CHAPTER 17

ENVIRONMENTAL CONSULTATION AND MITIGATION

Regional Transportation Plans must provide information on the efforts to consult with state and local agencies responsible for environmental, land use, and preservation in the development of the RTP. In addition, the RTP must include a discussion of the types of potential environmental mitigation activities and potential areas to carry out these activities. The following sections demonstrate how these requirements have been integrated into the RTP for the Pioneer Valley Metropolitan Planning Organization.

A. ENVIRONMENTAL CONSULTATION

The Pioneer Valley Metropolitan Planning Organization must consult "as appropriate" with state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation to develop the long range transportation plan. PVPC scheduled an environmental consultation meeting on Wednesday May 13, 2015. Invitations were sent to a number of federal, state, and local agencies to review the draft transportation improvement projects included as part of the RTP. PVPC staff was available for questions and comments from 12:00 PM to 4:00 PM. Transportation Improvement projects were mapped over several environmental maps including:

- Environmental Justice Minority and Poverty Block Groups
- 100 and 500 Year Flood Zones
- Valley Vision Priority Development and Priority Protection Areas
- Regional Wetlands
- Pioneer Valley Bike Linkages Map
- Critical Linkages II Habitat Connectivity

These maps are shown in Figures 17-1 – 17-6. A complete list of agencies invited to participate in the Environmental Consultation is presented in Table 17-1. Each of these agencies will also be sent a draft copy of the RTP. Comments received as part of Environmental Consultation have been summarized in Chapter 3 of the RTP.

Figure 17-1 – RTP Project Impacts on Environmental Justice Minority and Poverty Block Groups

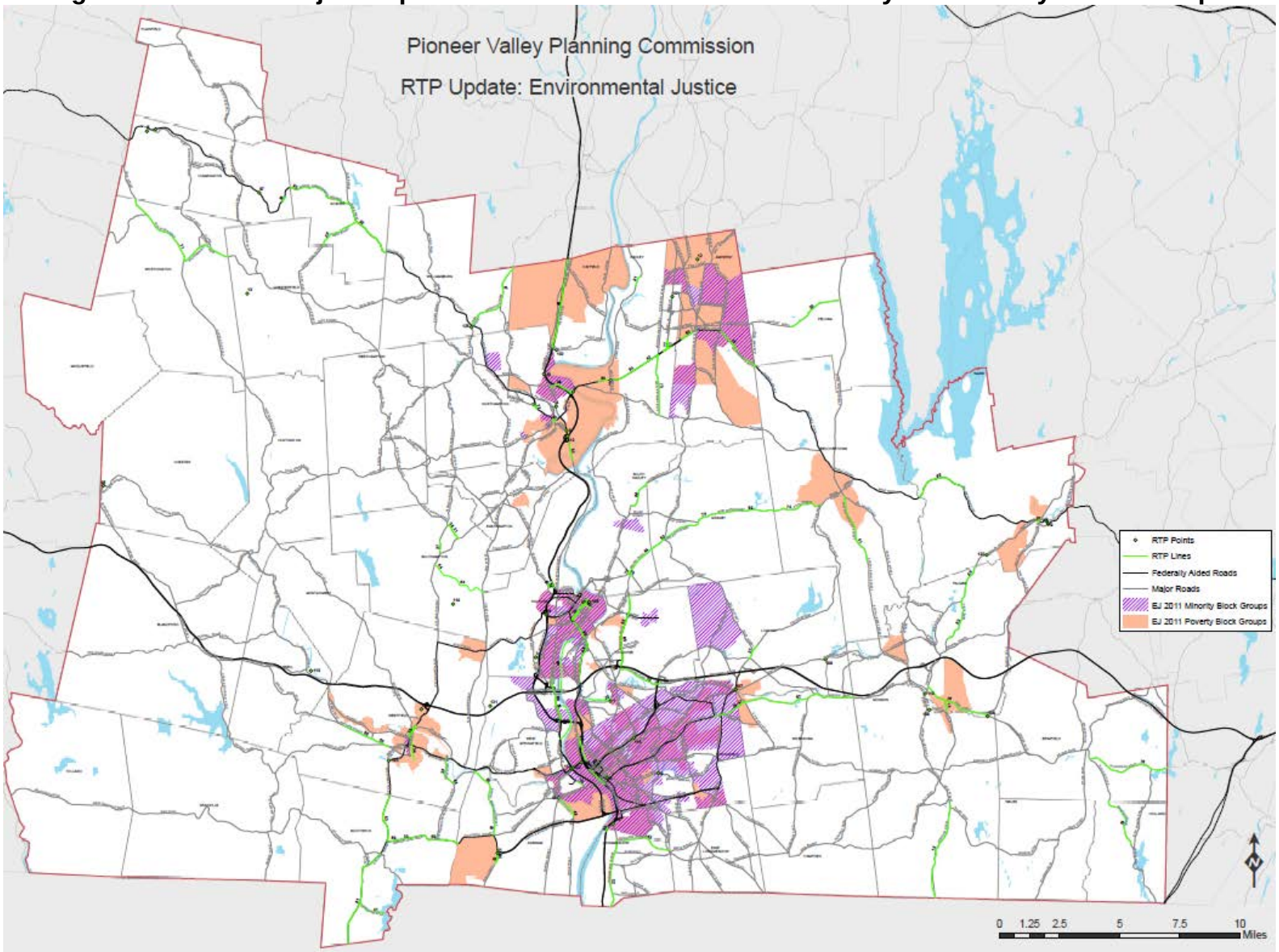


Figure 17-2 – RTP Project Impacts on 100 and 500 Year Flood Zones

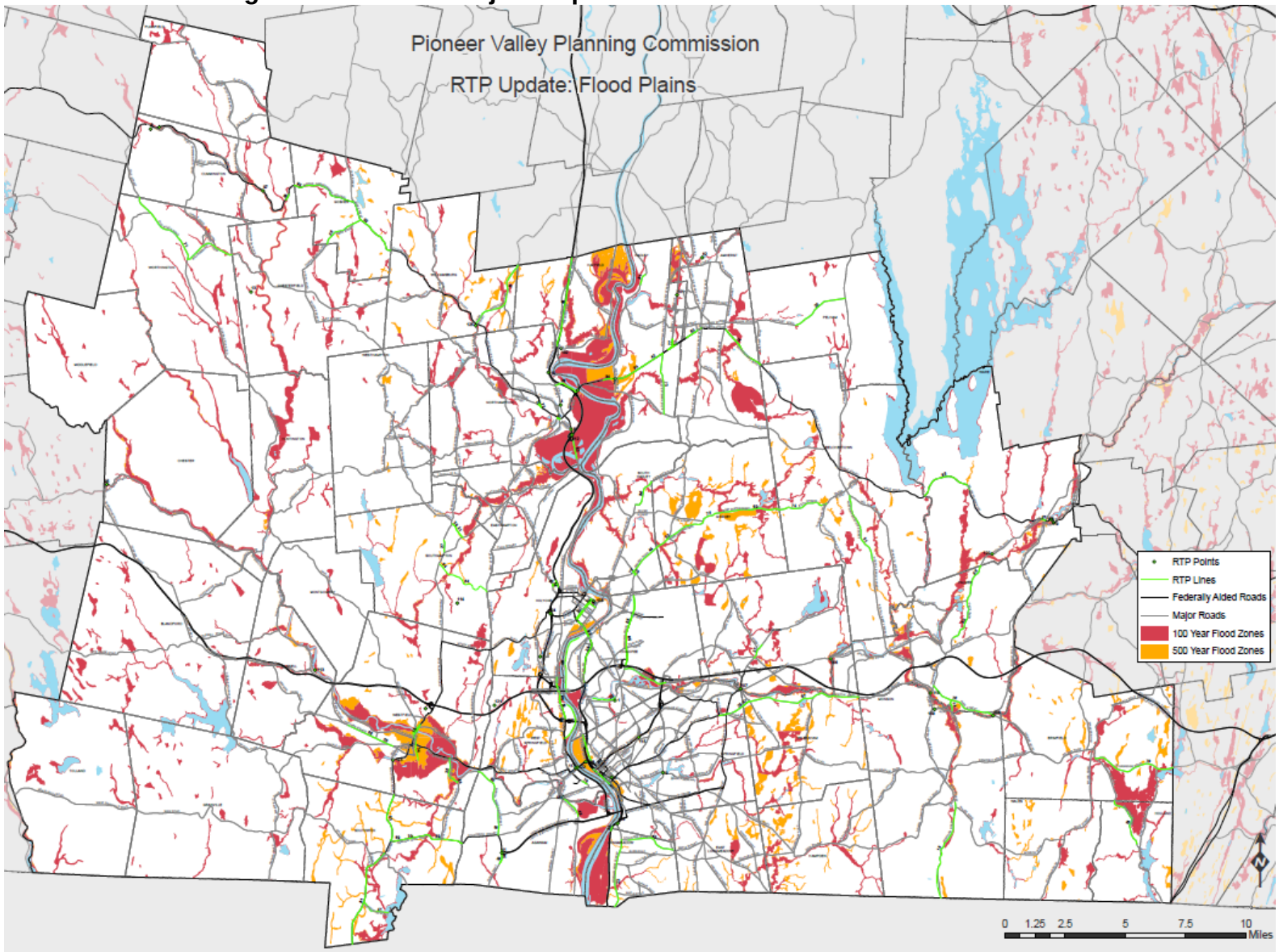


Figure 17-3 – RTP Project Impacts on Valley Vision Priority Development and Priority Protection Areas

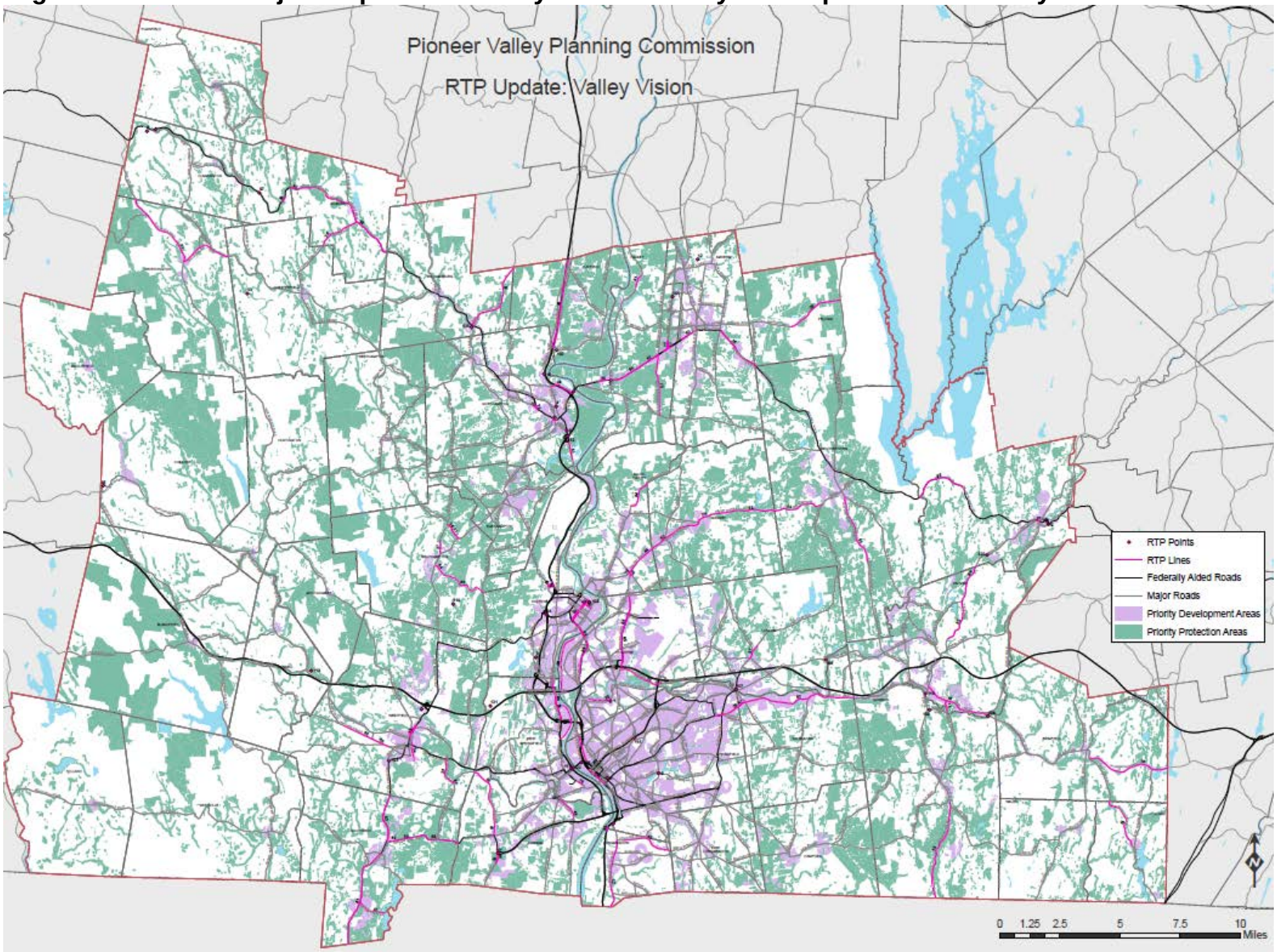


Figure 17-4 – RTP Project Impacts on Regional Wetlands

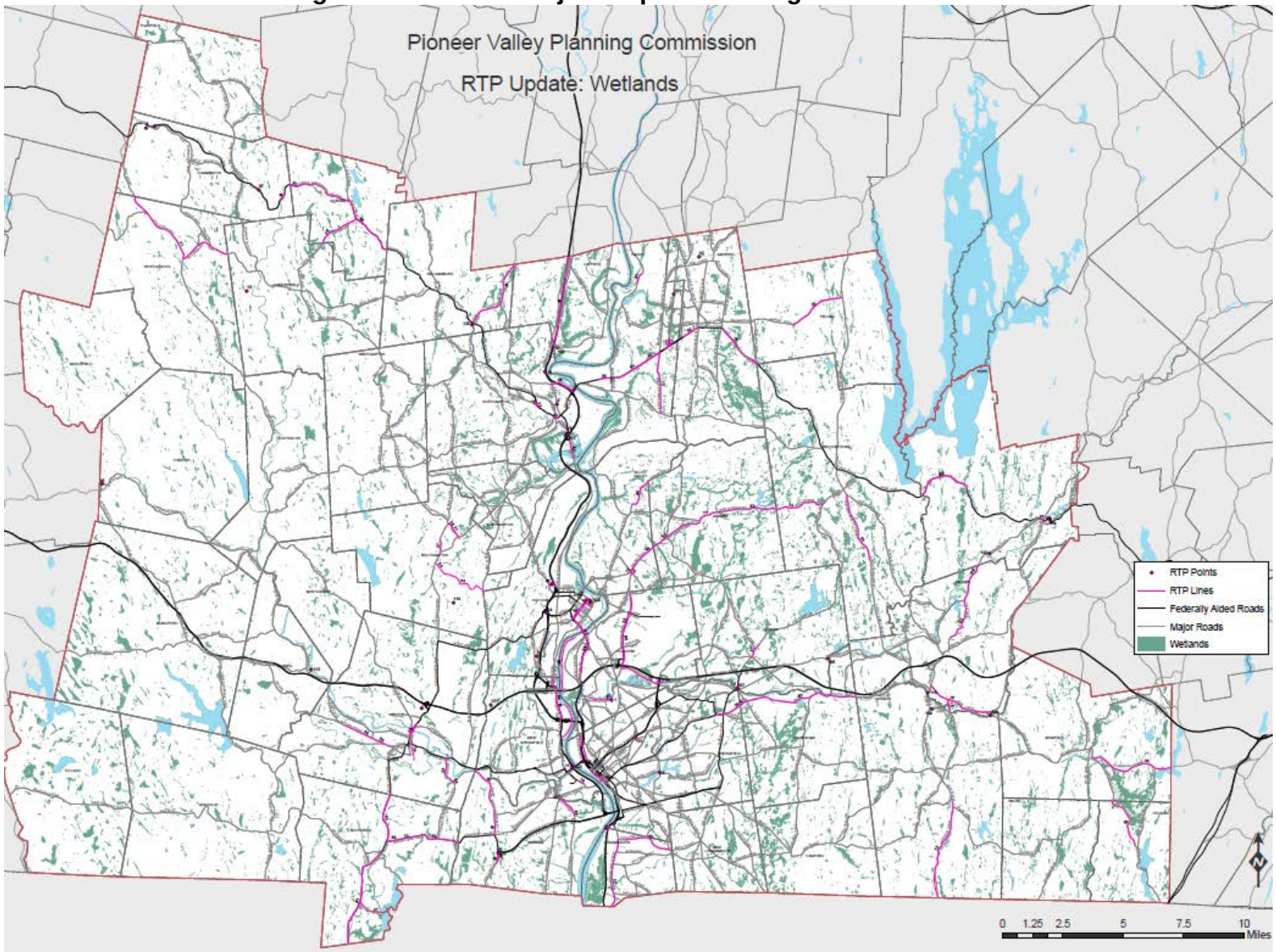


Figure 17-5 – Pioneer Valley Bike Linkages Map

Figure 17-6 – RTP Project Impacts on Critical Linkages II Habitat Connectivity

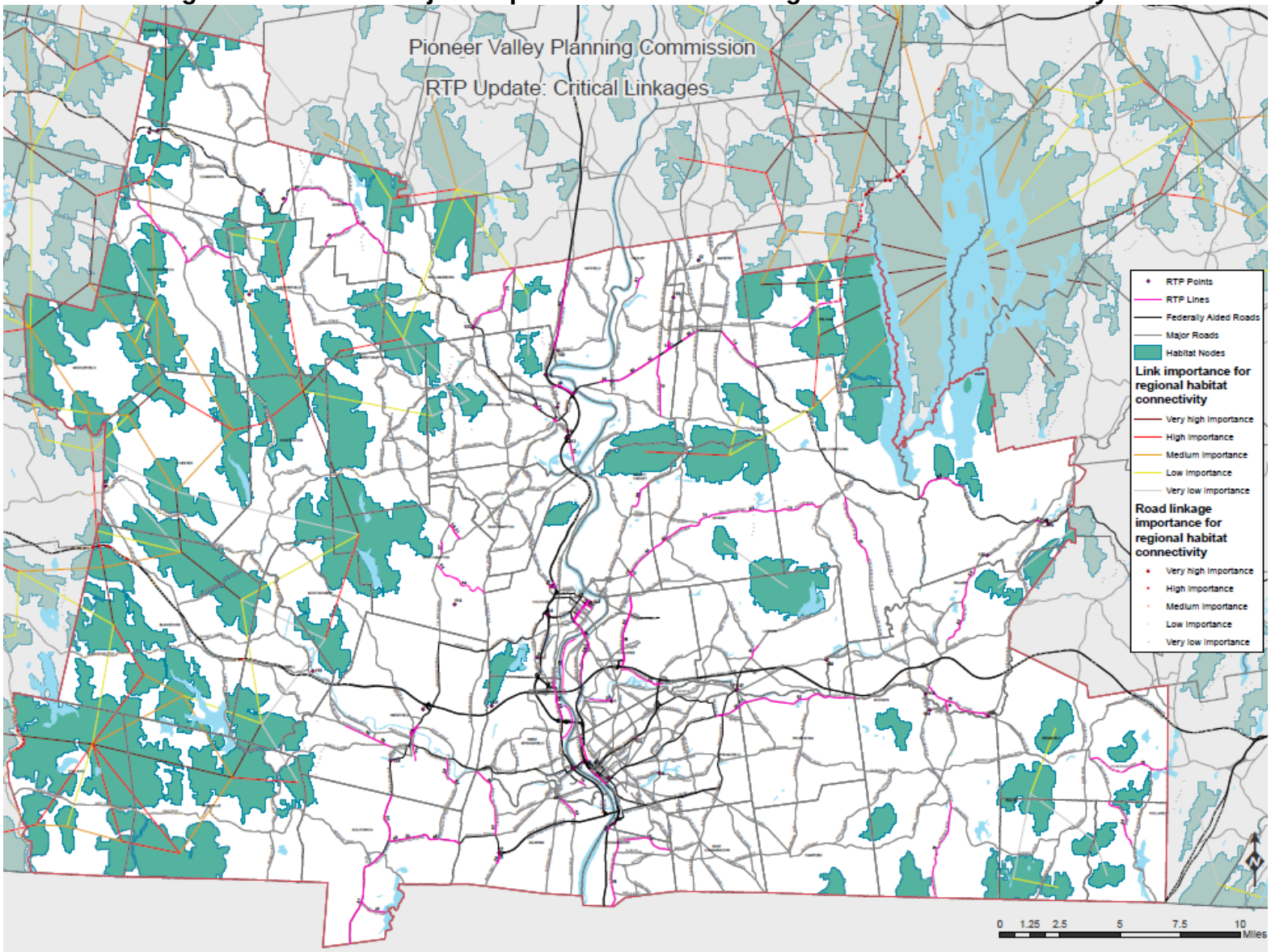


Table 17-1 – Environmental Consultation on the Draft RTP

Organization	Organization
American Farmland Trust	MA DEP
American Mountain Club	MA DFW
Arise for Social Justice	MA DPH
Barnes Aquifer Committee	Mason Square Task Force
Chicopee River Watershed Council	Mass Climate Action Network – MCAN
City of Springfield Green Committee	MassAudubon
Cooley Dickinson Health Care Healthy Communities Coalition	National Park Service
CT River Cleanup Committee	Neighbor to Neighbor
CT River Stormwater Committee	Nuestras Raices
CT River Watershed Council	PV Asthma Coalition
Division of Ecological Restoration, Mass DFG	Pioneer Valley MPO Mailing List
Dunbar Community Center/YMCA	PVPC JTC Members and Alternates
Gardening the Community	Springfield YMCA
Grow Food Amherst	The Nature Conservancy
Grow Food Northampton	Trout Unlimited Pioneer Valley
Hampden County Health Coalition	Trustees of Reservations
Hampshire Regional YMCA	US Fish Wildlife Service (Conte Refuge)
Holyoke Food and Fitness Policy Council	Vida Urbana
Kestrel Land Trust	Westfield River Watershed Association
LiveWell Springfield	Westfield River Wild & Scenic Committee
MA DCR	Winding River Land Conservancy

B. MASSACHUSETTS ENVIRONMENTAL MITIGATION

Throughout the region, the Pioneer Valley Planning Commission is leading a wide array of policies, programs and actions geared towards preserving this region's high quality of life, a large portion of which is attributable to the health of the local environment. In addition to State and Federal protections given to the natural community, PVPC is working through several programs in the Commonwealth to preserve the region's environmental quality.

1. Regulatory Protection for Habitat and Wildlife in Massachusetts

Massachusetts has a long track record of passing progressive, forward thinking environmental policies. The protections given to Massachusetts' endangered species, wetlands, and rivers are among some of the nation's most effective rules and regulations. All construction and transportation projects that take place within PVPC's jurisdiction will comply with the regulations listed below. This will result in mitigation measures that are built into the project from the earliest phase.

a) National Heritage Endangered Species Program

The National Heritage Endangered Species Program (NHESP) protects crucial habitat for terrestrial and aquatic plants, vertebrates, and invertebrates. In Massachusetts, the Massachusetts Endangered Species Act (MESA; M.G.L. c 131A) serves as the regulatory framework for promoting the conservation of rare species habitat through the delineation of boundaries of rare and endangered species habitat in Massachusetts.

Massachusetts National Heritage Endangered Species Program staff evaluate projects when they fall within an area that has been identified as Priority Habitat for a rare animal or plant species. Estimated Habitats are a sub-set of the Priority Habitats based on the geographical extent of habitat of state-listed rare wetlands wildlife. This process is initiated when a proponent files documentation with NHESP detailing work proposed within a NHESP habitat area. Within 30 days, staff from NHESP respond, indicating whether or not the submission is complete; 60 days after that, NHESP determines whether or not a project, as proposed, will result in the "take" of a rare species. Should that be the case, NHESP might require a redesign of the project to avoid a "take." If a project cannot be amended to avoid a "take," the proponent can only be issued a Conservation and Management Permit. To qualify for a Conservation and Management Permit, a proponent must submit alternative assessments of temporary and permanent impacts to species, demonstrate that a proposed project will impact only an insignificant portion of the local population of a state-listed species, and design and implement a conservation management plan that provides for the long term net benefit of the affected state-listed species. This net-benefit mitigates adverse impacts on species through on or off-site permanent habitat protection, management or restoration of state-listed species habitat, or conservation research designed to benefit the species affected by a given project.

Priority and Estimated Habitat maps are used for determining whether or not a proposed project must be reviewed by the NHESP for MESA and Wetlands Protection Act (WPA) compliance. These maps can be accessed online through the following link: http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/regulatory-maps-priority-and-estimated-habitats/

For issues relating to transportation projects, there are some key exemptions granted: utility repairs within 10 feet of existing paved roads; maintenance, repair or replacement (but not widening of) existing paved roads; shoulder repair up to 4 feet; and paved parking areas, excluding actions that would change stormwater drainage.

b) Army Corps of Engineers Stream Crossing Standards

The Massachusetts River & Stream Crossing Standards seek to achieve, through varying degrees, three goals:

- Facilitate movement of fish and other aquatic organisms.

- Maintain continuity of the aquatic and benthic elements of river and stream ecosystems.
- Facilitate movement of wildlife species including those primarily associated with river and stream ecosystems and others that may utilize riparian areas as movement corridors.

The current version of the Massachusetts River & Stream Crossing Standards was developed by the Department of Fish and Game, Division of Ecological Restoration. The University of Massachusetts–Amherst coordinated an effort to create the original Standards in 2004. The standards are intended for new permanent crossings and, when possible, for replacing existing permanent crossings. A complete copy of the standards is located at: http://www.mass.gov/eea/docs/dfg/der/pdf/stream-crossings-handbook.pdf.

c) Design of Bridges and Culverts for Wildlife Passage at Freshwater Streams

This document, developed by MassDOT, requires the development of transportation facilities that fit the environmental resources setting, while maintaining safety and mobility for all users. This guidance document assists project designers and planners in complying with regulatory standards for structures to address wildlife passage standards. A complete copy of the document is located at: http://www.massdot.state.ma.us/highway/Departments/EnvironmentalServices/FormsPublicationsDocuments/StormwaterManagement.aspx

Additional resources include:

- MassDOT Project Development and Design Guide - https://www.massdot.state.ma.us/highway/DoingBusinessWithUs/ManualsPublicationsForms/ProjectDevelopmentDesignGuide.aspx
- Direct link to the Design Guide Wildlife Accommodation Chapter: http://www.massdot.state.ma.us/Portals/8/docs/designGuide/CH_14.pdf

2. Wetlands Protection Act (WPA)

The Massachusetts Wetlands Protection Act provides definitions of wetland resource areas and their 100 foot Buffer Zones, and gives jurisdiction to the Conservation Commission (Con Com) of each City or Town. If a project is located within a 100 foot Buffer Zone, or proposes work within a wetland, stream or intermittent stream, a proponent must go before the appropriate local Con Com. Depending on the impacts of the project the proponent may need to file either a Request for Determination of Applicability or a Notice of Intent (NOI). In turn the Con Com, and DEP would review the project and issue a Determination or an Order of Conditions. If the project requires a NOI and is also within NHESP Habitat, the NOI must be sent to NHESP for their review and comment.

There are Buffer Zone and other limited exemptions within the WPA, and as listed above there are exemptions to work within NHESP Habitat.

http://www.mass.gov/eea/agencies/massdep/water/regulations/310-cmr-10-00-wetlands-protection-act-regulations.html

3. The River Protection Act

Chapter 258 of the Acts of 1996 protects areas within 200 feet of rivers and perennial streams, beginning at the mean annual high water line on both sides of the river or stream. This 200 foot resource area known as Riverfront Area is a consideration the Wetlands Protection Act and is under jurisdiction of the Local Conservation Commissions and DEP.
http://www.mass.gov/eea/agencies/massdep/water/regulations/massachusetts-rivers-protection-act.html

Transportation infrastructure that was in existence, or in the process of being permitted, at the time of the passage of the Rivers Act are exempt, but new construction is not. For this reason, project proponents operating within PVPC's member communities must work with DEP to ensure that no encroachment on the 200 foot or 25 foot buffer occurs.

In addition to protecting this resource area, the Commonwealth has also issued Stormwater Management standards and guidelines to complement the Wetlands Protection Act and the Rivers Act. Project proponents must work with the local Conservation Commission and the Department of Environmental Protection to ensure that there is no net change in stormwater discharge between pre-development and post-development runoff conditions and to minimize pollutant loading in the affected water bodies. This process commences with the filing of a Notice of Intent; mitigating measures are issued as part of the Order of Conditions that a project proponent must comply with throughout and after the development process.

4. Massachusetts Environmental Policy Act (MEPA)

The Massachusetts Environmental Policy Act (MEPA) requires that state agencies study the environmental consequences of their actions and take all feasible measures to avoid, minimize, and mitigate damage to the environment. MEPA applies to projects that trigger predefined thresholds and that involve some state agency action. This includes projects that are proposed by a state, municipal, or non-profit agency, or are proposed by a private party and require a permit, financial assistance, or land transfer from a state agency.

The MEPA process requires public study, disclosure, and development of feasible mitigation for proposed projects. It does not make decisions on the environmental benefits of projects or determine if a project can or should receive a particular permit. Those decisions are left to the respective permitting agencies. MEPA review occurs before permitting agencies act to ensure that they know the environmental consequences of their actions. Table 17-2 summarizes transportation

improvement projects in the Pioneer Valley that have gone through the MEPA process since the endorsement of the 2012 RTP.

Table 17-2 – Pioneer Valley TIP Projects Reviewed by MEPA

Date	MEPA ID	Community	Project
December 2011	14823	Springfield	Allen Street and Bicentennial Highway Roadway Improvements
January 2012	14840	Amherst	Route 116 Reconstruction
February 2012	14857	Easthampton	Intersection Improvements at Pomeroy Meadow Road, Loudville Road, Glendale Road, and West Street
June 2012	14614	Amherst, Belchertown, Hadley, Northampton	Norwottuck Rail Trail Rehabilitation Project
October 2012	14452	Westfield	Little River Streambank Restoration Project
March 2013	15026	Springfield	PVTA Bus Maintenance and Operations Facility
May 2013	15050	Westfield	Elm Street Urban Renewal Plan
July 2013	15069	Amherst	University of Massachusetts Amherst 2012-2021 Capital Improvement Program
July 2013	15080	Statewide	All-Electronic Tolling System Implementation Project
February 2014	15157	Westfield	Lozierville and Meadows Old Town Road improvements

C. REGIONAL ENVIRONMENTAL MITIGATION EFFORTS

Regional planning agencies have no regulatory authority or other implementation powers in Massachusetts. Consequently, the Pioneer Valley Planning Commission has relied upon its connections with the region's municipalities, non-profit sector, academic institutions, businesses, and informed citizenry to incorporate environmental quality enhancements across a wide range of planning topic areas. This section details the ways in which PVPC has taken a leadership role in mitigating the environmental problems and challenges the region is facing.

The Pioneer Valley Planning Commission is a leader in promoting land use policies—in the form of zoning bylaws, general bylaws, amendments to subdivision regulations, and regional planning—that encourage development practices that are *both* environmentally sustainable and sensitive to the needs of the local business community. This has resulted in a series of programs and policies that seek to address environmental issues on a regional scale. The mitigation measures PVPC has successfully developed and implemented are listed below.

1. Valley Vision 4

This section summarizes relevant background, objectives and activities of Valley Vision 4 and ongoing regional land use planning processes.

Valley Vision was originally released in 1999. It was updated in 2007 and 2011 with funds from the Commonwealth's Executive Office of Housing and Economic Development. The most recent update, Valley Vision 4, was released in 2014, with work supported by a HUD Sustainable Communities Initiative regional planning grant. These updates to Valley Vision have helped it achieve regional consistency with the Commonwealth's Sustainability Principles, as well as state programs and planning best practices.

Valley Vision and its updates present detailed strategies to promote compact, mixed-use growth in and around urban, town, and village centers, while promoting protection of open space and natural resources outside developed centers. Through an intergovernmental compact, PVPC has continued to work with municipalities in the region to meet the requirements of the compact and help make local plans and zoning regulations consistent with the recommendations of the regional plan.

Land use planning and transportation planning are closely related and interdependent activities. Transportation has a direct effect on land development patterns; likewise, land use decisions about housing and commercial development exert influence on mobility options and travel habits. Unplanned decisions about land use and transportation can result in the inefficient use of energy and resources, stunted economic growth and environmental degradation.

The main purposes of Valley Vision 4 are to:

- Update and expand the strategies for managing the region's growth and development to include innovative new approaches such as transit-oriented development.
- Promote integration and consistency between the region's land use and transportation plans.
- Identify specific actions that will advance equity and address environmental justice.
- Compare the recommendations of Valley Vision with land use plan strategies of the neighboring Capital Regional Council of Governments to promote bi-state consistency.

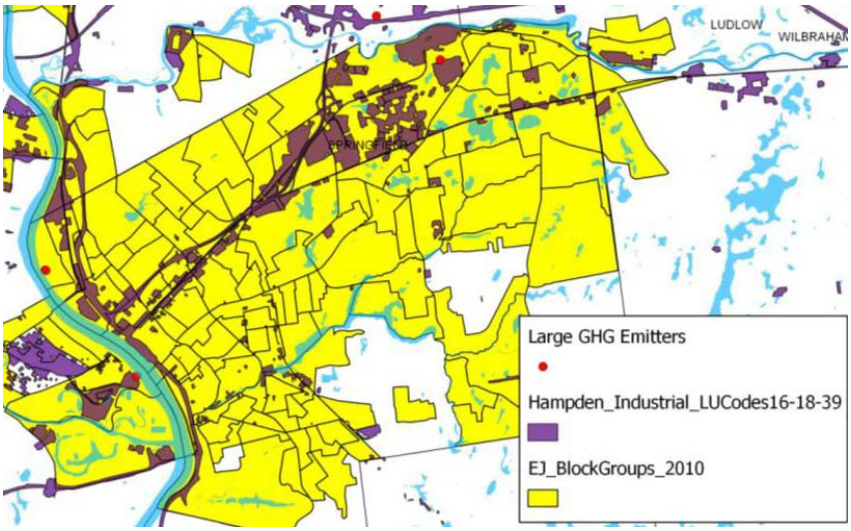
Valley Vision 4 compares the Pioneer Valley Regional Transportation Plan and the regional land use planning process and finds that these two plans display a relatively high degree of consistency and share many policy goals. Notable among these are support of the Commonwealth's GreenDOT program; environmental protection measures, especially those to mitigate stormwater runoff impacts; and focusing growth in areas with adequate infrastructure to support it.

A key regional land use trend identified by Valley Vision 4 is the continued expansion of suburban and rural residential development with relatively little or no population growth (i.e., “sprawl without growth”). Valley Vision 4 presents analysis and opportunities to mitigate this type of development that are associated with proposed increases in transit and passenger rail services along the I-91 Knowledge Corridor, particularly smart growth strategies and actions that will encourage transit-oriented development (TOD) in suitable locations. The plan also considers ways to maintain these more compact, traditional neighborhood density (TND) areas for the long term with a better, more regionally representative mix of incomes among residents.

A central theme of Valley Vision 4 is that of regional equity. The plan finds that income inequality continues to exist throughout the region, as it does throughout the nation. Poverty is concentrated in the region’s urban areas; several neighborhoods of Holyoke (27%) Springfield (21.8%) have the largest proportion of families below federal poverty thresholds, followed by exurban and rural communities of Hatfield (16.6%), Cummington and Ware (both 12.8%).

A regional spatial analysis of industrial land uses and environmental justice neighborhoods performed for Valley Vision 4 found that 6.4% of census block groups with proportions of residents that exceed the regional averages for either low-income or people of color or both (the definition of “environmental justice” in this region) contain land that is classified industrial (MassGIS land use codes 16 manufacturing, 18 industrial parks and 39 junkyards), versus 1.8% for the region as a whole. This is more than 3.5 times the regional average, and is of significant concern because of the documented adverse health impacts for people who live in and near industrial areas. Environmental justice areas constitute 9.3% of the region’s total land area. This phenomenon is especially evident in Springfield, as seen in Figure 17-7.

Figure 17-7 – Industrial Land Use and Environmental Justice Areas in Springfield



Source: PVPC EJ layers 2012, MassGIS 2005 Land Use Codes

a) Objectives of Valley Vision Regional Land Use Planning Process

- Achieve a coordinated bi-state land use vision and smart growth plan for the Knowledge Corridor and determine strategies for multi-jurisdictional land use planning efforts;
- Provide better coordination between the Regional Land Use Plan and the Regional Transportation Plan, with a particular focus on actions to encourage transit oriented development;
- Work to advance equity and address environmental justice in the implementation of the Regional Land Use plan and locally through land use and zoning strategies;
- Ensure consistency between the regional land use plan, local plans, and zoning regulations through implementation of smart growth strategies at the municipal level.

b) Major Activities

- Continue to identify areas of intersection between “Valley Vision” the Regional Land Use Plan, “Our Next Future” the Regional Sustainability Plan and the Regional Transportation Plan and develop processes to better integrate land use and transportation priorities to encourage high density, transit oriented development.
- Continue to work with the Hartford Capital Region Council of Governments to review land use recommendations between the two regional land use plans, identify potential land use conflicts for communities that share a boundary between the two states, and develop recommendations for implementation.
- Continue to develop innovative smart growth strategies to promote higher density, transit oriented development at locations identified along the Knowledge Corridor. The Valley Development Council, which is the advisory

body to the Valley Vision land use planning process, ranked the following as the region's top ten priority smart growth strategies in Valley Vision 4:

  - Mixed Use Village Districts
  - Bike and Pedestrian Features
  - Traditional Neighborhood Development
  - Adaptive Reuse and Infill Development
  - Cluster or Open Space Residential Development
  - Low Impact Development
  - Community Preservation Act
  - Planning Board Assistance Program
  - Brownfields Redevelopment Projects
  - Tax Incentives and Business Improvement Districts

- Continue to use and promote the web-based, interactive Valley Vision Toolbox as an outreach and education tool, develop new fact sheets, model bylaws, and identify case studies on identified innovative smart growth strategies that encourage higher density, transit oriented development and advance equity and environmental justice. The smart growth strategies identified in Valley Vision 4 are:
  - Create traditional neighborhood developments
  - Promote mixed use
  - Revitalize urban core area and downtowns
  - Develop incentives for open space development
  - Improve housing opportunities and neighborhood quality
  - Redevelop brownfields
  - Preserve farmland and support farm businesses
  - Establish greenbelts and blueways for open space protection
  - Build an intermodal pedestrian, bicycle and transit network
  - Protect environmental quality and prevent pollution
  - Control commercial strip development
  - Improve infrastructure in urban areas and limit infrastructure expansions
  - Encourage sustainable design
  - Overhaul antiquated state statues and local zoning laws
  - Promote regional solutions to smart growth problems
  - Assist small towns in addressing unique growth problems
- Provide local technical assistance to communities to assist in the adoption and implementation of zoning bylaws to promote higher density, transit oriented development and advance equity and environmental justice.
- Continue to engage and expand membership in regional civic engagement process resulting from Sustainable Knowledge Corridor 2011-2013. Continue to identify specific actions that will advance equity and address environmental justice through the Civic Engagement process and meetings with targeted existing environmental justice groups in the region.

- Increase membership of the Valley Development Council, the implementation committee of the Valley Vision plan, to include representatives from groups that represent low income / traditionally marginalized populations.

c) Products/Outcomes

- Ongoing meetings with existing community based organizations with a focus on serving environmental justice residents to better understand and develop solutions to advance social and income equity in the region;
- Continue to recruit membership of the Valley Development Council to include representatives from groups that represent low income and traditionally marginalized populations.

2. Pioneer Valley Green Infrastructure Plan

The Pioneer Valley Green Infrastructure Plan aims to change the way stormwater is handled by promoting useful strategies to address stormwater where it falls (such as through infiltration, rain gardens, or cisterns). These strategies are applicable to road projects. The Green Infrastructure Plan is the basis for much of the outreach PVPC is conducting to communities regulated by existing and a forthcoming Municipal Separate Storm Sewer System (MS4) permit as well as those under EPA Administrative Orders to remediate combined sewer overflow systems. The Plan advocates for the integration of green infrastructure into the design of already-planned projects, such as road reconstruction, and identifies projects around the region with the potential to integrate green infrastructure based on a set of criteria. As part of implementing the Green Infrastructure Plan, PVPC developed new scoring criteria for TIP projects that included stormwater management through green infrastructure. PVPC also provides technical assistance to communities looking to incorporate green infrastructure into their local policies, such as incentives in subdivision and zoning regulations.

In addition, since 2006 PVPC has also facilitated the Connecticut River Stormwater Committee, a coalition of MS4 regulated communities that meet bi-monthly to develop regional approaches to NPDES MS4 education and outreach requirements.

3. Westfield River Wild and Scenic River and Advisory Committee

In 1993, the Westfield River, located in the western Hampshire and Hampden Counties, received Federal Wild and Scenic River Designation for its remarkable and unique geological features, fish populations, scenic vistas, and cultural resources. When a project either receives federal funding or requires a permit from a federal agency *and* is located within a quarter mile of the mean high water mark of sections of the Wild and Scenic Sections of the Westfield River, the proponent must obtain comments and conditions from the National Park Service (NPS). The NPS is one of several federal and state agencies that sign off during the review process of a proposed project's plans. This process is designed to ensure that the river's remarkable wild and scenic qualities are considered during the planning stages of a

project. The NPS is the designated federal administering agency for the Westfield River.

In addition to the federal protections granted to the Westfield River, a regional committee promotes policies that preserve the Westfield River. The Westfield River Wild and Scenic Advisory Committee is composed of appointed representatives from Huntington, Cummington, Chester, Chesterfield, Middlefield, Worthington, Savoy, Becket, Washington, Windsor, the Pioneer Valley Planning Commission, the Trustees of Reservations, the Commonwealth of Massachusetts, National Park Service, and the Berkshire Regional Planning Commission.

All six communities with Westfield River Wild and Scenic designations in PVPC's region have adopted some version of the Westfield River Wild and Scenic Bylaw. This bylaw restricts industrial and commercial uses within 100 feet of the water line (150 in Huntington) and regulates land use types to prevent pollutants from entering the river. As PVPC helps the member communities implement these bylaws, surface water contamination will be mitigated by further increasing the scenic and physical protections granted to the Westfield River.

4. Regulatory Framework for Promoting Ecologically Sound Landscapes

Throughout the region, PVPC has led efforts to reform the outdated 1950s era zoning regulations of many of the region's cities and towns. This promotes development that is more in keeping with the historical character of New England and continues to occur through Local Technical Assistance and District Local Technical Assistance funding. PVPC has been a leader in the passage and implementation of cluster development bylaws, mixed use bylaws, low impact development standards, transfer of development rights programs, steep slope and open space overlay districts, as well as revising subdivision regulations. In concert, these policies support a regional response to promoting development that preserves open space, encourages sustainability, and is environmentally friendly.

5. Regional Planning for Open Space

a) Farmland

PVPC has worked with stakeholder groups, non-profits, municipalities and private citizens to develop long range visions for preserving the Pioneer Valley's most important environmental assets. In 2001, PVPC released *Growing Together: a Strategic Plan for Integrating Agriculture and Growth Management in the Connecticut River Valley of Massachusetts*. This document contained key actions steps for using economic development, zoning and public awareness to preserve the region's farmland.

PVPC has assisted four communities to adopt Transfer of Development Rights bylaws or ordinances: Hadley, Hatfield, Easthampton, and Westfield. These bylaws help to mitigate the impacts of development on farmland by using private

development funds to purchase development rights on farmland in return for high density development projects elsewhere in these communities. Hadley has also received contributions to its Route 9 mitigation fund from commercial developers along the Route 9 corridor; these funds have been used to preserve farmland through Agricultural Preservation Restrictions (APRs).

b) Trails, Greenways, and Habitat Corridors

In 2011, PVPC completed a regional trails map to encourage the use of alternative (non-automobile) modes of transportation by providing the public with a high quality map of bicycle, walking, and hiking trails across the Pioneer Valley region. These maps also contain a narrative to encourage the public to use healthy transportation, with descriptions and photographs of the regional trails. The map is available at http://www.pvpc.org/content/pioneer-valley-trails-hiking-and-biking-guide. The regional trails map is currently undergoing an update.

PVPC is also working with committees associated with the Connecticut River Scenic Byway, Routes 112 and 116 scenic byways, and Jacobs Ladder Scenic Byway to develop trail networks associated with the byways into surrounding river valley and upland areas. Trails associated with the Connecticut River Scenic Byway are undergoing the implementation phase as funding becomes available. Potential trails associated with the hilltown scenic byways are currently undergoing identification, and will utilize and link existing trails and old roads as much as possible.

PVPC has also prepared a regional map and plan for preserving the Pioneer Valley's greenways focus areas. This plan identified the Holyoke Range, the Metacomet-Manadnock-Metabessett (MMM) Trail, the Upper Westfield River, the Manhan River, the Upper Connecticut River Valley, the Scantic River and Mount Hitchcock as target areas. These areas are also included in the 2014 Pioneer Valley Priority Protection Area maps, which identify detailed target areas for open space protection town-by-town and on a regional scale based on habitat characteristics, scenic/historic values, recreational values, and the potential to link habitats, among others.

To accomplish these goals and preserve the region's environmental legacy, PVPC has completed the following tasks:

- Completed and distributed the Pioneer Valley Trails Map, which is currently undergoing an update
- Worked with the National Park Service on a feasibility study for designating the MMM Trail as a National Scenic Trail.
- Crafted new regulatory protections for key sections of the Westfield River
- Promoted the passage of local funding mechanisms (the Massachusetts Community Preservation Act, primarily) to secure local funding for land preservation efforts

- Completed design of Connecticut River Scenic Byway recreational trails, which will link the Byway with the Connecticut River and scenic upland viewpoints in Hadley and South Hadley
- Identified trails and trail linkages to create trail network associated with Routes 112 and 116 and Jacobs Ladder scenic byways.

6. Water Quality Mitigation

PVPC is a key collaborator and project leader on several water quality efforts within the region. The regional nature of water quality issues requires PVPC to straddle political boundaries and form coalitions that are capable of working towards the long term goal of high quality surface and groundwater supplies throughout the region. These projects and programs (listed below) detail the extent of PVPC's mitigation efforts.

7. Source Water Protection Plans

PVPC has written and drafted Source Water Protection Plans for several member communities. A Source Water Protection Plan is a guidance document for the protection of municipal water supplies, and it examines all the factors that affect the watershed of a water supply including existing land uses and potential land uses allowed under current zoning, protected open space, public access and recreation, wildlife, and any other concerns of the community related in reference to the water supply. These plans make recommendations on the best practices for addressing any problems identified during the course of the assessment and protecting the quality and quantity of the water supply. The towns of Cummington, Easthampton, Hatfield, Huntington, Russell, and the Granville Reservoir have worked with PVPC to develop action plans for preserving their water supplies.

8. Combined Sewer Overflow Clean-Up

In a 1988 engineering study completed for the Massachusetts Division of Water Pollution Control, one hundred thirty four combined sewer overflows (CSOs) were identified in the seven communities located in the southern reach of the Connecticut River below the Holyoke Dam. The Lower Connecticut River Phase II Combined Sewer Overflow Study (Metcalf & Eddy, Inc.) identified CSO locations, water quality issues associated with CSOs, and steps and costs for addressing the problem in Agawam, Chicopee, Holyoke, Ludlow, South Hadley, Springfield, and West Springfield. The study determined that ninety percent of existing CSO discharges needed to be eliminated within the seven communities to achieve the goal of attaining Class B fishable/swimmable goal, at a cost of $377 million. As of 2015, Agawam, South Hadley, and West Springfield had eliminated all of their CSOs. As of 2013, the total number of CSOs was reduced by 52% and the total volume of CSO discharge was reduced by 60%. Dry weather overflows were reduced from thirty one in 1988 to zero in 2005.

Table 17-3 – CSO Historic Data

	Combined Sewer Overflows					Dry Weather Overflows		
	1988	2001	2005	2009	2012	1988	2001	2005
Agawam	14	0	0	0	0	4	0	0
Chicopee	39	33	30	29	28	19	2	0
Holyoke	20	15	14	14	12	1	1	0
Ludlow	10	1	1	1	0	0	0	0
South Hadley	11	3	3	0	0	2	0	0
Springfield	32	25	24	23	24	5	0	0
West Springfield	8	1	0	0	0	0	0	0

Area communities are continuing to find funding and work to control the CSO problem using a number of infrastructural solutions, including:

- Long term control plans - Chicopee, Holyoke, and Springfield have developed plans to identify and prioritize appropriate abatement measures.
- Sewer separation - Separate storm drain and sewer lines can be installed to separate combined flows in the existing system and to allow for more capacity in the collection system.
- In-line storage - Holding tanks or enlarged storage pipes can be installed to hold combined flows until a storm has passed and the flows in the system have peaked. Those flows would then be returned to sewers instead of the river.
- Increased treatment capacity - Pump stations and wastewater treatment facilities can be upgraded to increase their capacity to handle additional storm flow, thereby decreasing flows to the river.
- Reduced infiltration and inflow - Sewer pipes can be improved to reduce inflow of groundwater and to separate streams from combined systems.
- Reducing stormwater at the source - Directing stormwater from impervious surfaces such as rooftops, driveways, and parking lots towards rain gardens, rain barrels, and other LID or infiltration systems.

9. Barnes Aquifer Protection Advisory Committee

The Barnes Aquifer is a sole-source aquifer west of the Connecticut River that serves as the municipal drinking water supply for four growing communities. The natural interdependence that results from sharing and directly impacting this regionally significant water supply gave rise to a collaborative effort, facilitated by PVPC, which is designed to protect and safeguard the Barnes Aquifer.

The Barnes Aquifer Protection Advisory Committee (BAPAC) is a coalition of four communities - Westfield, Holyoke, Easthampton, and Southampton - and the PVPC, which work together to protect the Barnes Aquifer, an important regional groundwater resource. The chief elected official of each member community appoints three representatives to the committee. These municipal members

currently represent water, planning, conservation, and community development departments. PVPC designates one representative for the committee.

BAPAC educates and advises local governments, citizen groups, and small businesses about groundwater protection and effects on the aquifer. The committee reviews Developments of Regional Impact (DRI) within the aquifer and provides comments to approval authorities. DRI reviews evaluate both the proposed use and its potential for aquifer contamination and provisions within the site plan for treatment and infiltration of clean stormwater. DRI comments evaluate the proposed project's level of compliance with the local aquifer protection zoning bylaw, and it recommends Best Management Practices for aquifer protection that may have been overlooked by the proponent.

BAPAC also works to coordinate land protection efforts for opportunities that present significant protection in the aquifer, which is increasingly important as development in the coalition communities intensifies.

10. Pioneer Valley Climate Action and Clean Energy Plan

Completed in March 2014, the purpose of the Climate Action and Clean Energy Plan is to promote greater understanding of the causes and consequences of climate change in the Pioneer Valley. The plan is intended to help the people of the region respond to climate-related changes in their communities by creating workable strategies for local and regional actions to reduce greenhouse gas emissions, including greater use and production of clean and renewable energy, and protect their communities from climate-related damage. This plan identifies the amounts and sources of the Pioneer Valley's greenhouse gas emissions; offers regional targets for GHG reduction; and recommends strategies for both mitigating climate change impacts and actions to adapt our communities and infrastructure to the climate-related changes that are occurring and will continue to take place. The complete plan is located at:
http://www.pvpc.org/sites/default/files/PVPC%20Climate%20Action%20Clean%20Energy%20Plan%20FINAL%2002-18-14.pdf

11. Habitat Continuity Partnership – Critical Linkages

The design and location of a transportation improvement project can impact people, wildlife, water, and habitat. Inadequate river crossings can cause washouts of the road during flood conditions, as well as impede the movement of wildlife including brook trout, salamanders, turtles, and mink. Well-designed crossings can provide safe passage for water and wildlife including large mammals, keeping all safely off the road. The U.S. Army Corps of Engineers website provides guidance and standards for complying with the stream crossing requirements that should result in enhanced aquatic passage and stream continuity. In an effort to determine where transportation projects can have the biggest positive or negative impact on

movement of wildlife and connectivity of habitat, the University of Massachusetts, The Nature Conservancy, and many other partners have developed maps and data that may be useful for transportation planners. Critical Linkages I looks at local connectivity and opportunities to improve it. Critical Linkages II takes that statewide to look at regional connectivity and opportunities. This information is available at the following website: http://www.umasscaps.org

Critical Linkages I data, scores road-stream crossings in terms of how well they currently allow water and fish and aquatic organisms to pass, and how much improvement could be realized if they were upgraded. Figure 17-8 identifies the top road stream crossings that are most important to bring up to (or beyond) the minimum stream crossing standards based on Critical Linkages I.

Figure 17-8 – Prioritization of Road Stream Crossings in the Pioneer Valley

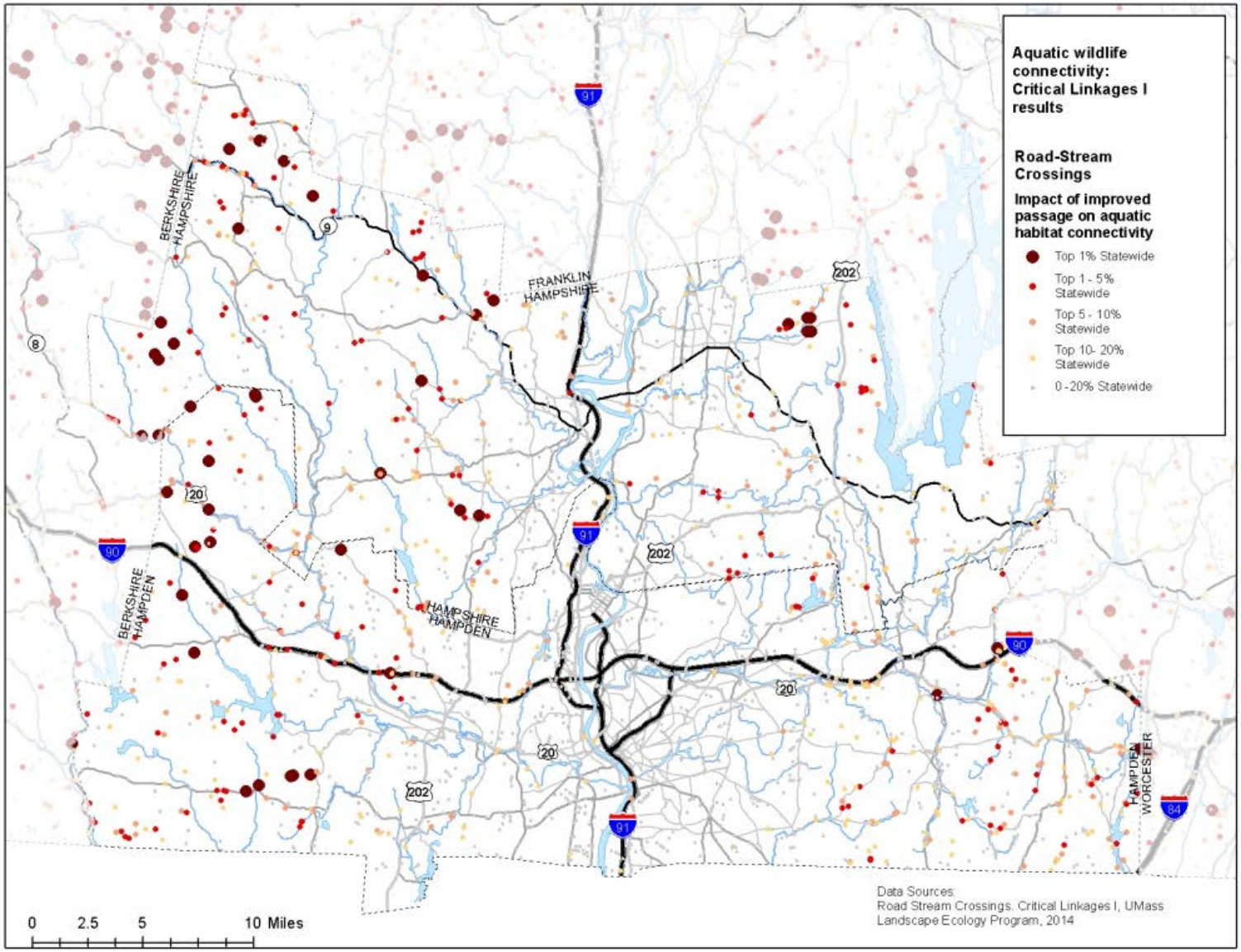


Figure 17-6 shows the potential impact of transportation improvement projects on the Critical Linkages II map for the Pioneer Valley. This data identifies four key areas:

- Nodes, which are large areas of habitat 500 acres or more in size.
- Road linkages, which are 300 meter segments of roads where accommodations for wildlife would have a low to high potential to improve movement of wildlife across the entire network of connected habitat.
- Links, shown by lines connecting the center of one node to another node (the lines are not actual places on the ground, but rather represent the connection between two habitats), where breaking the connection between habitats by developing the area in between or adding or expanding a road between nodes has a low to high impact on the entire network of connected habitat.
- EEA Symbols so data and maps can be compatible for grant applications and other programs.

Regional and town planners can use the Critical Linkages data sets to help decide whether habitat connectivity is an important consideration in a road improvement project, and make the best use of scarce financial resources, by answering the following questions:

- Does the road bisect important habitat as defined by BioMap2?
- Does the road represent a significant barrier as defined by Critical Linkages?
- Does current road/stream crossing represent a significant barrier as defined by the stream continuity data?

If the answer to any of these questions is yes, towns or other project proponents can get advice, permitting assistance, and potential funding assistance from a range of groups working to re-connect stretches of river and other habitat. In many cases, transportation improvements that benefit wildlife also benefit people by reducing road washouts and reducing animal-vehicle collisions.

12. Stream Continuity

The North Atlantic Aquatic Connectivity Collaborative (NAACC) has developed a protocol for the volunteer assessment of stream crossings. This data base is located at http://streamcontinuity.org/ and includes data forms, instructions, and training materials. Since 2012, many road-stream crossings have been surveyed for PVPC region and now include assessments of what types of wildlife, if any, can pass through each road-stream crossing. This website is a useful resource to provide data on the economic benefits of right-sized stream crossings as well as stream crossing design examples. Before and after photographs of stream crossings re-designed to connect habitat are shown in Figure 17-9.

Figure 17-9 – Photos of Stream Crossings Re-designed to Connect Habitat

McNearney Road crossing of Shaker Brook, Becket, before and after. (Credit: Carrie Banks)

Dingle Road crossing of Bronson Brook, Worthington, before and after. (Credit: Carrie Banks)

D. ENVIRONMENTAL REVIEW OF PROJECTS INCLUDED IN THE RTP

All of the projects included as part of the Regional Transportation Plan for the Pioneer Valley Metropolitan Planning Organization were reviewed to assess their potential environmental impacts. This preliminary analysis was conducted using overlays of the following resource data:

- Environmental Justice Minority and Poverty Block Groups
- 100 and 500 Year Flood Zones
- Valley Vision Priority Development and Priority Protection Areas
- Regional Wetlands
- Pioneer Valley Bike Linkages Map
- Critical Linkages II Habitat Connectivity

The projects identified in Chapter 13 were overlaid on the above referenced data to provide a review of their potential environmental impacts. Table 17-4 summarizes the potential impacts of each project. Each column identifies projects included as part of the Draft RTP that have the potential to add to the existing highway system through the expansion of existing right of way or other associated project impacts during construction. Transportation improvement projects that are identified as having "Potential Environmental Impacts" do not necessarily have negative impacts on the environment, but are identified to increase awareness of environmental concerns during the design and construction phases.

Projects that were identified to impact "Valley Vision" areas could have potential impacts on Priority Protection Areas identified in Valley Vision 4. Areas with "Critical Linkages" impacts were projects in proximity to areas that could sever a critical link between existing habitat nodes. These projects deserve careful thought as to their potential impact as they may require additional enhancements to ensure that connectivity is maintained.

Environmental Justice areas show the regionally identified Minority and Poverty Block Groups. Transportation improvements in these areas must avoid, minimize, or mitigate any adverse human health and environmental impacts. Projects identified as having potential "Wetlands" impacts lie in close proximity to existing wetlands or aquifer protection areas. Flood Plains projects abut or are located in a designated 100 Year or 500 Year Flood Plain.

Table 17-4 – Potential Environmental Impacts of RTP Projects

Map Key	Town	Description	Total Cost	Valley Vision	Critical Linkages	Environmental Justice	Wetlands	Flood Plains
1	CHICOPEE	602912 - CHICOPEE RIVER RIVERWALK MULTI-USE PATH CONSTRUCTION	$2,273,911	✓		✓		
2	NORTHAMPTON	604597 - I-91 INTERCHANGE 19 IMPROVEMENTS	$6,720,000	✓		✓	✓	✓
3	HOLYOKE	606903 - IMPROVEMENTS TO LOWER WESTFIELD ROAD	$1,155,000	✓			✓	
4	NORTHAMPTON	607502 - INTERSECTION IMPROVEMENTS	$1,829,128			✓		
5	SPRINGFIELD	N/A - UNION STATION REDEVELOPMENT	$1,066,843			✓		
6	CUMMINGTON	606417 - RETAINING WALL REPLACEMENT ON ROUTE 9	$1,500,000					
7	HADLEY	604035 - SIGNAL & INTERSECTION IMPROVEMENTS AT ROUTE 9	$3,038,060			✓		✓
8	NORTHAMPTON	605066 - INTERSECTION IMPROVEMENTS AT ROUTE 5	$1,592,248			✓		
9	SPRINGFIELD	605385 - SIGNAL & INTERSECTION IMPROVEMENTS	$1,976,000	✓		✓	✓	✓
10	NORTHAMPTON	606555 - ROUNDABOUT CONSTRUCTION AT INTERSECTION ROUTES 5/10	$2,874,896			✓		
11	AGAWAM	604203 - INTERSECTION IMPROVEMENTS AT ROUTE 187 & ROUTE 57	$1,620,000	✓		✓	✓	
12	AMHERST	607528 - BRIDGE REPLACEMENT	$2,644,040	✓		✓	✓	✓
13	CHESTERFIELD	607549 - IRELAND STREET OVER WEST BRANCH OF WESTFIELD RIVER	$3,649,520	✓	✓		✓	✓
14	MONSON/PALMER	606663 - RESURFACING & RELATED WORK ON ROUTE 32	$1,800,000	✓		✓		✓
16	SPRINGFIELD	607731 - VIADUCT DECK REPLACEMENT OF S-24-061 ON I-91	$230,000,000			✓		✓
17	WESTFIELD	604968 - COLUMBIA GREENWAY RAIL TRAIL CONSTRUCTION	$2,575,000					
19	BERNARDSTON	607182 - INTERSTATE MAINTENANCE & RELATED WORK ON ROUTE I-91	$2,796,543					
20	AGAWAM	600513 - RECONSTRUCTION OF ROUTE 187	$1,682,640	✓		✓		
21	SOUTHAMPTON	604738 - RECONSTRUCTION OF GLENDALE ROAD	$2,570,400	✓			✓	✓
22	CHICOPEE	604434 - RECONSTRUCTION & RELATED WORK ON FULLER ROAD	$6,955,200	✓			✓	✓
23	LONGMEADOW	607430 - RESURFACING & RELATED WORK ON LONGMEADOW STREET	$2,478,941	✓			✓	✓
24	CHICOPEE/HOLYOKE	607560 - INTERSTATE MAINENANCE AND RELATED WORK ON I-391	$10,911,130	✓		✓	✓	
25	WESTFIELD	604446 - RECONSTRUCTION OF ROUTE 187	$5,724,561	✓		✓	✓	✓
27	SOUTHAMPTON	607453 - SOUTHAMPTON SAFE ROUTES TO SCHOOL	$800,000	✓				
28	PELHAM	607207 - RECONSTRUCTION OF AMHERST ROAD	$4,200,000	✓	✓		✓	✓
29	SPRINGFIELD/WILBRAHAM	605213 - RECONSTRUCTION OF BOSTON ROAD	$1,903,482			✓		
30	SPRINGFIELD	605222 - NORTH END & BRIGHTWOOD INFRASTRUCTURE IMPROVEMENTS	$4,402,320					
31	WEST SPRINGFIELD	603730 - CONNECTICUT RIVERWALK & BIKEWAY EXTENSION	$1,640,736	✓		✓	✓	✓
32	HOLYOKE	606450 - TRAFFIC SIGNAL UPGRADES	$1,564,867			✓		
33	SOUTHWICK	603477 - INTERSECTION IMPROVEMENTS	$3,617,872	✓				✓
34	WESTFIELD	603783 - COLUMBIA GREENWAY RAIL TRAIL CONSTRUCTION	$300,000	✓		✓		✓
35	CHICOPEE	602912 - CHICOPEE RIVER RIVERWALK CONSTRUCTION	$2,273,911	✓			✓	✓
37	LUDLOW	605011 - RECONSTRUCTION OF CENTER STREET	$4,918,051	✓				✓
39	NORTHAMPTON	180525 - RECONSTRUCTION OF DAMON ROAD	$2,273,050	✓		✓		✓
40	CHICOPEE	602911 - CONNECTICUT RIVERWALK CONSTRUCTION	$3,261,288	✓		✓	✓	✓
41	SOUTHWICK	604033 - RECONSTRUCTION CONGAMOND ROAD	$5,512,964	✓			✓	✓
42	HADLEY	605032 - RECONSTRUCTION ON ROUTE 9	$4,782,361	✓			✓	
43	LONGMEADOW	606445 - RESURFACING & RELATED WORK ON CONVERSE STREET	$1,712,621	✓			✓	
44	GRANBY/SOUTH HADLEY	607474 - RESURFACING AND RELATED WORK ON ROUTE 202	$1,712,794	✓			✓	✓
45	HATFIELD/WHATELY	606577 - INTERSTATE MAINTENANCE & RELATED WORK ON I-91	$11,597,040	✓		✓	✓	✓
46	WESTFIELD	604445 - ROUTE 187, REPLACEMENT OF W-25-002, SHERMAN'S MILL BRIDGE	$6,926,210	✓			✓	✓
47	WILBRAHAM	607869 - RECONSTRUCTION OF BOSTON ROAD (ROUTE 20)	$1,292,428	✓		✓	✓	✓
48	AGAWAM	607626 - RESURFACING & RELATED WORK ON ROUTE 159	$1,450,000	✓		✓		✓

Table 17-4 – Potential Environmental Impacts of RTP Projects (cont.)

Map Key	Town	Description	Total Cost	Valley Vision	Critical Linkages	Environmental Justice	Wetlands	Flood Plains
49	HOLYOKE	607256 - RESURFACING ON HERITAGE STREET, FRONT STREET & DWIGHT STREET	$2,874,096	✓		✓	✓	✓
50	WESTFIELD	607773 - IMPROVEMENTS ON ROUTE 20, COURT STEET & WESTERN AVENUE	$5,087,934					
51	BELCHERTOWN	604692 - RECONSTRUCTION ON SOUTH MAIN STREET & N WASHINGTON STREET	$3,740,430	✓		✓	✓	
52	AGAWAM	607316 - RECONSTRUCTION OF ROUTE 187	$5,562,610	✓		✓		
53	HOLLAND	604962 - RESURFACING & RELATED WORK ON BRIMFIELD ROAD	$1,500,000				✓	✓
54	SOUTHAMPTON	604653 - REHABILITATION OF EAST STREET	$5,022,200	✓				✓
55	GOSHEN	602888 - ROUTE 9 RECONSTRUCTION	$7,500,000	✓			✓	
56	GOSHEN	605150 - WEST ST RECLAMATION	$2,800,000	✓			✓	✓
57	NORTHAMPTON	607893 - INTERSECTION IMPROVEMENTS	$1,400,000	✓		✓		
58	HOLYOKE	606156 - RECONSTRUCTION OF I-91 INTERCHANGE 17 & ROUTE 141	$2,600,000	✓			✓	✓
59	HOLYOKE /WEST SPRINGFIELD	604209 - REHABILITATION OF ROUTE 5 (RIVERDALE ROAD)	$2,880,000	✓		✓	✓	✓
60	AMHERST	608084 - IMPROVEMENTS AND RELATED WORK ON ROUTE 9 AND 116	$1,255,660	✓		✓		
61	WARE	607987 - INTERSECTION IMPROVEMENTS	$1,950,000			✓		✓
62	GRANBY	606895 - ROUTE 202 INTERSECTION IMPROVEMENTS 2 LOCATIONS	$500,000	✓			✓	✓
63	NORTHAMPTON	605048 - IMPROVEMENTS ON ROUTE 5 (MOUNT TOM ROAD)	$1,200,112	✓		✓	✓	✓
64	HADLEY	605881 - RECONSTRUCTION ON ROUTE 9	$6,900,000	✓		✓	✓	✓
65	CHICOPEE	607736 - SIGNAL & INTERSECTION IMPROVEMENTS AT 11 INTERSECTIONS (RT 33)	$4,016,980	✓		✓	✓	
66	WESTFIELD	603449 - ROUTE 20 ACCESS IMPROVEMENTS ON COURT STREET & WESTERN AVE	$2,702,868					
67	WILBRAHAM	607990 - RESURFACING & RELATED WORK ON ROUTE 20	$5,699,340	✓			✓	✓
68	AGAWAM	607317 - ROUTE 187 RECONSTRUCTION	$7,589,668	✓				
69	SOUTHWICK	606141 - RECONSTRUCTION OF FEEDING HILLS ROAD (ROUTE 57)	$4,080,000	✓				✓
70	SOUTH HADLEY	607735 - SIGNAL & INTERSECTION IMPROVEMENTS AT ROUTE 202	$500,000					
71	WORTHINGTON	606912 - ROUTE 143 RECONSTRUCTION AND RELATED WORK	$12,500,000	✓	✓		✓	✓
72	NORTHAMPTON	607501 - INTERSECTION IMPROVEMENTS @ N ELM ST, ELM ST & WOODLAWN AVE	$1,498,520					
73	HADLEY	602796 - RECONSTRUCTION OF SOUTH MAPLE STREET	$5,000,000	✓			✓	✓
74	BELCHERTOWN /GRANBY	604819 - RESURFACING & RELATED WORK ON ROUTE 202	$4,687,500	✓		✓	✓	✓
75	AMHERST / PELHAM	606230 - RESURFACING & RELATED WORK ON ROUTE 9	$1,800,000	✓		✓	✓	✓
76	BRIMFIELD / STURBRIDGE	608022 - RESURFACING AND RELATED WORK ON ROUTE 20	$3,500,000	✓			✓	✓
77	HADLEY	608089 - BIKE AND PED IMPROVEMENTS @ ROUTES 9, 116 & WESTGATE CTR DR	$1,544,720	✓			✓	
78	PALMER	603873 - RESURFACING & RELATED WORK ON ROUTE 20	$1,200,000	✓		✓		✓
79	WEST SPRINGFIELD	604746 - BRIDGE REPLACEMENT, W-21-006, CSX RAILROAD OVER UNION STREET	$13,616,254			✓		
80	SOUTH HADLEY	606452 - RESURFACING & RELATED WORK ON ROUTE 116 (AMHERST ROAD)	$1,630,070	✓			✓	✓
81	SOUTHWICK	604153 - RESURFACING & RELATED WORK ON ROUTE 10/202 (COLLEGE HIGHWAY)	$2,600,000	✓			✓	✓
82	PALMER	601504 - RECONSTRUCTION OF ROUTE 32	$6,134,080	✓			✓	✓
83	SOUTHWICK	604155 - RESURFACING & RELATED WORK ON ROUTE 10/202, COLLEGE HIGHWAY	$1,440,000	✓		✓		✓
84	HADLEY	606547 - PEDESTRIAN SIGNAL INSTALLATION AT 2 LOCATIONS ALONG ROUTE 9	$134,600	✓		✓		✓
85	WARE	603874 - RESURFACING & RELATED WORK ON ROUTE 9	$1,273,145	✓			✓	✓
86	PALMER	607372 - RECONSTRUCTION OF ROUTE 32	$8,476,770	✓				
87	WILLIAMSBURG	607231 - RECONSTRUCTION OF HIGH STREET AND MOUNTAIN STREET	$3,600,000	✓	✓		✓	✓
88	CHICOPEE	606892 - SLOPE PROTECTION IMPROVEMENTS AT I-391 BRIDGE OVER THE CT RIVER	$282,650	✓		✓	✓	✓
89	CUMMINGTON	606797 - RT 9 RETAINING WALL	$1,660,000	✓				✓
90	LONGMEADOW / SPRINGFIELD	606469 - RETAINING WALL REPLACEMENT/REHABILITATION ON I-91 (SB)	$6,143,750	✓		✓	✓	✓
91	HADLEY	607886 - RESURFACING AND RELATED WORK ON ROUTE 47	$900,000	✓				

Table 17-4 – Potential Environmental Impacts of RTP Projects (cont.)

Map Key	Town	Description	Total Cost	Valley Vision	Critical Linkages	Environmental Justice	Wetlands	Flood Plains
92	GOSHEN	608126 - RESURFACING AND RELATED WORK ON ROUTE 9	$3,500,000	✓			✓	✓
93	AGAWAM / WEST SPRINGFIELD	605384 - RT 147 OVER WESTFIELD RIVER AND INTERSECTION IMPROVEMENTS	$13,336,000	✓		✓		✓
95	CHESTER	605207 - BRIDGE BETTERMENT, C-11-033, ROUTE 20 OVER WALKER BROOK	$268,750		✓			✓
97	CUMMINGTON	605452 - ROUTE 9 AND ROUTE 112 OVER THE WESTFIELD RIVER	$3,500,000	✓			✓	✓
98	CUMMINGTON	607939 - BRIDGE MAINTENANCE, C-21-025, ROUTE 9 OVER THE WESTFIELD RIVER	$300,000	✓	✓		✓	✓
101	HADLEY	604049 - BRIDGE REPLACEMENT, H-01-017, NORTH HADLEY ROAD OVER ROUTE 116	$3,864,000	✓			✓	✓
102	HATFIELD	603608 - BRIDGE REPLACEMENT, H-11-025, ELM STREET OVER THE B&M R.R.	$497,628	✓			✓	
	HOLYOKE	600935 - BRIDGE REPLACEMENTS, H-21-014, ROUTE 141 (APPLETON STREET)	$9,545,000					
103	HOLYOKE	600936 - LYMAN STREET OVER FIRST LEVEL CANAL	$2,575,000	✓		✓	✓	✓
104	HOLYOKE / WEST SPRINGFIELD	606467 - SUPERSTRUCTURE REPLACEMENT	$29,668,750			✓		
105	LONGMEADOW / SPRINGFIELD	607644 - STRUCTURAL STEEL GIRDER PAINTING	$2,420,940	✓		✓		✓
106	LUDLOW / WILBRAHAM	605618 - EAST STREET OVER CHICOPEE RIVER	$950,000	✓				✓
107	LUDLOW/SPRINGFIELD	601156 - ROUTE 21 (CENTER STREET) OVER CHICOPEE RIVER (PUTTS BRIDGE)	$21,168,000	✓		✓		✓
108	MONSON	607688 - BRIDGE REHABILITATION, M-27-022, BRIMFIELD ROAD (US 20)	$3,396,525	✓			✓	✓
109	MONSON	602178 - HOSPITAL HILL ROAD OVER QUABOAG STREET	$1,504,800	✓				
110	MONSON / PALMER	604136 - STATE AVENUE OVER THE QUABOAG RIVER	$4,342,377	✓			✓	✓
111	NORTHAMPTON	602381 - I-91 NB/SB OVER ROUTE 5, BM RR, AND HOCKANUM ROAD	$12,075,000					
112	NORTHAMPTON	606552 - BRIDGE RECONSTRUCTION, N-19-059, I-91 OVER US 5/BMRR & N-19-060, I-91	$52,001,028	✓		✓	✓	✓
113	RUSSELL	606499 - BRIDGE STREET OVER WESTFIELD RIVER	$9,494,400	✓			✓	✓
114	SOUTHAMPTON	603024 - VALLEY ROAD OVER MOOSE BROOK	$1,352,400	✓				
115	SPRINGFIELD	607643 - STRUCTURAL STEEL GIRDER PAINTING, PAINT REMOVAL & REPAIR	$5,018,740			✓		
116	SPRINGFIELD / WEST SPRINGFIELD	605417 - BRIDGE PRESERVATION ON I-91 CORRIDOR	$9,500,150			✓		✓
117	SPRINGFIELD / WEST SPRINGFIELD	603278 - SCOUR COUNTERMEASURES, ROUTE 20 (PARK AVENUE) OVER CT RIVER	$5,750,000			✓		
118	WARE	601701 - MASS CENTRAL RR OVER ROUTE 9/32 EAST MAIN STREET	$10,532,000	✓			✓	✓
119	WARE	604212 - ROUTE 9 (EAST STREET) OVER THE WARE RIVER	$1,725,000	✓				
120	WARE	605126 - ROUTE 32 (PALMER ROAD) OVER THE WARE RIVER	$3,846,232	✓			✓	✓
121	WEST SPRINGFIELD	607526 - BRIDGE RECONSTRUCTION, W-21-011, PROSPECT AVENUE OVER PVRR	$660,625				✓	
122	WEST SPRINGFIELD	607443 - BRIDGE REHABILITATION, BRIDGE W-21- 27, ROUTE 20 (PARK AVENUE)	$3,719,240			✓		
123	WESTFIELD	400103 - ROUTE 10/202 SOUTHWICK STREET OVER LITTLE RIVER	$9,000,000	✓		✓	✓	✓
124	WESTFIELD	607646 - SUPERSTRUCTURE REPLACEMENT, W-25-021, LOCKHOUSE ROAD OVER PVRR	$1,725,000	✓		✓		
125	WILLIAMSBURG	607675 - BRIDGE REPLACEMENT, W-36-011, BRIDGE STREET OVER THE MILL RIVER	$5,411,670	✓			✓	✓
126	WESTFIELD	400103 - ROUTE 10/202 SOUTHWICK STREET OVER LITTLE RIVER	$20,000,000					