



C19: Expediting Project Delivery

MaPIT

MassDOT's GIS-driven Project Initiation & Screening Tool

Joint Meeting of the AASHTO SCOE and SCOD -
7/17/17

Michael R. Bolduc
MassDOT



U.S. Department of Transportation
Federal Highway Administration

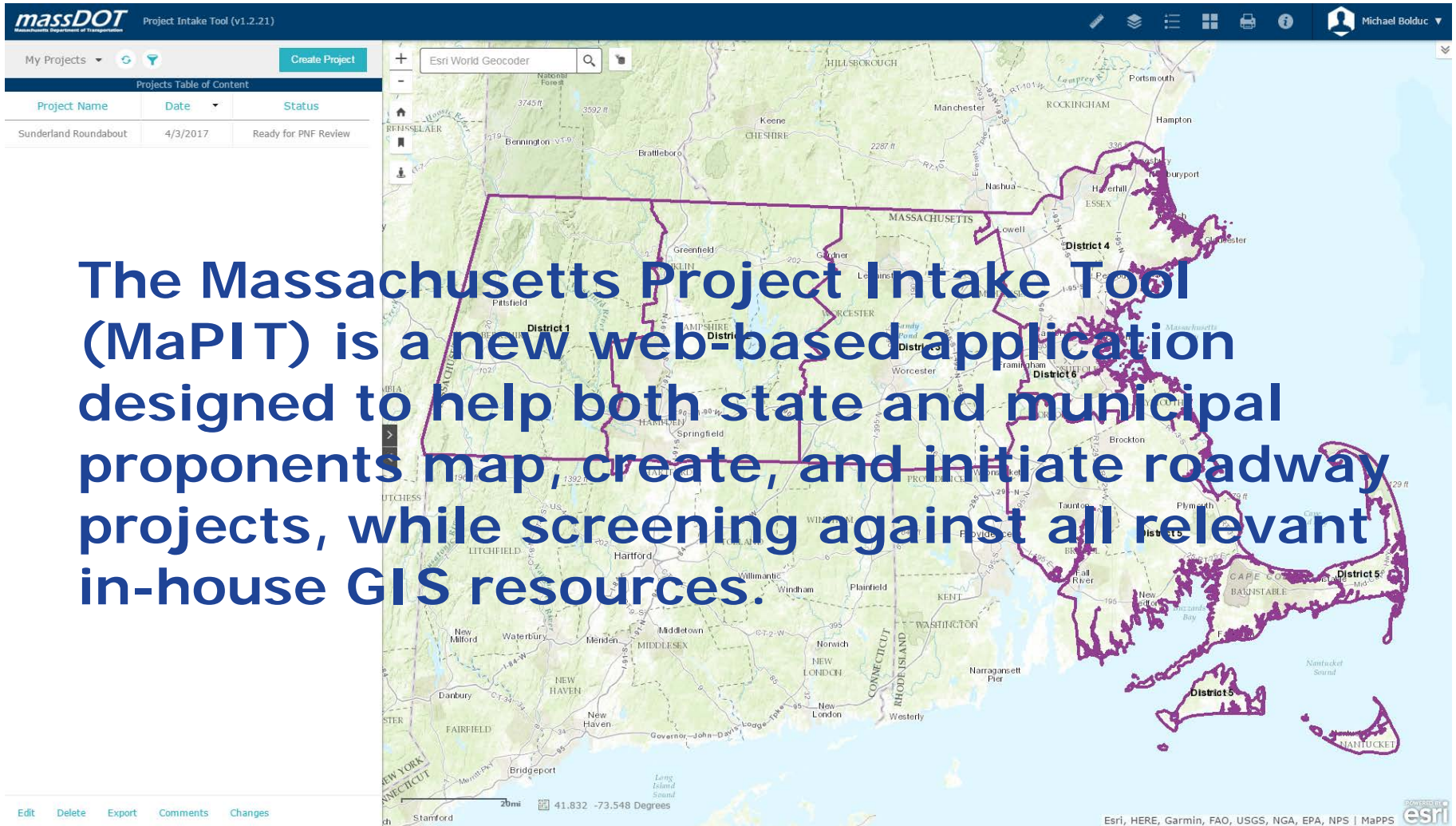


SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

AASHTO

What is it?



The image shows the user interface of the massDOT Project Intake Tool (MaPIT). The interface includes a top navigation bar with the massDOT logo, the title "Project Intake Tool (v1.2.21)", and a user profile for "Michael Bolduc". Below the navigation bar is a "My Projects" section with a "Create Project" button. The main area features a map of Massachusetts with several districts outlined in purple. A search bar labeled "Esri World Geocoder" is positioned above the map. On the left side, there is a "Projects Table of Content" table.

Project Name	Date	Status
Sunderland Roundabout	4/3/2017	Ready for PNF Review

The Massachusetts Project Intake Tool (MaPIT) is a new web-based application designed to help both state and municipal proponents map, create, and initiate roadway projects, while screening against all relevant in-house GIS resources.

At the bottom of the interface, there are several utility buttons: "Edit", "Delete", "Export", "Comments", and "Changes". The bottom right corner displays the text "Powered by Esri" with the Esri logo.

What is it?

A joint MassDOT / ESRI collaboration



Funded by the Strategic Highway Research Program (SHRP2) to facilitate Expediting Project Delivery (C19)

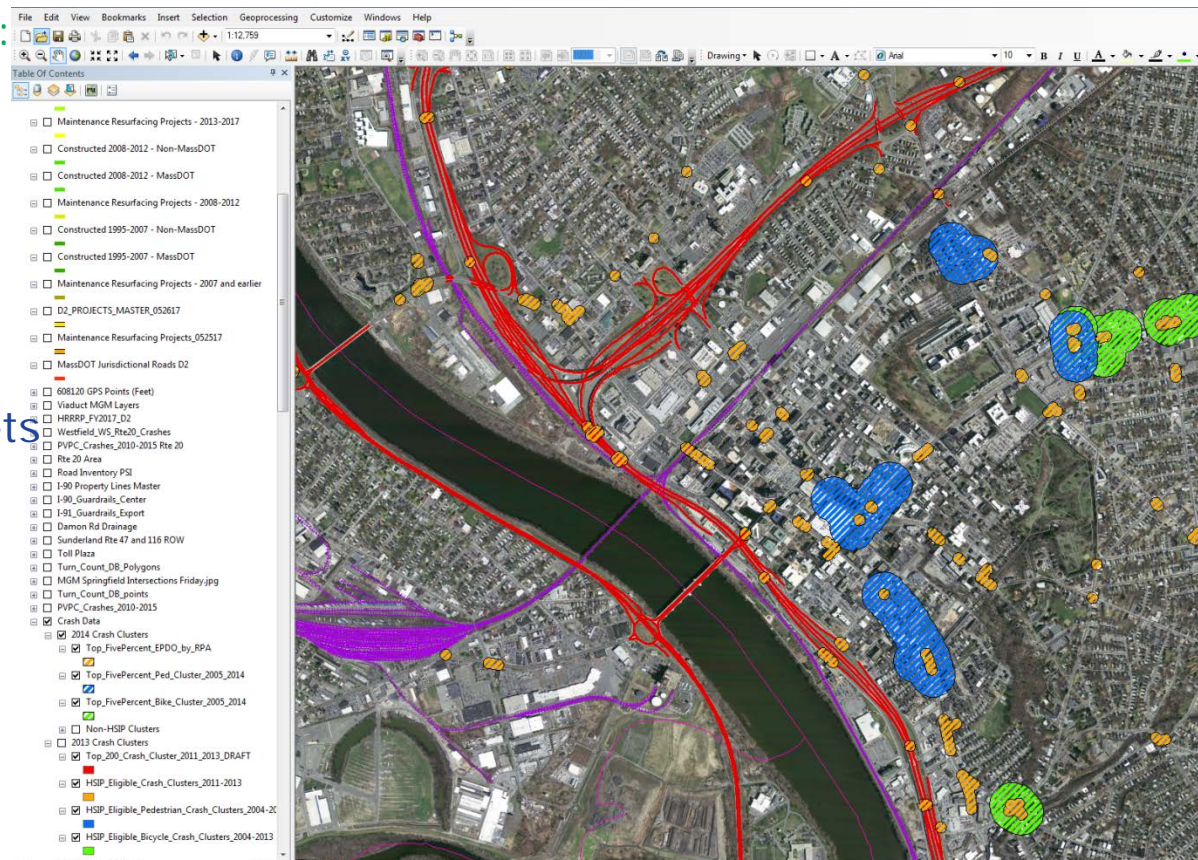


Background

The MassDOT GIS Services group hosts GIS resources for in-house ArcGIS users, and develops and maintains a large repository of GIS layers

GIS data provided includes:

- Road Inventory Layer
 - Flagship roadway layer with dozens of attributes including roadway classification, ownership, federal aid eligibility, traffic volumes, pavement conditions, lanes, shoulder widths, etc.
- Rail Inventory
- Bridge Database
- Highway Facilities/Assets
- Crash Data
- Transit
- Survey and Layouts
- EJ and Title VI
- Environmental Layers
- and many more



Background

Currently, data is provided to the public via web-based interactive maps or downloaded via applications provided by MassDOT and MassGIS

The collage displays several web-based mapping and data services provided by MassDOT and MassGIS. The services include:

- massDOT Road Inventory**: A map showing road inventory with a search bar and a 'Layers' panel.
- Crash records Search**: A map showing crash records with a search bar and a 'Map Filter' panel.
- Geodetic Control**: A map showing geodetic control points with a search bar and a 'Layers' panel.
- State Highway Layouts Map**: A map showing state highway layouts with a search bar and a 'Layers' panel.
- OLIVER MassGIS's Online Mapping Tool**: A map showing MassGIS's online mapping tool with a search bar and a 'Layers' panel.
- Search Results**: A table showing search results for 666 mappable records.

Crash Number	Crash Date	Crash
2840135	12/06/11	3.09 PM
2840475	12/03/11	7:28 PM
2840665	12/07/11	4:15 PM
2836283	12/22/11	4:58 PM

Background

MassDOT has also recently released *geoDOT*, a web-based GIS platform that gives MassDOT and the public the ability to view, create and share GIS data in a collaborative environment, and in multiple formats

Home Gallery Map Scene Groups

Sign In

Search maps

Sort by Date Title Type Ratings Avg. Rating Comments Views

Interactive Map Gallery

massDOT Department of Transportation

My Data Sign In

Open Data Portal

Welcome to the "NEW" MassDOT Open Data Portal!
Use the search bar above to download Open Datasets in some of the most useful formats for web integration.

Available Download Formats

SHP: Esri shapefiles often used by GIS professionals and academics while working with Esri products or compatible desktop software.
XML: Extensible Markup Language files are written in an easily read markup language commonly used to display meta data (data about data).
CSV: Comma Separated Value text files display tabular data in a plain-text or spreadsheet format and can be easily read by assistive technology.

Explore Data Categories

DS Create or update metadata

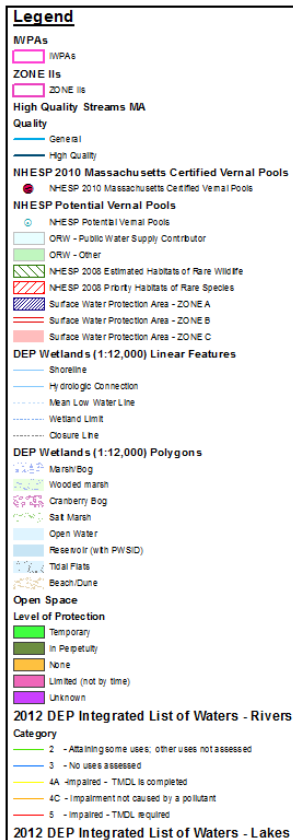
massDOT Road Inventory Municipal Data Viewer

Street Name	Local	Interstate	Urban or Rural Principal Arterial	Urban Principal Arterial or Rural Minor Arterial	Urban Rural
N/A	2.657	0.000	0.000	0.000	0.000
COMMONWEALTH AVENUE FRONTAGE ROAD EB	1.988	0.000	0.000	0.000	0.000
COMMONWEALTH AVENUE FRONTAGE ROAD WB	1.669	0.000	0.000	0.000	0.000
CANTERBURY STREET	1.668	0.000	0.000	0.000	0.000
GARDNER STREET	1.302	0.000	0.000	0.000	0.000
HIGHLAND STREET	1.226	0.000	0.000	0.000	0.000
CHURCH STREET	1.191	0.000	0.000	0.000	0.000
MAPLE STREET	1.048	0.000	0.000	0.000	0.000
BACK STREET	0.996	0.000	0.000	0.000	0.000
WACHUSETT STREET	0.901	0.000	0.000	0.000	0.000
CHESTNUT AVENUE	0.900	0.000	0.000	0.000	0.000
EAST SEVENTH STREET	0.843	0.000	0.000	0.000	0.000
TEMPLE STREET	0.838	0.000	0.000	0.000	0.000
EAST SECOND STREET	0.829	0.000	0.000	0.000	0.000
Grand Total Miles	307.233	18.067	0.000	0.000	0.000

Background

Environmental Layers

- MassDOT maintains dozens of Environmental Layers
- Large data sets are limited to ArcGIS applications to view; no quick way to visually assess a project's environmental sensitivity or permitting requirements without ArcGIS
- No web-based interactive map existed to view environmental layers



Concept

- **Conceived by a MassDOT environmental analyst as a screening tool to help identify projects that overlap environmental GIS layers and indicate areas of sensitivity or significance**
- **Could help identify environmental permitting requirements early in a project's development**
- **Would double as a web-based interactive map for viewing MassDOT environmental layers without using ArcGIS**
- **Could be funded under SHRP2 C19 as a tool to "Expedite Planning and Environmental Review of Highway Projects"**

Funding

SHRP2 C19 Strategies

Strategy	Stage of Project Planning or Delivery				
	Early Planning	Corridor Planning	NEPA	Design/ROW/ Permitting	Construction
1. Change-control practices			●	●	●
2. Consolidated decision council		○	●	●	
3. Context-sensitive design and solutions	○	○	●	●	○
4. Coordinated and responsive agency involvement	○	●	●	●	●
5. Dispute-resolution process		○	●	●	○
6. DOT-funded resource agency liaisons		○	●	●	
7. Early commitment of construction funding	●	●	●	●	
8. Expedited internal review and decision-making	●	●	●	●	
9. Facilitation to align expectations up front	○	●	●	●	
10. Highly responsive public engagement	●	●	●	●	○
11. Incentive payments to expedite relocations		●	●	●	
12. Media relations manager		●	●	●	○
13. Performance standards	○	●	●	●	
14. Planning and environmental linkages	●	●	●	●	
15. Planning-level environmental screening criteria	●	●	●	●	
16. Programmatic agreement for Section 106		●	●	●	
17. Programmatic or batched permitting		●	●	●	
18. Real-time collaborative interagency reviews	○	○	●	○	
19. Regional environmental analysis framework	○	●	●	●	
20. Risk management	●	●	●	●	
21. Strategic oversight and readiness assessment	○	●	●	●	
22. Team co-location		○	●	●	
23. Tiered NEPA process	○	●	●	●	
24. Up-front environmental commitments		●	●	●	

● Expedited internal review and decision making (strategy 8)

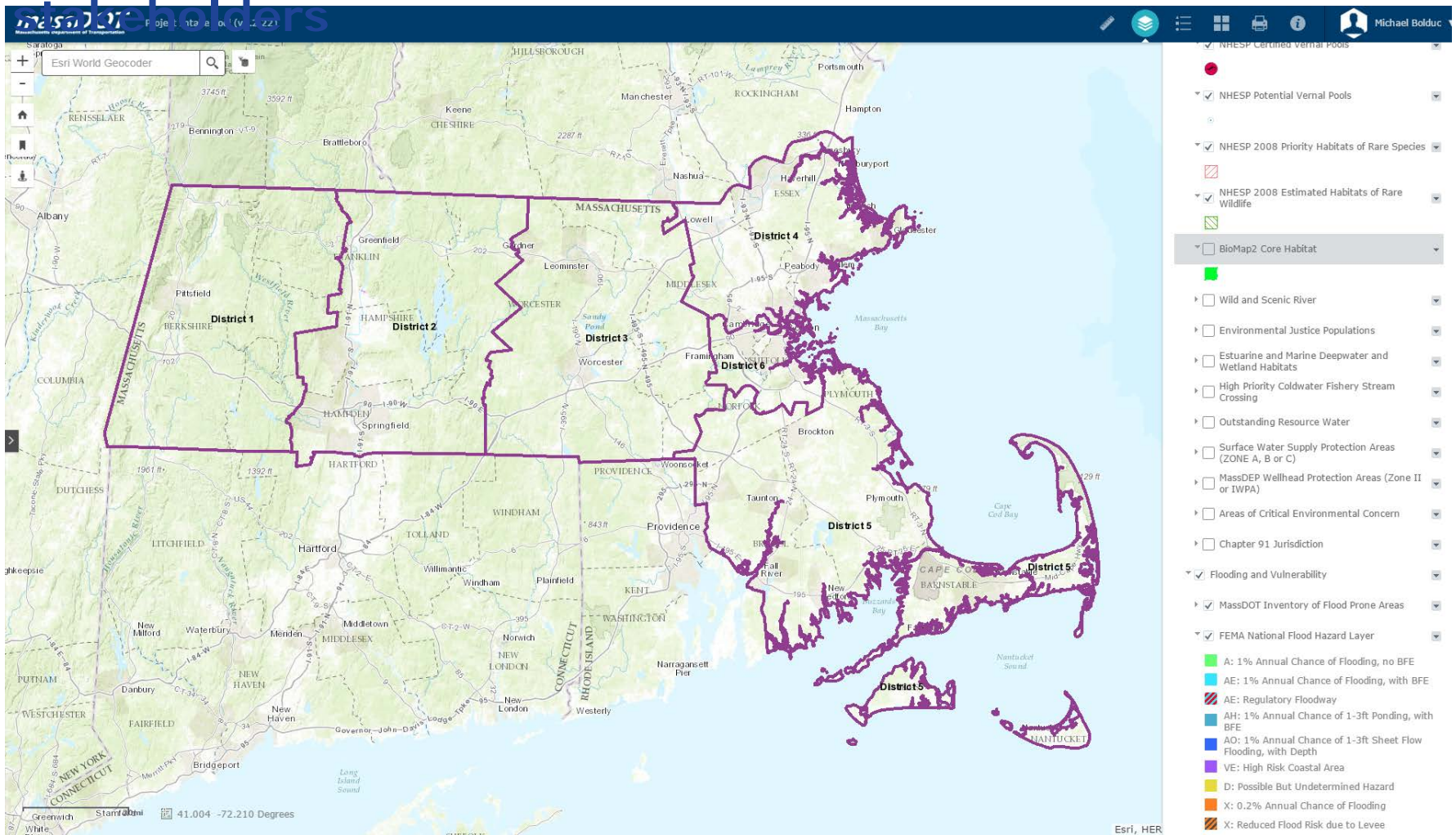
● Planning and environmental linkages (strategy 14)

● Planning-level environmental screening criteria (strategy 15)

● Regional environmental analysis framework (strategy 19)

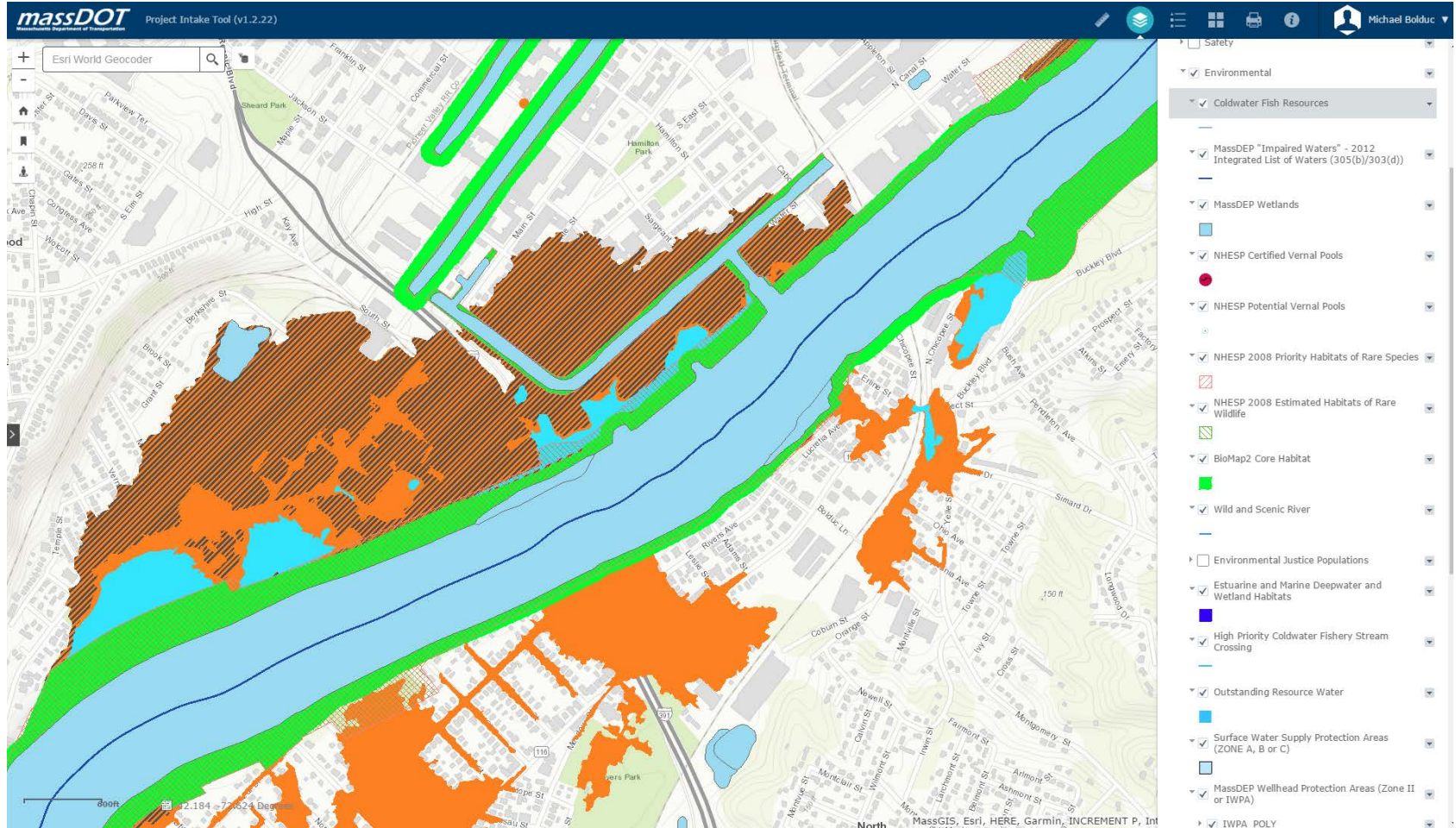
Creation

MassDOT Planning and ESRI, with input from multiple



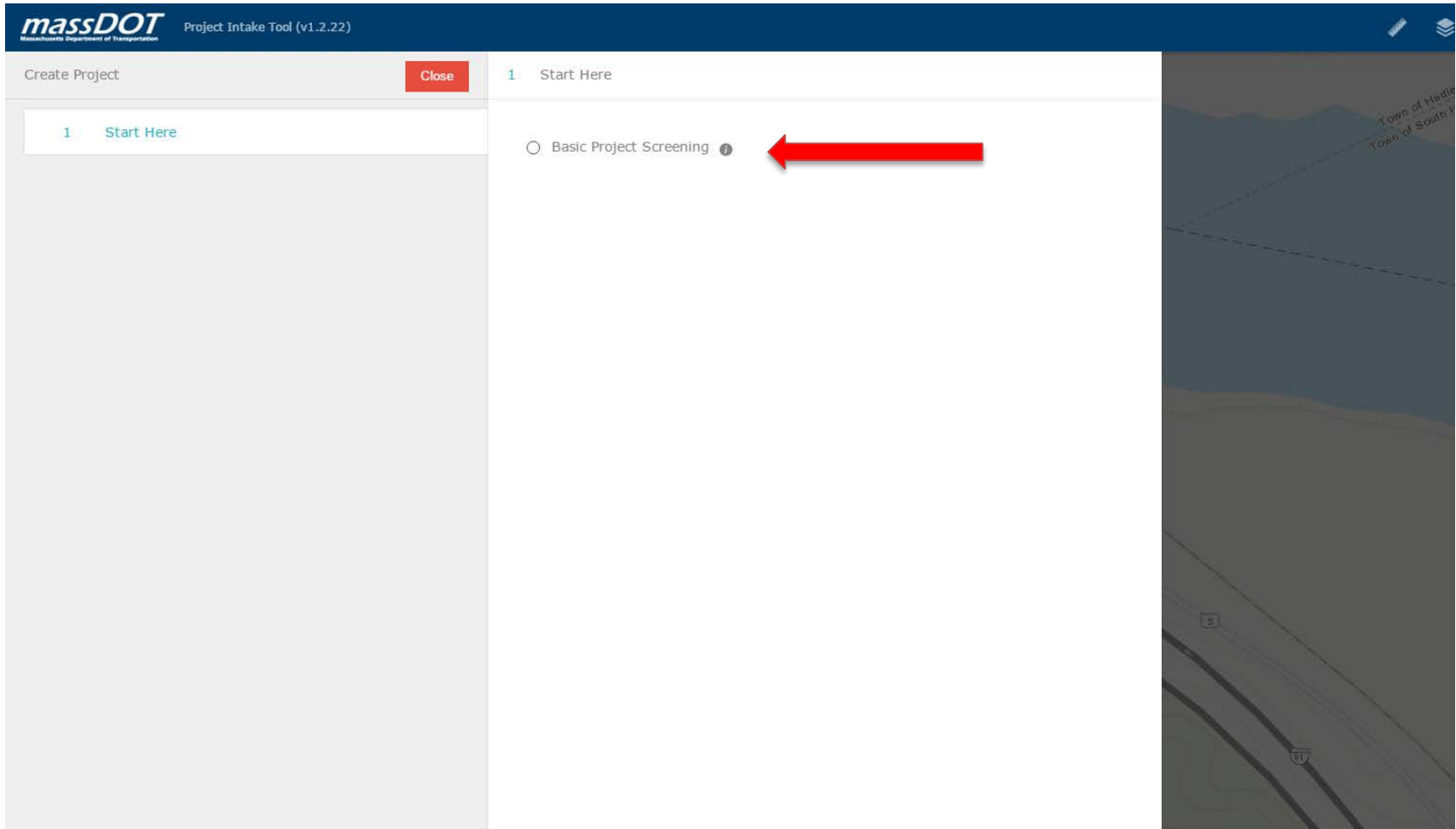
Creation

- Use as an environmental GIS viewer



Creation

- Use as an environmental screening tool



Creation

- Select project area

The screenshot displays the massDOT Project Intake Tool (v1.2.22) interface. On the left, a sidebar titled 'Create Project' shows a progress list with five steps: 1. Start Here (checked), 2. Project Description (checked), 3. Sketching (highlighted in blue), 4. Geoprocessing, and 5. Report. A red 'Close' button is located at the top right of the sidebar. The main map area features a search bar with 'Esri World Geocoder', a map with topographic contours and roads, and a 'Select template to create feature' dropdown menu. The 'Project Polygons' template is selected and highlighted with a red arrow and the text 'Draw project polygon tool'. The bottom toolbar includes navigation and editing tools, and a 'Previous' button is visible on the left.

Creation

- Select project area

The screenshot displays the massDOT Project Intake Tool (v1.2.22) interface. On the left, a sidebar titled "Create Project" shows a progress list with five steps: 1. Start Here, 2. Project Description, 3. Sketching (highlighted), 4. Geoprocessing, and 5. Report. The main area is a map showing a purple polygon highlighting a project area. A red arrow points to the top-left corner of this polygon. The map includes labels for "Esri World Geocoder", "Connecticut River", and "Thermopylae". Below the map, a "Select template to create feature" section shows a "Project Polygons" template. The bottom of the interface features a "Previous" button, a "Next" button, and a standard GIS toolbar.

Creation

- Run Geoprocessing

The screenshot displays the 'massDOT Project Intake Tool (v1.2.22)' interface. On the left, a vertical sidebar titled 'Create Project' contains a list of five steps: 1. Start Here (with a green checkmark), 2. Project Description (with a green checkmark), 3. Sketching (with a green checkmark), 4. Geoprocessing (highlighted in blue), and 5. Report. A red 'Close' button is located at the top right of this sidebar. The main content area is titled '4 Geoprocessing' and features a prominent teal button labeled 'Run Geoprocessing', which is pointed to by a red arrow. To the right of the main content area, a portion of a map is visible, showing a purple highlighted area on a road labeled 'Sunderland St'.

Creation

- Geoprocessing results indicate intersected environmental layers

The screenshot displays the massDOT Project Intake Tool (v1.2.22) interface. The top navigation bar includes the massDOT logo and the text "Project Intake Tool (v1.2.22)". The main interface is divided into three sections:

- Left Sidebar:** A vertical list of steps for "Create Project":
 - 1 Start Here (with a green checkmark)
 - 2 Project Description (with a green checkmark)
 - 3 Sketching (with a green checkmark)
 - 4 Geoprocessing (highlighted in light blue)
 - 5 Report
- Top Panel:** A tab labeled "4 Geoprocessing" with a "Close" button.
- Main Content Area:** Contains a "Run Geoprocessing" button with a red arrow pointing to it. Below the button, the following text is displayed:

```
Running script Tool...
Intersection found with Road Inventory...
No Intersection found with Coldwater Fish Resources...
No Intersection found with MassDEP Impaired Waters - 2012 Integrated List of Waters (305(b)/303(d))...
Intersection found with NHESP 2008 Estimated Habitats of Rare Wildlife...
Intersection found with NHESP 2008 Priority Habitats of Rare Species...
No Intersection found with NHESP Certified Vernal Pools...
Intersection found with BioMap2 Core Habitat...
No Intersection found with Outstanding Resource Water...
No Intersection found with Areas of Critical Environmental Concern...
No Intersection found with Potential Vernal Pools...
Intersection found with FEMA National Flood Hazard Layer...
Intersection found with MassDEP Wetlands...
Completed script Tool...
Succeeded at Fri Jun 09 16:00:26 2017 (Elapsed Time: 36.94 seconds)
```
- Right Panel:** A map view showing a purple highlighted area, likely representing the project location or a specific environmental layer.

Expansion

Additional Screening Layers?

- **Many other GIS layers are consulted during Project Development**
- **Tool could screen against all GIS layers, not just environmental**
- **Could help state and municipal proponents initiate new projects**
- **Could also help with in-house project scoring**

Project Development

Process

- State highway projects are initiated internally by department in charge: bridge, traffic, maintenance, pavement management, etc.
- For municipalities and other proponents seeking federal funding, two forms are required to create a project, the Project Need Form (PNF) and the Project Initiation Form (PIF)

MASSDOT - HIGHWAY DIVISION
Project Need Form

This form is intended to provide preliminary information about the proposed project. It is not expected that all information that is asked for is available or known but applicants are encouraged to complete the form as fully as possible.

Proponent: _____ Title: _____
 Municipality: _____ Organization: _____
 PNF completed by: _____ Title: _____
 Phone: _____ Email: _____
 Date: _____

Part I – Facility Location and General Information

Municipality: _____
 Primary Roadway(s) or Facility: _____
 MassDOT District: _____ MPO Region: _____

Estimated project limits by mile marker, station or other distinguishing landmarks such as cross street(s).
 Please include a locus map of the potential project location.

Route/Street ID	Begin	End	Total Mileage

Is the location in an urban or rural area? Urban Rural

What is the federal functional classification of the road? Identify each section.

Interstate Urban Collector Rural Major Collector
 Urban Principal Arterial Rural Principal Arterial Rural Minor Collector
 Urban Minor Arterial Rural Minor Arterial Other Classification _____

Is the proposed project on the National Highway System? Yes No

MASSDOT - HIGHWAY DIVISION
Project Initiation Form

Proponent: _____ Title: _____
 Municipality: _____ Organization: _____
 PIF completed by: _____ Title: _____
 Phone: _____ Email: _____
 Date: _____

Part I – General Information

Project Location: _____

Scope of Work: Describe the proposed improvements including limits of work, length of the project, major improvements, proposed cross-section, improvements to secondary assets, and related work. The description of improvements to secondary assets should include any proposed improvements to curbing, sidewalks, traffic signals, signs, lighting, landscaping, drainage, walls, etc. The scope of work for a multi-use path should also identify any proposed at-grade crossing treatments.

Regional Benefit: Describe any regional benefits that would be realized should the Project Need be met. □

Project Need Form

- PNF asks proponent to outline the problems, needs, and opportunities of a potential project site
- Asks for site-specific information often requiring consultation of various GIS layers and spatial data sets

Highway Division Project

F. Social Equity - F

1. Environmental Justice area. Indicate mobility of the EJ communities to assess

2. Title VI: Identify if need or opportunity t

2. Priority Development project. (Examples of Redevelopment Site Commercial). Identify project area or oppo

3. Local Economic spaces in city/town/v pedestrian accommod consumers.

E. Environmental & Health Effects - Problem, Need, or Opportunity

1. Air Quality and Greenhouse Gases: Describe any opportunities to meet the State goals of improving Air Quality and reducing Greenhouse Gas emissions in the area. Please note any bottlenecks or congestion corridors that can be improved via improved traffic operations, as well as transit, bicycle, and pedestrian infrastructure that can be expanded (please reference section B: Mobility). For more information on MassDOT Greenhouse Gas Reduction and Air Quality standards, please use the following link: [MassDOT Greenhouse Gas Reduction](#)

2. Stormwater Improvements/Impaired Waterbodies: Identify any impaired waterbodies or TMDL watersheds for nutrients near the project, and any stormwater runoff issues associated with the project.

3. Wetland(s) and Resource Areas: Identify any wetlands, watersheds, or resource areas adjacent to the project, along with their current condition. Identify any opportunities to provide wetland restoration to a degraded wetland resource area.

4. Wildlife Habitat(s): Identify any priority habitats within a ½ mile of the project limits. (Examples of priority development areas include: Core Habitat and Critical Natural Landscape, Coldwater fisheries, diadromous fish runs, Vernal Pools, and NHESP Priority and Estimated Rare species habitat).

5. Resiliency: Indicate whether the project is located in a 100-year flood zone. Identify any failing culverts or headwalls, and any evidence of stream bed or stream bank erosion, scour, or any hydraulic restrictions at bridges or culverts.

6. Historic/Cultural/Archaeological Resource(s): Identify any National Register listed or eligible properties in the area, any nearby Open Space, or any potential 4(f) or Article 97 protected land in the area.

- Existing Facility Information
- Condition of assets
- Mobility & Bike/Ped
- Safety
- Economic
- Social Equity
- Environmental

Project Initiation Form

- Proponent meets with MassDOT District personnel, discuss best course of action
- Proponent fills out PIF, often with designer, describing proposed project scope and solutions to problems outlined in PNE

Highway Division Project Initiation Form

Proponent: _____
Municipality: _____
PIF completed by: _____
Phone: _____
Date: _____

Part I - General Information
Project Location: _____
Scope of major improvements: _____
sidewalks, use paths _____

Regional _____

Part III: Project Description

A. System Preservation

1. Primary Asset and Condition: (bridge, or bike trail), condition of _____ are anticipated by project.

2. Proposed Treatment to be considered for the primary asset: that the final pavement improve submitted as part of the project _____

3. Describe Improvements to Infrastructure: Other existing as large diameter culverts (4'+), box _____ and curbing (or bridges, paths, _____

4. Potential Impacts to Utilities: improvements will have on utilities _____

C. Safety

1. Motor Vehicle Safety: improve the general safety of _____ completed, include _____

2. Safety for Other Users: multi-modal users _____ etc. Please provide _____

3. Evacuation Route: level, indicate how _____

D. Economic Impacts

1. Economic Impact: city/town/village or _____ important connect _____ impacts the project _____

E. Environmental & Health Effects

1. Air Quality and Greenhouse Gases: Indicate if the project is expected to produce an improvement to Air Quality or a reduction in Greenhouse Gases, confirmation pending completion of the Air Quality Analysis Worksheet. Please note any Traffic Operational Improvements, any increase to motor vehicle capacity, any expanded transit accommodations or park-and-rides that decrease motor vehicle miles travelled, and any new bicycle and pedestrian infrastructure proposed.

2. Stormwater Improvements/Impaired Waterbodies: Indicate the potential impact to any impaired waterbodies or TMDL watersheds near the project, and list any proposed BMP's that will be included to improve stormwater treatment. State how the proposed BMP's will meet or work towards MassDEP stormwater standards or TMDL requirements. Also include whether the project is proposing to decrease or increase the amount of impervious cover.

3. Wetland(s) and Resource Areas: If there are any wetlands, watersheds, or resource areas adjacent to the project, discuss how the project impacts the identified locations. Include an estimate of the quantity of temporary and permanent impacts to any wetlands, and a summary of how impacts will be mitigated.

4. Wildlife Habitat(s): Identify any priority habitats within a 1/2 mile of the project limits, and discuss how the project may impact any locations identified. Include a discussion of temporary and permanent impacts, and any improvements that are being proposed. If project includes work on bridges or culverts, discuss if new structures will meet the Massachusetts River and Stream Crossing standards. (Examples

Project Creation & Scoring

- Project is officially created by MassDOT District personnel and all information in the forms are entered into MassDOT's project database

ProjectInfo Home Contracts **Projects** Vendors Planning Mapping

Project Number: **605032**

HADLEY- RECONSTRUCTION ON ROUTE 9, FROM MIDDLE STREET TO MAPLE/SOUTH MAPLE STREET

PNF PIF PRC Approved 25% 75% 100% Final Advertising

SEARCH Project No. Contract No.

Projects by City/Town Select City Search

Contract Search Project Search VIEW Mode Alerts Missing Measuring System

Actions New Project in ProjectInfo Edit Project View Repository View Documents

Reports Status Sheet Status Sheet Detailed CAPE Report PNF Report PNF Archive Report PIF Report PIF Archive Report PRC Agenda

Project Summary Edits Disabled

Project Type: Hwy Reconstr - Added Capacity

Project Manager: Michael Trepanier (857-368-8828)

District Responsible: District 2

Assigned Division: Environmental

Attributes: STIP SWRB

Location: HADLEY

Design PARS#: P605032P11

ROW PARS#:

Construction PARS#:

Designer: MassDOT Consultant - Greenman-Pedersen, Inc.

MPO: Pioneer Valley

Advertising Date: 12/7/2019 (Scheduled)

Advertising Amount: \$0.00

Current Office Estimate: \$18,850,000.00

Estimated Total Contract Cost: \$21,591,840.00

Estimated Total Construction Cost: \$22,827,182.00

Estimated Total Federal Participating Construction Cost: \$22,559,986.40

Escalated Total Federal Participating Construction Cost: \$25,356,156.41

Project Priority Scoring for MassDOT Projects			
Municipality:	Hadley	Project #:	605032
		District:	2
Project Type:	Hwy Reconstr - Added Capacity	Initiation year:	2007
		Design:	25%
		TIP year:	2020
		RPA:	PVPC
Cost Estimate:	\$22,559,986.00	Anticipated Funding Program(s):	STP HSIP
Year of Cost Estimate:	2017	CMAQ	
Urban/Rural:	Urban	Ownership:	MassDOT
Functional Class:	Principal Arterial	Ownership (other):	%
NHS:	Yes	Ownership (other):	%
		MassDOT Section Responsible:	Environmental
ADT:	19,454	Year of ADT:	2015
Project Length:	2.1 (miles)	Number of Lanes:	4
		ADT/Lane Mile:	2,315.95
		Cost/ADT/Lane Mile:	\$138.05
MassDOT Project Name and Description			
HADLEY- RECONSTRUCTION ON ROUTE 9, FROM MIDDLE STREET TO MAPLE/SOUTH MAPLE STREET			
The proposed roadway design widens Russell Street through full depth reconstruction to provide two travel lanes in each direction with a minimum lane width of 11 feet and a shoulder width of 4 feet. The proposed pavement width will vary from 52 to 82 feet wide curb-to-curb. The proposed shoulder width of 4 feet will be an improvement over the existing shoulders which are as narrow as 2 foot wide. The widening of the roadway from one travel lane in each direction to two travel lanes in each direction will add additional capacity and improved traffic progression. Other improvements to Russell Street include the following: increasing roadway vertical grades to improve surface drainage; upgrading the existing storm system drainage; new traffic signage; extending or replacing existing cross culverts; installing raised pavement markers; new granite curbs; new 6.5-foot wide concrete sidewalks along both sides of the roadway. The project starts at Station 157+49.38 (Lowe's Driveway) and ends at Station 189+10.94 (Home Depot/Mountain Farms Mall Driveway).			
Section	Name	Weight	Points
A	SYSTEM PRESERVATION	15%	10.5
B	MOBILITY	20%	20
C	SAFETY	15%	10.5
D	ECONOMIC IMPACTS	10%	7
E	ENVIRONMENTAL & HEALTH EFFECTS	10%	4
F	SOCIAL EQUITY	10%	2
G	POLICY SUPPORT	10%	8
H	COST EFFECTIVENESS	10%	6
		Total Score:	68
Cost per Point per User Lane Mile			\$2.23

- Projects are scored internally by MassDOT to prioritize for project approval
- The scoring system directly references info in PNF/PIF and other GIS

MaPIT Concept Finalized

MaPIT achieves multiple tasks at once:

- The Project Intake Tool will be the primary interface for all project creation
- Screen potential projects against all relevant GIS layers
- Allows proponent to fill out PNF & PIF while referencing geoprocessing data
- Easy communication between proponent and MassDOT Districts with e-mail notifications during each step; completely paperless
- Once project receives District approval, project is officially created, a project number is assigned, and all relevant data from the PNF/PIF is automatically pushed into Project Info
- Project is mapped spatially, and added to the Project GIS Layer to keep up to date and visible in project overview

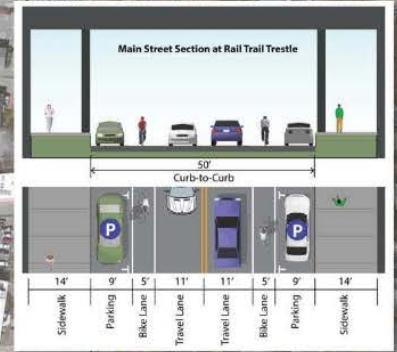
MaPIT – Project Creation

Main Street Northampton Complete Street Redesign

DRAFT
7.29.2016

- One Thru-Lane In Each Direction With Turn Lanes as Needed
- Separated Bike Lanes, Sidewalk Level Ideal (Depending on Funding)
- Wider Sidewalks Between Center Street and Masonic Street
- Curb Extensions With Median Islands
- Retained Bus Stops With One Additional Eastbound Location

Proposed View of Separated Bike Lane Looking East



MaPIT – Project Creation

Multiple Views – Aerial Imagery

The screenshot displays the massDOT Project Intake Tool (v1.2.22) interface. The top navigation bar includes the massDOT logo, the user name Michael Bolduc, and various utility icons. Below the navigation bar, there is a 'My Projects' section with a 'Create Project' button. A table titled 'Projects Table of Content' lists the following project:

Project Name	Date	Status
Sunderland Roundabout	4/3/2017	Ready for PNF Review

The main area of the interface is dominated by a large aerial satellite image of a residential and commercial area. To the right of the image is a vertical sidebar containing a list of map styles and data layers, including:

- Dark Gray Canvas
- Imagery
- Imagery with Labels
- Light Gray Canvas
- National Geographic
- Oceans
- OpenStreetMap
- Streets
- Terrain with Label

At the bottom of the interface, there are buttons for 'Edit', 'Delete', 'Export', 'Comments', and 'Changes'. The bottom right corner of the map area contains attribution text: 'USDA FSA, DigitalGlobe, GeoEye, Microsoft, CNES'.

MaPIT – Project Creation

Multiple Views – Street Map

massDOT Project Intake Tool (v1.2.22)

Michael Bolduc

My Projects

Create Project

Project Name	Date	Status
Sunderland Roundabout	4/3/2017	Ready for PNF Review

Esri World Geocoder

Northampton

RT-9 Main St

Streets

Edit Delete Export Comments Changes

Esri, HERE, Garmin, INCREMENT P, N

MaPIT – Project Creation

Multiple Views – Open Map

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

My Projects

Projects Table of Content		
Project Name	Date	Status
Sunderland Roundabout	4/3/2017	Ready for PNF Review

Esri World Geocoder

Search

- Dark Gray Canvas
- Imagery
- Imagery with Labels
- Light Gray Canvas
- National Geographic
- Oceans
- OpenStreetMap
- Streets
- Terrain with Label

42.315 -42.636 Degrees

Map data © OpenStreetMap contributors

MaPIT – Project Creation

All layers turned on...

The screenshot displays the massDOT Project Intake Tool (v1.2.22) interface. The top navigation bar includes the massDOT logo, the user name 'Michael Bolduc', and various utility icons. The left sidebar contains a 'My Projects' dropdown, a 'Create Project' button, and a 'Projects Table of Content' table. The main map area shows a geographic view with several project layers overlaid: a red line representing a road project, a purple shaded area, a green hatched area, and several orange rectangular areas. The map also shows street names, landmarks like 'Smith College', and a search bar at the top. The bottom of the interface includes a toolbar with 'Edit', 'Delete', 'Export', 'Comments', and 'Changes' options, along with a scale bar and coordinate information.

Project Name	Date	Status
Northampton - Main Street	7/17/2017	PNF Approved
Sunderland Roundabout	4/3/2017	Ready for PNF Review

MaPIT – Project Creation

Clean Map

The screenshot displays the MaPIT Project Intake Tool (v1.2.22) interface. The top navigation bar includes the massDOT logo, the user name Michael Bolduc, and various utility icons. Below the navigation bar, there is a search bar labeled "Esri World Geocoder" and a "Create Project" button. A "Projects Table of Content" table is visible on the left side of the interface.

Project Name	Date	Status
Sunderland Roundabout	4/3/2017	Ready for PNF Review

The main area of the interface is a map of Northampton, MA, showing a project area highlighted in purple. The map includes street names, landmarks like Smith College and Pulaski Park, and a scale bar. The bottom of the interface features a toolbar with options: Edit, Delete, Export, Comments, and Changes. The bottom right corner contains the text "MassGIS, Esri, HERE, Garmin, INCREMENT P, USGS, EPA, USDA" and the Esri logo.

MaPIT – Project Creation

Project Need & Initiation

The screenshot displays the 'massDOT Project Intake Tool (v1.2.22)' interface. At the top left, the 'massDOT' logo and 'Massachusetts Department of Transportation' are visible. The main header reads 'Project Intake Tool (v1.2.22)'. Below this, a 'Create Project' button is present with a 'Close' button to its right. The main content area is divided into two sections. On the left, a sidebar contains a single item: '1 Start Here'. On the right, a list of steps is shown: '1 Start Here', '○ Basic Project Screening ⓘ', and '○ Project Need & Initiation ⓘ'. A red arrow points to the 'Project Need & Initiation' step. The right edge of the interface shows a vertical map strip with labels for 'First Church Park' and 'thampton'.

MaPIT – Project Creation

Project Description

massDOT Massachusetts Department of Transportation Project Intake Tool (v1.2.22)

Create Project Close 2 Project Description

- 1 Start Here
Project Need & Initiation
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval
- 6 Project Initiation Form (PIF) Requires Approval

Project Name:

Proponent:

Title:

Municipality: **ABINGTON** ▾

Organization:

Completed by:

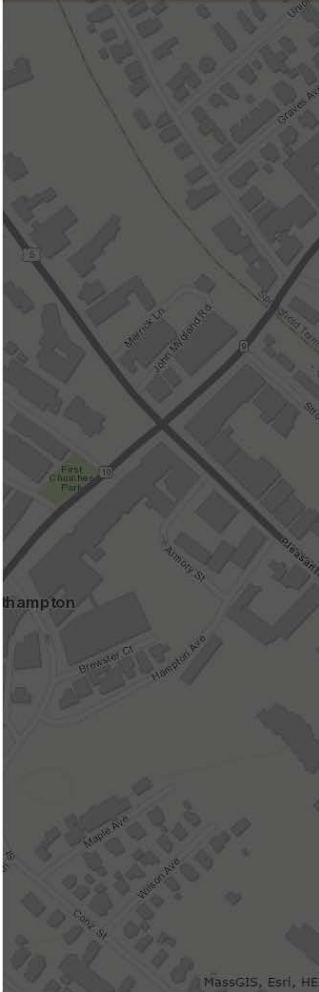
Title:

Phone:

Email:

Date:

Previous Save & Next



thampton

MassGIS, Esri, HEI

MaPIT – Project Creation

Project Description

massDOT Massachusetts Department of Transportation Project Intake Tool (v1.2.22)

Create Project Close 2 Project Description

1 Start Here
Project Need & Initiation

2 Project Description

3 Sketching

4 Geoprocessing

5 Project Need Form (PNF) Requires Approval

6 Project Initiation Form (PIF) Requires Approval

Project Name: Northampton - Main Street ⓘ

Proponent: John Smith, P.E. ⓘ

Title: Town Engineer

Municipality: NORTHAMPTON ▾

Organization: City of Northampton

Completed by: Doug Jones

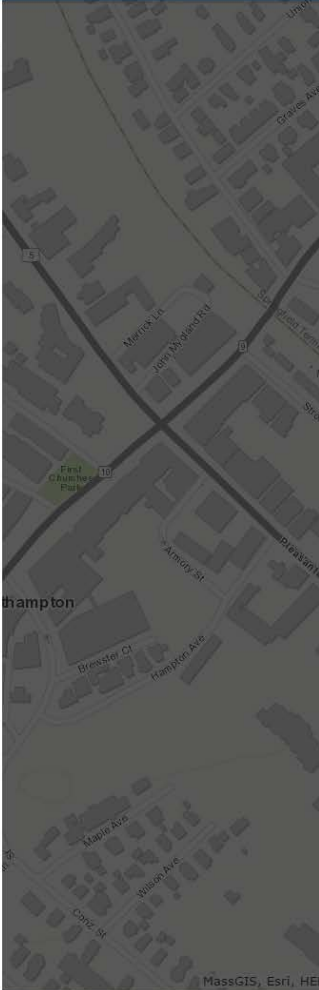
Title: DPW Director

Phone: (413)555-5555

Email: doug.jones@cityofnortha...

Date: 7/17/2017 📅

Previous Save & Next



thampton
MassGIS, Esri, HE

MaPIT – Project Creation

Sketching

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close

- 1 Start Here
- Project Need & Initiation
- 2 Project Description
- 3 Sketching**
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval
- 6 Project Initiation Form (PIF) Requires Approval

Esri World Geocoder

Select template to create feature

Project Polygons

Draw project polygon tool

Previous Save & Next

MaPIT – Project Creation

Choose Limits

The screenshot displays the massDOT Project Intake Tool interface. The top navigation bar includes the massDOT logo, the version 'Project Intake Tool (v1.2.22)', and a user profile for Michael Bolduc. The left sidebar shows a progress list with six steps: 1. Start Here, 2. Project Description, 3. Sketching (highlighted), 4. Geoprocessing, 5. Project Need Form (PNF) - Requires Approval, and 6. Project Initiation Form (PIF) - Requires Approval. The main area features a map of Northampton, MA, with a purple polygon representing the project area. A search bar at the top of the map is labeled 'Esri World Geocoder'. The bottom navigation bar contains 'Previous', 'Save & Next', and a large red arrow pointing to the 'Save & Next' button.

massDOT Project Intake Tool (v1.2.22)

Michael Bolduc

Edit Project Close

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval
- 6 Project Initiation Form (PIF) Requires Approval

Esri World Geocoder

Project Polygons

Previous Save & Next

Save & Next

MaPIT – Project Creation

Run Geoprocessing

The screenshot displays the massDOT Project Intake Tool (v1.2.22) interface. The top navigation bar includes the massDOT logo, the user name 'Michael Bolduc', and various utility icons. The main content area is titled '4 Geoprocessing' and features a 'Run Geoprocessing' button highlighted with a red arrow. To the left, a vertical sidebar lists the project steps: 1 Start Here, 2 Project Description, 3 Sketching, 4 Geoprocessing (active), 5 Project Need Form (PNF) Requires Approval, and 6 Project Initiation Form (PIF) Requires Approval. The right side of the screen shows a map of Northampton, Massachusetts, with a purple shaded area indicating the project location. The map includes street names and a scale bar. The bottom of the interface has 'Previous' and 'Save & Next' buttons.

massDOT
Massachusetts Department of Transportation
Project Intake Tool (v1.2.22)

Michael Bolduc

Edit Project Close

4 Geoprocessing

Run Geoprocessing

1 Start Here
Project Need & Initiation

2 Project Description

3 Sketching

4 Geoprocessing

5 Project Need Form (PNF) Requires Approval

6 Project Initiation Form (PIF) Requires Approval

Previous Save & Next

Northampton

MassGIS, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

MaPIT – Project Creation

Run Geoprocessing

massDOT Massachusetts Department of Transportation Project Intake Tool (v1.2.22)

Edit Project Close

4 Geoprocessing

Run Geoprocessing ←

Running script Tool...
Intersection found with Road Inventory...
Intersection found with Bridge Database...
Intersection found with Top 200 Crash Intersection Layer...
Intersection found with HSIP Clusters...
Intersection found with HSIP Pedestrians Crash Clusters...
Intersection found with HSIP Bicycle Crash Clusters...
No Intersection found with Coldwater Fish Resources...
No Intersection found with MassDEP Impaired Waters - 2012 Integrated List of Waters (305(b)/303(d))...
Intersection found with NHESP 2008 Estimated Habitats of Rare Wildlife...
Intersection found with NHESP 2008 Priority Habitats of Rare Species...
No Intersection found with NHESP Certified Vernal Pools...
Intersection found with BioMap2 Core Habitat...
Intersection found with Environmental Justice Populations...
No Intersection found with Outstanding Resource Water...
No Intersection found with Areas of Critical Environmental Concern...
No Intersection found with Potential Vernal Pools...
Intersection found with FEMA National Flood Hazard Layer...
No Intersection found with MassDEP Wetlands...
Intersection found with Transit Routes...
Completed script Tool...
Succeeded at Thu Jun 15 13:18:03 2017 (Elapsed Time: 33.73 seconds)

1 Start Here
Project Need & Initiation


2 Project Description

3 Sketching

4 **Geoprocessing**

5 Project Need Form (PNF) Requires Approval

6 Project Initiation Form (PIF) Requires Approval



MaPIT – Project Creation

Project Need Form

massDOT Massachusetts Department of Transportation Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close 5 Project Need Form (PNF)

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval**
- 6 Project Initiation Form (PIF) Requires Approval

MASSDOT - HIGHWAY DIVISION

Project Need Form

This form is intended to provide preliminary information about the proposed project. It is not expected that all information that is asked for is available or known but applicants are encouraged to complete the form as fully as possible.

Part I - Facility Location and General Information

Municipality: NORTHAMPTON

Primary Roadway(s) or Facility: MAIN STREET

MassDOT District: District 2

MPO Region: Pioneer Valley

Estimated project limits by mile marker, station or other distinguishing landmarks such as cross street(s). **Please include a locus map of the potential project location.**

Route/Street ID	Route/Street Name	Begin	End	Mileage	Primary
SR9 EB	MAIN STREET	42.211	43.144	0.9253	<input checked="" type="radio"/>
SR9 WB	MAIN STREET	93.379	94.305	0.9172	<input type="radio"/>
SR10 SB	SOUTH STREET	34.403	34.793	0.3871	<input type="radio"/>
SR10 NB	SOUTH STREET	26.368	26.72	0.3504	<input type="radio"/>

Choose Primary Road

Previous Submit for Approval

MassGIS, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

MaPIT – Project Creation

PNF – Roadway Information

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close

5 Project Need Form (PNF)

SR10 NB	SOOTH STREET	26.367	26.294	0.3886	
US5 SB	PLEASANT STREET	30.631	30.783	0.1516	

Is the location in an urban or rural area? Urban Rural

What is the federal functional classification of the road? Identify each section.

Interstate Urban Collector
 Urban Principal Arterial Rural Principal Arterial
 Urban Minor Arterial Rural Minor Arterial

Rural Major Collector
 Rural Minor Collector
 Other Classification _____


Is the proposed project on the National Highway System? Yes No

Who owns the roadway/facility? If multiple owners, please give the ownership percentage for each.

City or Town _____ 100 %
 MassDOT _____ %
 Other State Agency _____ %
 Other _____ %

Project Need: Briefly describe or characterize, in general terms, the primary project need or goal (e.g. rehabilitate a roadway, improve safety at an intersection, reduce corridor congestion, improve pedestrian facilities, or provide bike accommodation).

Previous Submit for Approval



MaPIT – Project Creation

PNF – Facility Information

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close

5 Project Need Form (PNF)

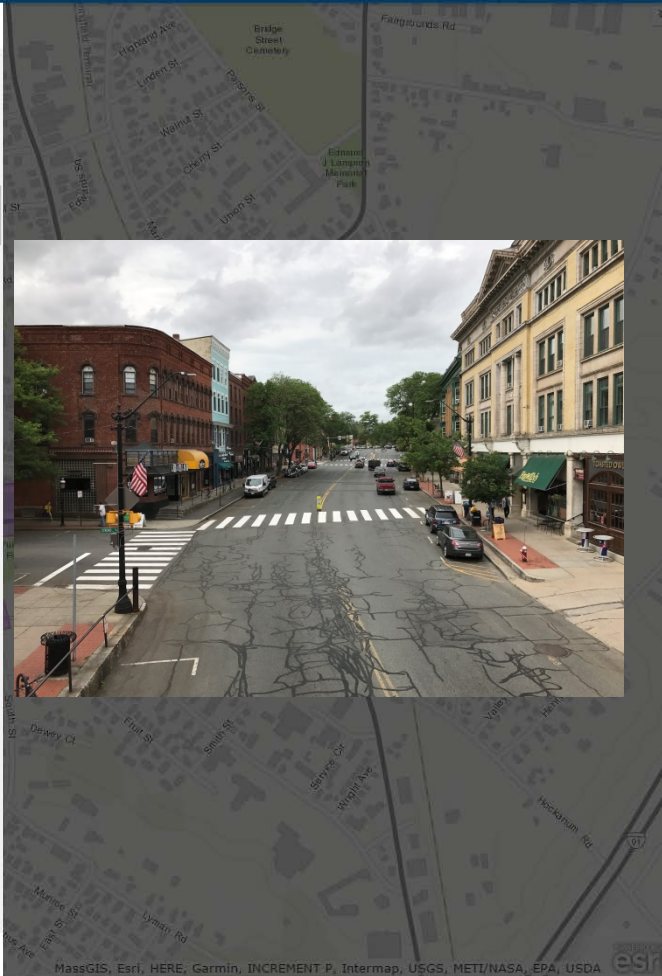
Part II - Project or Program Description

Provide whatever information is available to characterize the existing, general attributes of the facility.

CHARACTERISTIC	DATA	Comments
Number of Lanes	2	Left turn lanes @ King
Lane Width	24	feet
Shoulder Width	0	feet
Sidewalk Availability/Width	12	feet
Existing Right of Way	114	feet
Annual Daily Traffic (ADT)	15162	2015
Percent Truck Traffic		
Daily Bicycle Traffic		
Daily Pedestrian Traffic		
Traffic Control (signal, flash, signs, etc.)	3 Signals	King, State, Market
Roadway Lighting	Yes	
Posted Speed Limit	25	MPH
Transit Route & Facilities	PVTA Route	Bus Stops

In what type of area is the project located? Project limits may include more than one type of area. For a definition of areas, please refer to Chapter 3 of the *Guidelines*.

Previous Submit for Approval



The image shows a map and a street view of the project location. The map displays a grid of streets including Highway Ave, Linden St, Warren St, Cuddy St, Union St, Bridge Street Cemetery, and Fairgrounds Rd. The street view shows a city street with buildings, a crosswalk, and a street sign for King St.

MaPIT – Project Creation

PNF – Roadway Condition

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close 5 Project Need Form (PNF)

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval**
- 6 Project Initiation Form (PIF) Requires Approval

Part III - Identification of Problem, Need or Opportunity

A. Condition of Existing Facilities - Problem, Need, or Opportunity

1. **Primary Asset:** Please describe the condition of the roadway, path, or other horizontal facility, such as type and extent of cracking, ride-ability, utility patching or other surface defects such as rutting, raveling, shoving, bleeding, etc. This may be based on visual inspection or automatic detection methods. Are deformations related to the pavement structure, indicating road sub-base issues? Include any PMS (Pavement Management System) ratings, PCI (Pavement Condition Index) data and/or photos, if available.

Present Serviceability Ratings within project limits: Non Interstate : 2.73 - Fair



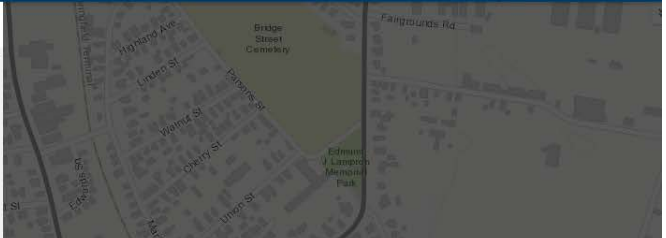
International Roughness Index scores within project limits: Non Interstate : Poor - Excellent

2. **Preventive Maintenance:** Describe any repair or preventive maintenance to the roadway or appurtenances. Include the extent of the work (resurfacing, rehabilitation, reconstruction or replacement) and when the last repair was done?

3. **Other Existing Assets:** Please describe the condition of facility appurtenances, such as signs, signals, lighting, median barriers, guardrail, pavement markings, curbing, landscaping, fences, ITS components, etc.

4. **Drainage System:** Please describe any specific concerns related to the existin

Previous Submit for Approval



MaPIT – Project Creation

PNF - Bridges

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval**
- 6 Project Initiation Form (PIF) Requires Approval

5 Project Need Form (PNF)

5. **Bridges:** If the project/program includes a bridge or bridges, please describe the condition, such as bridge ratings, dates of inspection, weight restrictions, closings, structural adequacy, functional obsolescence, condition of other bridge elements, etc. Identify the bridge location and ID number (if known).

BDEPT = N19015.

ITEM 58 Bridge Deck Rating = 7.

ITEM 59 Bridge Superstructure Rating = 6.


ITEM 60 Bridge Substructure Rating = 6.

6. **Existing Utilities:** Identify and locate any underground utilities (water, sewer, gas, other) and overhead utilities (electric phone, cable). Identify any larger utility appurtenances, above ground or underground, such as cabinets or vaults. Identify any active or inactive railroad crossings.

B. Mobility - Problem, Need, or Opportunity

1. **Motor Vehicle Mobility and Congestion:** Please describe any existing or prospective highway congestion issues or bottlenecks. Identify the nature and extent of congestion, including when it occurs and whether there is queuing. Include any traffic analysis, including LOS (Level of Service) data or travel times, if available. Please describe any need or opportunity for greater connectivity or improved access along the corridor or to particular points along the facility. Identify any missing connection or constraint in access that could be improved for greater motor vehicle mobility.

Previous Submit for Approval



The right side of the interface shows a map and a photograph of a bridge. The map at the top shows a street grid with labels like 'Highway Ave', 'Linden St', 'Wanna St', 'Crazy St', 'Linden St', 'Farrington Rd', 'Bridge Street Carwreckery', and 'Edman & Lorraine Memorial Park'. The photograph below shows a large, rusted metal truss bridge over a road. There are cars parked on the side of the road and a red brick sidewalk. The map at the bottom shows a different street grid with labels like 'Dewey Ct', 'Fruit St', 'Sullivan St', 'Spring St', 'Wright Ave', 'Hooking Rd', 'Merrill St', 'Linden Rd', 'Village', and 'Hanna'.

MaPIT – Project Creation

PNF - Transit

massDOT Massachusetts Department of Transportation Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval**
- 6 Project Initiation Form (PIF) Requires Approval

5 Project Need Form (PNF)

including the limits and width of any existing facility. In addition, please characterize existing bike traffic, and condition of any bike racks or other associated appurtenances. Identify if project location is included in any local, regional or state bicycle routes.

4. Transit Mobility and Accommodations: Please describe the existing transit accommodations (bus stops, bump outs, shelters, transit signal prioritization), include known bus routes and providers. In addition, please characterize existing transit usage, and other known obstructions.



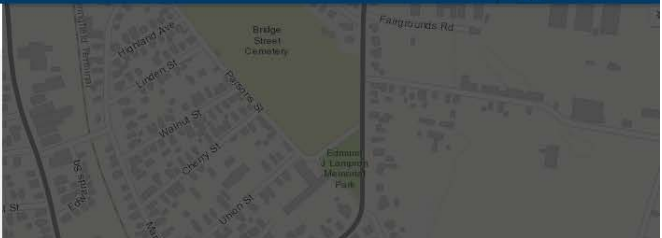
Project intersects with PVRTA Transit Routes
There was no intersection with MBTA Transit Routes

5. Connectivity: Please describe any need or opportunity for greater connectivity or improved access along the corridor or to particular points along the facility. Identify any missing connection or constraint in access that could be improved for greater bicycle or pedestrian mobility.

C. Safety - Problem, Need, or Opportunity

1. Motor Vehicle Safety: Please describe any safety concerns on the facility. Please note the presence of any MassDOT crash clusters, regionally identified high-crash locations, or any other documented need for improvements. Provide any crash history within the project limits, including number and severity of crashes, type of crashes and whether there have been any fatalities. Include the calculated crash rate, if available. If the project location contains any MassDOT identified crash clusters, a Road Safety Audit will need to be conducted prior to making a 25% submission.

Previous Submit for Approval



MaPIT – Project Creation

PNF - Safety

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close

5 Project Need Form (PNF)

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval**
- 6 Project Initiation Form (PIF) Requires Approval

C. Safety - Problem, Need, or Opportunity

1. Motor Vehicle Safety: Please describe any safety concerns on the facility. Please note the presence of any MassDOT crash clusters, regionally identified high-crash locations, or any other documented need for improvements. Provide any crash history within the project limits, including number and severity of crashes, type of crashes and whether there have been any fatalities. Include the calculated crash rate, if available. If the project location contains any MassDOT identified crash clusters, a Road Safety Audit will need to be conducted prior to making a 25% submission.

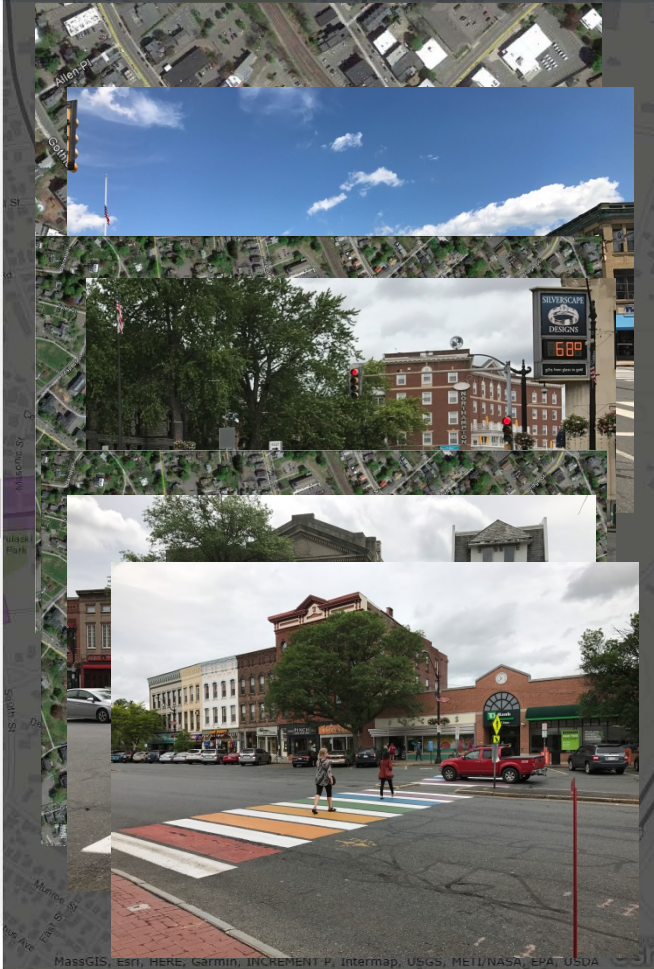
This location has been identified as a Top 200 high crash location. A road safety audit must be performed prior to the 25% submission, as noted in the 25% Design Submission Guidelines, Section IC5. (<http://www.massdot.state.ma.us/Portals/8/docs/traffic/FunctionalDesignReportGuidelines.pdf>)

This location has been identified as an Highway Safety Improvement Program (HSIP) eligible location. A road safety audit must be performed prior to the 25% submission, as noted in the 25% Design Submission Guidelines, Section IC5. (<http://www.massdot.state.ma.us/Portals/8/docs/traffic/FunctionalDesignReportGuidelines.pdf>)

2. Safety for Other Users: Please describe adjacent significant activity centers (schools, senior centers, places of assembly, industrial operations, or parks) and describe any safety issues for other users such as pedestrians, bicyclists, persons with disabilities, transit riders, trucks, school children, etc. Please note the presence of any MassDOT bike or pedestrian clusters, or any other documented need for improvements. If the project location contains any MassDOT identified crash clusters, a Road Safety Audit will need to be conducted prior to making a 25% submission.

This location has been identified as an Highway Safety Improvement Program (HSIP) eligible location. A road safety audit must be performed prior to the

Previous Submit for Approval



MaPIT – Project Creation

PNF – Environmental

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close

5 Project Need Form (PNF)

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval**
- 6 Project Initiation Form (PIF) Requires Approval

2. Stormwater Improvements/Impaired Waterbodies: Identify any impaired waterbodies or TMDL watersheds for nutrients near the project, and any stormwater runoff issues associated with the project.

There was no intersection with MassDEP Impaired Waters - 2012 Integrated List of Waters (305(b)/303(d)).

3. Wetland(s) and Resource Areas: Identify any wetlands, watersheds, or resource areas adjacent to the project, along with their current condition. Identify any opportunities to provide wetland restoration to a degraded wetland resource area.

There was no intersection with Coldwater Fish Resources within buffer limit.

Project may exist within Estimated Habitats of Rare Wildlife; Coordination with the Natural Heritage and Endangered Species Program may be required.

Project may exist within Priority Habitats of Rare Species; Coordination with the Natural Heritage and Endangered Species Program may be required.


There was no intersection with NHESP Certified Vernal Pools.

A BioMap2 Core Habitat Area exists near the project location; Culvert / Bridge designs should be optimized for fish and wildlife passage (for guidance, reference publications: FHWA-HIF-07-033, U.S. Forest Service 0077 1801-SOTDC, MassDOT Design of Bridges and Culverts for Wildlife Passage at Freshwater Streams, and Massachusetts Stream Crossing Handbook); Wildlife connectivity infrastructure upgrades should be considered; If environmental mitigation is required, restoration to BioMap2 habitats should be considered.

There was no intersection with Outstanding Resource Water.

There was no intersection with Areas of Critical Environmental Concern.

Previous Submit for Approval



The map displays an aerial view of a residential and commercial area. A large, irregularly shaped area is highlighted in a reddish-brown color, indicating a wetland or resource area. The map includes street names such as Hobart Ave, Linden St, Wanda St, Crazy St, Bridge Street, and Frankfort Rd. The map is overlaid with a grid and various environmental data layers. The bottom right corner of the map shows the Esri logo and a list of data providers: MassGIS, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA.

MaPIT – Project Creation

PNF - Social Equity

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval**
- 6 Project Initiation Form (PIF) Requires Approval

F. Social Equity - Problem, Need, or Opportunity


1. Environmental Justice: Identify if the project is located in, or within a ¼ mile of, an Environmental Justice area. Indicate any documented need to improve the environmental impacts, safety, sustainability, or mobility of the EJ community. Please note that the proponent is encouraged to fully engage any EJ communities to assess any problems, needs, or opportunities for improvement in the area.

Project exists within or adjacent to a 2010 Census - Environmental Justice Population.

2. Title VI: Identify if the project is located in, or within a ¼ mile of, a Title VI area. Identify any documented need or opportunity to improve the access, safety, sustainability, or mobility to the Title VI community through public outreach. Please note that the proponent is encouraged to fully engage Title VI communities to assess any problems, needs, or opportunities for improvement in the area.

3. Regional Equity: Please note the last project the proponent initiated seeking Federal Transportation Funds, along with the year initiated. If any projects have been constructed using Federal Transportation Funds in the last 5 years, please identify along with the year completed. If the area is located in a rural area, discuss the importance of any potential improvements to the community or region.

Previous Submit for Approval



MassGIS, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

MaPIT – Project Creation

PNF - Submit for MassDOT District approval

massDOT Project Intake Tool (v1.2.22) Michael Bolduc

Edit Project Close

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Requires Approval**
- 6 Project Initiation Form (PIF) Requires Approval

F. Social Equity - Problem, Need, or Opportunity

1. Environmental Justice: Identify if the project is located in, or within a ¼ mile of, an Environmental Justice area. Indicate any documented need to improve the environmental impacts, safety, sustainability, or mobility of the EJ community. Please note that the proponent is encouraged to fully engage any EJ communities to assess any problems, needs, or opportunities for improvement in the area.

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3. Regional Equity: Please note the last project the proponent initiated seeking Federal Transportation Funds, along with the year initiated. If any projects have been constructed using Federal Transportation Funds in the last 5 years, please identify along with the year completed. If the area is located in a rural area, discuss the importance of any potential improvements to the community or region.

Project exists within or adjacent to a 2010 Census - Environmental Justice Population.

Submit for Approval

MassGIS, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

MaPIT – Project Creation

District “Gatekeepers” receive e-mail notification of submitted PNF

massDOT Project Intake Tool (v1.2.22)

View Project Close 5 Project Need Form (PNF)

- 1 Start Here
- 2 Project Description
- 3 Sketching
- 4 Geoprocessing
- 5 Project Need Form (PNF) Awaiting Review
- 6 Project Initiation Form (PIF) Requires Approval

MASSDOT - HIGHWAY DIVISION

Project Need Form

This form is intended to provide preliminary information about the proposed project. It is not expected that all information that is asked for is available or known but applicants are encouraged to complete the form as fully as possible.

Part I - Facility Location and General Information

Municipality:

Primary Roadway(s) or Facility:

MassDOT District:

MPO Region:

Estimated project limits by mile marker, station or other distinguishing landmarks such as cross street(s). **Please include a locus map of the potential project location.**

Route/Street ID	Route/Street Name	Begin	End	Mileage	Primary
SR9 EB	MAIN STREET	42.211	43.144	0.9253	<input checked="" type="radio"/>
SR9 WB	MAIN STREET	93.379	94.305	0.9172	<input type="radio"/>
SR10 SB	SOUTH STREET	34.403	34.793	0.3871	<input type="radio"/>
SR10 NB	SOUTH STREET	26.368	26.72	0.3504	<input type="radio"/>
US5 SB	PLEASANT STREET	30.631	30.781	0.1489	<input type="radio"/>

Previous Reject Approve

MassDOT reviews PNF before Approval

PI GateKeeper

MaPIT – Project Creation

Approved PNF gives proponent access to PIF

massDOT Project Intake Tool (v1.2.22)

6 Project Initiation Form (PIF)

1 Start Here
Project Need & Initiation

2 Project Description

3 Sketching

4 Geoprocessing

5 Project Need Form (PNF) *Approved*

6 **Project Initiation Form (PIF)** *Requires Approval*

MASSDOT - HIGHWAY DIVISION

Project Initiation Form

Part I - General Information

Project Location: Northampton - Main Street

Scope of Work: Describe the proposed improvements including limits of work, length of the project, major improvements, proposed cross-section, improvements to secondary assets, and related work. The description of improvements to secondary assets should include any proposed improvements to curbing, sidewalks, traffic signals, signs, lighting, landscaping, drainage, walls, etc. The scope of work for a multi-use path should also identify any proposed at-grade crossing treatments.

The primary project need is to reconstruct Main Street to provide safer and more desirable bicycle and pedestrian facilities. Main Street is currently very wide, with poorly defined travel lanes resulting in inconsistent vehicular movements...

Regional Benefit: Describe any regional benefits that would be realized should the Project Need be met.

The primary benefits to the region include the reduction in the likelihood of future pedestrian and bicyclerashes with motor vehicles due to improved sight lines at crosswalks, shorter crossing distances, and separated bicycle facilities. Other...

Right of Way: Identify how much right of way is anticipated to complete the project, including fee takings, permanent and temporary easements.

Project Scope is detailed by Proponent/Designer

Previous Submit for Approval

MassGIS, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

MaPIT – Project Creation

PIF – Previous information is carried over & project scope is

massDOT Project Intake Tool (v1.2.22)

6 Project Initiation Form (PIF)

C. Safety

1. **Motor Vehicle Safety:** Describe any improvements that are expected to reduce the crash potential or improve the general safety for motor vehicles. Please provide any highway safety analysis that has been completed, including Road Safety Audits.

The proposed reconfiguration of Main Street's travel lanes will lead to reduced crash potential for motorists. Currently, the single very-wide travel lane in each direction is used as two unmarked lanes. This leads to frequent "lane" merges which...

This location has been identified as a Top 200 high crash location. A road safety audit must be performed prior to the 25% submission, as noted in the 25% Design Submission Guidelines, Section ICS. (<http://www.massdot.state.ma.us/Portals/8/docs/traffic/FunctionalDesignReportGuidelines.pdf>)

This location has been identified as an Highway Safety Improvement Program (HSIP) eligible location. A road safety audit must be performed prior to the 25% submission, as noted in the 25% Design Submission Guidelines, Section ICS. (<http://www.massdot.state.ma.us/Portals/8/docs/traffic/FunctionalDesignReportGuidelines.pdf>)

2. **Safety for Other Users:** Describe any improvements that are expected to improve the safety for other multi-modal users such as pedestrians, bicyclists, persons with disabilities, transit riders, school children, etc. Please provide any highway safety analysis that has been completed, including Road Safety Audits.

The proposed project incorporates several features to reduce the risk of bicycle and pedestrian crashes. Designating one travel lane in each direction reduces the multi-lane threat that pedestrians currently face at every uncontrolled crosswalk...

This location has been identified as an Highway Safety Improvement Program (HSIP) eligible location. A road safety audit must be performed prior to the 25% submission, as noted in the 25% Design Submission Guidelines, Section ICS. (<http://www.massdot.state.ma.us/Portals/8/docs/traffic/FunctionalDesignReportGuidelines.pdf>)

When PIF is complete, project is sent to MassDOT for Approval

MaPIT – Project Creation

Notification sent to MassDOT District of PIF completion

The screenshot displays the massDOT Project Intake Tool interface. On the left, a sidebar contains a 'My Projects' section with a 'Create Project' button. Below it is a 'Projects Table of Content' table. The main area shows a map of Northampton, Massachusetts, with a purple highlighted project area. A red arrow points to the 'Create Project' button, and the text 'PIF is reviewed and approved by MassDOT' is overlaid on the map area. The bottom of the interface shows a toolbar with 'Edit', 'Delete', 'Export', 'Comments', and 'Changes' options, and a status bar with coordinates and logos for MassGIS, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, and USDA.

Project Name	Date	Status
Northampton - Main Street	7/17/2017	PIF Approved
HCG TEST Proj 27	4/11/2017	Draft

MaPIT – Project Creation

MassDOT Gatekeepers use widget to approve projects

The screenshot displays the massDOT Project Intake Tool (v1.2.22) interface. The top navigation bar includes the massDOT logo, the title "Project Intake Tool (v1.2.22)", and a user profile for "PI GateKeeper". Below the navigation bar, there is a "My Projects" section with a "Create Project" button. A "Projects Table of Content" table lists two projects:

Project Name	Date	Status
Northampton - Main Street	7/17/2017	PIF Approved
HCG TEST Proj 27	4/11/2017	Draft

The main area of the interface is a map of Northampton, Massachusetts, showing a purple-shaded project boundary along Main Street. A red arrow points to a specific location on the map, near the intersection of Main Street and North Street. The map includes various street names, landmarks like Smith College, and geographical features like a river. The bottom of the interface has a toolbar with options: Edit, Delete, Export, Comments, and Changes. The bottom right corner shows the Esri logo and a list of data providers: MassGIS, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA.

MaPIT – Project Creation

Project is submitted to ProjectInfo for official creation

The screenshot displays the massDOT Project Intake Tool interface. On the left, a 'Projects Table of Content' lists two projects: 'Northampton - Main Street' (dated 7/17/2017, status PIF Approved) and 'HCG TEST Proj 27' (dated 4/11/2017, status Draft). The main area shows a map of Northampton, MA, with a purple highlighted area indicating the project location. A 'Submit Projects' dialog box is open, showing a table with the following content:

Project	Description
<input checked="" type="checkbox"/> Northampton - Main Street	NORTHAMPTON-IMPROVEMENTS AND RELATED WORK ON MAIN STREET (ROUTE 9) FROM MASONIC STREET TO MARKET/HAWLETT STREET (0.33 MILES)

A red arrow points from the 'Submit Projects' dialog box to the purple highlighted area on the map. The map shows various streets including Main Street, Masonic Street, and Market Street. The bottom of the screen shows a footer with 'MassGIS, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA' and the Esri logo.

MaPIT – Project Created

Project is officially created, information is automatically pushed from MaPIT to MassDOT's internal database, and a project number is created

The screenshot displays the ProjectInfo web application interface for project 608729. The main content area shows project details: "Project Number: 608729" and "NORTHAMPTON- IMPROVEMENTS AND RELATED WORK ON MAIN STREET (ROUTE 9) FROM MASONIC STREET TO MARKET/HAWLET STREET (0.33 MILES)". A progress bar indicates the project status: PNF, PIF, PRC, Approved, 25%, 75%, 100%, Final, Advertising. A map shows the project location in Northampton, Massachusetts, with a purple highlighted area along Main Street. The interface includes a sidebar with navigation options like "SEARCH", "Contract Search", "Project Search", "VIEW Mode", "Actions", and "Reports". The bottom of the page features a "Misc. and Uploads" section with a text input field and a "Top" button.

Category	Design Duration	Project Review
Comments	Project Summary	

Data Source	Comments
	15'-25' elsewhere
	Angled and parallel parking
	Cobrahead

Top

MaPIT – Scoring

Project is then scored using information provided by forms and GIS

C. Safety - Problem, Need, or Opportunity

1. Motor Vehicle Safety: Please describe any safety concerns on the facility. Please note the presence of any MassDOT crash clusters, regionally identified high-crash locations, or any other documented need for improvements. Provide any crash history within the project limits, including number and severity of crashes, type crashes and whether there have been any fatalities. Include the calculated crash rate, if available. If the project location contains any MassDOT identified crash clusters, a Road Safety Audit will need to be conducted prior to making a 25% submission.

The proposed reconfiguration of Main Street's travel lanes will lead to reduced crash potential for motorists. Currently, the single very-wide travel lane in each direction is used as two unmarked lanes. This leads to frequent "lane" merges which can lead to side-swipe and rear-end collisions. The proposal includes one lane in each direction with dedicated left-turn pockets at all side streets and signalized intersections in order to reduce the crash potential (and corridor/intersection LOS).

This location has been identified as a Top 200 high crash location. A road safety audit must be performed prior to the 25% submission, as noted in the 25% Design Submission Guidelines, Section IC5. (<http://www.massdot.state.ma.us/Portals/8/docs/traffic/FunctionalDesignSubmissionGuidelines.pdf>)

This location has been identified as an Highway Safety Improvement Program (HSIP) eligible location. A road safety audit must be performed prior to the 25% submission, as noted in the 25% Design Submission Guidelines, Section IC5. (<http://www.massdot.state.ma.us/Portals/8/docs/traffic/FunctionalDesignSubmissionGuidelines.pdf>)

MassDOT Projects	
Project #:	608729
District:	2

C SAFETY				Project #	608729
<i>The extent to which the project addresses transportation safety issues.</i>					
This section is worth 15% of the final score					
				Maximum Points for this Section:	10
Criterion	Factor	Points	Note	Score	
1 HSIP Eligibility and Safety for Motor Vehicles (Score based on a project's intent to improve motor vehicle safety)	Project targets critical motor vehicle safety issues identified through a Road Safety Audit	6	Project is HSIP Eligible with multiple Top 200 crash clusters.	5	
	Project may be HSIP eligible based on data from a state or regional HSIP eligibility program, and project targets safety issues	5			
	Crashes are higher than state or district average and project specifically address crashes	4			
	Project includes improvements to a Strategic Emphasis Area of the Strategic Highway Safety Plan (examples may include lane departures, intersection improvements, traffic calming measures, etc.)	3			
	Crashes are lower than state or district average, but project will implement known safety improvements	2			
	Project is an NHS roadway or documented evacuation route AND project will improve its condition	1			
Safety improvements not applicable / no specific safety improvements	0				
2 Effect on Safety for Other Users (Score based on a project's intent to improve bicycle and pedestrian safety)	Project targets critical bicycle or pedestrian safety issues identified through a Road Safety Audit	4	Project is HSIP Eligible with multiple bike/ped crash clusters.	3	
	Project may be HSIP eligible, and/or data clearly indicates a need for improved bicycle or pedestrian safety that the project addresses	3			
	Project includes improvements to a Strategic Emphasis Area of the Strategic Highway Safety Plan (examples may include separated bike lanes, shared use paths, complete streets, safe routes to school, crossing signal improvements, traffic calming measures, etc.)	2			

Evaluated by:	Mike Bolduc	Date Scored:	1/12/17	Previous Score:	61
Version:	2.0				

Future Additions

- Many more layers will be added to the screening feature; continual process
- Some layers will include buffers to incorporate areas of concern that may not overlap with project limits (nearby impaired waterways, schools, etc.)
- Regional Planning Agencies have many GIS layers that could be added; RPAs can use screening feature to help with their own priority scoring
- Economic Data will be added, including Priority Development Areas, Brownfield Redevelopment Sites, undeveloped commercial properties, etc.
- Other MassDOT Divisions such as the MBTA will have versions of MaPIT to help initiate their projects
- A separate scoring module will be developed to allow MassDOT

Summary & Benefits

- MaPIT allows municipalities and other proponents to initiate projects quicker, easier, and more efficiently with less reliance on a consultant
- Identifies issues and vulnerabilities early
- Lends efficiency to generating a scope of work, environmental permitting, safety audits, scoring, and project delivery
- Maps project locations for DOT and public viewing
- Lends transparency to MassDOT's project development and scoring processes

Next Steps & Rollout

- Tool in QA/Final Testing now
- Anticipated go-live by end of summer 2017 as part of **geoPASS** (The Geo-spatial Planning, Analysis

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The screenshot shows the geoPASS web application interface. At the top, there is a blue header with the text "Massachusetts geoDOT GIS For Transportation". Below the header, the main content area features the title "geoPASS" and a descriptive paragraph: "The Geo-spatial Planning, Analysis and Screening Suite (geoPASS) is a collection of discreet applications that will allow users to perform various tasks relevant to the development, creation and analysis of MassDOT Projects and related data sets." A search bar labeled "Search maps" is positioned below the text. A navigation bar includes options for "Sort by" (Date, Title, Type, Ratings, Avg. Rating, Comments, Views). Three application tiles are displayed: "Highway Project Viewer" with a "ROAD CONSTRUCTION 500FT" sign, "DRAFT 2018-2022 Capital Investment Plan Update" with "CIP" text, and "Project Intake Tool" with "MaPIT" text. A right-hand sidebar menu is titled "Show" and lists "All Results", "Maps", "Layers", "Applications" (highlighted), "Tools", and "Files". At the bottom, there are social media icons for Facebook, Twitter, Google+, LinkedIn, and Email, along with a "0" count.

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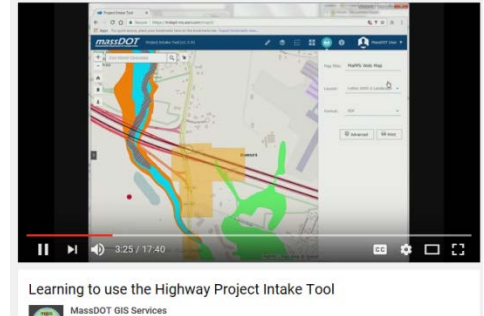
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Additional Information

YouTube Video demonstrating MaPIT use:

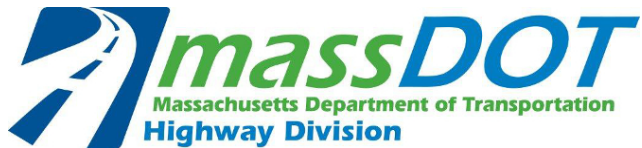
<https://www.youtube.com/watch?v=fM1qDgt2GiI>

(or search "Learning to use the Project Intake Tool" in YouTube)



MassDOT **geoDOT**:

<http://massdot.maps.arcgis.com/home/index.html>



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SHRP2 on the Web

- **GoSHRP2**
www.fhwa.dot.gov/GoSHRP2
 - Learn how practitioners are using SHRP2 products
- **SHRP2 @AASHTO**
<http://SHRP2.transportation.org>
 - Implementation information for AASHTO members
- **SHRP2 @TRB**
www.TRB.org/SHRP2
 - Research information



- **FHWA C19 Website**
<https://www.environment.fhwa.dot.gov/stmlng/shrp2-c19/default.asp>