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Charles River Reservation
Footbridge Projects/Trail Corridor Proposal


May 7, 2009, 6:30 – 8:00 pm
Newton-Wellesley Hospital Auditorium, Newton

SIMPSON GUMPERTZ & HEGER
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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.

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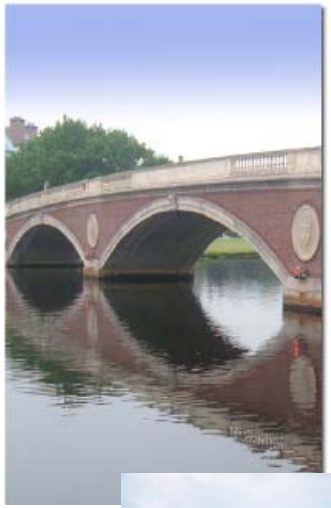
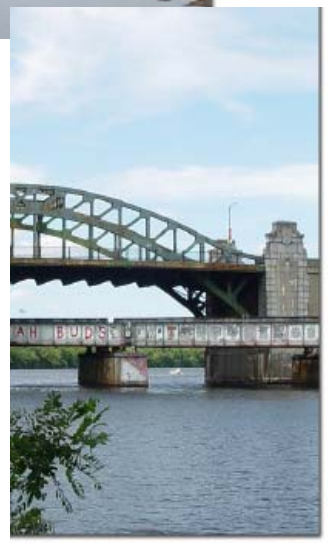
Accelerated Bridge Program Overview

- 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





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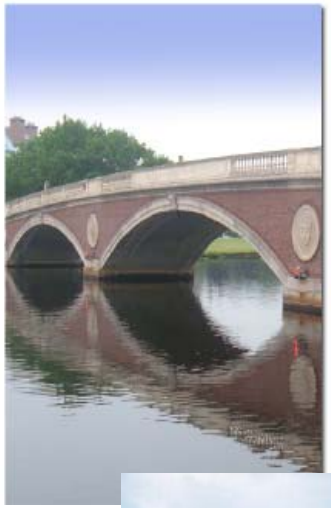
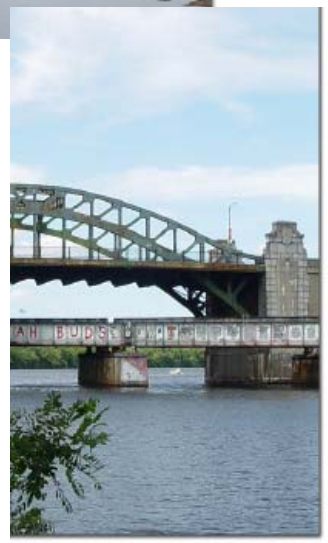
Accelerated Bridge Program Overview

- 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

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Charles River Reservation Footbridge Projects

Consultant Design Team

Simpson Gumpertz & Heger:

Project Management and Structural Engineering

- Michael McCall, P.E. – Principal in Charge
- Gregory Imbaro, P.E. – Project Manager

- Welch Associates: Land Surveying
- Epsilon Associates: Environmental Permitting
- GEI Consultants: Geotechnical Engineering
- Childs Engineering: Underwater / Diving Inspection

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Charles River Reservation Footbridge Projects

Recreation Road Footbridge
"Stringer" bridge

Riverside Park Footbridge
"Pony Truss" bridge

Lower Falls Footbridge
"Trestle" bridge

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Aerial View

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Charles River Reservation Footbridge Projects

Project Benefits:

- Improved public safety for bridge users
- Improved pedestrian access across Charles River
  - Recreational use
  - Commuter use
  - Access to commercial center
- Improved connections to existing trail segments

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Recreation Road Footbridge

- A former road bridge (Riverside Road) previously converted to pedestrian use, circa 1980
- Connects the Towns of Newton and Weston
- Downstream from Riverside Park and an active railroad bridge
- Near Lasell College boathouse and MWRA facility

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Recreation Road Footbridge History and Description

- Original bridge constructed circa 1850
- Road use abandoned circa 1980
- Approximately 200 ft. long
- Three spans across the Charles River
- Two steel “stringer” construction
- Abutments have concrete footings and timber-tie walls
- Piers have reinforced concrete caps over original mortared stone masonry walls

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Recreation Road Footbridge Existing Conditions

- Concrete parts of abutments and piers are in generally good condition
- From divers' inspection, large holes (5 ft wide) found in stone walls of piers, below normal waterline
- Steel stringers in good condition, but no spare capacity for higher loads
- Timber deck and railings are rotted and have surpassed their useful life

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Recreation Road Footbridge
Project Scope

- Restore footbridge for pedestrian use
- Remove existing timber deck and railings
- Construct new preservative-treated timber deck and timber railings
- Use stainless steel and galvanized/coated steel hardware
- Provide same width path (6 ft, 2 in.) as existing over bridge between railings – existing steel stringers cannot handle loads from wider superstructure
- Replace timber portions of abutments with concrete

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Recreation Road Footbridge
Project Scope (continued)

- Repair holes in masonry pier walls with concrete
- Dewater around piers to perform repairs within temporary cofferdam or “porta-dam” structure
- Investigate scour potential of riverbed around piers
- Provide scour countermeasures (riprap), if susceptible
- Clean and paint existing structural steel, implementing full lead abatement measures and using shielding

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Recreation Road Footbridge – Staging

- Use existing parking lot
- In discussions to use unused portion of road at MWRA facility
- Use DCR property at each end of bridge – restore any damaged grass areas at completion of project

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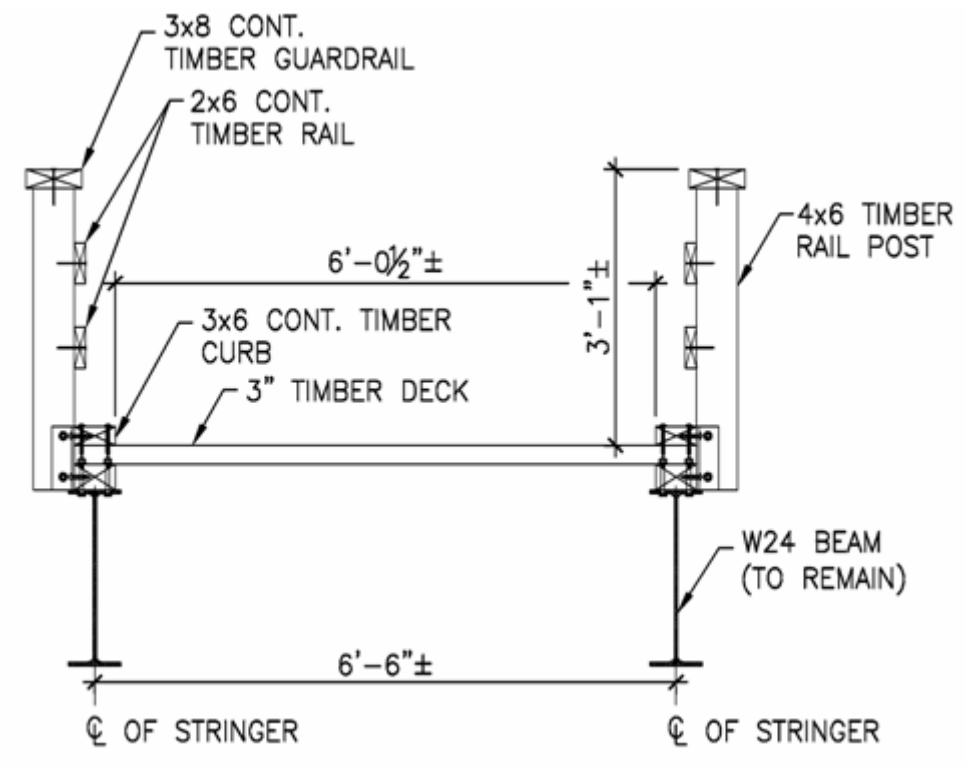
Recreation Road Footbridge
Existing Cross-Section



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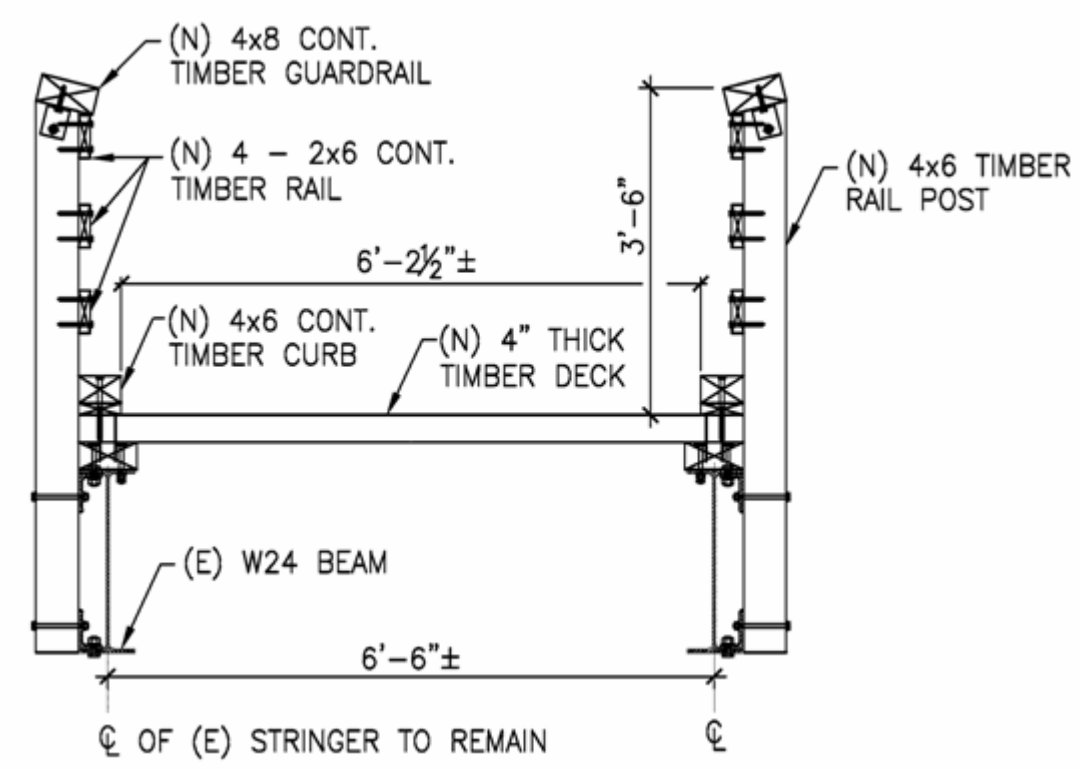
Recreation Road Footbridge
Proposed Cross-Section



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Recreation Road Footbridge

Drawing of completed footbridge

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Riverside Park Footbridge

- A historic steel “pony-truss” bridge
- Connects the Towns of Newton and Weston
- Provides a path from Riverside Park to trails along railroad and trolley lines
- Upstream from active railroad bridge across Charles River

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Riverside Park Footbridge History and Description

- Constructed circa 1920
- Approximately 78 ft. long
- Always used only as a pedestrian bridge
- Riveted steel “pony-truss” construction
- Newer timber floor (stringers & deck)
- Single span across the Charles River
- Mortared stone masonry abutments
- Unknown foundations below masonry

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Riverside Park Footbridge
Existing Conditions

- Timber deck is in fair condition, but nearing the end of its useful service life
- Steel floorbeams at ends of bridge heavily rusted, need replacement
- Steel trusses in generally good condition; paint system on trusses is compromised to various extents
- Parts of original pipe railing have failed; top pipe rail on upstream side has fallen off, is lying on deck

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Riverside Park Footbridge
Existing Conditions (continued)

- From divers' inspection, large hole in west abutment due to partial collapse of breast wall – only partially visible above normal waterline
- Entire west abutment leans down toward downstream side of bridge, causing some racking distortion in steel superstructure
- Movement of west abutment may be causing compression/buckling of bottom chord

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Riverside Park Footbridge
Project Scope

- Restore historic footbridge for pedestrian use
- Remove and replace existing preservative-treated timber floor system – deck and stringers
- Remove and replace deteriorated steel floorbeams
- Install mesh panels as part of railing structure
- Repair steel trusses and bearings in place
- Provide same width path as existing over bridge between trusses
- Clean and paint existing structural steel, implementing full lead abatement measures and using shielding

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Riverside Park Footbridge
Project Scope (continued)

- With trusses temporarily supported, dismantle the west abutment, construct a new reinforced concrete footing and backup walls, and rebuild stone masonry outer walls with existing stones
- Dewater around abutment to perform repairs within temporary cofferdam or “porta-dam” structure
- Investigate scour potential of riverbed around abutments
- Provide scour countermeasures (riprap) if susceptible

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Riverside Park Footbridge – Staging

- Use existing DCR parking lot
- Use paved trail to bring in materials and equipment
- Use DCR property at each end of bridge – restore any damaged grass areas at completion of project

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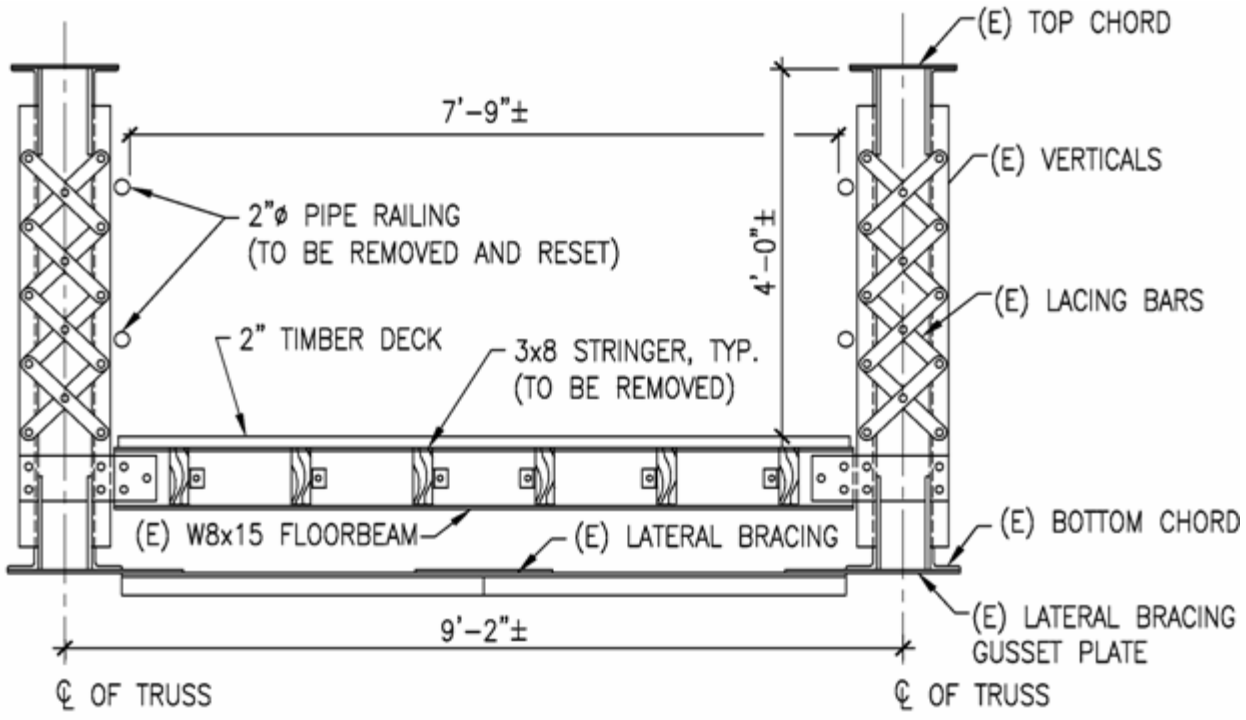
Riverside Park Footbridge
Existing Cross-Section



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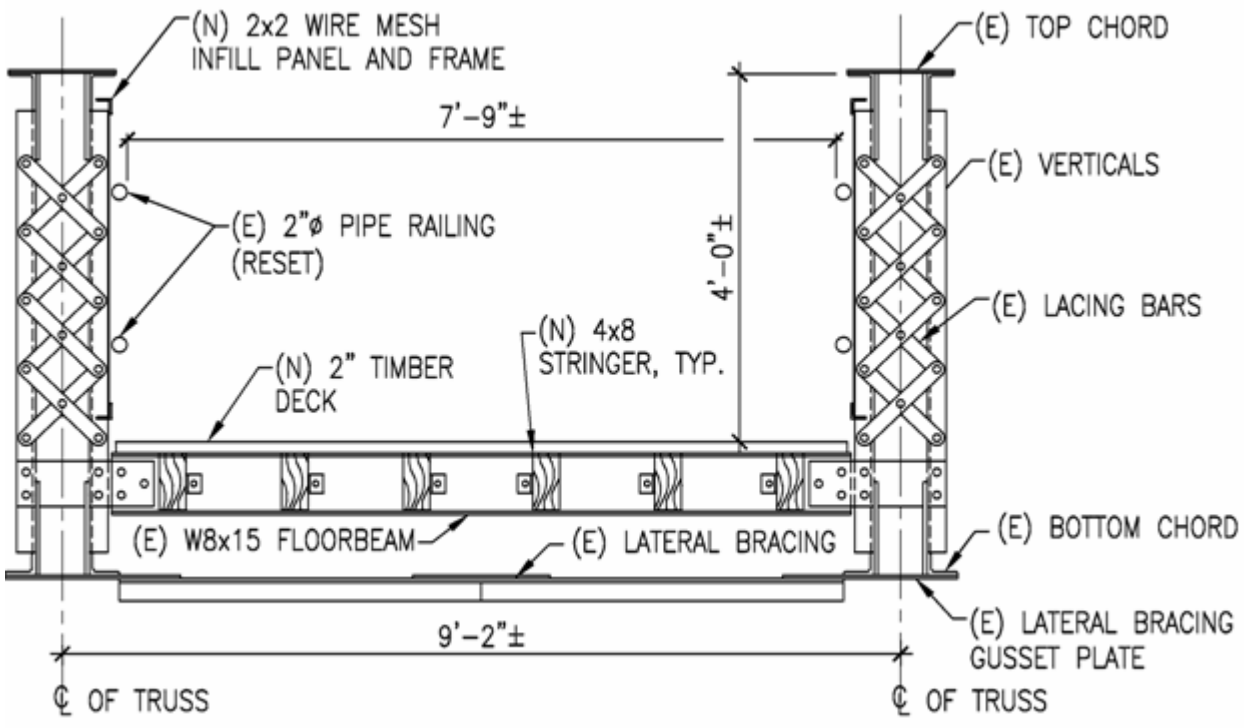
Riverside Park Footbridge
Proposed Cross-Section



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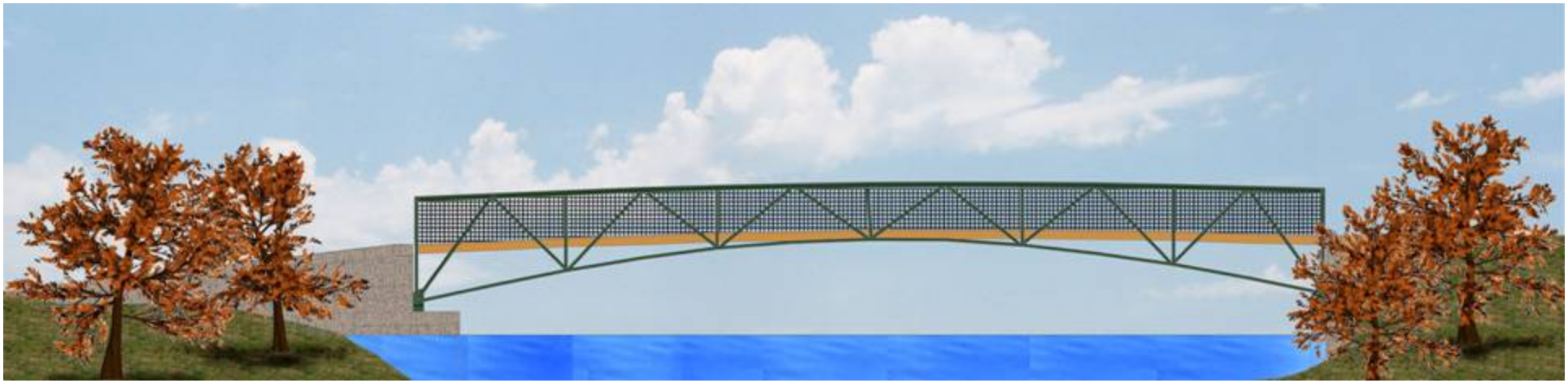
Riverside Park Footbridge

Drawing of completed footbridge



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Lower Falls Bridge

- A former railroad bridge to be converted to pedestrian use
- Connects the Towns of Newton and Wellesley
- Near Newton Lower Falls
- Near former Grossman's site in Wellesley

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Lower Falls Bridge History and Description

- Constructed as railroad bridge in 1910
- Railroad use abandoned circa1970
- Approximately 100 ft. long
- Two spans across the Charles River
- Riveted steel girder construction
- Abutments and center pier are reinforced concrete construction
- Current “deck” consists of old timber railroad ties

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Lower Falls Bridge
Existing Conditions

- Concrete abutments and pier are in generally good condition
- Steel girders have surface rust, but were designed for railroad loading, so have spare capacity for foot traffic
- Old railroad ties are rotted and not reusable
- Soil has eroded around abutments, especially at Newton end of bridge

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Lower Falls Footbridge – Project Scope

- Convert former railroad bridge to pedestrian bridge having 10 ft-wide path between railings
- Remove existing timber ties
- Construct new preservative-treated timber deck and timber railings
- Use stainless steel and galvanized/coated steel hardware
- Clean and paint existing structural steel, implementing full lead abatement measures and using shielding
- Stabilize trail/top of slopes immediately adjacent to Newton abutment with stone riprap

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Lower Falls Footbridge - Staging

- Negotiate use of existing parking lot
- Use former railroad bed to bring in materials and equipment
- Limit tree removal to recent “volunteer” growth in former rail bed

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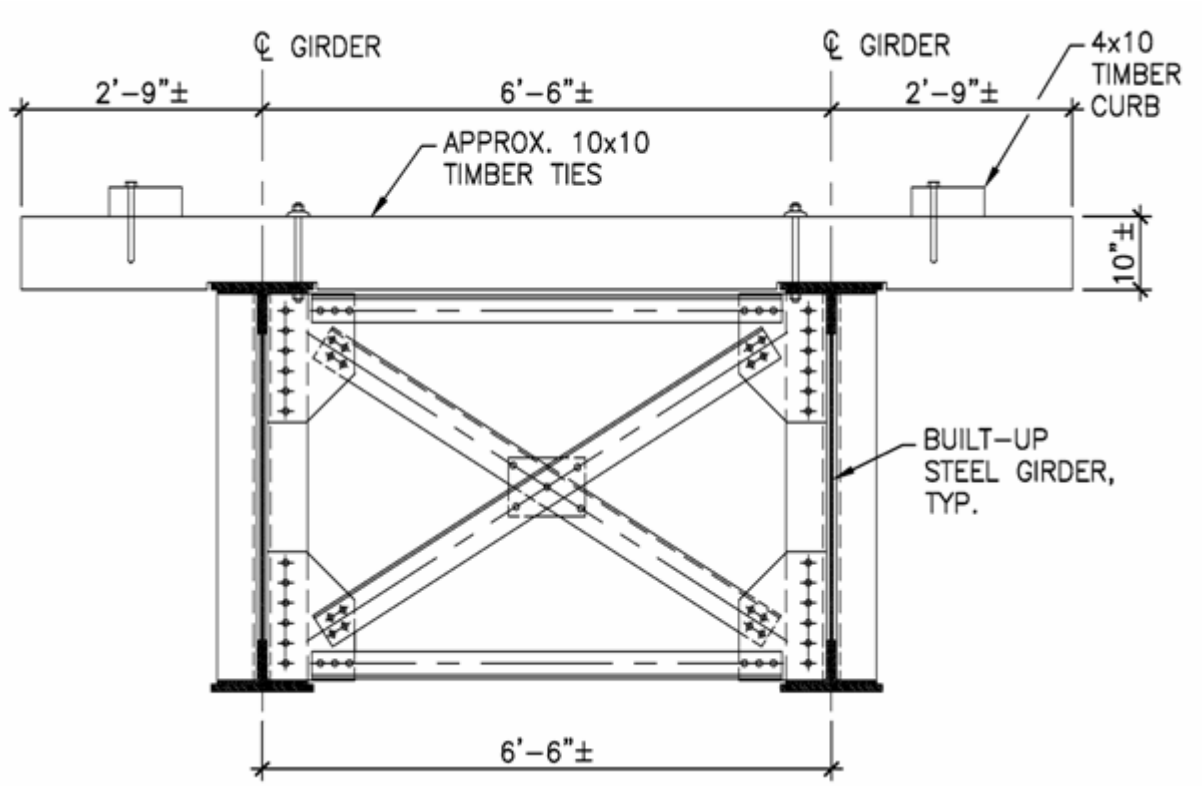
Lower Falls Bridge
Existing Cross-Section



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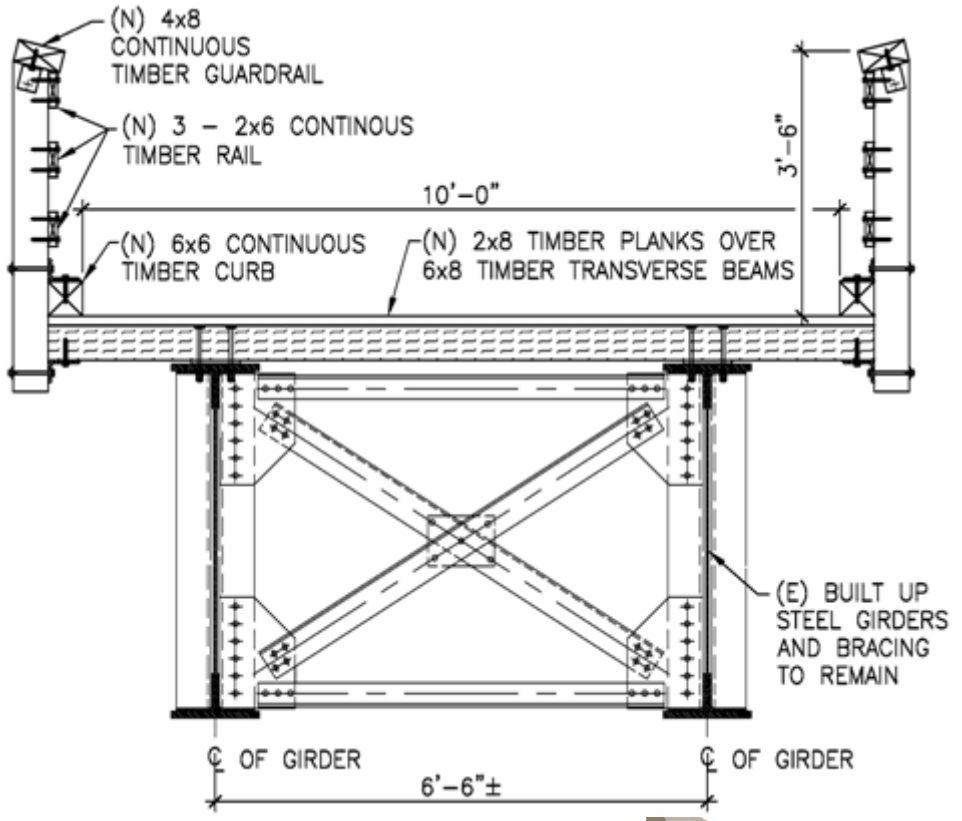
Lower Falls Footbridge
Proposed Cross-Section



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Lower Falls Footbridge

Drawing of completed footbridge

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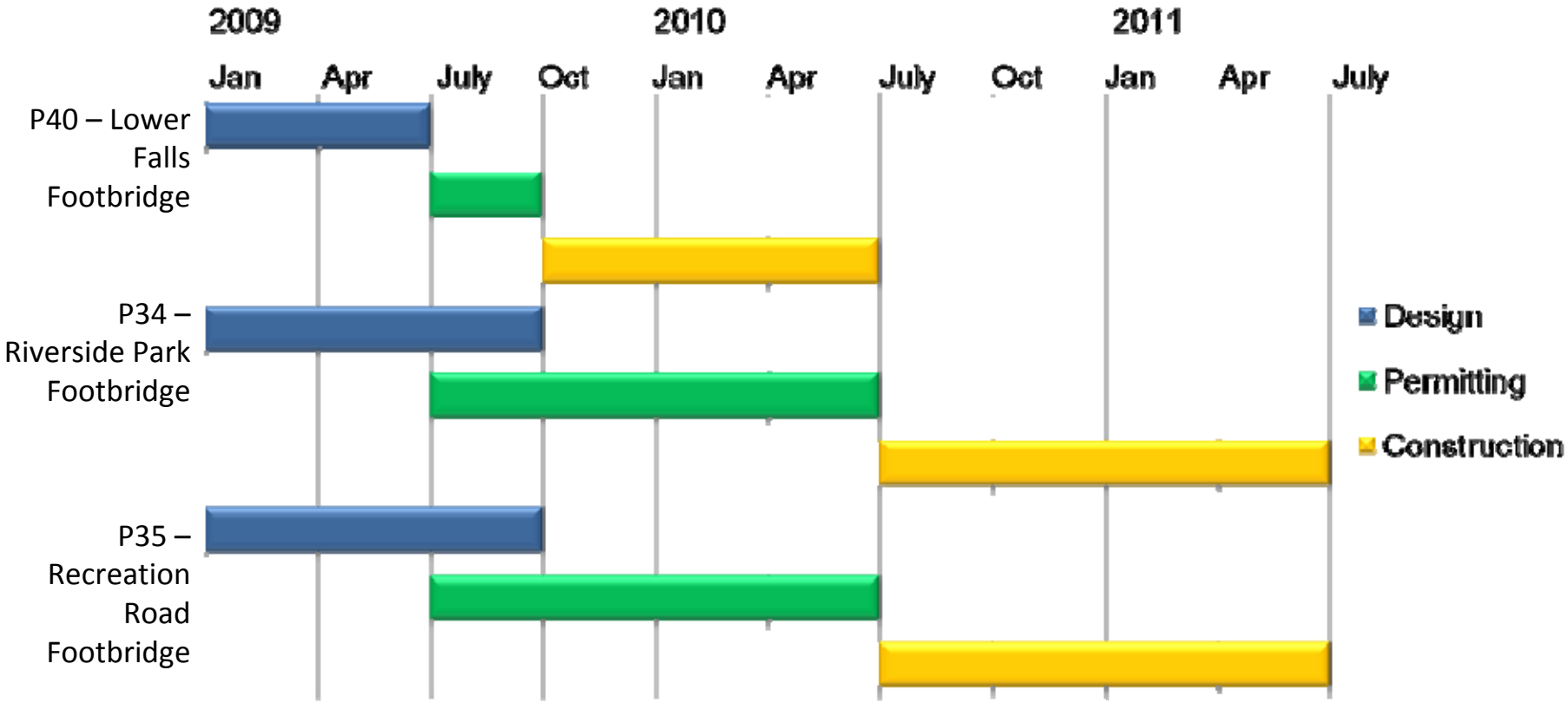
Charles River Reservation
Footbridge Projects- Schedule



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Lower Falls Footbridge and Trail Segments

- Lower Falls Footbridge at 90% design, funded through the Accelerated Bridge Program

- Trail segments between Concord Street and Washington Street in design phase

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Lower Falls Trail Segments

Design funding in partnership with:

- Wellesley NRC gift funds
- Wellesley trails funds
- Newton Conservators
- Newton Bicycle/ Pedestrian Task Force
- Charles River Watershed Association

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DCR's Upper Charles River Reservation Initiative






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DCR's Upper Charles River Reservation Initiative

- In the 1990's, DCR completed an 8 year planning effort for the entire Charles River Reservation, including six miles of new pathway, three mini parks, and three new pedestrian bridges.
  - Implement strategies for sustainable greenways, balancing access and impacts of trails in sensitive areas
  - Minimize site disturbance, restore degraded sites, preserve and enhance wildlife habitat, use native planting
  - Minimize material impacts and life-cycle costs, use vandal-proof, enduring materials, minimize water needs and use and energy use, and use recycled materials

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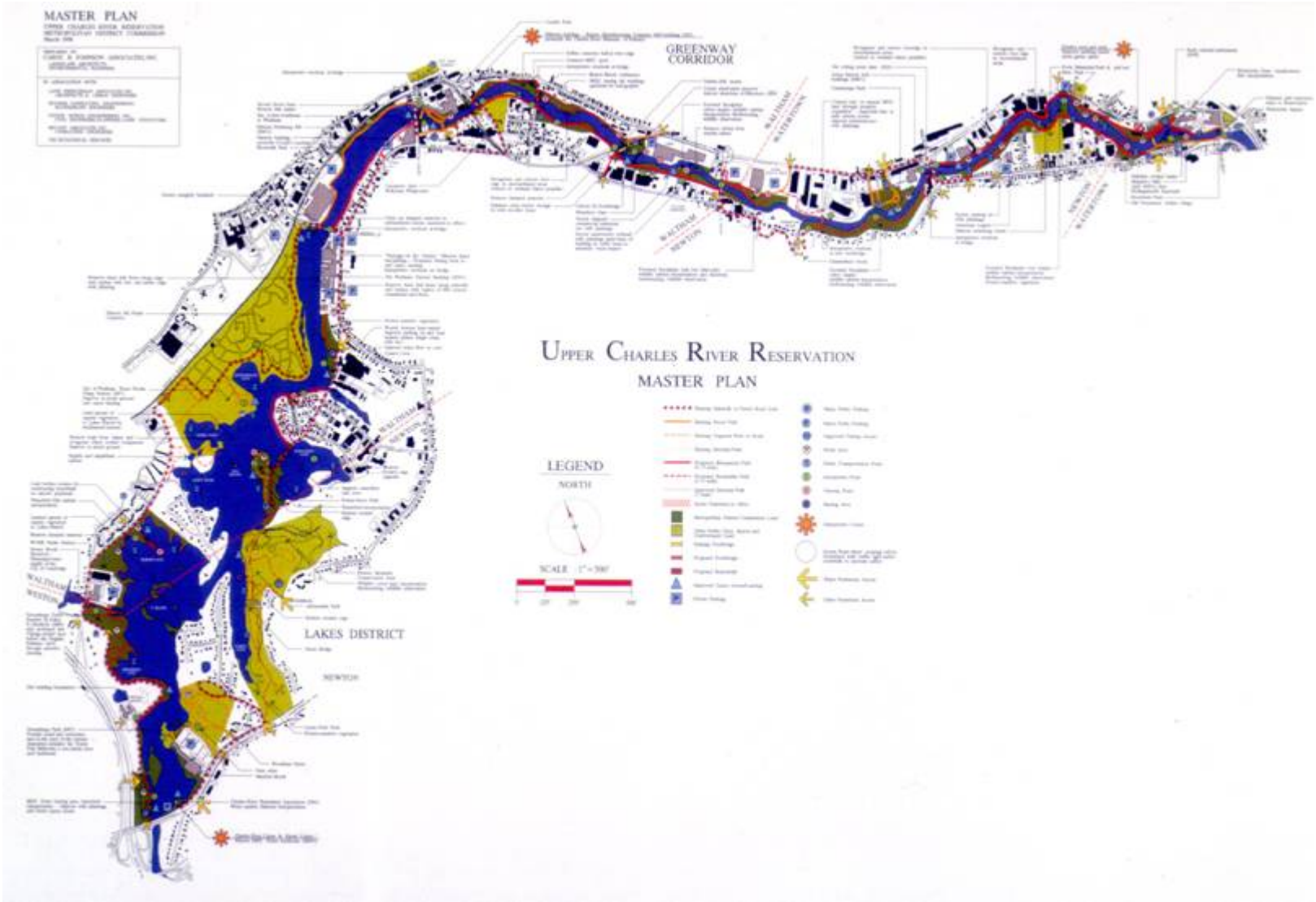
DCR's Upper Charles River Reservation Initiative

(Commonwealth Ave. to Watertown Square view)



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Alternative Pedestrian/Bicycle Routes for Newton/Wellesley/Weston Area

- Recreation road corridor
- Leo J. Martin hiking trail
- Riverside rail trail

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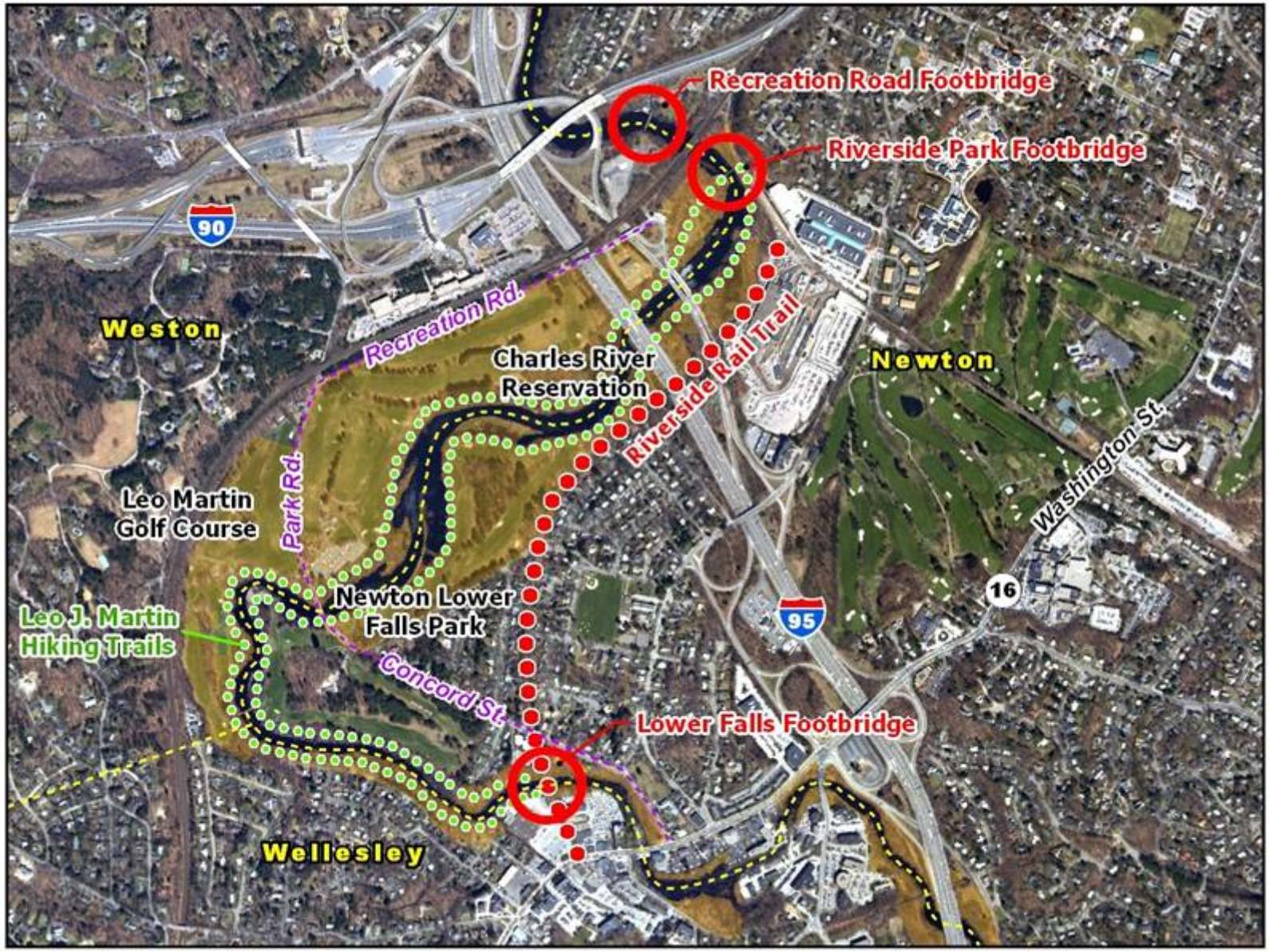

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Recreation Road Corridor

- Connects Recreation Road/Park Road/Concord Street

- On-road route for advanced cyclists and sidewalk route for pedestrians to walk to Wellesley and the Lower Falls area

Leo J. Martin hiking trails

- Off-road trails along both sides of the Charles River
- Offers hikers scenic vistas and access to nature
- Hard surface trail design at this site would be problematic due to
  - environmental issues, including flood plains, wetlands, mature native tree growth, and habitat
  - Proximity to golf course and safety implications
  - Limited design capacity for handicapped accessibility

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Proposed Riverside Rail Trail

- Located between Riverside Park in Newton and Washington Street in Wellesley

- Handicapped accessible,10-foot wide, 1.1 mile asphalt path with two-foot shoulders

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Proposed Riverside Rail Trail

Public Benefits

- Improved off-road access for pedestrians, bicyclists, and handicapped persons to park, T station, and commercial center
- Reduced risk of fire from removal of overgrown brush
- Community cohesion

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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

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Questions & Answers

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Massachusetts

DCR Mission Statement

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

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