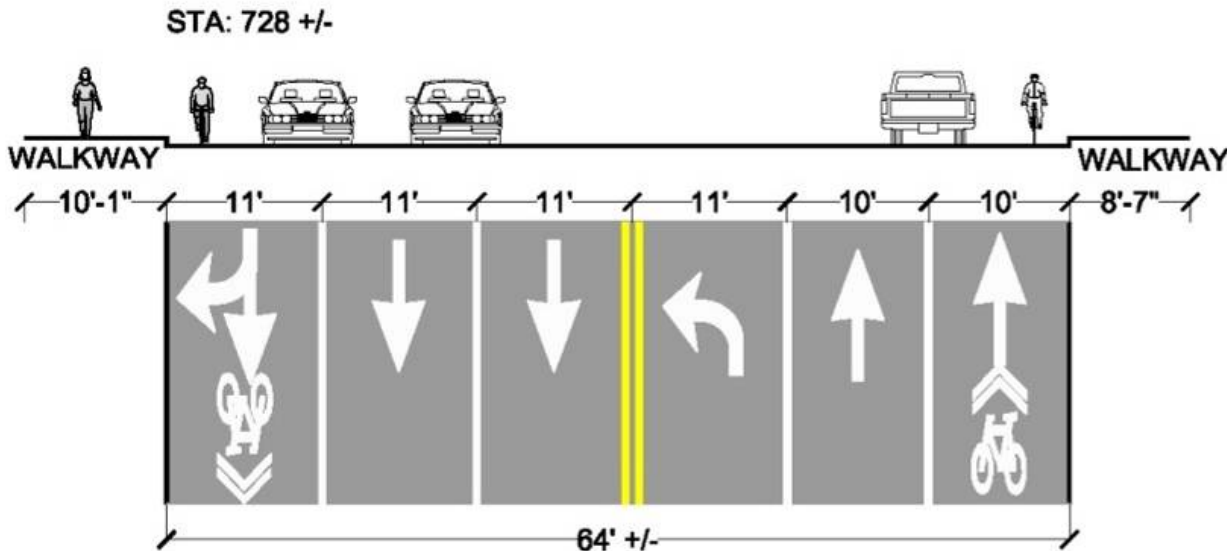
Improved pedestrian, bicycle, and vehicular flow

DCR brought on a project-specific consultant Toole Design Group, who made recommendations on bicycle/pedestrian accommodations during three timeframes:

- Craigie Dam Bridge/Drawbridge - During Construction
- Longfellow Bridge Detour - Interim Condition
- After Longfellow Bridge Reconstruction - Final Condition

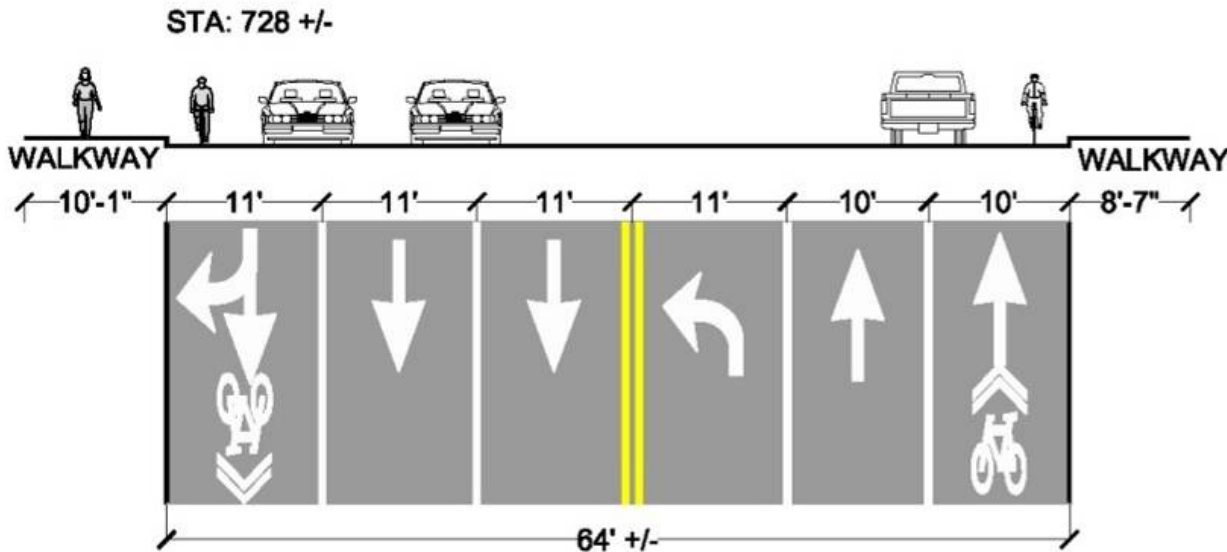
Craigie Dam Bridge/Drawbridge - During Construction

- Vehicles and bicycles share lanes in both directions
- Install shared use signage and lane markings
- Pedestrians and bicycles share alternate open walkways



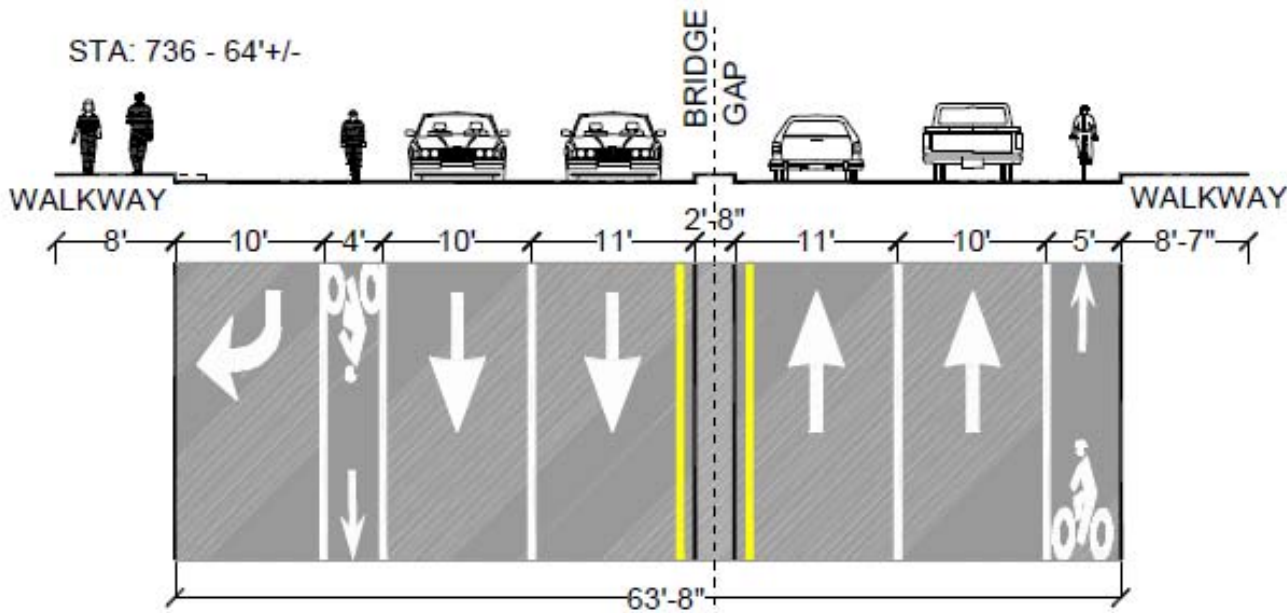
Longfellow Bridge Detour - Interim Condition

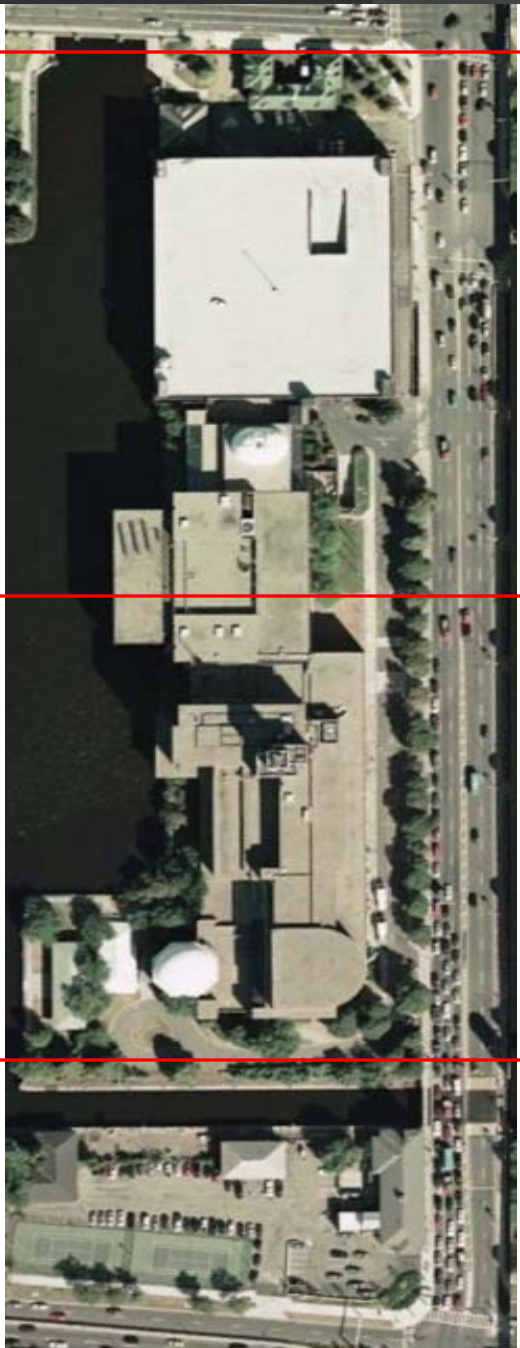
- Provide flexibility on Cambridge-bound side by utilizing narrower travel lanes and modified turn lane reductions
- Possibility of dedicated bike lane on Cambridge-bound side, depending on traffic volumes during Longfellow



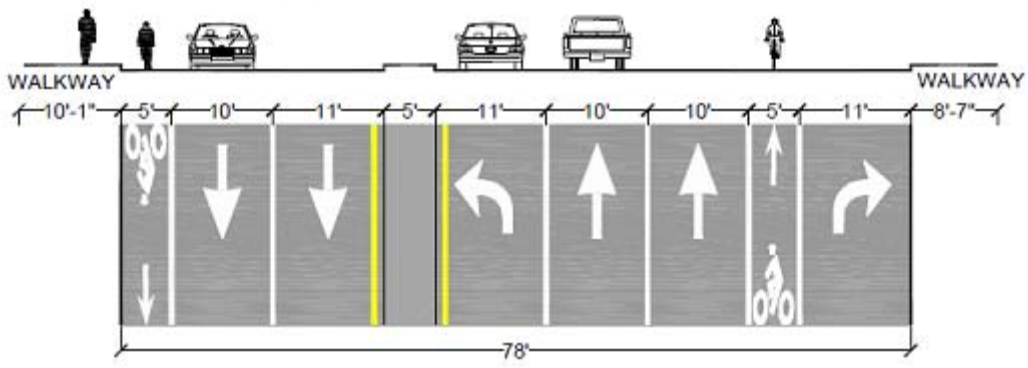
After Longfellow Bridge - Final Configuration

- Bicycle lanes in both directions

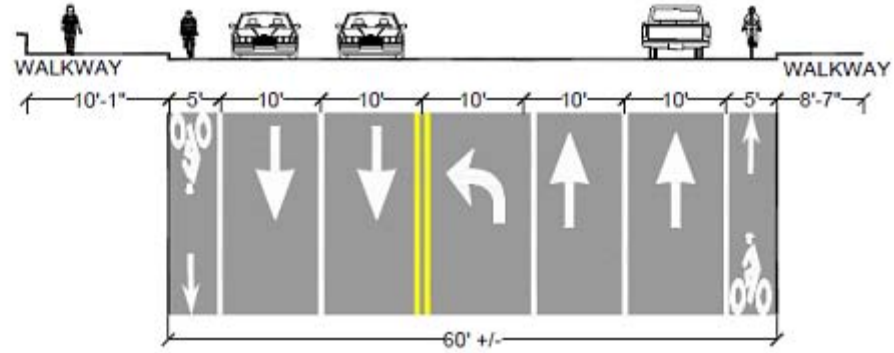




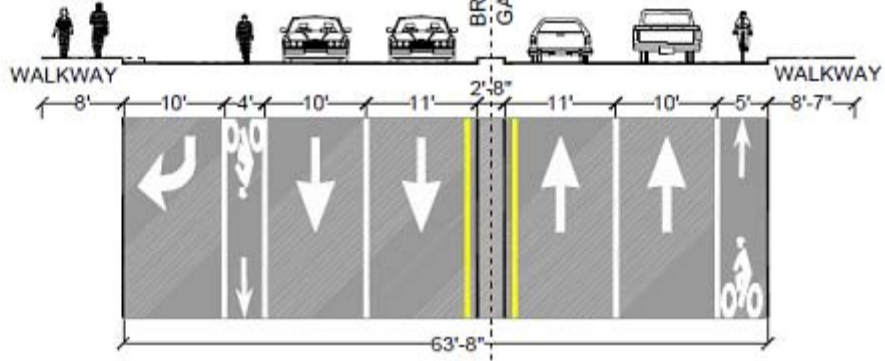
STA: 725 - 78'+/-



STA: 731 - 62'+/-

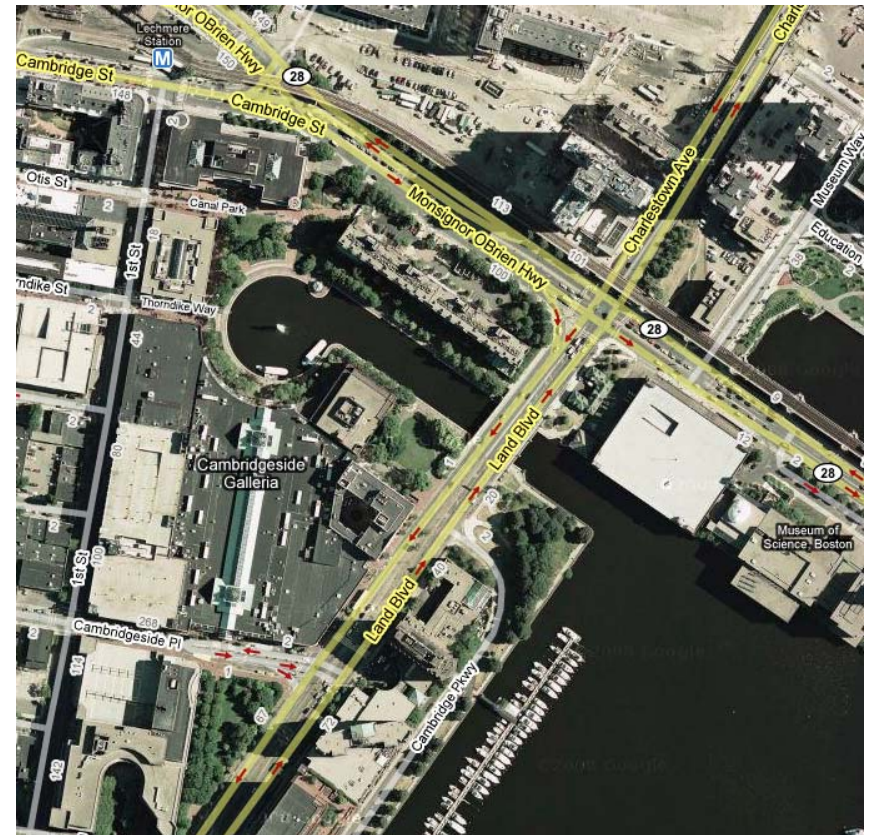


STA: 736 - 64'+/-



Implementation of proposed improvements

- Comprehensive regional pathway and connectivity planning and design for improved pedestrian and bicycle facilities by Halvorson Design Group
- Incorporating regional approach into final road layout as proposed by Toole Design Group
- The new bridge and roadway cross section was modified to support the implementation of proposed bike/ped traffic flow improvements
- An involved comprehensive study as well as an involved public process facilitated by DCR and Halvorson Design in cooperation with DCR's Bike/Ped Working Group will take place before any final design decisions are made



Special Considerations during Construction

- Traffic Management and Project Phasing – Maintaining vehicular, bicycle and pedestrian passage and safety
- Environmental Mitigation
- Noise Abatement
- Communication – Staying Informed

Traffic Management During Construction

- Phased to maintain two directions of traffic
- Due to navigational use, construction will not obstruct the drawbridge channel from May 1, 2010 - October 31, 2010
- Provide vehicular/ pedestrian access to abutting properties
- Advanced signage to direct the public around active construction
- On-call traffic management consultant

Project Phasing

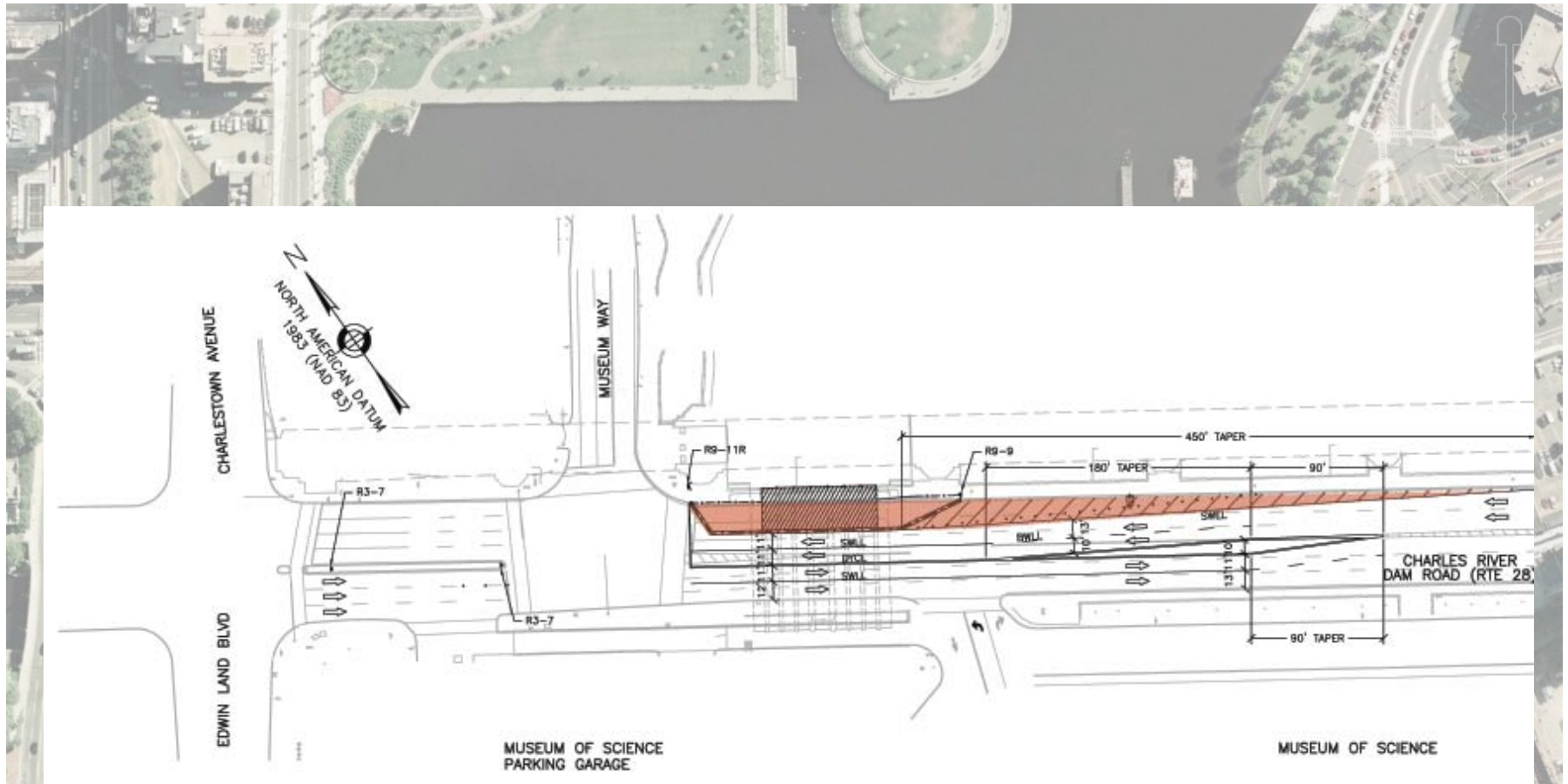
Construction Timeline

	2009							2010												2011							
Task	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
<u>Dam Bridge</u>																											
Phase I																											
Phase II																											
<u>Draw Bridge</u>																											
Phase III																											
Phase IV																											
<u>Streetscape</u>																											

Traffic Plan – Phase I - Dam Bridge

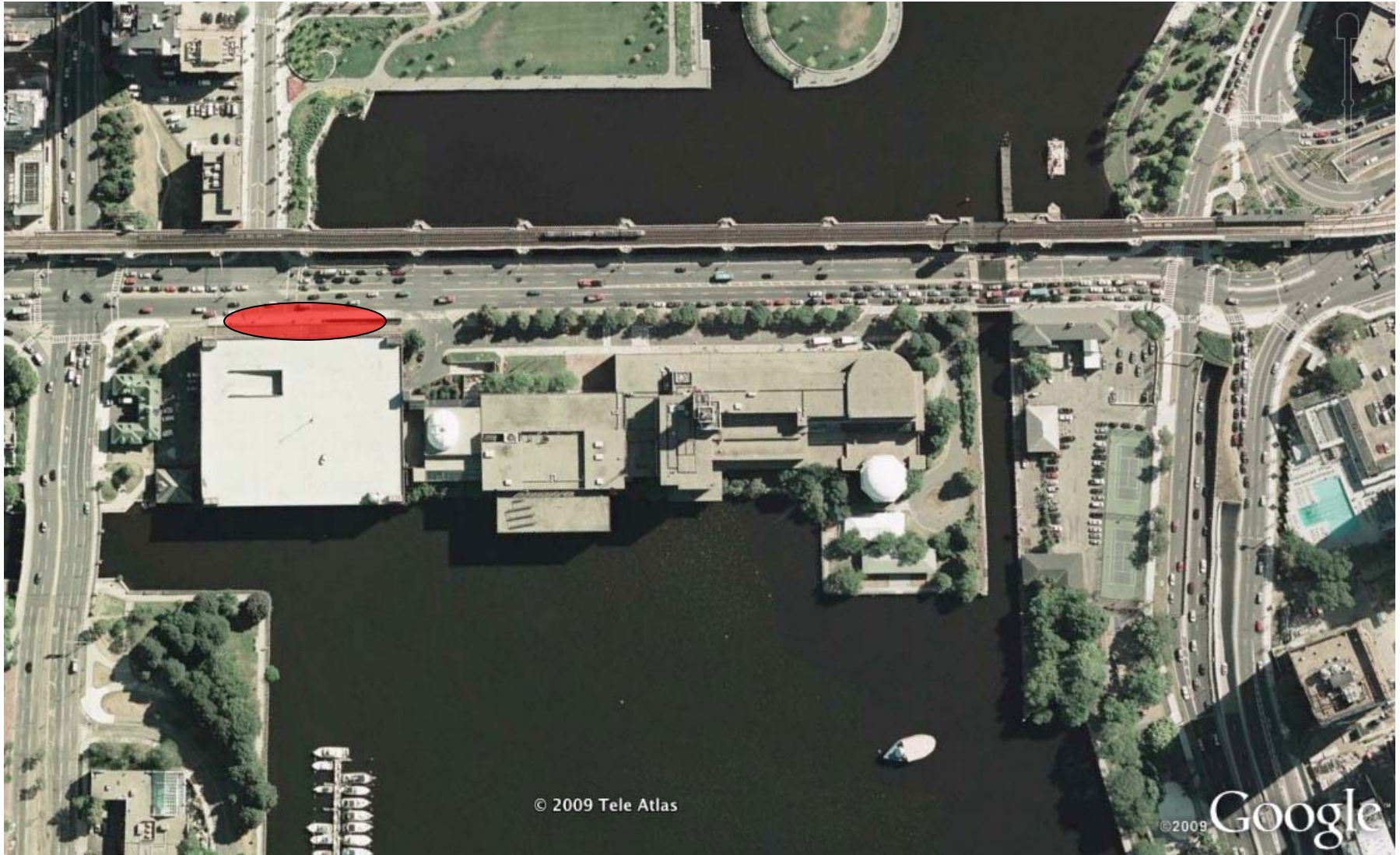


Traffic Plan – Phase I - Dam Bridge



Representative Detour Setup – In place for five months

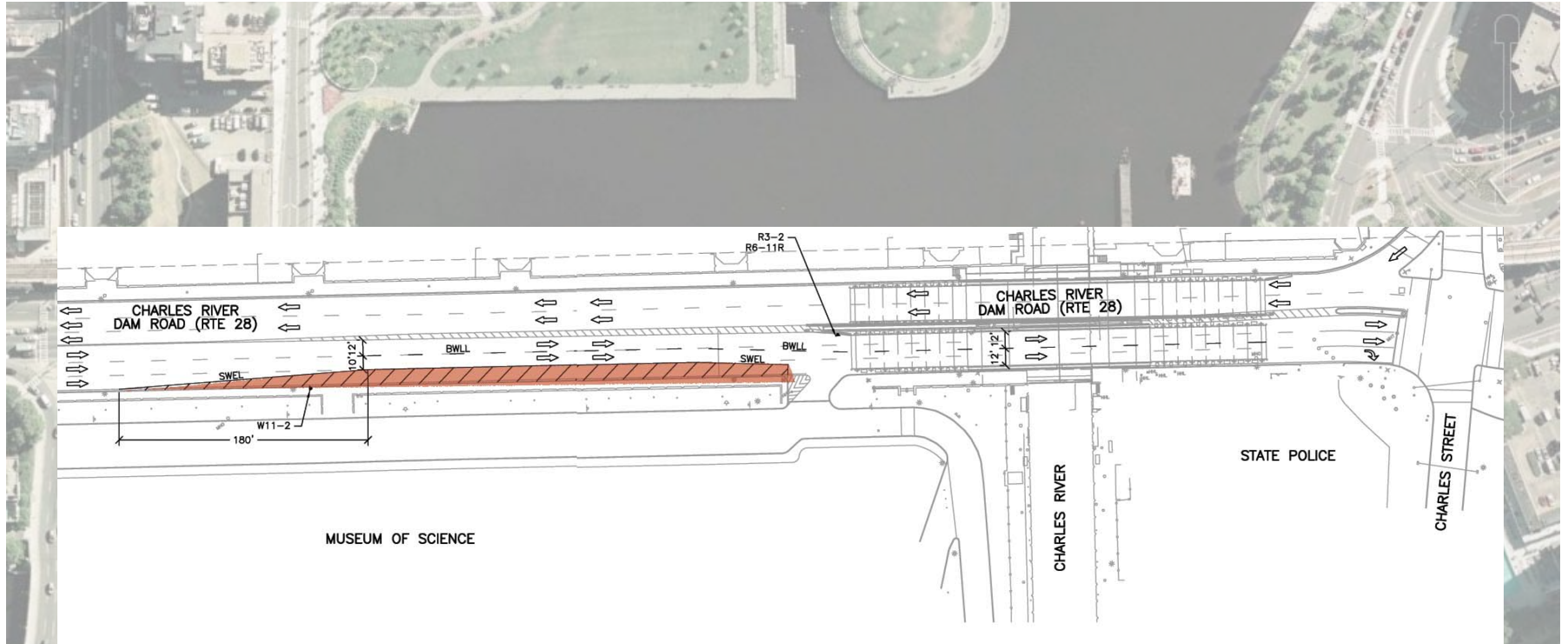
Traffic Plan – Phase II - Dam Bridge



Traffic Plan – Phases III & IV - Drawbridge



Traffic Plan – Phases III & IV - Drawbridge

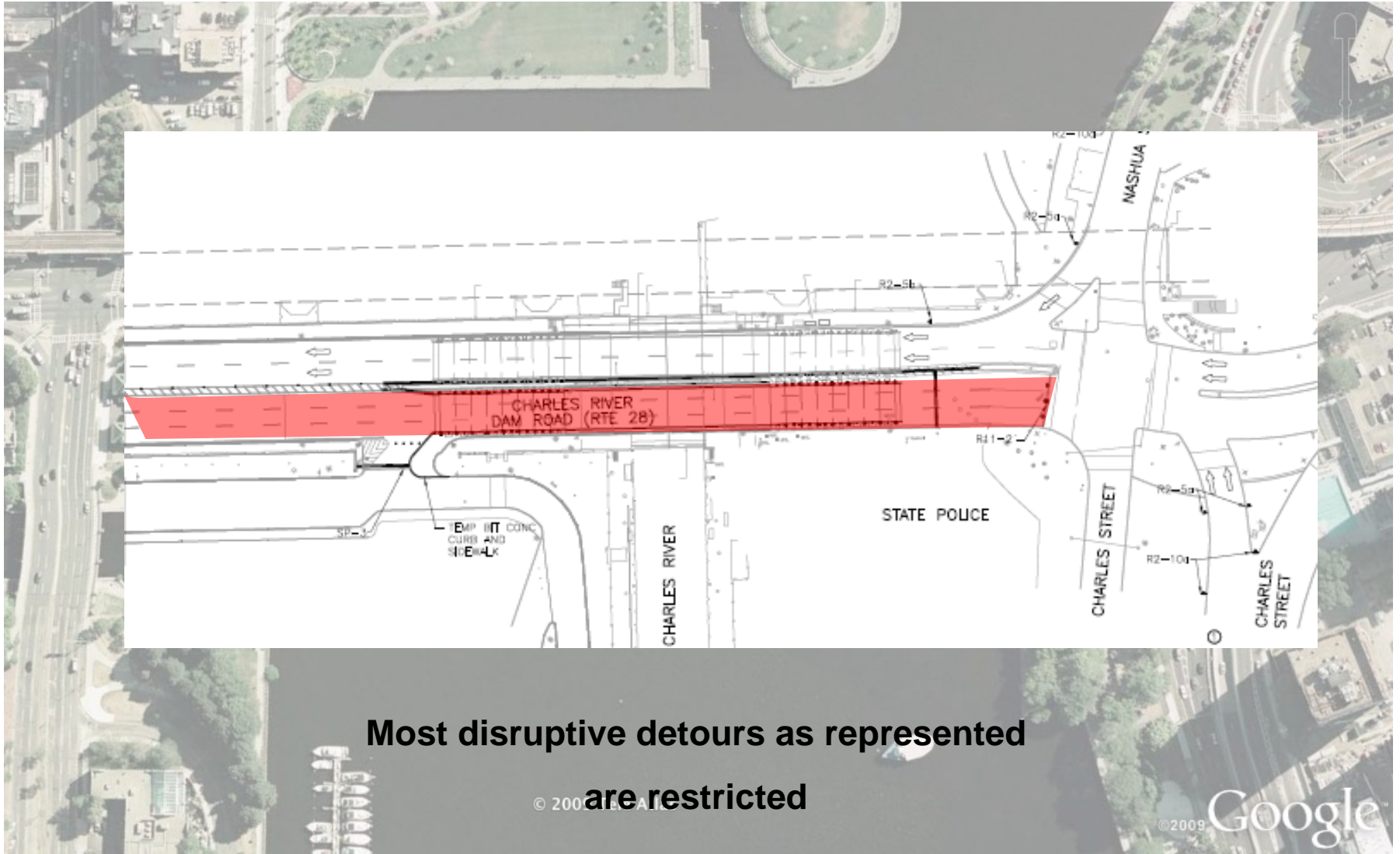


Representative Lane Restriction – In place for six months

Traffic Plan – Phases III & IV - Drawbridge



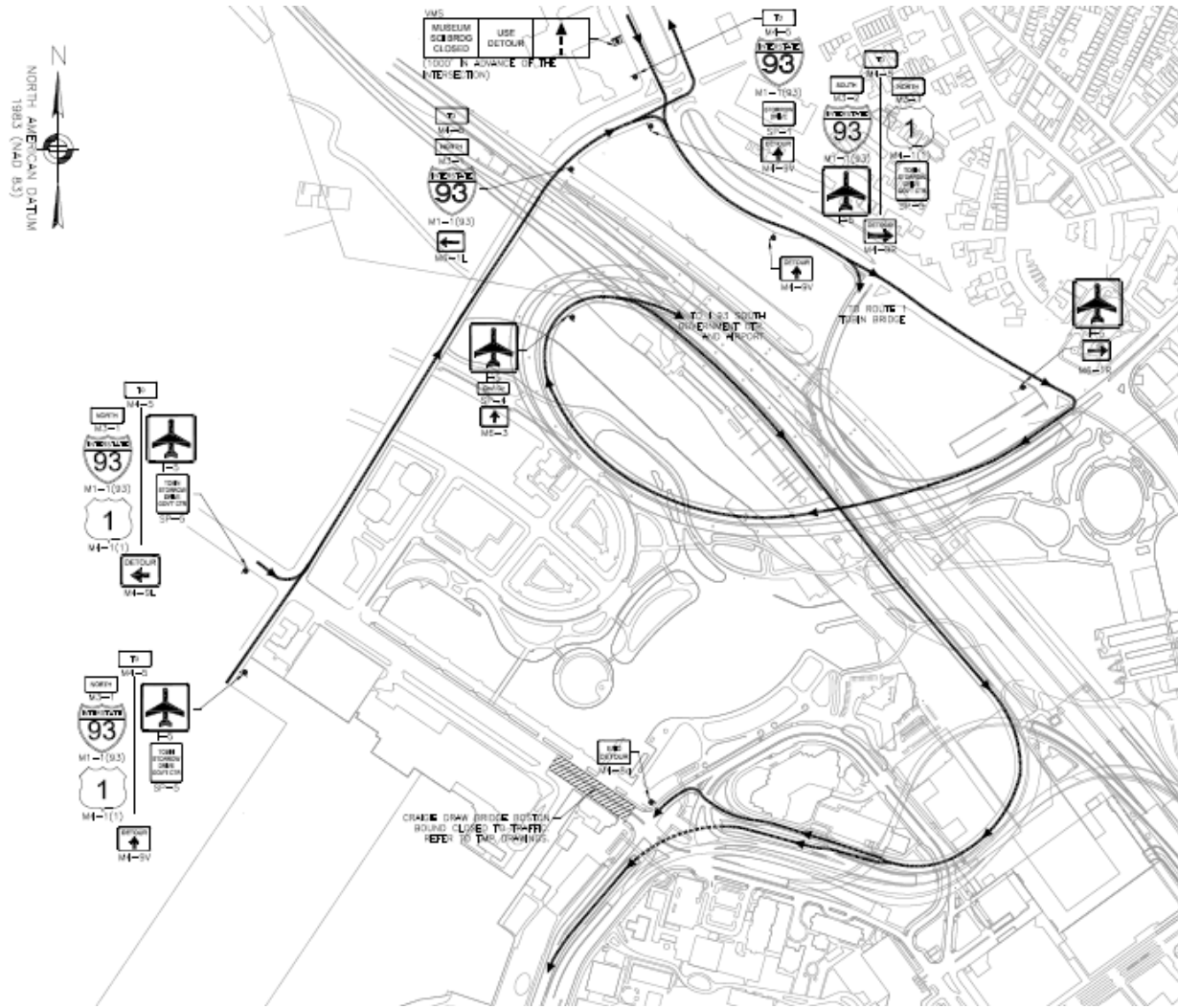
Traffic Plan – Phases III & IV - Drawbridge



Most disruptive detours as represented

are restricted

Traffic Plan – Phases III & IV - Drawbridge



Detour for partial closure



Advance Signage

Environmental Mitigation

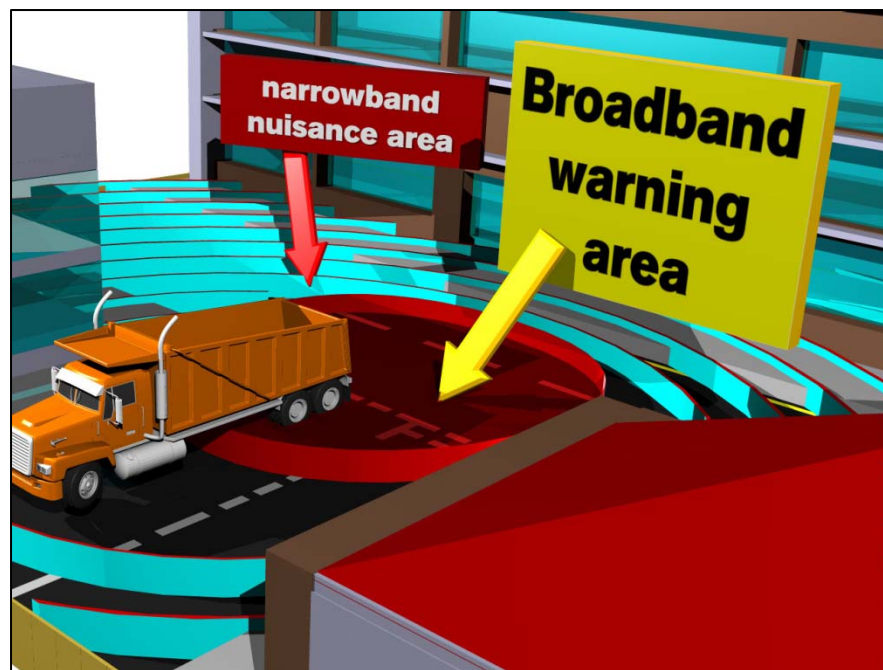
- Resource protection
- Dust control measures
- Compliance with the Massachusetts Wetlands Protection Act
- Proper disposal of all construction materials and demolition debris



Noise Abatement

New DCR standard specification developed to minimize construction noise.

- Successfully implemented on recent DCR projects
- Requires use of equipment with efficient noise-suppression devices
- Restricts idling
- All construction vehicles retrofitted with ambient noise-sensitive back-up warning devices



Brigade Electronics bbs-tek white sound alarm

Staying Informed

- DCR is committed to sharing information on projects being undertaken as part of the Accelerated Bridge Program (ABP) by taking the following steps:
 - Conducting additional stakeholder briefings and public meetings to provide project updates and obtain feedback as project progresses
 - Staffing a dedicated phone line, where the public can call to register concerns, questions, or suggestions.
The phone number is **617-626-4974**
 - Posting regular updates on DCR's website
 - Issuing press releases, traffic advisories, and providing traffic plan updates through Smart Routes
 - Sending announcements concerning projects, as well as traffic advisories over a listserve
 - Communicating via an email account, to which the public can write to register concerns, questions, or suggestions. The account is DCR.Updates@state.ma.us

Additional Information

- For more information
 - Web: www.mass.gov/dcr
 - Email: dcr.updates@state.ma.us
 - Phone: 617-626-4974
- For more information on Accelerated Bridge Program
 - Web: www.mass.gov/acceleratedbridges

Questions & Answers



DCR Mission Statement

*To protect, promote and enhance our
common wealth of natural, cultural
and recreational resources.*