

## 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

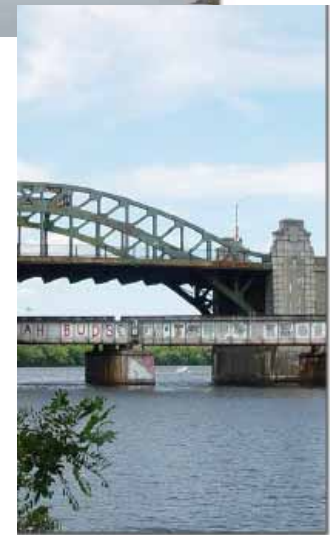
**Ian A. Bowles**

Department of Conservation and Recreation Commissioner

**Richard K. Sullivan, Jr.**

# Accelerated Bridge Program Overview

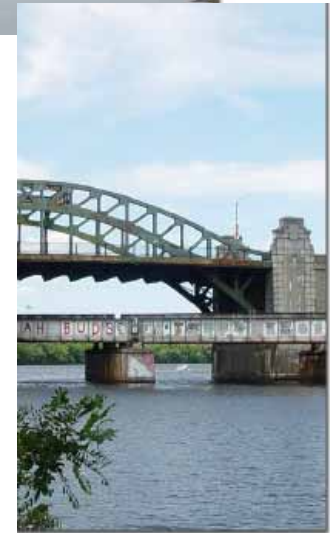
- Authorization:
  - C. 233 of the Acts of 2008
- Program Goals:
  - Improve the condition of the Commonwealth's bridges
  - Stimulate economic development and job creation
  - Save money by completing projects sooner
  - Complete projects efficiently and innovatively
  - Transparency and accountability



# 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.

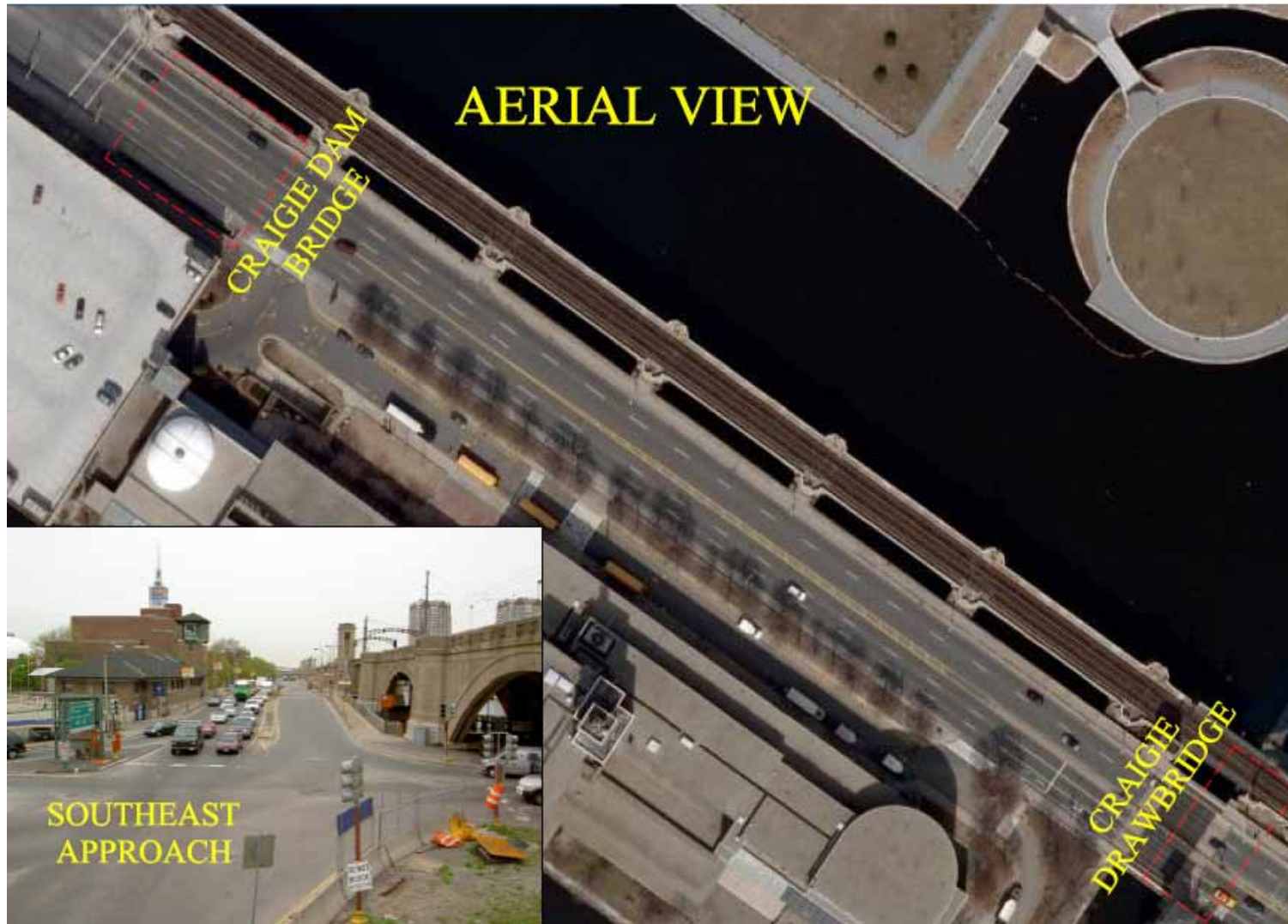
- Nijdeh H. Havan, P.E., PTOE

## **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

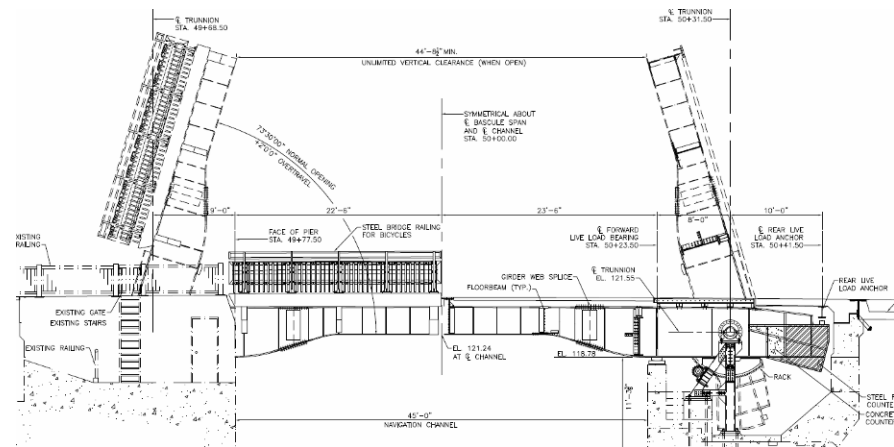
# Craigie Dam Bridge - Project Scope

- 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



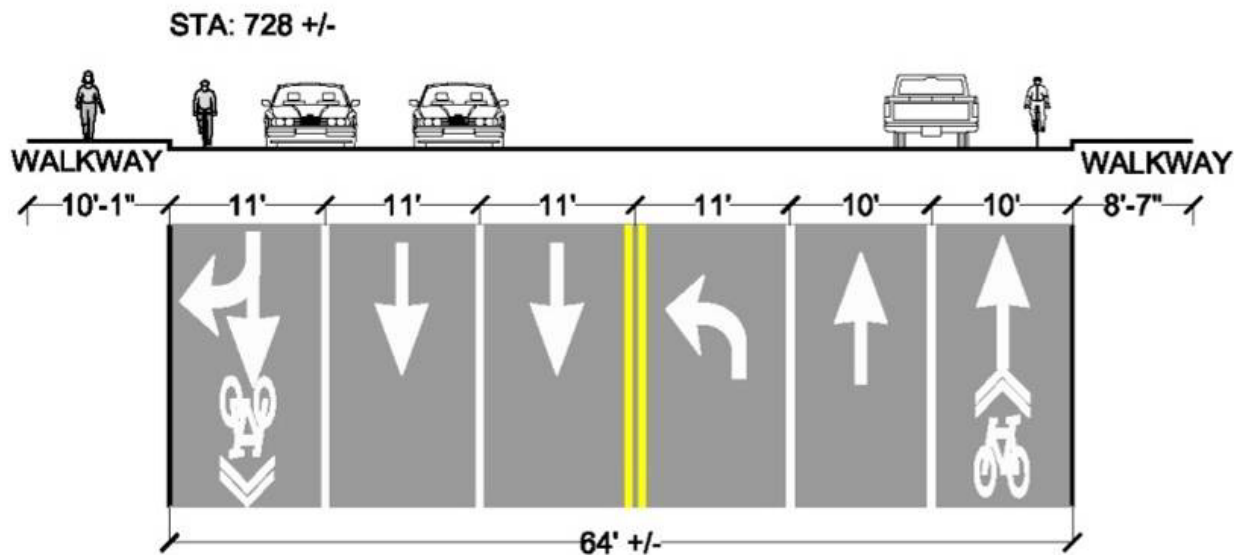
## Improved pedestrian, bicycle, and vehicular flow

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

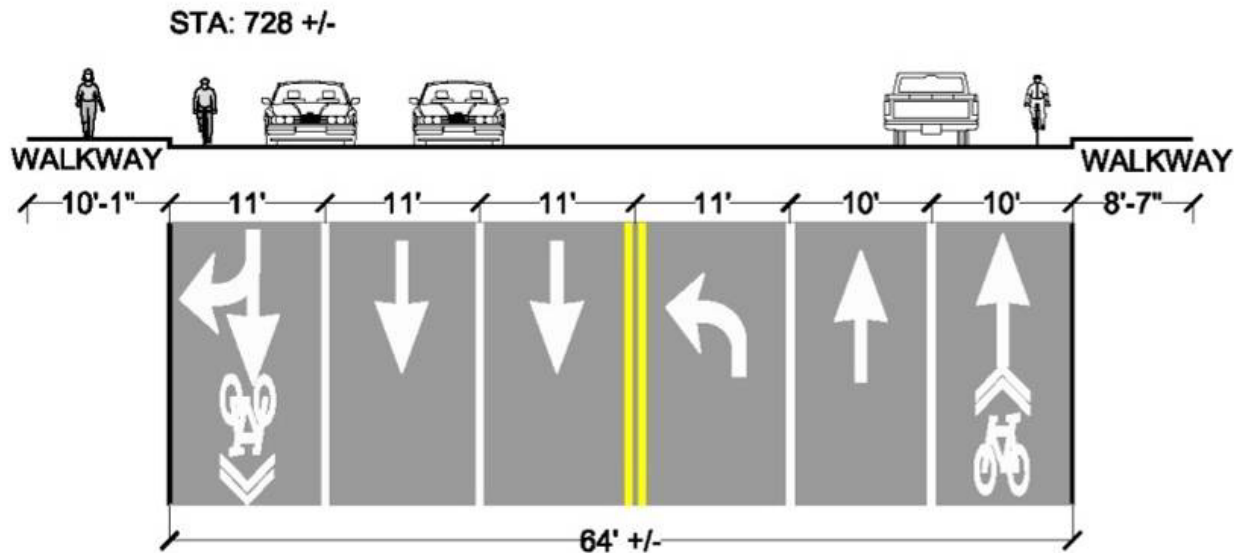
# Craigie Dam Bridge/Drawbridge - During Construction

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



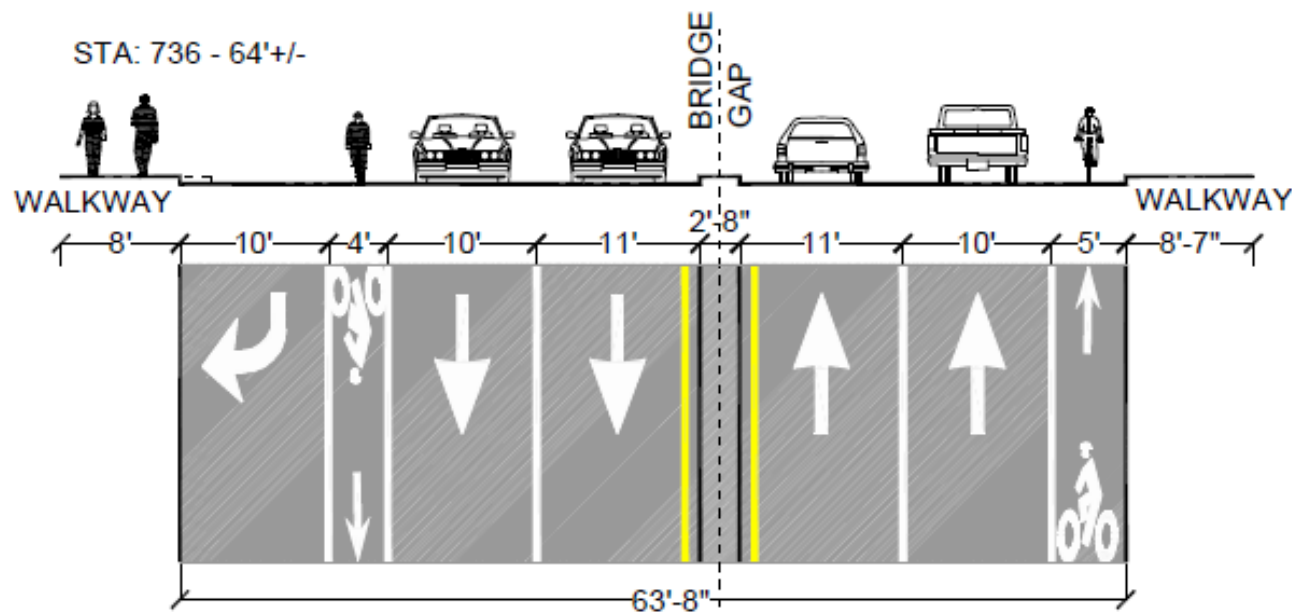
## Longfellow Bridge Detour - Interim Condition

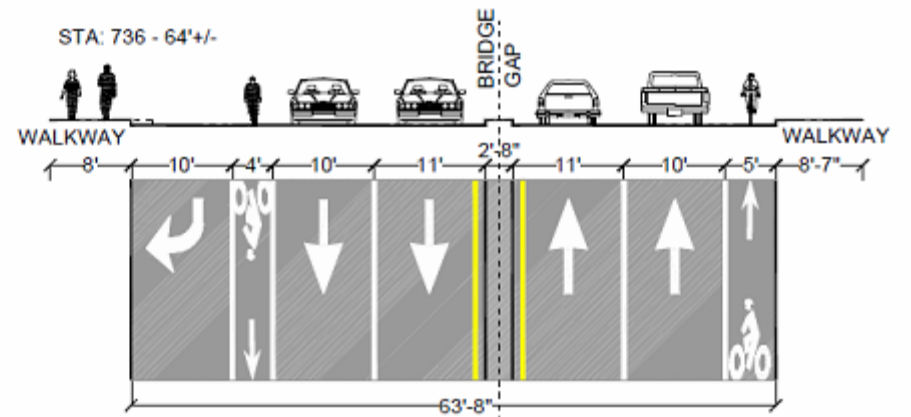
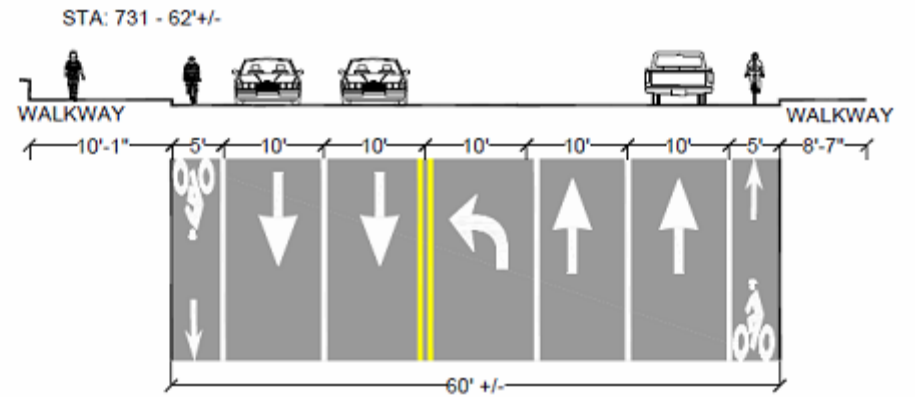
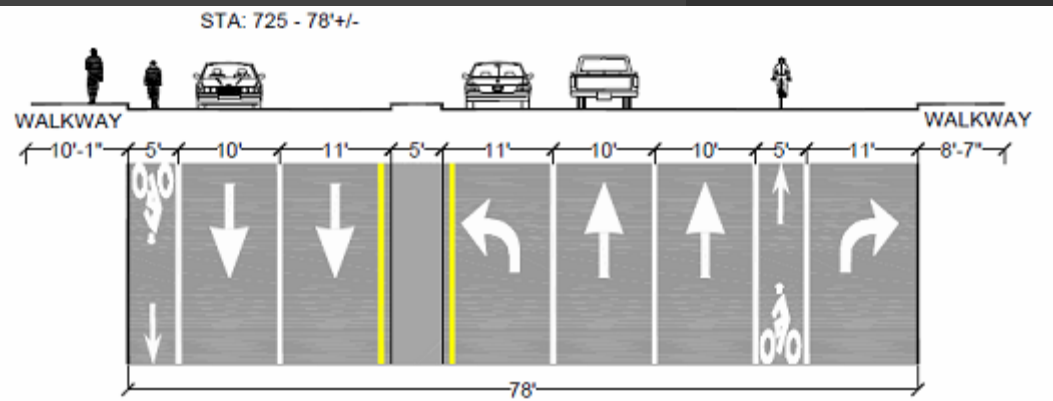
- Provide flexibility on Cambridge-bound side by utilizing narrower travel lanes and modified turn lane reductions
- Possibility of dedicated bike lane on Cambridge-bound side, depending on traffic volumes during Longfellow



# After Longfellow Bridge - Final Configuration

- Bicycle lanes in both directions







# 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

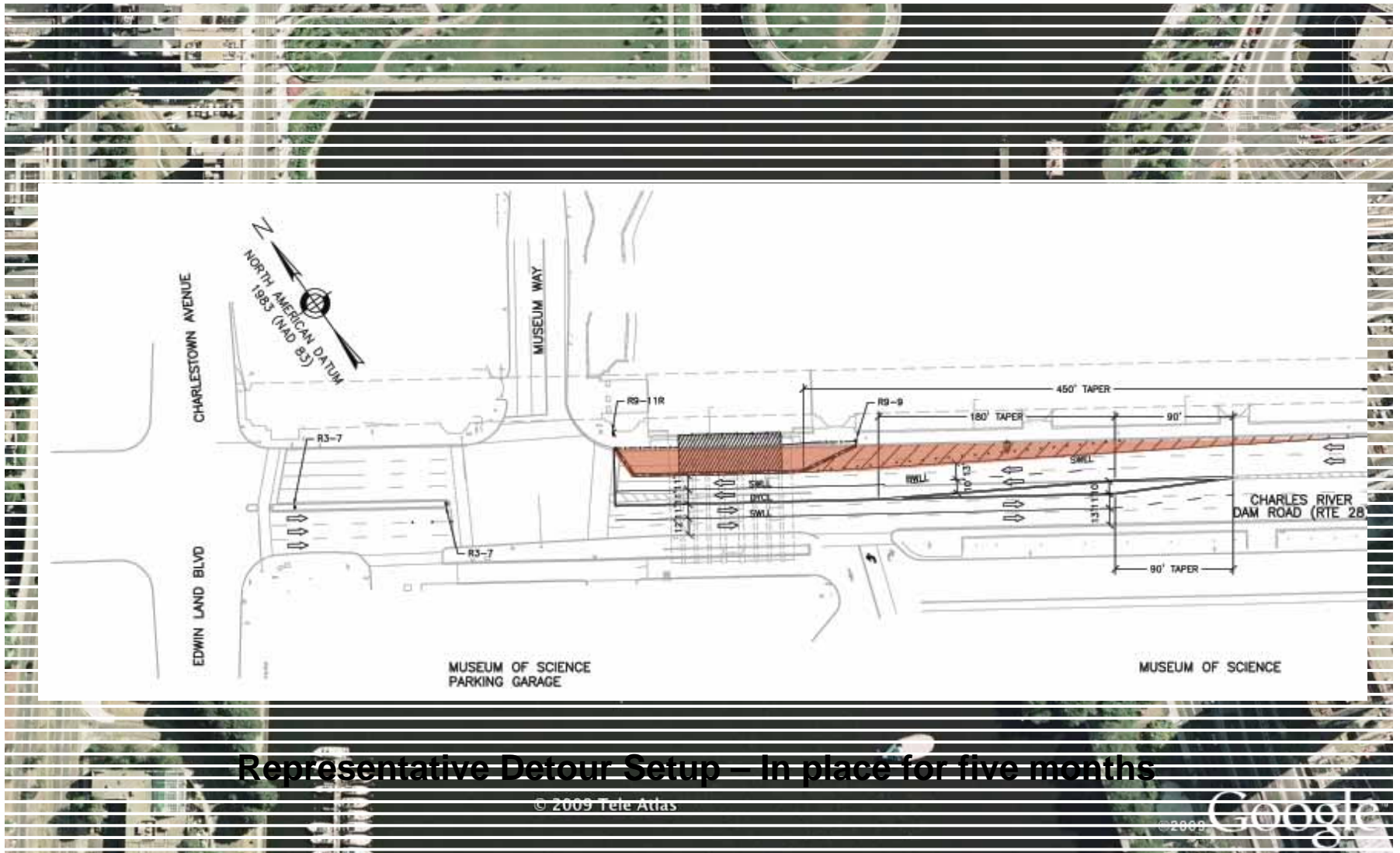
## Construction Timeline

Task	2009							2010												2011							
	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
<b><u>Dam Bridge</u></b>																											
Phase I	█	█	█	█	█	█	█	█	█																		
Phase II										█	█	█	█	█	█	█	█										
<b><u>Draw Bridge</u></b>																											
Phase III																		█	█	█	█	█					
Phase IV																		█	█	█	█	█					
<b><u>Streetscape</u></b>																							█	█	█	█	

# Traffic Plan – Phase I - Dam Bridge

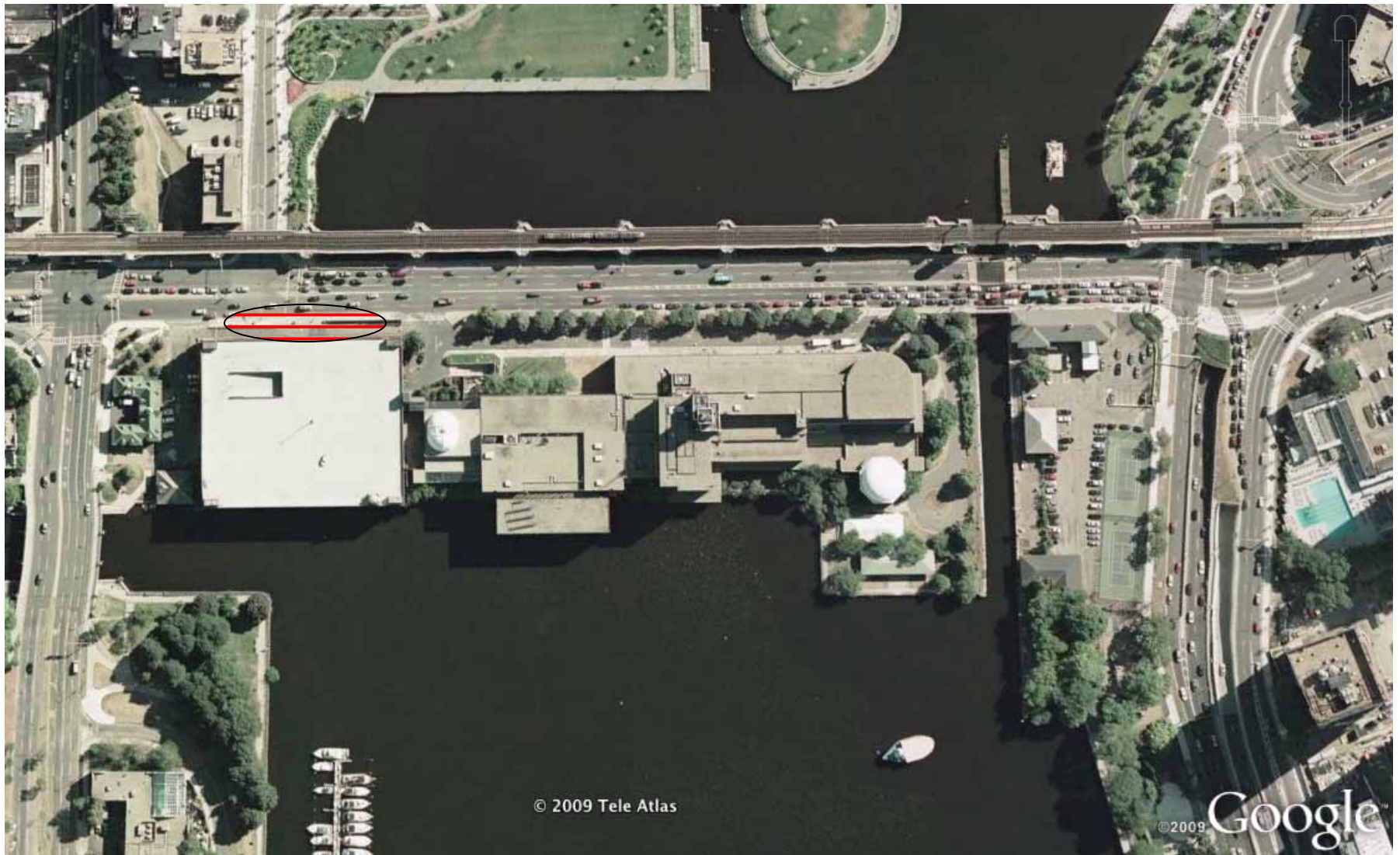


# Traffic Plan – Phase I - Dam Bridge

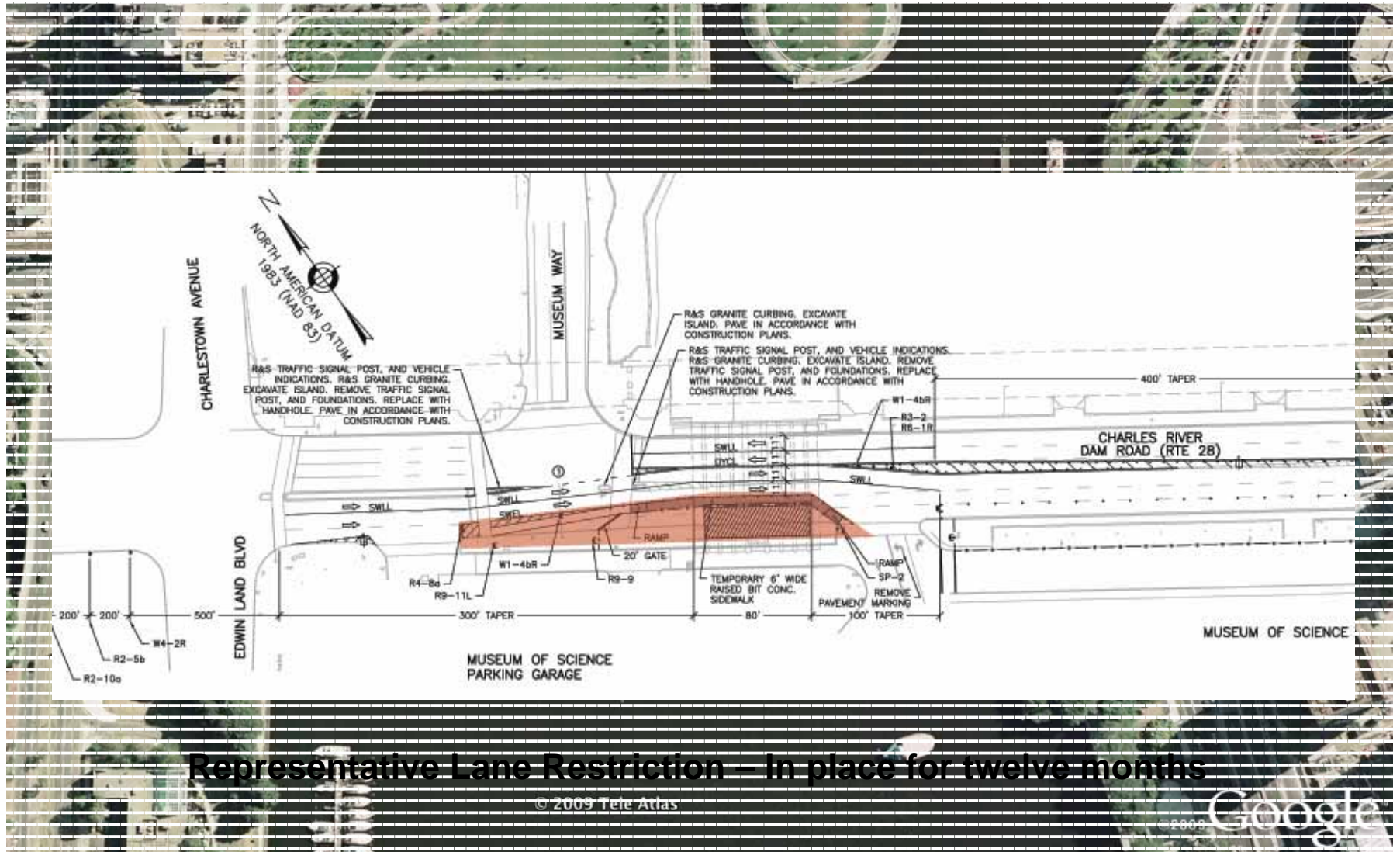


**Representative Detour Setup – In place for five months**

# Traffic Plan – Phase II - Dam Bridge



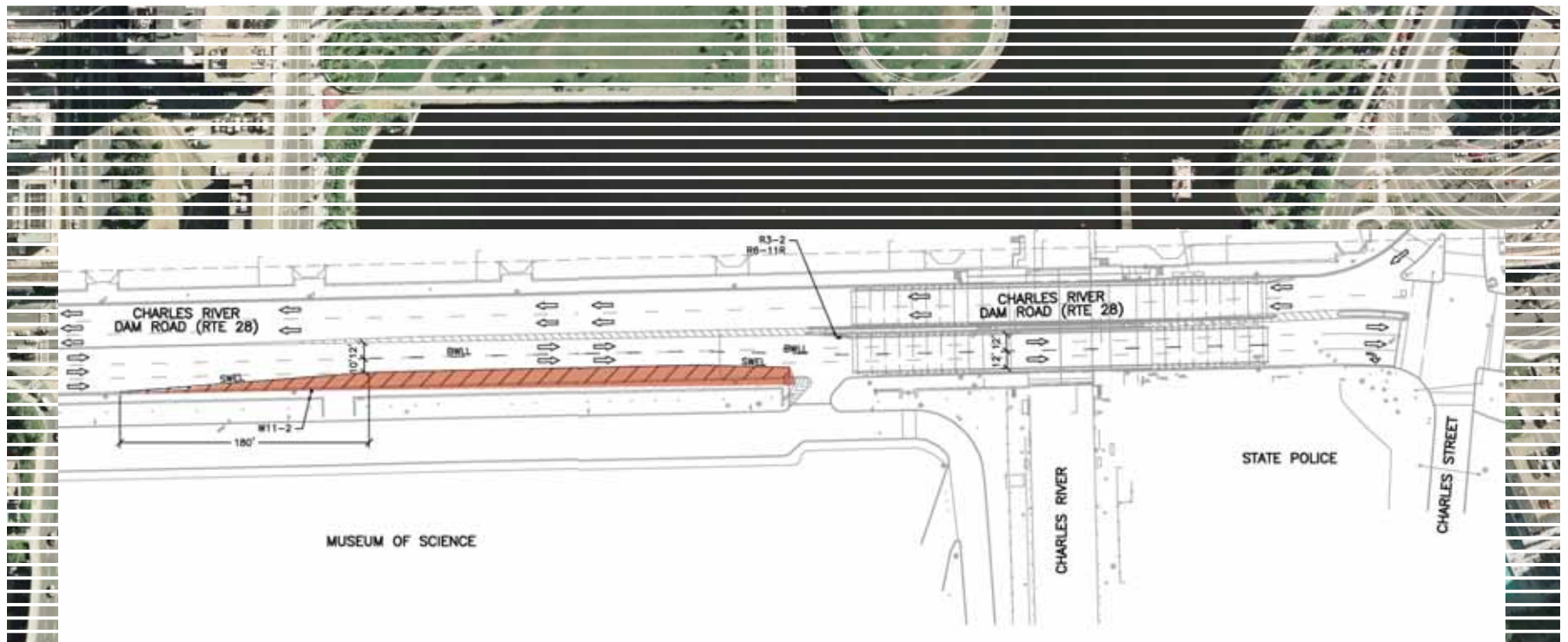
# Traffic Plan – Phase II - Dam Bridge



# Traffic Plan – Phases III & IV - Drawbridge



# Traffic Plan – Phases III & IV - Drawbridge

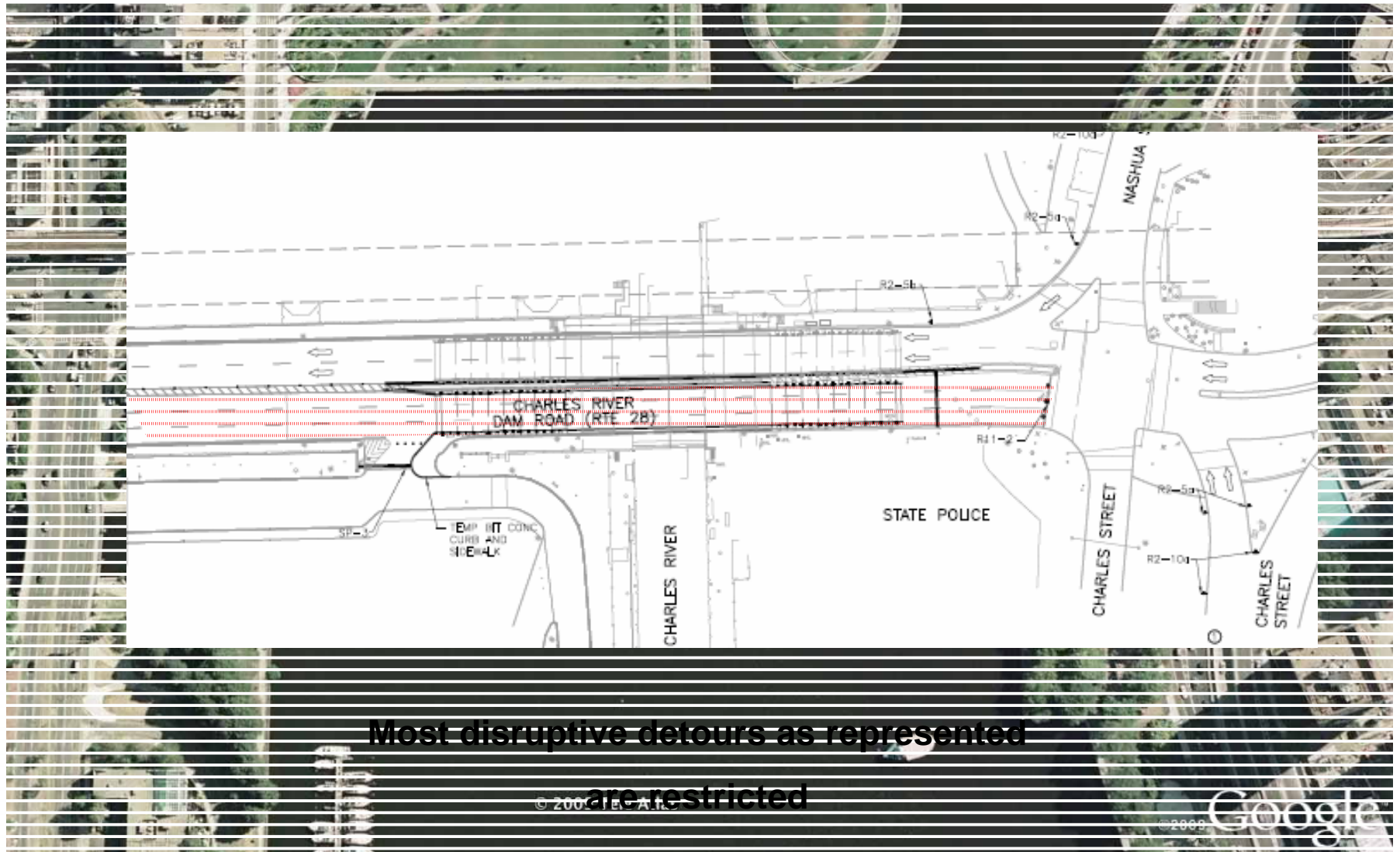


Representative Lane Restriction – In place for six months

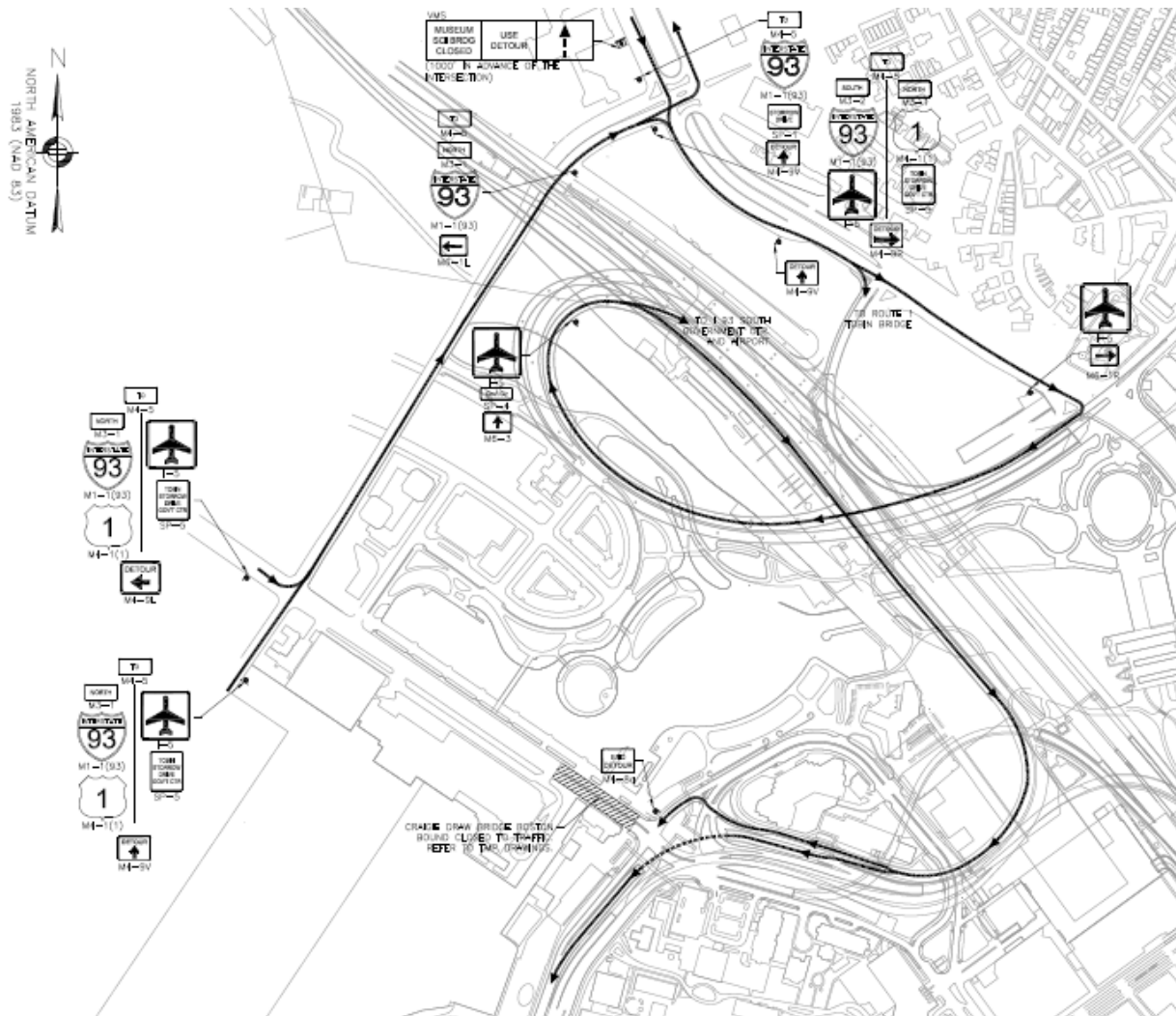
# Traffic Plan – Phases III & IV - Drawbridge



# Traffic Plan – Phases III & IV - Drawbridge



# Traffic Plan – Phases III & IV - Drawbridge



**Detour for partial closure**



**Advance Signage**

# Environmental Mitigation

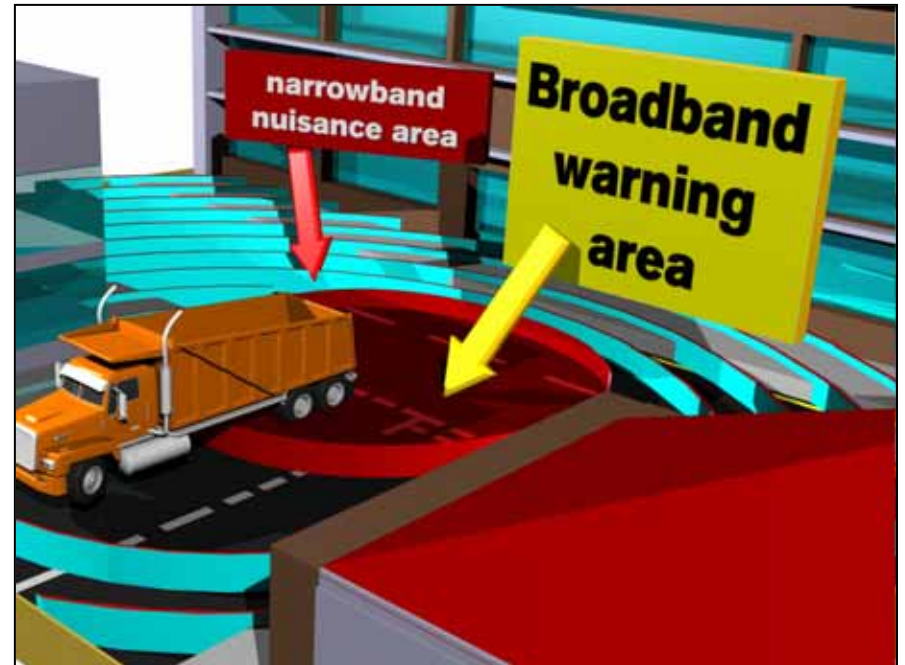
- Resource protection
- Dust control measures
- Compliance with the Massachusetts Wetlands Protection Act
- Proper disposal of all construction materials and demolition debris



# 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](mailto:DCR.Updates@state.ma.us)

## Additional Information

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

# Questions & Answers



## **DCR Mission Statement**

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