

**2024**

**State**

**Planning and**

**Research**

**Program I**

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# Office of Transportation Planning

David Mohler, Executive Director	Steve Woelfel, Deputy Executive Director	Bob Frey, Director of Project Oriented Planning	Ethan Britland, Manager of Multimodal Planning	Peter Sutton
				Makaela Niles
				Patrick Snyder
				TPP II (to be filled)
			Lionel Lucien, Manager of Public Private Development	William Simon
		Kevin Lopes, Director of Geospatial Technology		TPP III (to be filled)
				David Dinocco
				Janine Hynds
				Michael McGill
				Jose Simo
				Argenis Sosa
				TPP II (to be filled)
				Sudip Paudel
				Lin Han
				Shruti Venkatesh
				TPP III (to be filled)
				Florence Person
				TPP IV (to be filled)
				Charlotte Mays
				David Henriques
				Nikhitha Yelukati
				Charles Major
		Derek Krevat, Manager of MPO Activities		Derek Shooster
				Christopher Klem
				Miranda Briseno
				Raissah A. Kouame
		Jules Williams, Manager of Sustainable Transportation		Max Natanagara
				Daisy Brown
		Manager of Research (to be filled)		Nicholas Zavolas
				Patrick McMahon
				Michael Flanary
				Anil Gurcan
		Jonathan Church, Manager of Transit Planning		Austin Sanders
				Patricia Cahill
				Arnav Chatterjee
				Caleb Plummer
				TPP III (to be filled)
		Liz Williams, Director of Data and Policy		Marthinus J. "MJ" Riekert
				TPP II (to be filled)
		Michelle Scott, Manager of Capital Planning		Andrew Wang
				TPP II (to be filled)
		Maria Ramirez, Manager of Administration		Nathaniel Kerr
				Vacant (to be filled)
		Susan Reppucci		

# Highway Division

Jonathan Gulliver, Highway Administrator	Carrie Lavallee, Deputy Administrator and Chief Engineer	Jack Moran, Deputy Chief Engineer for Performance and Asset Management	Ed Naras, Pavement Management Engineer	Jonathan Smith
				Cody Holemo
				William Gutierrez
				Stefan Kargakis
				Patrick Lawlor
				Liz Cruz-Falero
		John Bechard, Deputy Chief Engineer for Project Delivery	John Anthony, Survey Engineer	Subash Shahi
				James Pierce
				Arben Zhuri
				Brian Knowles
				Evanson Browne
				Jeff Bruce
				John Anthony
				John Barnes
	Leo Scanlon			
	Michael Chouinard (reports to John DeLeire)			
	Michael Roberts (reports to Michael Chouinard)			
	Neil Boudreau, Assistant Administrator for Traffic and Safety	John Amato , Interim Manager of Advanced Transportation Technology	Eugene Tivnan	
			Mehdi Sadjady	
			Robert Belcastro	
			Tracy DeYoung	
			Brian Farrington	
			James Groomes	
			David Manktelow	
			Hector Monet	
			Michael Ribeiro	
			Wayne Schofield Jr.	
			Misrak Sultan	
			Lori Suss	
			Ian Adams	
			Corey O'Connor	
			Spencer Cullen	
			Zachary Medeiros	
			Bonnie Polin, State Safety Engineer	Amy Getchell
		Christopher Falcos		
		Ana Fill		
		Dakota DelSignore		
		Jennifer Inzana		
		Michelle Deng		
		Stacey Schwartz		
		Kirsten Johnson		
		Rosalynd Scott		
		Kevin Fitzgerald		
		Kevin Chiang		
		Buu Tran		
		Noah Thompson		
		Emmanuel Gonzalez		
Thao Tran				
Everlyn Galloway				
Zachary Medeiros				
Fang Xi				
Amitai Lipton				
Kylie Braunius				
Transportation Program Planner II (TBH)				
Student Intern				
Student Intern				
Student Intern				

# SPR I Part A

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# Administration



## A.1 / Administration and SPR Coordination

**Task Lead:** Maria Ramirez

**Task Purpose:**

To supervise and direct planning and research staff and projects to maximize State Planning and Research (SPR) funding. The administrative staff includes the Executive Director, Deputy Executive Director, Director of Project-Oriented Planning, Director of Data and Policy, Director of Geospatial Technology, Manager of Administration, the SPR Program Coordinator, and one administrative support staff. The administrative staff oversees all fiscal and administrative activities of the following units:

- Capital Planning
- GIS Services
- MPO Activities
- Multimodal Planning
- Public-Private Development
- Research
- Sustainable Transportation
- Transit Planning

Guidance is also provided to the following units of the MassDOT Highway Division that are authorized for SPR reimbursement:

Pavement Management, Statewide Traffic Data Collection, Traffic Crash Records and Safety Management, and Survey.

**Accomplishments in prior year:**

Developed standard operating procedures for billing, project closeouts and new project/contract awards and funding to ensure proper billing and consistency with project and contract awards/closeouts.

**Proposed activities for next year:**

SPR I and II administration, including required reporting, amendments, and scope approvals by FHWA. Submit SPR I and II deliverables to FHWA. Continue onboarding several OTP staff to fill vacancies. Internal working group to continue coordination with FHWA on billing, project closeouts and new contracts/awards consistent with SOP.

**Anticipated products:**

All activities, tasks, and deliverables identified for completion within FFY 2024.

Finalization of project closeout documentation and Standard Operating Procedure(s) addressing billing and contract closeouts and new contract/project awards.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$817,347.68**

MassDOT staff members	% Time to task
Maria Ramirez	100.0
Nathaniel Kerr	100.0
David Mohler	100.0
Susan Reppucci	100.0
Stephen Woelfel	100.0
Business Management Specialist (TBH)	100.0
Kevin Lopes	50.0
Liz Williams	50.0
Bob Frey	50.0

*Estimated Other Costs:* **\$201,000.00**

**Estimated task budget: \$1,018,347.68**

*Other cost notes:*

1. American Association of State Highway and Transportation Officials (AASHTO) Annual Membership: \$48,000.00
2. Miscellaneous administrative expenses (incl. \$650 for Online trainings for Sustainable Transportation team): \$10,000.00
3. Northeast Association of State Transportation Officials (NASTO): \$2,000.00
4. Newspaper ads for public meetings/announcements: \$8,000.00
5. The Eastern Transportation Coalition: \$92,000.00
6. Translation Services: \$15,000
7. Travel: \$26,000.00

# Capital Planning

## A.2 / Capital Planning Development and Coordination

**Task Lead:** Michelle Scott

### **Task Purpose:**

This task is necessary for the development and process improvements of the annual Capital Investment Plan (CIP) for MassDOT and the state-funded portion of the MBTA CIP. Work under this task will involve the production of the state fiscal year (SFY) 2025–2029 CIP, a fiscally constrained document that will include MassDOT's capital investments across all Divisions as well as investments for MassDOT's Enterprise Services. In building this plan, staff will work with each MassDOT Division to identify and prioritize projects for funding over this five-year period. Additionally, staff will gather public input following the procedures established in MassDOT's Public Participation Plan. Staff will ensure that the CIP development process is aligned with the development of the STIP and the statewide long-range transportation plan.

The SFY 2025–2029 CIP will account for trends and changing demands on our transportation system and the vision of how our transportation system should evolve to meet the needs of our customers and the changing demographics of the Commonwealth. With input and guidance from the Secretary, Administrators, and the Divisions, staff will revisit goals, strategic objectives, and priorities for the next five years in developing a new capital plan for MassDOT. The 2025–2029 CIP will continue to incorporate process improvements for the planning cycle, including the following:

- Enhancements to tools used to track project information and costs.
- Increased focus on engaging traditionally underrepresented groups during public participation processes.
- Incorporation of objectives from updated asset management and strategic plans (such as the Commonwealth's Transportation Asset Management Plan, Bicycle and Pedestrian Plans, and the Freight Plan, among others).
- Refinements to project scoring methodologies.
- Improvements to the CIP equity analysis.
- Incorporation of sustainability and resiliency investment considerations in program sizing and project evaluations.

This task also covers staff presentations to and engagement with the MassDOT Board of Directors and its committees. In addition, it covers coordination with MassDOT's Capital Budget team, the Commonwealth's Executive Office of Administration and Finance, and other internal and external stakeholders for CIP-related activities over the course of the year. As part of this task, staff may

request consultant support through task A.16 “On Call Contracts” for producing and maintaining the CIP Universe of Projects and producing CIP documents, among other activities.

**Accomplishments in prior year:**

- Developed and published the SFY 2024–2028 Capital Investment Plan. Provided web-based CIP comment tool and resources to gather public input and worked with staff from metropolitan planning organizations to host virtual public meetings about the draft CIP.
- Utilized on-call consultant support from Cambridge Systematics (CS) under SPR Task A.16, "On Call Contracts," to develop, maintain, and enhance the CIP universe of projects.
- Made presentations to the MassDOT Board of Directors, its committees, external stakeholders, and the public.
- Responded to CIP-related information requests from MassDOT and external stakeholders.
- Continued to refine the Web-based CIP ESRI StoryMap and used Tableau to create interactive data visualizations displaying CIP funding sources and spending.
- Created and maintained a CIP development manual.
- Developed reports for tracking federal competitive grant opportunities for transportation and applications for funds.
- Continued to implement improvements to streamline the CIP development process and minimize manual inputs and analyses.

**Proposed activities for next year:**

- Coordinate the development of the SFY 2025-2029 Capital Investment Plan.
- Make presentations to the MassDOT Board of Directors, its committees, external stakeholders, and the public.
- Respond to CIP-related information requests.
- Continue to implement improvements to streamline and enhance the CIP development process.
- Support other capital planning-related initiatives, as needed.

**Anticipated products:**

- SFY 2025-2029 Capital Investment Plan.
- Responses to requests for information from within MassDOT and from external stakeholders.
- Presentations to the MassDOT Board of Directors, its committees, external stakeholders, and the public.
- Updates to the CIP Development Manual.
- Updates to CIP-related Web content.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$225,702.41**

MassDOT staff members	% Time to task
Michelle Scott	100.0
TPP II TBH	100.0
Andrew Wang	70.0

**Estimated task budget:** \$225,702.41

# Geospatial Technology

## A.3 / GIS Coordination

**Task Lead:** Kevin Lopes

**Task Purpose:**

To work closely with each MassDOT Division; other state agencies, including MassGIS; municipalities; and regional agencies, including Metropolitan Planning Organizations (MPOs), to continually improve the delivery of GIS data and applications for all customers of the Commonwealth, ensuring better information and project delivery through a variety of systems and technologies. Work under this task will also involve participating in and contributing to the specialized coordination required to integrate OTP's GIS tools and platforms into agency-wide asset management inventories and processes. We will also represent MassDOT at various state, regional and national GIS user groups.

**Accomplishments in prior year:**

Continued ongoing GIS coordination through a variety of correspondence and meetings.

- Continued working with Massachusetts Bay Transit Authority (MBTA) on building out the elevator cleaning application and bringing new assets into the tool.
- Began working with the Highway Division to bring Plans and Records into a spatial database.
- Continued to work with the Rail & Transit Division on connecting with the Grants Plus database.
- Continued working with the MBTA to incorporate their projects into the MaPIT application.

**Proposed activities for next year:**

All coordination activities performed in FFY 2023 are intended to continue throughout FFY 2024. The level of coordination needed will vary throughout the year, based on particular issues or efforts to support all GIS tasks and projects.

- Continue working with the Highway Division on their VueWorks GIS integration.
- Continue working with the Highway Division on replacing the Outdoor Advertising database.
- Continue to work with the Rail & Transit Division on connecting with the Grants Plus database.
- Begin Working with MBTA to bring the Rail Inventory into a Linear Referencing System for track and asset management.

**Anticipated products:**

- Various products may be initiated through coordination with MassDOT Divisions, the MBTA, and municipal and regional governments.



**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$274,767.52**

MassDOT staff members	% Time to task
Jose Simo	100.0
Janine Hynds	100.0
Kevin Lopes	50.0

**Estimated task budget:** \$274,767.52

## A.4 / GIS Platform Development

**Task Lead:** Kevin Lopes

### **Task Purpose:**

To support the use of geographic information systems (GIS) for all MassDOT, MBTA, Metropolitan Planning Organization (MPO) and municipal staff. To ensure that there is continuous access to the GeoDOT platform; that users are able to work with all applications; and that GIS technology is kept current and operating efficiently with updated and reliable tools introduced throughout the year.

### **Accomplishments in prior year:**

Provided a variety of support services to the MassDOT Divisions, the MBTA, and municipalities by providing relevant applications for various agency staff.

- Completed and Implemented the Transit module in eSTIP.
- Developed a Mutual Aid application in partnership with MEMA for Cities and Towns.
- Completed the Waze dashboard on the GeoDOT platform that was piloted in EDC6.
- Continued working on the TIP Scoring application for MPOs and hope to complete this in FFY24.
- Completed the new Project Viewer related to the Bond Bill with significant enhancements including funding information.
- Began redesigning the Engage suite of apps and will be building them out in the next FFY.
- Designed and built an interactive year-end report dashboard to supplement the paper report.
- Began building the next generation MaPIT tool in Experience Builder.
- Continued providing training and support to various business units throughout MassDOT, MBTA and various municipalities.

### **Proposed activities for next year:**

- The MaPIT application will be deployed with new functionality on the Experience Builder platform.
- Enhancement of eSTIP will continue this year to advance FMIS integration.
- Development of a TIP scoring tool for the MPOs will be completed.
- Redevelopment of the Engage outreach and equity suite of tools will be completed.
- Update the Road and Bicycle Inventory Report applications.
- Conflation of the Road Inventory to the Regional Integrated Transportation Information System (RITIS) and other road networks will continue.
- Development and maintenance of GeoDOT will continue.
- Using new platforms for enhanced data visualizations and analysis.

- Websites will be created and updated as necessary.
- New applications will continue to be developed throughout the year.
- Existing applications will be updated and improved.
- Continue cloud hosting for our GIS platform.

**Anticipated products:**

Various applications, web sites and web maps are expected to be created.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$336,317.54**

MassDOT staff members	% Time to task
<b>Shruti Venkatesh</b>	100.0
<b>TPP IV (TBH)</b>	100.0
<b>TPP III (TBH)</b>	100.0
<b>Argenis Cordones Sosa</b>	50.0
<b>Charlotte Mays</b>	25.0

*Estimated Other Costs:* **\$2,795,350.00**

**Estimated task budget: \$4,031,667.54**

*Estimated consultant costs: \$900,000.00*

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>MaPIT Development / 110122</b>	\$4,636,134.00	\$3,636,134.00	\$500,000.00	\$500,000.00	ESRI	None	09-30-2024
<b>Engage Development and Application Maintenance / 85243</b>	\$903,332.00	\$703,332.00	\$100,000.00	\$100,000.00	CDM Smith	None	09-30-2024
<b>eSTIP Enhancements and Supporting Applications / 110641</b>	\$1,873,323.00	\$1,273,323.00	\$300,000.00	\$300,000.00	PMG Software	None	09-30-2024

*Consultant notes:*

*Other Cost notes:*

- \$300 for Mentimeter annual subscription.
- \$2,000 for Google licensing.
- \$2,500 for STATA annual subscription.

- \$3,500 for annual Intersection Manager maintenance.
- \$4,800 for annual GeoJobe maintenance.
- \$5,000 for annual search engine subscriptions for research program.
- \$10,000 for annual Tableau maintenance.
- \$12,000 for Plotter annual lease and maintenance.
- \$20,000 for Hardware/software purchases.
- \$40,000 for annual VertiGIS maintenance.
- \$30,000 for annual TransCAD maintenance.
- \$30,000 for annual Pictometry maintenance.
- \$50,000 for annual Wrike maintenance.
- \$68,000 for Voyager Search maintenance.
- \$90,000 for PMG Maintenance.
- \$102,250 for 1Spatial software and maintenance.
- \$110,000 for Conveyal annual software licenses and support.
- \$500,000 for annual ROK Technologies for AWS Cloud Hosting.
- \$1,715,000 for annual ESRI Enterprise Agreement.

## A.5 / GIS Services

**Task Lead:** Kevin Lopes

**Task Purpose:**

To provide maintenance and support of the GeoDOT Platform. Also, to provide a wide variety of standard and customized maps in support of MassDOT's operations for customers, maintain annual reports and catalogs, as well as provide post-production support and miscellaneous graphic design.

**Accomplishments in prior year:**

The GIS Services Team continued to maintain the platform and user accounts of the GeoDOT platform as well as provide a wide variety of standard and customized maps for many internal and external customers on an ongoing basis.

- GeoDOT user accounts were created and maintained.
- Staff responded to over 400 map and data requests.
- Map and data catalogs were maintained and updated on schedule.
- Miscellaneous graphics support tasks performed frequently including the new GeoDOT Local Hub Site.

**Proposed activities for next year:**

- Continue to maintain and expand the GeoDOT platform including additional content, new Hub sites and additional named user accounts.
- All standard and recurring mapping and data provision activities performed in 2023 are intended to continue throughout 2024, as well as responding to specialized map and data requests as needed.
- Continue to improve the MassDOT map library and increase access to MassDOT data resources and improve provision of transportation information to a larger audience.
- Continue to build and maintain the Mass.gov website for all Planning sections and projects.

**Anticipated products:**

- GIS Maps.
- Map Catalog.
- Miscellaneous graphic products and reports.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits: \$188,460.35*

MassDOT staff members	% Time to task
Michael McGill	100.0
Argenis Cordones Sosa	50.0
Lin Han	50.0

**Estimated task budget: \$188,460.35**

## A.6 / Highway Performance Monitoring System (HPMS)

**Task Lead:** Kevin Lopes

### **Task Purpose:**

To update and maintain the Highway Performance Monitoring System (HPMS) data files in order to comply with Federal Highway Administration (FHWA) reporting requirements for the National Highway System (NHS) including Surface Transportation Block Grant Program (STBG) route mileage, system condition and performance, vehicle-miles of travel, highway functional classification, and administrative jurisdiction.

### **Accomplishments in prior year:**

Submitted the Certified Public Road Mileage of 2022 to FHWA on May 22, 2023, with an updated letter from Governor Maura Healey authorizing the Secretary of Transportation to approve public roadway mileage.

- The 2022 Interstate submittal was uploaded to the FHWA web site on April 15th, 2023.
- 2022 HPMS full submittal was uploaded to the FHWA web site on June 15, 2023.

### **Proposed activities for next year:**

All activities performed in FFY 2023 are intended to continue throughout FFY 2024, with any additional FHWA requirements added to the process as needed.

- Continue participating in the AEGIST Pooled Fund Study.
- Submit the Interstate HPMS submittal by April 17th.
- Submit the complete HPMS submittal by June 15th.

### **Anticipated products:**

2023 Certification of Public Road Mileage - June 3, 2024.

- 2023 HPMS Interstate Submittal - April 17, 2024.
- 2023 HPMS Full Submittal - June 15, 2024.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$98,563.47**

MassDOT staff members	% Time to task
David DiNocco	50.0



<b>Sudip Paudel</b>	25.0
<b>Charlotte Mays</b>	25.0

**Estimated task budget: \$98,563.47**

## A.7 / Inventory Data Management

**Task Lead:** Kevin Lopes

### **Task Purpose:**

To provide MassDOT Divisions, the MBTA, other state agencies, municipalities and our public customers with comprehensive data and database management, as well as, to ensure that all users can access needed data efficiently. We will also provide data and spatial analysis where needed.

### **Accomplishments in prior year:**

Performed data management tasks and projects supporting MassDOT Divisions, including many spatial databases.

- Completed several analysis projects including the CIP Equity Analysis.
- Processed significant updates to the Bicycle Inventory dataset.
- Performed a major upgrade to the Roads and Highways database schema to allow use of ArcGIS Pro.
- Added several new event layers to the Roads and Highways database including Adopt A Highway and municipal pavement.
- Improved scripting for managing the network including updates to the route priority process.

### **Proposed activities for next year:**

Data management tasks and projects performed in FFY 2023 are intended to continue throughout FFY 2024.

- Incorporate MIRE Data Elements into the data model including interchange type and several others.
- Update several events including bridges, number of lanes and pedestrian facilities.
- Edit the network on all lower ordered routes.
- Increase new data development tasks to enhance our data portfolio.
- Develop and implement data quality control standards.
- Implement metadata standards.

### **Anticipated products:**

New data products and analysis will be completed this year.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits: **\$577,038.32***

<b>MassDOT staff members</b>	<b>% Time to task</b>
<b>Charles Major</b>	100.0
<b>Florence Person</b>	100.0
<b>TPP II TBH</b>	100.0
<b>David Henriques</b>	100.0
<b>Nikhitha Yelukati</b>	100.0
<b>Sudip Paudel</b>	75.0
<b>David DiNocco</b>	50.0
<b>Charlotte Mays</b>	50.0
<b>Lin Han</b>	50.0

**Estimated task budget: \$577,038.32**

## A.10 / Travel Forecasting, Data Collection and Transportation System Performance

**Task Lead:** Bob Frey

### **Task Purpose:**

To measure and forecast statewide travel and system performance to meet state and federal planning requirements and provide decision-makers with information to help guide current and future transportation policies and investments. This task has two major components: Travel Data Analyses: Daily and historical travel data are collected and analyzed to measure and monitor performance, conditions, changes and trends in travel patterns, mode use, person movement, behavior and preferences, and Socioeconomic Projections: Changes in population, employment, housing, land use, and development patterns and trends are examined and projected for their effects on the transportation landscape. Periodic full-scale updates are performed to help inform development of regional and state transportation plans. Both of these components are recurring, ongoing activities that provide help to the latest planning assumptions by incorporating updated data collection methods, surveys, and projections.

### **Accomplishments in prior year:**

- Developed and executed a new four-year MassDOT-wide contract providing historical and real-time traffic data through the Eastern Transportation Coalition's Transportation Data Marketplace (TDM). The contractor is the University of Maryland's agent for the Coalition, CATT Lab, which provides automated data sharing and analyses through the Regional Integrated Transportation Information System (RITIS) platform. Combined with INRIX travel data and other products, RITIS enables MassDOT, its affiliate agencies including regional planning agencies (RPA), and project consultants/contractors to measure and monitor performance, communicate information, and support numerous planning, operations, and research activities.
- Completed the latest round of socioeconomic projections, working with a committee of stakeholders (SEPC) and two contractors (UMass Donahue Institute and Metropolitan Area Planning Council). Updated decennial population, household, and employment projections down to the municipal level and developed them out to the year 2050, consistent with primary land-use scenarios incorporating anticipated development to help inform future long range transportation planning efforts on the regional and state levels.
- Performed various activities related to the statewide travel demand model including data requests and coordination of updates.

- Participated in various RITIS user groups, working groups and committees and provided assistance to RITIS product enhancements.

**Proposed activities for next year:**

- Continue analyses of real-time and historical travel data through the Transportation Data Marketplace, including measuring and monitoring system performance and supporting planning, operations, and research activities.
- Working with the RPAs, perform follow up activities, including miscellaneous updates and documentation, to the recently completed socioeconomic projections.
- Continue data work and coordination of activities related to the statewide travel demand model.
- Continue funding participation in and review of expanded RITIS products for State DOTs (a pooled fund effort coordinated through The Eastern Transportation Coalition).

**Anticipated products:**

- Travel patterns, travel time and movement, mobility data and performance reports (including detailed analysis components in transportation studies).
- Follow up activities and miscellaneous additional updates and documentation to latest population, household, and employment projections.
- Data provision to internal and external customers and coordination of travel demand modeling activities.
- Miscellaneous reports and analyses.
- Expanded and improved RITIS reports and applications for travel data analyses.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$61,885.78**

MassDOT staff members	% Time to task
Bob Frey	50.0

**Estimated task budget:** **\$61,885.78**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>Travel Data Analyses/ 118037</b>	\$8,699,474.15	\$2,147,120.00	\$0.00	\$0.00	UMD CATT Lab	TBD	TBD

*Consultant cost notes:* FFY24 costs of A.10 Subtask "Travel Data Analyses" will be funded using non-SPR funds. FFY24 NFA costs for this contract are \$2,444,975.

# Data and Policy

## A.13 / Next Generation Massachusetts Household Travel Survey - Wave 1

**Task Lead:** Liz Williams

### **Task Purpose:**

It has been over 10 years since MassDOT collected information to support the statewide travel demand model, and much has changed in the transportation landscape including the introduction of new modes and services; new commuting patterns and travel behaviors; and new data collection and survey analysis techniques. As a recurring, longitudinal survey, the Next Generation Massachusetts Household Travel Survey will be implemented over 10 years in four (4) waves. The objectives of the Next Generation Massachusetts Household Travel Survey (MTS) Wave 1 are to collect a representative sample of households across Massachusetts to support updates to the statewide travel demand model. Subsequent waves of the survey will focus on specific regions of the Commonwealth.

### **Accomplishments in prior year:**

N/A

### **Proposed activities for next year:**

- Procure consultant support for Next Generation MTS Wave 1
- Collect representative sample of MA households

### **Anticipated products:**

Data, analysis, and visualization reflecting trips, households, vehicles, destinations, and tours. These products would be shared with CTPS, who are responsible for ongoing maintenance of the statewide travel demand model.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$24,000.00**

MassDOT staff members	% Time to task
Liz Williams	20.0

**Estimated task budget:** \$24,000.00



Estimated consultant costs: **\$0.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>Next Generation Massachusetts Household Travel Survey-Wave 1/ TBD</b>	\$2,000,000.00	\$0.00	\$0.00	\$0.00	TBD	TBD	TBD

*Consultant cost notes:* Consultant costs for A.13 will be paid with non-SPR funding. FFY24 NFA consultant costs for A.13 are \$1,000,000.00

# MPO Activities

## A.11 / Implementation of Federal Programs and Regulations

**Task Lead:** Derek Krevat

### **Task Purpose:**

Activities under this task will include the administration of the following discrete federal programs: Congestion Mitigation Air Quality Improvement Program (CMAQ), Federal Lands Access Program (FLAP), Scenic Byways, and Title VI strategies and compliance. This task will also include the administration of the Safe Routes to School (SRTS) education and infrastructure programs.

### **Accomplishments in prior year:**

- CMAQ was administered successfully with two consultation committee meetings held and a full program of projects was identified for the State Transportation Improvement Program (STIP).
- The annual CMAQ report was completed and sent to FHWA to detail CMAQ obligations from FFY 2022.
- New CMAQ analysis spreadsheets were developed that incorporated new emissions factors from the MOVES Model and these were distributed to regional partners for their use at CMAQ Consultation Committee meetings.
- The MPO Activities section coordinated with MassDOT's Office of Diversity and Civil Rights (ODCR) to distribute Title VI report guidance and Title VI reports were received and reviewed by MPO Activities and ODCR staff.
- FLAP was administered successfully with the obligation of federal funds for previously identified projects. A new solicitation for FLAP projects took place in FFY 2023 and five projects were awarded.
- The SRTS infrastructure program project solicitation was implemented, and eight additional projects were awarded for programming in the 2024-2028 STIP. A process for a new project solicitation in FFY 2024 has been developed.
- MPO Activities staff continued to support regional partners' efforts to pursue funding through the federal Scenic Byways Program.

### **Proposed activities for next year:**

- Distribute CMAQ analysis spreadsheets to each metropolitan planning organization (MPO) for use in determining proposed CMAQ-funded projects' emissions reductions.
- Hold CMAQ Consultation Committee meetings.
- Compile notes from the CMAQ Consultation Committee meeting(s) and record new CMAQ-eligible projects.

- Complete annual CMAQ report submission to FHWA through the User Profile and Access Control System (UPACS).
- Work with the Eastern Federal Lands Highway Division (EFLHD) to coordinate activities related to FLAP project solicitation and selection.
- Work with the Office of Diversity and Civil Rights (ODCR) on any revisions to the Title VI reports from the MPOs.
- Work with ODCR and the MassDOT Office of Public Engagement and Outreach (OPEO) on activities related to MassDOT's Virtual Public Involvement (VPI) initiatives.
- In support of the Highway Statistics 500-series reporting requirements, distribute a survey to all Massachusetts municipalities in order to obtain the information necessary to complete the Local Highway Finance Form (Form 536). Continue work to address discrepancies in MassDOT's Highway Statistics 500-series reporting.
- Develop and distribute a new Request for Proposals (RFP) for a consultant to support the administration of MassDOT's SRTS Program.
- Continue to have a SRTS educational program focused on growing the number of participating schools, especially in underserved communities (staff and consultant).
- Continue to improve the SRTS infrastructure program and undertake a new project solicitation to fill the current FFY 2028 placeholder in the STIP.
- Host and/or lead SRTS pedestrian and bicycle events (e.g., walk/bike to school, safety trainings, etc.).
- Support the Highway Division in the design and construction of SRTS infrastructure projects that have been initiated and approved through the Division's Project Review Committee (PRC).
- Provide grant application assistance and coordination for any new Scenic Byway funding that becomes available.
- Coordinate all Ferry Boat Program (FBP) activities.

**Anticipated products:**

- A new SRTS program contract.
- The determination of CMAQ-eligible projects.
- The programming of new SRTS infrastructure projects.
- SRTS education and infrastructure program implementation.
- MPO Title VI Reports.
- Programming of awarded FLAP projects in coordination with the Eastern Federal Lands Highway Division (EFLHD).

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits: **\$97,438.53***

MassDOT staff members	% Time to task
Miranda Briseno	70.0
Derek Krevat	20.0
Derek Shooster	15.0
Raissah Kouame	10.0
Christopher Klem	10.0

**Estimated task budget: \$97,438.53**

## A.12 / Metropolitan Planning Support and Oversight

**Task Lead:** Derek Krevat

### **Task Purpose:**

Activities under this task include liaisons assisting in the development and oversight of MPO 3C certification documents such as Regional Transportation Plans (RTPs), Transportation Improvement Programs (TIPs), and Unified Planning Work Programs (UPWPs), and coordination and oversight of MPO planning deliverables through their respective UPWPs. Additionally, MPO liaisons will assist regional partners with target setting activities for required federal performance measures. MPO Activities staff will also assist with planning and corridor studies as needed.

### **Accomplishments in prior year:**

- All thirteen regions within the Commonwealth drafted and endorsed UPWPs, TIPs, and RTPs that were submitted to federal partners for approval.
- Multiple amendments to TIPs and UPWPs were drafted and endorsed across all the MPOs, requiring oversight and administration by the MPO Activities Group.
- All thirteen regions adopted statewide safety performance measures (PM1), as required by the Federal Highway Administration (FHWA) for Calendar Year (CY) 2023 as well as federally-required targets in the areas of pavement and bridge condition (PM2) and system performance measures (PM3) for two year (2024) and four year (2026) time horizons.
- The MPO Activities group facilitated the development of contracts providing matching funds for the nine regions receiving Safe Streets and Roads for All (SS4A) planning grants. Additional federal grants received by communities were placed onto UPWPs and TIPs as necessary.
- MPO liaisons coordinated with MPOs that have implemented discretionary TIP funding programs (e.g. CTPS's Community Connections Program and CMRPC's microprojects program) to ensure projects funded through these programs were implemented properly. Other creative ideas for the use of TIP funding were coordinated with applicable regions.
- Various memoranda of understanding (MOUs) were developed and endorsed by applicable stakeholders.
- Managed contracts for regional programs and projects.
- Participated in federal certification reviews.

### **Proposed activities for next year:**

- All thirteen regions within the Commonwealth will draft and endorse 3C documents, including TIPs and UPWPs.

- The MPO Activities group will coordinate the setting of Federal Highway Administration (FHWA) performance targets for Calendar Year (CY) 2024 safety measures (PM1) and will review any relevant federal reporting associated with the PM2 and PM3 measure areas.
- MPO liaisons will work with their respective MPO partners to ensure the development of 3C documents according to schedule.
- MPO liaisons will also work with their respective MPO staffs to continue the delivery of planning activities programmed within UPWPs and look towards ways of improving the utility and quality of MPO staff-produced planning products.
- Work will continue on ensuring that all matching funds for SS4A planning grants are administered properly and that all necessary contracts for projects under discretionary TIP programs are developed.
- Participation in federal certification review processes as needed.
- Participation in regional and state planning studies and working groups as needed.
- Manage contracts for regional programs and projects when necessary.

#### **Anticipated products:**

Most activities are ongoing throughout the year; TIPs and UPWPs will be developed by summer 2024 with approval by reviewing partners before the start of FFY 2025.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$158,036.86**

<b>MassDOT staff members</b>	<b>% Time to task</b>
<b>Raissah Kouame</b>	60.0
<b>Christopher Klem</b>	60.0
<b>Derek Krevat</b>	35.0
<b>Derek Shooster</b>	20.0
<b>Miranda Briseno</b>	15.0
<b>Andrew Wang</b>	10.0

**Estimated task budget:** **\$158,036.86**

## A.14 / State Transportation Improvement Program Coordination and Capital Planning Support

**Task Lead:** Derek Krevat

### **Task Purpose:**

Work under this task involves supporting the development of the annual Capital Investment Plan (CIP) update (see Task A.2 "Capital Planning Development and Coordination," for more details) and leading the development of the Federal Fiscal Year (FFY) 2025 - 2029 State Transportation Improvement Program (STIP) update. Work also includes the oversight and internal/external coordination of an electronic STIP (eSTIP) application (see Task A.4, "GIS Platform Development," for more details). The STIP is a financially constrained document that contains a listing of all federally funded transportation projects in the Commonwealth of Massachusetts. It is a combined effort among MassDOT, Metropolitan Planning Organizations (MPOs), Regional Transit Authorities, and a number of state agencies that work to design and build highways and transit projects.

### **Accomplishments in prior year:**

- Coordinated the maintenance of the FFY 2023-2027 STIP.
- Produced the FFY 2024-2028 STIP accounting for apportionments and programs under the Bipartisan Infrastructure Law (BIL).
- Supported the production of the SFY 2024-2028 CIP Update.
- Continued to implement the electronic STIP (eSTIP) application and initiated a work task with consultant, PMG, and the Rail and Transit Division to begin incorporating transit projects into eSTIP.
- Assisted with the coordination and programming of special federal-aid sources.
- Began efforts to explore the integration of FHWA's FMIS System into eSTIP to better track actual obligations.

### **Proposed activities for next year:**

- Support the State Fiscal Year (SFY) 2025-2029 CIP and associated mapping, analysis, and public engagement activities.
- Lead the development of the FFY 2025-2029 STIP and incorporate any new information and guidance materials coming from the BIL.
- Coordinate the maintenance of the FFY 2024-2028 STIP.
- Coordinate the development and implementation of an eSTIP for the FFY 2025-2029 STIP (see Task A.4, "GIS Platform Development" task for more details).



- Develop and coordinate responses to any federal planning findings on the STIP on a quarterly basis.
- Assist with the coordination and programming of special federal-aid sources.
- Continue incorporating transit projects into eSTIP.
- Serve as the Project Champion for the second phase of the research project, "Measuring Accessibility to Improve Public Health" (see SPR II for more details) and assist with other CIP process improvements.
- Support the evaluation of capital planning projects through activities such as participation in the EconWorks Pooled Fund Studies (more details below under "Other Cost Notes."

**Anticipated products:**

- FFY 2025-2029 STIP.
- eSTIP application process improvements.
- SFY 2025-2029 CIP Assistance.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$100,635.00**

MassDOT staff members	% Time to task
Derek Shooster	65.0
Christopher Klem	20.0
Derek Krevat	15.0
Raissah Kouame	10.0
Miranda Briseno	10.0

*Estimated Other Costs:* **\$4,000.00**

**Estimated task budget: \$104,635.00**

*Other cost notes:* This is for the Pooled Fund Study, "EconWorks" (TPF-5(456)). The focus of this pooled fund project will be to support transportation planners with a better understanding of the economic impact of transportation projects by continuing the overall operation, maintenance and improvement to the EconWorks website, and completing and adding additional case studies to provide more robust economic analysis.

## A.15 / Statewide Long Range Transportation Plan

**Task Lead:** Derek Krevat

### **Task Purpose:**

MassDOT's 2050 Statewide Long Range Transportation Plan, Beyond Mobility, will articulate MassDOT's vision for the future of transportation and serve as a guidepost for allocating new federal and state funding to advance the Commonwealth's most pressing transportation priorities. Internally, Beyond Mobility will serve as a guide for strategic planning across all modes. As part of the effort, MassDOT is coordinating with a number of both internal and external stakeholders and conducting extensive public engagement activities with a focus on engaging traditionally underrepresented communities through targeted outreach.

The Plan is comprised of the following tasks: Existing Conditions Analysis; Public Engagement Plan; A Statewide Vision for Transportation in Massachusetts; Performance-Based Planning Targets; Value and Policy Problem Statements; Scenario Planning; Site-Specific Needs Assessment; Financial Plan; and Recommendations.

### **Accomplishments in prior year:**

- Implementation of a number of public engagement techniques, including multilingual and multi-ethnic focus groups; external stakeholder engagement and outreach; presentations to all thirteen regions and other stakeholder groups; the development of a project webpage; the distribution of a visioning survey that received over 1,000 responses; the distribution of a budgetary tradeoffs survey that received over 2,500 responses; the use of Meeting-In-A-Box, which involved external stakeholders representing specific stakeholder groups (e.g., people with disabilities, older adults, bicycle and pedestrian advocates, etc.) holding meetings on behalf of MassDOT and reporting back their findings.
- The identification of scenarios based on research of trends impacting transportation.
- Analysis of site-specific needs across Massachusetts based on a compilation of previous MassDOT modal and statewide plans, regional transportation plans, and other transportation planning and policy documents.
- Analysis of transportation equity populations and development of a web map displaying these communities, which will be overlaid with the site-specific needs assessment to ensure that sites in more vulnerable communities are prioritized as part of the Plan.
- Development of a variety of problem statements and corresponding action items for MassDOT Divisions to take that would address identified problems.

**Proposed activities for next year:**

- The implementation of the task on performance-based planning and programming to articulate performance targets in a number of areas.
- Finalization of the needs assessment work to identify corridors of strategic significance and set up capital programming decisions.
- Continued coordination with external and internal stakeholders.
- Public presentation of the final Plan and solicitation of stakeholder and public input.

**Anticipated products:**

- Final report and StoryMap showcasing all Beyond Mobility materials.
- Updates to the project website.

**Estimated task completion:** 09-30-2024*Estimated staff salaries and benefits:* **\$62,771.09**

MassDOT staff members	% Time to task
Derek Krevat	30.0
Raissah Kouame	20.0
Christopher Klem	10.0
Andrew Wang	10.0
Miranda Briseno	5.0

**Estimated task budget:** \$417,474.09

Estimated consultant costs: **\$354,703.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
Statewide Long Range Transportation Plan, Beyond Mobility / 114869	\$1,696,610.00	\$1,341,907.00	\$354,703.00	\$0.00	Cambridge Systematics	08-26-2021	12-31-2023

Consultant notes:

# Multimodal Planning

# A.16 / Bicycle and Pedestrian Planning

**Task Lead:** Peter Sutton

**Task Purpose:**

To provide continued support for bicycle and pedestrian planning activities in Massachusetts in order to promote healthy, safe, and accessible non-motorized transportation options. This task will serve to continue implementation and advancement of the recommendations of the Statewide Pedestrian Plan and the Statewide Bicycle Plan.

Additional work under this task will involve providing assistance to MassDOT Highway District offices, MPOs, local governments, community-based organizations, and advocacy efforts in order to encourage, educate, plan, and design pedestrian and bicycle facilities.

**Accomplishments in prior year:**

- Organized and participated in Moving Together 2022.
- Organized and attended the Massachusetts Bicycle and Pedestrian Advisory Board Meetings.
- Organized and attended MassTrails Team Meetings.
- Continued implementation of the Bicycle and Pedestrian Plans.

**Proposed activities for next year:**

- Organize and participate in Moving Together 2023 (hybrid meeting format).
- Organize and participate in Bay State Bike Week 2024 (staff).
- Organize and attend the Massachusetts Bicycle and Pedestrian Advisory Board Meetings (staff).
- Organize and attend the MassTrails Team Meetings (staff).
- Continue to oversee and participate in OTP-specific implementation activities of the Statewide Bicycle and Pedestrian Plans (staff).

**Anticipated products:**

- Moving Together Conference 2023.
- Bay State Bike Week 2024.
- Continued Implementation of Massachusetts Statewide Bicycle and Pedestrian Plans.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$114,344.95**

MassDOT staff members	% Time to task
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<b>Peter Sutton</b>	100.0
<b>Ethan Britland</b>	5.0

**Estimated task budget: \$114,344.95**

## A.17 / Corridor Planning Studies

**Task Lead:** Ethan Britland

### **Task Purpose:**

To perform, participate in, and manage several types of transportation planning studies, conducted either internally or by other entities, such as regional planning agencies and other MassDOT Divisions. The level of involvement is project-specific and includes activities such as study development and analysis, public participation, coordination, technical assistance, and review. Often, these studies are part of the standard planning, design, and environmental processes required to advance a transportation project forward to implementation.

### **Accomplishments in prior year:**

- Completed the Wellington Circle Study (non-SPR Funded for consultant costs).
- Completed the Route 128 Land Use and Transportation Study (split funding of SPR and non-SPR funding for consultant costs).
- Completed the Northern Tier Passenger Rail Study (SPR funded for consultant costs).
- Continued to conduct the Kosciuszko Circle/Morrissey and Day Boulevard Study (non-SPR funded for consultant costs).
- Procured and initiated the Newton Corner Long-Term Planning Study.

### **Proposed activities for next year:**

- Continue to conduct the Newton Corner Long-Term Planning Study.
- Complete the Kosciuszko Circle/Morrissey and Day Boulevard Study (non-SPR funded for consultant costs).
- Complete the Route 1A East Boston Corridor Study (SPR funded for consultant costs).
- Procure and initiate the Route 20 Sturbridge Study.
- Procure and initiate the Tobin Bridge Study.

### **Anticipated products:**

- Kosciuszko Circle/Morrissey and Day Boulevard Study, task deliverables, Draft Report, and Final Report (non-SPR funded for consultant costs).

**Estimated task completion:** 09-30-2024



*Estimated staff salaries and benefits: **\$395,784.35***

<b>MassDOT staff members</b>	<b>% Time to task</b>
<b>Patrick Snyder</b>	100.0
<b>TPP II TBH</b>	100.0
<b>Ethan Britland</b>	80.0
<b>Marthinus J. "MJ" Riekert</b>	75.0
<b>Makaela Niles</b>	70.0
<b>Liz Williams</b>	30.0

**Estimated task budget: \$525,784.35**

Estimated consultant costs: **\$130,000.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>People and Transportation Study / None</b>	\$500,000.00	\$0.00	\$0.00	\$0.00	TBD	None	None
<b>Route 20 Sturbridge / None</b>	\$500,000.00	\$0.00	\$0.00	\$0.00	TBD	None	None
<b>Newton Corner Long-Term Planning Study (SPR funded for consultant costs) / None</b>	\$1,000,000.00	\$0.00	\$0.00	\$0.00	Vanasse Hangen Brustlin Inc.	None	None
<b>Kosciuszko Circle and William T. Morrissey Boulevard Study (non-SPR funded) / 116484</b>	\$1,026,353.00	\$0.00	\$0.00	\$0.00	AECOM	04-29-2022	12-31-2024
<b>Maurice J. Tobin Bridge</b>	\$1,250,000.00	\$0.00	\$0.00	\$0.00	TBD	None	None

<b>Long-Term Strategic Planning Study / None</b>							
<b>Route 1A East Boston Corridor Study (SPR funded for consultant costs) / 114356</b>	\$586,291.00	\$556,291.00	\$30,000.00	\$0.00	WSP	07-01-2021	12-31-2023
<b>Northern Tier Passenger Rail Study/ 116404</b>	\$999,974.89	\$869,974.89	\$100,000.00	\$0.00	HNTB	10-20-2021	03-31-2024

*Consultant notes:* Tobin Bridge study FFY24 costs (\$400K) funded with Tobin Toll Revenue funding (non-SPR funding); Rte 20 Sturbridge FFY24 costs (\$400K) funded with NFA (non-SPR funding); People and Transportation FFY24 costs (\$375K) funded with NFA (non-SPR funding); Newton Corner FFY24 costs (\$500K) funded with NFA (non-SPR funded).

## A.18 / CTPS Annual On-Call Planning Assistance

**Task Lead:** Bob Frey

**Task Purpose:**

To expeditiously provide recurring technical and miscellaneous staff support for planning studies, travel modeling, data management, and other related tasks. Tasks assigned to the Central Transportation Planning Staff are intended to support OTP's function as a shared/enterprise service for MassDOT.

**Accomplishments in prior year:**

Ongoing and recurring tasks including Road Inventory support, travel model assistance, and miscellaneous study support.

**Proposed activities for next year:**

Ongoing and recurring tasks including Road Inventory support, travel model assistance, and miscellaneous study support.

**Anticipated products:**

Road Inventory support and maintenance. Statewide Travel Demand Model assistance. Miscellaneous studies and related assistance.

**Estimated task completion:** 09-30-2024

**Estimated task budget:** \$440,000.00

Estimated consultant costs: **\$440,000.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
Statewide Planning Assistance (CTPS) / None	\$440,000.00	\$0.00	\$440,000.00	\$0.00	CTPS	None	09-30-2024

Consultant notes:

## A.19 / Freight Planning

**Task Lead:** Makaela Niles

### **Task Purpose:**

To continue to implement immediate infrastructure and policy strategies recommended in the approved Massachusetts Freight Plan. Other annual activities include 1) monitoring and responding as needed to multimodal freight trends, funding opportunities, legislation and rulemaking, and 2) participation in regional and national freight coordination efforts.

### **Accomplishments in prior year:**

- Continued to explore implementation strategies from the 2017 Massachusetts Freight Plan as applicable.
- Initiated and completed the 2023 Massachusetts Freight Plan (staff and consultant support)
- Completed the “Understanding the Impacts of COVID-19 on the Massachusetts Freight Network & Freight Planning” study (staff and consultant support).
- Monitored freight trends.
- Monitored Notices of Funding Opportunities, legislation, and rulemaking.
- Participated in regional and national freight coordination efforts, including coordination with the Freight Advisory Committee.
- Supported the MassDOT Rail and Transit Division’s freight planning activities.

### **Proposed activities for next year:**

- Continue to explore implementation strategies from the approved Massachusetts Freight Plan as applicable.
- Continue to monitor freight trends.
- Continue to monitor Notices of Funding Opportunities, legislation, and rulemaking.
- Continue to participate in regional and national freight coordination efforts, including coordination with the Freight Advisory Committee.
- Support the freight planning activities of MassDOT Divisions as needed.

### **Anticipated products:**

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$27,132.80**

MassDOT staff members	% Time to task
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<b>Makaela Niles</b>	25.0
<b>Ethan Britland</b>	5.0

**Estimated task budget: \$27,132.80**

A.20 / On-Call Contracts

Task Lead: Makaela Niles

Task Purpose:

Continue to employ Five (5) consultant contracts for on-call services in order to expeditiously initiate and conduct planning-level assignments. The time frames of these assignments vary, ranging from short-term assignments, such as technical analysis of transportation data, to long-term efforts, such as conceptual studies that may include a technical component along with coordination and interaction with other state agencies, advisory groups, stakeholders, and/or members of the public.

These assignments are intended to support OTP's function as a shared/enterprise service for MassDOT, and also provide opportunities to examine and implement state of the art practices as part of our statewide transportation planning process.

Accomplishments in prior year:

Scoped and procured five (5) new on-call services consultant contracts.

Proposed activities for next year:

- Issue Notice to Proceed for five (5) new on-call services consultant contracts.
- Scope and initiate new on-call contract assignments.

Anticipated products:

Scope, initiate and conduct various on-call assignments.

Estimated task completion: 09-30-2024

Estimated staff salaries and benefits: \$17,128.27

MassDOT staff members	% Time to task
Ethan Britland	10.0
Makaela Niles	5.0

Estimated task budget: \$922,628.27



Estimated consultant costs: **\$905,500.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>Contract #4 - HNTB / 120250</b>	\$500,000.00	\$217,000.00	\$185,000.00	\$98,000.00	HNTB	11-02-2022	09-30-2025
<b>Contract #5 - Nelson Nygaard / 120251</b>	\$500,000.00	\$90,000.00	\$155,000.00	\$255,000.00	Nelson Nygaard	11-02-2022	09-30-2025
<b>Contract #1 - Vanasse Hangen Brustlin / 120247</b>	\$500,000.00	\$190,000.00	\$205,500.00	\$216,666.00	Vanasse Hangen Brustlin	11-02-2022	09-30-2025
<b>Contract #2 - Cambridge Systematics / 120248</b>	\$500,000.00	\$88,527.00	\$183,000.00	\$228,473.00	Cambridge Systematics	11-02-2022	09-30-2025
<b>Contract #3 - ARUP / 120249</b>	\$500,000.00	\$163,000.00	\$177,000.00	\$160,000.00	ARUP	11-02-2022	09-30-2025

Consultant notes:

# Public Private Development Unit

## A.21 / Access Management Through Development Review and Land Disposition

**Task Lead:** Lionel Lucien

### **Task Purpose:**

To implement access management through the review of private development proposals and the disposition of MassDOT land or railroad right-of-way (ROW).

1. Implement Access Management principles in the review of all private development projects in accordance with the Project Development and Design Guidebook (PDDG).
2. Work with the Highway Division in the revision of the PDDG Chapter on Access Management
3. Review all canvases related to the purchase or lease of MassDOT-owned property.
4. Review all requests for break-in access-controlled lines along state and interstate highways.
5. Review all requests to use, acquire, or dispose of railroad right of way.
6. Ensure that canvassing decisions are consistent with MassDOT policies on safety and mobility.
7. Review of permitted development site access to ensure that management decisions maintain safety and mobility.

### **Accomplishments in prior year:**

- 6 ROW canvases were reviewed by the Public Private Development Unit (PPDU).
- Working with the MBTA, issued a Request for Proposal to develop better methodology to identify impacts to the transit system and make more realistic and implementable mitigation.
- Implemented, in collaboration with Massport and the MBTA, a list of capital improvement projects to keep the Anderson Regional Transportation Center in a state of good repair. Projects to be implemented included: parking lot repairs and repaving, roof repair, and upgrades to parking revenue collection system.

### **Proposed activities for next year:**

All coordination activities performed in FFY 2023 are intended to continue throughout 2024.

### **Anticipated products:**

Internal staff coordination with MassDOT Divisions. External staff coordination with other agencies.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$122,573.43**

MassDOT staff members	% Time to task
TPP III (TBH)	100.0
Lionel Lucien	25.0
William Simon	20.0

**Estimated task budget:** \$122,573.43

## A.22 / Coordination and Consultation with Developers and Project Stakeholders

**Task Lead:** Lionel Lucien

### **Task Purpose:**

To conduct consultation meetings and provide technical guidance to developers and project stakeholders on transportation policies, planning, and design issues during the development of private projects. Work under this task will include the following specific items: 1.) Review all Transportation Scoping Letters (TSL); confirm the assumptions; and provide feedback on the information included in transportation impact assessment studies. 2.) Conduct consultation meetings on all technical issues, transportation analyses and conceptual plans for mitigation. 3.) Coordinate with all appropriate MassDOT Division units and the MBTA to seek inputs into the early development of transportation infrastructure to mitigate project impacts. 4.) Coordinate as necessary with other state agencies, cities, and towns. 5.) Respond to all questions and requests for information regarding the MassDOT permitting process.

### **Accomplishments in prior year:**

- Conducted a significant number of meetings to provide technical support to developers and their consultants as part of their Massachusetts Environmental Policy Act (MEPA) submissions and review processes.
- Provided technical review and support on transportation issues for the environmental permitting of MassDOT/MBTA air rights projects.

### **Proposed activities for next year:**

- All coordination activities performed in FFY 2023 are intended to continue throughout FFY 2024.
- Work with MassDOT's Office of Real Estate and Asset Development (OREAD) and potential developers to provide assistance and guidance on development proposals.

### **Anticipated products:**

- Internal staff coordination with MassDOT Divisions, the Massachusetts Port Authority (Massport), and the MBTA.
- External staff coordination with other agencies, including the Massachusetts Executive Office of Energy and Environmental Affairs and the Executive Office of Housing and Economic Development.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$39,421.30**

MassDOT staff members	% Time to task
William Simon	30.0
Lionel Lucien	15.0

**Estimated task budget:** \$39,421.30

## A.23 / Development Review through the MEPA and MassDOT Access Permit Processes

**Task Lead:** Lionel Lucien

### **Task Purpose:**

To provide timely and thorough technical reviews and evaluations of the anticipated transportation impacts of development projects under the Massachusetts Environmental Policy Act (MEPA) and as part of the approval process for access permits issued by MassDOT. Work under this task will include the following specific items:

1. Review and issue comments on behalf of MassDOT and the MBTA on all Environmental Notification Forms, Environmental Impact Reports, and Notices of Project Change to ensure consistency with MassDOT policies, regulations, and design standards.
2. Adequately review all environmental documents attached to transportation studies for consistency with the latest transportation impact assessment guidelines.
3. Ensure the coordination of transportation-related comments between all MassDOT Divisions and the MBTA, cities, towns, and stakeholders as appropriate.
4. Coordinate with the MEPA Office to address outstanding issues on projects and timely submission of all MEPA comments.
5. Review and submit comments on all Requests for Determination and Requests for Advisory Opinion when asked by the MEPA Office.
6. Provide technical assistance to the MEPA Office and/or project stakeholders on all transportation-related issues.

### **Accomplishments in prior year:**

- Coordinated throughout the year with all MassDOT Divisions, the MBTA, Massport, and cities and towns on technical reviews for development projects and responded to several public inquiries.
- Reviewed projects' commitments to provide pedestrian, bicycle, and/or transit accommodations.
- Reviewed all conceptual plans or permitted projects for Complete Streets accommodations.

### **Proposed activities for next year:**

- All coordination activities performed in FFY 2023 are intended to continue throughout FFY 2024.
- Reviews of major developments include: Dorchester Bay City, Union Point, Encore Boston Harbor, Route 20 corridor in Charlton.
- Continue to work with the City of Boston to establish mitigation bank and to collect funds as mitigation toward addressing transportation impacts in the Dorchester Bay City area.

**Anticipated products:**

- Internal staff coordination with MassDOT Divisions and the MBTA.
- External staff coordination with other agencies including MEPA, Massport, and the Massachusetts Department of Conservation and Recreation (DCR).
- Timely reviews and submissions of all MassDOT comments on environmental documents.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$38,342.96**

MassDOT staff members	% Time to task
Lionel Lucien	20.0
William Simon	20.0

**Estimated task budget:** **\$38,342.96**



## A.24 / MassDOT Policies Supported and Incorporated in Inter-Agency Objectives

**Task Lead:** Lionel Lucien

### **Task Purpose:**

1) Represent MassDOT on the Interagency Permitting Board. Attend all meetings and review submissions from cities and towns for Priority Development Site Designations; review and approve requests for 43D Expedited Permitting designations; and participate in all activities to expedite the permitting process at the state level.

2) Work with MassDOT Divisions to review the overall permitting and approval process for developments with an emphasis on reviewing MassDOT/MBTA's approach to implementing transportation mitigation.

3) Represent MassDOT on the Woburn Anderson Regional Transportation Center (RTC) Executive Committee. Participate in the management and oversight of the facility to promote multimodal objectives and fiscal solvency.

### **Accomplishments in prior year:**

- Reviewed 18 transportation-related grant applications for the Massachusetts Gaming Commission's grant mitigation program.
- Assisted with the management of the Anderson Regional Transportation Center. The ARTC has started to generate revenues based on increased airport ridership.
- Provided technical support on permitting and economic development issues to five cities and towns that have adopted 43D Expedited Permitting.

### **Proposed activities for next year:**

- All activities performed in FFY 2023 are intended to continue throughout FFY 2024.
- Planning and delivery of the 4<sup>th</sup> International TRB Access Management Conference in Boston on June 24-26, 2024. Conduct internal and external planning coordination with local, national, international stakeholders to ensure participation.
- Review of transportation-related grant applications for the Massachusetts Gaming Commission's grant mitigation program.
- Update the 2014 Transportation Impact Assessment Guidelines for consistency with MassDOT policies and regulations.

**Anticipated products:**

- Internal staff coordination with MassDOT Divisions and the MBTA.
- External staff coordination with Massport, the Massachusetts Department of Housing and Economic Development (HED), the Massachusetts Department of Conservation and Recreation (DCR) and other agencies.
- Successful TRB conference to continue to promote Access Management in agency actions.
- Draft of new MassDOT/EEA Transportation Impact Assessment Guidelines.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$24,124.18**

MassDOT staff members	% Time to task
Lionel Lucien	20.0

**Estimated task budget:** **\$24,124.18**

## A.25 / Mitigation, Transportation Demand Management, and Monitoring Programs for Development Projects

**Task Lead:** Lionel Lucien

### **Task Purpose:**

Secure appropriate multimodal mitigation benefits consistent with MassDOT policies and to ensure that developers implement and follow up on their mitigation commitments. Work under this task will include the following specific items:

- Negotiate appropriate multimodal mitigation measures with private developers in the form of both capital and operational improvements.
- Prepare and issue Section 61 Findings on behalf of MassDOT to formalize mitigation measures.
- Ensure the timely issuance of needed MassDOT permits in accordance with State Highway Access Regulations.
- Ensure that project proponents meet all commitments to implement mitigation required as part of their Section 61 Findings.
- Review all submitted Transportation Monitoring Reports.
- Additionally, consultant support will be procured to assist MassDOT to revise the existing MassDOT/EEA Transportation Impact Assessment Guidelines to address a number of issues raised by consultants and the reviewers and also to incorporate the latest MassDOT policies, regulations, and engineering directives.
- Implement the TIA Monitoring Report tool for electronic submission of TIA monitoring reports and analysis of the data from those reports.

### **Accomplishments in prior year:**

- Issued 10 Section 61 Findings for projects previously reviewed.
- Provided support to developers in designing and implementing transportation demand management (TDM) programs.
- Monitored recently built projects that received a Section 61 Finding from MassDOT using the Transportation Impact Assessment Monitoring Report (TIAMR) tool.
- Worked with IT to make the TIAMR more user-friendly.

### **Proposed activities for next year:**

- Coordinate on activities performed in FFY 2023 will continue throughout FFY 2024.

- Collect developers' commitments to mitigation funds and monitor implementation of targeted study/improvements.

**Anticipated products:**

- Internal staff coordination with MassDOT Divisions and the MBTA.
- External staff coordination with Massport, HED, DCR and other agencies.
- Approved research proposal and contracts for the Update of MassDOT/EEA Transportation Impact Assessment Guidelines.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$45,452.34**

MassDOT staff members	% Time to task
William Simon	30.0
Lionel Lucien	20.0

**Estimated task budget:** \$95,452.34

Estimated consultant costs: **\$50,000.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
MassDOT/EEA Transportation Impact Assessment Guidelines Revision / None	\$150,000.00	\$0.00	\$50,000.00	\$100,000.00	TBD	None	None

Consultant notes:

# Sustainable Transportation

## A.26 / Climate Adaptation Vulnerability Assessment

**Task Lead:** Jules Williams

### **Task Purpose:**

To identify a prioritized set of high-risk climate hazards and associated high-risk transportation assets throughout the state using a rigorous methodology that integrates GIS tools, climate projections, and hydrologic and hydraulic models. In a second phase, the project will provide recommendations about how project results could be integrated into planning, asset management, operations, and maintenance activities. This task also includes coordination with adaptation initiatives by MassDOT Divisions, other state agencies, and Metropolitan Planning Organizations (MPOs). This task supports compliance with Executive Order 569, which requires state agencies to assess vulnerability to climate change and extreme weather events and identify adaptation options for assets. This work has been identified as one of the inputs to MassDOT's Resiliency Improvement Plan in the latest State Hazard Mitigation Plan.

### **Accomplishments in prior year:**

- WRF Hydro model runs completed for developing floodplains in the second hydrological domain.
- Second iteration of floodplain maps of flooding depth and extent maps of erosive potential (critical shear stress ratio) and maps of erosive potential (critical shear stress ratio) produced for first HU8 watershed.
- Initial results identifying exposed transportation assets and quantification of these assets completed.
- Draft Scope for implementation in Domain A completed.
- Application for PROTECT discretionary grant submitted- Generation of additional coastal data.

### **Proposed activities for next year:**

Continuing the development of floodplains, maps of erosive levels of concern, asset exposure and applying risk analysis.

### **Anticipated products:**

- Floodplain maps of flooding depth and extent.
- Maps of erosive potential.
- Exposure identified for multimodal transportation assets.
- Risk quantified for multimodal transportation assets.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$117,017.08**

MassDOT staff members	% Time to task
Jules Williams	90.0

**Estimated task budget:** \$719,019.08



Estimated consultant costs: **\$602,002.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
Climate Adaptation Vulnerability Assessment / 106882	\$3,885,002.00	\$3,283,000.00	\$602,002.00	\$0.00	WSP	01-01-2020	12-31-2023

Consultant notes:

## A.27 / GHG Mitigation Analysis, Research, Guidance & Regulatory Requirements

**Task Lead:** Jules Williams

### **Task Purpose:**

To support the Commonwealth's efforts to meet ambitious greenhouse gas (GHG) reduction goals. The scope of OTP's work under this task includes undertaking studies of GHG mitigation opportunities in Massachusetts; providing transportation planning input into state government efforts to develop, monitor and update the Commonwealth's Climate Policies; offering feedback on MassDOT's role in reducing statewide emissions; supporting Metropolitan Planning Organizations' (MPO) GHG impact estimation and reporting; continuing to collect data related to on-road GHG emissions as well as MassDOT and MBTA emissions.

The Commonwealth's new climate law established a GHG emissions limit for the transportation sector as part of requirements designed to reach specified emissions targets. The Federal Government's Infrastructure Investment and Jobs Act (IIJA) required a carbon reduction strategy to be developed by State DOTs by November 2023 and FHWA issued guidance on the development of this strategy.

A new federal performance measure on GHG emissions from vehicles operating on the National Highway System is expected to be finalized in FFY 24 which could require MassDOT to set a performance target for GHG emissions that is consistent with the Biden Administration's net zero target.

### **Accomplishments in prior year:**

- OTP staff coordinated with relevant MassDOT and MBTA personnel to acquire and consolidate data necessary for annual tracking of MassDOT-MBTA GHG emissions.
- Completed Carbon Reduction Strategy and submitted this to FHWA as an integral part of the FY24-28 STIP.
- Completed draft scope for LBS data-based project on GHG impacts.
- Initiated work on a legislatively required analysis regarding the transition to zero-emission school buses.

### **Proposed activities for next year:**

- Continue work on legislatively required study regarding the transition to zero-emission school buses.
- Review and respond to FHWA comments on MassDOT's Carbon Reduction Strategy.

- Make updates to the Carbon Reduction Strategy to reflect use of Carbon Reduction Program funds.
- Support MassDOT implementation of the GHG performance measure being proposed by FHWA.
- Provide analysis and advice on transportation sector GHG reduction policy.
- Collect data from MassDOT Divisions and calculate annual GHG emissions estimate.
- Participate in NCHRP 08-184 Framework for Assessing Induced Demand Effects of Various Roadway Investments.

**Anticipated products:**

- Response to FHWA comments on Carbon Reduction Strategy.
- Updated Carbon Reduction Strategy, as appropriate.
- Advice and analysis relating to implementation of FHWA's anticipated GHG performance measure on transportation sector modeling.
- Annual GHG emissions estimates.
- Report on legislatively required analysis regarding the transition to zero-emission school buses.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$85,847.57**

MassDOT staff members	% Time to task
Daisy Brown	100.0
Max Natanagara	10.0
Jules Williams	5.0

**Estimated task budget:** **\$85,847.57**

*Consultant cost notes:* Consultant support is being provided under an OTP on call contract (A.20).

## A.28 / Low Emissions Vehicles, Fuels and Infrastructure

**Task Lead:** Max Natanagara

### **Task Purpose:**

To provide planning studies and other analyses on issues related to low-emission vehicles and infrastructure. Increased adoption of low emissions vehicles and fuels is targeted as part of Massachusetts' efforts to reduce emissions. A range of policies are in place that seek to increase adoption of these technologies. This impacts MassDOT and the transportation system in a number of ways: changes in motor fuel excise revenues; demand for new kinds of refueling in different locations; changes in the kinds of signage needed on highways; changes in vehicle operating costs and associated incentives to drive and changes in the amount, types and locations of pollutants emitted; and requests for how the transportation network can support increased uptake of these technologies.

### **Accomplishments in prior year:**

- Developed model NEVI contracting approach and submitted to FHWA for review.
- Completed handover to NEVI implementation team.
- Completed review of draft NEVI RFI.
- Prepared application to federal CFI grant program.

### **Proposed activities for next year:**

- Continue to support the Highway Division in implementation of the five year MassDOT NEVI Plan, including integration with CFI program award if MassDOT application is successful.
- Undertake a survey on access to garaging/parking for drivers in Massachusetts and relation to EV charging provision.
- Repeat statistical survey conducted as part of NEVI Plan analysis.

### **Anticipated products:**

- Report on findings of garaging analysis.
- Report on findings of statistical survey on EV driver long distance trip-making survey.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$65,846.95**

MassDOT staff members	% Time to task
Max Natanagara	70.0

Jules Williams	5.0
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**Estimated task budget: \$65,846.95**

*Consultant cost notes:* Consultant support does not utilize SPR funding.

## A.29 / Post-COVID-19 Teleworking Study

**Task Lead:** Max Natanagara

### **Task Purpose:**

This study will assess the impact of teleworking on the Commonwealth's transportation system post-COVID-19. The different teleworking scenarios to be modeled and the resulting estimations of how future trips will change will have important implications for the public services that MassDOT provides in the future. Employer-resident surveys and a thorough literature review are shaping the inputs for both transportation modeling and economic modeling. A strategy will also be developed for continuing to monitor shifts in teleworking.

### **Accomplishments in prior year:**

- Developed, fielded, and analyzed an online survey of Massachusetts residents.
- Developed, fielded, and analyzed a survey to employers in Massachusetts.
- Calibrated transportation and economic modeling tools.
- Refined initial round of scenarios via workshop and began modeling initial scenarios.

### **Proposed activities for next year:**

- Finish modeling initial and second round of scenarios.
- Review MassDOT planning processes and investments.
- Develop teleworking monitoring strategy.
- Prepare final report.

### **Anticipated products:**

- Presentation, map interface, and all data from trip/economic modeling of different scenarios.
- Strategy for continuing to monitor changes in telework.
- Final report and summary incorporating all prior deliverables.

**Estimated task completion:** 12-31-2023

*Estimated staff salaries and benefits:* **\$16,956.00**

MassDOT staff members	% Time to task
Max Natanagara	20.0

**Estimated task budget:** \$188,583.85

*Estimated consultant costs: **\$171,627.85***

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>Post-COVID-19 Teleworking Study / 113996</b>	\$896,504.00	\$633,876.15	\$171,627.85	\$0.00	RSG	02-23-2021	12-30-2023

*Consultant cost notes:* Contract #113996 contains an optional task (task 10) to be carried out at the sole discretion of MassDOT. The FFY24 amount of \$171,627.85 is reserved for this purpose.

# Transit Planning



## A.30 / Transit Planning Studies

**Task Lead:** Jonathan Church

### **Task Purpose:**

To perform, participate in, and manage several types of transit planning studies, conducted either internally or by other entities, such as regional planning agencies and other MassDOT Divisions. The level of involvement is project-specific and includes activities such as study development and analysis, public participation, coordination, technical assistance, and review. Often, these studies are part of the standard planning, design, and environmental processes required to advance a transportation project forward to implementation.

### **Accomplishments in prior year:**

N/A (new task for FFY2024)

### **Proposed activities for next year:**

- Procure and initiate the RIDE Electric Vehicle Feasibility Study (non-SPR Funded for consultant costs).
- Procure and initiate Regional Rail Demand and Revenue Forecasting Tool (non-SPR Funded for consultant costs).
- Procure and initiate Bus Priority Emergency Response Impact Study (non-SPR Funded for consultant costs).
- Initiate/conduct the Gilmore Bridge Mobility Improvements Study (non-SPR Funded for consultant costs).

### **Anticipated products:**

- RIDE Electric Vehicle Feasibility Study, task deliverables, Draft Report, and Final Report (non-SPR Funded for consultant costs).
- Procure and initiate Regional Rail Demand and Revenue Forecasting Tool, task deliverables (non-SPR Funded for consultant costs).
- Procure and initiate Bus Priority Emergency Response Impact Study, task deliverables, Draft Report, and Final Report (non-SPR Funded for consultant costs).
- Initiate/conduct the Gilmore Bridge Mobility Improvements Study, task deliverables (non-SPR Funded for consultant costs).

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$380,460.86**

MassDOT staff members	% Time to task
Jonathan Church	100.0
TPP II TBH	100.0
TPP II TBH	100.0
TPP III (TBH)	100.0
Patricia Cahill	50.0
Andrew Wang	10.0

**Estimated task budget: \$380,460.86**

Estimated consultant costs: \$0

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>RIDE Electric Vehicle Feasibility Modeling/ TBD</b>	\$100,000.00	\$0.00	\$0.00	\$0.00	TBD	TBD	TBD
<b>Regional Rail Demand and Revenue Forecasting Tool / TBD</b>	\$1,400,000.00	\$0.00	\$0.00	\$0.00	TBD	TBD	TBD
<b>Bus Priority Emergency Response Impact Study/ TBD</b>	\$75,000.00	\$0.00	\$0.00	\$0.00	TBD	TBD	TBD
<b>Gilmore Bridge Mobility Improvements Study/ TBD</b>	\$1,250,000.00	\$0.00	\$0.00	\$0.00	HNTB	TBD	TBD

*Consultant cost notes:* Consultant costs to be paid under 5304 funding in FFY2024: RIDE Electric Vehicle Feasibility Modeling \$100,000; Regional Rail Demand Modeling Tool \$700,000; Bus Priority Emergency Response Impact Study \$75,000;; Gilmore Bridge Mobility Improvements Study \$830,000.

## A.31 / Developer Mitigation Methodology

**Task Lead:** Patricia Cahill

### **Task Purpose:**

Although land use developments (both public and private and inclusive of commercial, residential, retail, mixed-use, and other types) can have significant impacts on the delivery of public transportation services, there is no standard methodology to estimate these impacts in the Greater Boston region. Therefore, establishing an equitable and comprehensive strategy for evaluating service impacts is of particular interest to the agency. The deliverables from this project will provide the MBTA with the information needed to inform new strategies and procedures for developer mitigation. They could also inform new strategies and procedures for agencies beyond the MBTA, including MassDOT, Regional Transit Authorities (RTAs) and other transit providers.

### **Accomplishments in prior year:**

- Finalized scope and released Request for Proposals.
- Contracted with consultant, VHB, beginning in November 2022.
- Completed Tasks 1, 2, and 3: peer review, policies & regulation review, and draft and final methodology for determining the impacts of land use developments on the delivery of transit services.
- Began tool development.

### **Proposed activities for next year:**

- Case study research and literature review regarding how other transit agencies calculate system impacts due to commercial, residential, and other developments/land use impacts.
- Development of a guidance document that reviews potential strategies for quantifying service impacts on MBTA services.
- Development of a potential methodology that could be used to estimate the impacts of commercial, retail, residential, and other types of land and property development activities on the throughput and delay of public transportation services.

### **Anticipated products:**

- Final report with recommendations for adoption of a methodology for determining developer mitigation.
- Memorandum/report that summarizes research and literature review findings.
- Quantitative models (and guidance on associated thresholds and metrics) that can be used to estimate service delivery impacts.

- Detailed methodology and guidance regarding the estimation of impacts on public transportation and strategies for mitigation.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$45,957.34**

MassDOT staff members	% Time to task
Patricia Cahill	50.0

**Estimated task budget: \$205,957.34**

Estimated consultant costs: **\$160,000.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
Developer Mitigation Methodology / 120312	\$500,000.00	\$340,000.00	\$160,000.00	\$0.00	VHB	11-18-2022	01-31-2024

Consultant notes:

## A.34 / MBTA Fare Review

**Task Lead:** Liz Williams

### **Task Purpose:**

The MBTA has over 100 different price points for a transit ride depending on mode, zone/distance, transfers, product type, and eligibility for reduced fares. This project would provide a comprehensive review of MBTA fare policy and pricing; how pricing currently works; alternative pricing options; public/stakeholder input; impact analysis of alternative pricing options; recommendations for changes to MBTA fares; and potential barriers and strategies for implementing the recommendations.

### **Accomplishments in prior year:**

- This work is currently underway, on-task, and on-budget. We expect this work to be completed by the anticipated deadline of July 31, 2024.
- The consultant team has completed work on Task 1 (Review Existing MBTA Structure), and this deliverable has been reviewed and approved by the MBTA.
- Task 2 (Review Alternative Pricing and Conceptual Fare Alternatives) and Task 4 (Analyze Impacts of Alternative Pricing Options) is currently underway. Much of Task 2 has been completed (with respect to peer agency data collection and alternative packages development) and is being conducted in concert with Task 4.
- Task 3 (Gather Input from MBTA stakeholders) has been pushed off until the fall/winter so as not to conflict with other MBTA outreach priorities.

### **Proposed activities for next year:**

- Case study research and literature review regarding how the MBTA fare tariff compares to other transit agencies, inclusive of contextual factors such as service area, coverage, revenue service hours.
- Data collection (qualitative, quantitative, spatial) regarding MBTA fare policy, including studies conducted by non-state agencies such as advocacy groups and the MBTA Advisory Board
- Model and 'tariff alternatives' development.

### **Anticipated products:**

- Background report and presentation describing how MBTA fares compare to alternative pricing approaches used at other transit agencies around the world.
- Review/synthesis of previous public outreach on MBTA fare policy, supplemental public survey and stakeholder interviews, and a summary report describing findings.

- Modeling analysis of the potential ridership, revenue, and equity implications of alternative pricing options, using existing MBTA modeling tools where applicable.
- Qualitative analysis of the technological, operational, and regulatory implications of alternative pricing options. A final report and presentation of findings, recommendations, potential barriers, and strategies for implementation.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$18,000.00**

MassDOT staff members	% Time to task
Marthinus J. "MJ" Riekert	25.0

**Estimated task budget:** \$278,582.00



Estimated consultant costs: **\$260,582.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>MBTA Fare Review / 120680</b>	\$850,000.00	\$589,418.00	\$260,582.00	\$0.00	Cambridge Systematics	11-30-2022	07-31-2024

Consultant notes:

# SPR I Part B

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# Pavement Management

## B.1 / Statewide Pavement Management Activities

**Task Lead:** Edmund Naras

### **Task Purpose:**

The objective of the Pavement Management Program is to responsibly manage the pavement portion of the highway transportation network. The program provides a rational and uniform system for evaluating roadway conditions in order to improve the effectiveness of pavement preservation and rehabilitation strategies. Additionally, it provides analytical and evaluation tools that assist administrators and project managers with methods to improve the consistency of decision-making and to formulate strategies to optimize pavement network performance and the allocation of resources.

### **Accomplishments in prior year:**

- Collected, processed and analyzed 4,000+ miles of pavement condition data.
- Submitted successfully Interstate and Non-Interstate NHS pavement data for the Highway Performance Management System (HPMS).
- Developed an optimized multi-year program for the Interstate and Non-Interstate NHS. Integrated optimized program into the rolling 5-year STIP.
- Initiated an additional \$150 Million in Interstate NHS projects.
- Utilized the MassDOT Pavement Management modeling, forecasting & optimized project selection tool to identify over \$330 Million dollars of future NHS pavement projects.
- Conducted scoping meetings with District, Bridge, Environmental and Highway Design staff to screen \$175 Million NHS project locations to establish items outside of pavement scope, identify preservation candidates, and prioritize future programming.
- Developed a statewide list of municipal numbered highways in fair and poor condition. Prioritized these sections by condition, NHS status, scope and other factors for rehabilitation over a five-year period.
- Performed correlation and certification for ride quality testing equipment utilized by Contractors\other Northeast states and MassDOT for QC and acceptance testing.
- Performed acceptance testing for ride quality on approximately 900+ lane miles.
- Continued monitoring performance of EDC-2 High Friction Surfacing Projects statewide.
- Continued monitoring SHRP2 (R-26) pavement preservation sections on US Route 3 and evaluated the need for future preservation treatments.
- Reviewed over 290 projects at various stages of design.

- Continued to advance EDC-6 Targeted Overlay Pavement Solutions Initiative for Asphalt Rubber Mixtures, Highly Modified Polymer Mixtures and Stone Matrix Asphalt (SMA) mixtures.
- Completed paving on the pilot project in summer 2023 and monitoring performance.
- Completed two “Higher reclaimed asphalt pavement (RAP)” demonstration projects based on prior SPR research activities and two additional demonstration projects have been identified with future paving to be completed in summer/fall 2023.
- Evaluating proposed criteria from the results of the Balanced Mix Design work done under ISA with HSRC against current MassDOT hot mix asphalt (HMA) design.
- Included a Special Provision for Environmental Product Declarations (EPDs) in the I-93 Medford-Stoneham project as part of EDC-7 requirements.
- Advertised 11 NHS Pavement Preservation\Resurfacing\State of Good Repair Contracts.

**Proposed activities for next year:**

- Oversee collection of pavement distress, rutting, geometric, GPS, LiDAR and video data for the Interstate System and transition to annual data collection cycle for the remaining NHS, numbered routes and other highways under MassDOT jurisdiction as part of new data collection services contract.
- Utilize MassDOT Automated Pavement Data Collection Vehicle to supplement data collection of pavement distress, rutting, geometric, GPS, LiDAR and video data for roadways paved after collection by the vendor for integration into overall data set.
- Conduct Quality Assurance testing using new Automated Pavement Data Collection Vehicle/Equipment to verify deliverables from Network Pavement Data Collection for the Interstate, Non-Interstate NHS, State Numbered routes as well as other highways under MassDOT Jurisdiction.
- Perform annual maintenance and upgrades on the Automated Pavement Data Collection Vehicle, Pavement Friction Tester and Bumper Mounted Profilers.
- Perform ride quality acceptance testing for all new construction, resurfacing and preservation projects using the Bumper Mounted Profilers.
- Use Pavement Management Data to revise\develop 2025-2029 STIP for Interstate and Non-Interstate NHS projects.
- Facilitate the implementation of Municipal Paving Program, continuing to emphasize rehabilitation and preservation of the municipally owned Non-Interstate NHS roadways.
- Manage consultant efforts to warehouse statewide municipally owned pavement condition data leveraging MassDOT’s GIS online database structure and reporting capabilities.
- Oversee Interdepartmental Service Agreement (ISA) with UMass Dartmouth for continued support of pavement management activities including correlation of data collection equipment,

implementation of new technologies and test methods, develop innovative pavement mixture designs (Superpave 5) and evaluations with existing designs, assist with evaluating Bridge Waterproofing Mixtures (SSC-W), and assess Asphalt Pavement sustainability evaluation methodologies LCA and INVEST for MassDOT implementation.

- Finalize report on Rte. 2 Gill/Erving Targeted Overlay Pavement Solutions (TOPS).
- Pilot Superpave 5 and Balanced Mix Design (BMD) in projects.

#### **Anticipated products:**

- Report on pavement condition data for Interstate, State-Maintained and NHS roadways and data required for the Highway Performance Monitoring System (HPMS).
- Optimized multi-year program for the Interstate and Non-Interstate NHS pavement construction and preservation programs.
- Generate list of municipal numbered highways in fair and poor condition for continued support of MassDOT's Municipal Pavement Program for State Numbered Routes.
- Renewed contract for maintenance and software upgrades to the Pavement Management section's pavement management database.
- Improvements to the web-based pavement management database software to improve PMS predictive modeling and project selection tools and integrate tracking of Federal Reporting measures.
- Take delivery of new Automated Pavement Data Collection Vehicle/Equipment.
- Execute contract for annual maintenance and upgrades on the Pavement Friction Tester and Bumper Mounted Profilers.
- Calibration and certification on all equipment used for MassDOT ride quality project acceptance testing.
- Under ISA, Purchase Dynamic Friction Tester and Circular Track Meter to conduct friction evaluation on High Performance Asphalt Overlays (HPOL) to determine acceptable frictional characteristics that can be included in MassDOT's specifications for HPOL's.
- Asphalt binder specifications that incorporate two new binder parameters to address age induced surface distresses.
- Performance testing of different tack coats to determine pavement bond strength.
- Determine performance of High RAP surface mixtures for high volume roads on pilot projects.
- Establish guidance\specifications for mix design and performance assessment of High RAP mixtures on low volume roads.
- Propose mixture design procedure, performance test(s), and pilot specifications for cold central plant recycling (CCPR) and cold in-place recycling (CIR).
- Aging Protocol for a Balanced Mix Design that can be incorporated into MassDOT BMD.

- Implementation of Superpave 5.
- Determine mix performance of Superpave Waterproofing Surface Course on Bridge Mixtures (SSC-W) by conducting Flexural Beam Fatigue and Hamburg performance tests.
- GIS database to serve as a warehouse for incoming municipally owned pavement condition data.
- Data model to create a standardized format to integrate municipal pavement condition data and roadway attributes into MassDOT's online database structure.
- Test version of ArcGIS Online-driven dashboard to allow municipalities and other stakeholders to interact with pavement data more effectively and make better informed decisions when prioritizing roadway improvement projects.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$875,992.52**

MassDOT staff members	% Time to task
Edmund Naras	100.0
Jonathan Smith	100.0
Cody Holemo	100.0
William Gutierrez	100.0
Stefan Kargakis	100.0
Liz Cruz-Falero	100.0
Subash Shahi	100.0
Steven Morin	100.0
James Pierce	100.0

*Estimated Other Costs:* **\$145,000.00**

**Estimated task budget: \$3,429,657.52**

Estimated consultant costs: **\$2,408,665.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>Warehouse statewide municipally owned pavement condition data / TBD</b>	\$190,000.00	\$0.00	\$190,000.00	\$0.00	TBD	TBD	TBD
<b>Pavement management modeling, forecasting &amp; optimized project selection for the Capital Investment Plan (CIP) / 120954</b>	\$130,000.00	\$130,000.00	\$130,000.00	\$0.00	Deighton Associates Ltd	12-12-2022	09-30-2024
<b>ISA: MassDOT Pavement Support Service (PS2) / 121943</b>	\$1,485,562.00	\$113,981.00	\$538,665.00	\$832,916.00	UMass Dartmouth	04-01-2023	09-30-2026



<b>Network Pavement Data Collection Services and Support / TBD</b>	\$4,100,000.00	\$850,000.00	\$1,550,000.00	\$1,700,000.00	TBD	TBD	TBD
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*Consultant cost notes:* ISA UMass Dartmouth-\$538,665 (\$1,485,562 total over 4 years ISA); TBD Network Pavement Data Collection Services-\$1,550,000; Deighton Assoc Ltd. Database Maintenance & Software Upgrades-\$130,000; TBD Warehouse Munic. Pavement Data-\$190,000

TOTAL: \$2,408,665.00 FFY24

*Other Cost notes:*

- Skid Truck annual maintenance and software upgrades -\$25,000
- Bumper Mounted Profilers annual maintenance and software upgrades -\$50,000
- Pavement Preservation TSP2 membership -\$20,000
- Miscellaneous mechanical & electronic supplies and training -\$50,000
- TOTAL \$145,000.00

# Statewide Traffic Data Collection

## B. 2 / Statewide Traffic Data Collection

**Task Lead:** John Amato

**Task Purpose:**

The MassDOT Highway Division's Statewide Traffic Data Collection (STDC) group is responsible for the development and maintenance of the Annual Traffic Data Collection Program. The program is designed in accordance with FHWA's Traffic Monitoring Guide (TMG), the AASHTO Guide for Statewide Traffic Data Collection Programs, and the Highway Performance Monitoring System (HPMS) guidelines. Traffic-derived travel data from the HPMS are used in the federal-aid highway fund apportionment formulae. Traffic data are critical to the analyses that support the Condition and Performance Reports to Congress, which are subsequently used for national highway budgeting purposes. HPMS-derived travel data are required to meet Clean Air Act requirements, and travel data are central to estimating several of MassDOT's performance indicators such as vehicle crash and fatality rates and delay. Therefore, a traffic counting program is conducted each year by the Statewide Traffic Data Collection group of the MassDOT Highway Division. The counting program is modeled after FHWA's Traffic Monitoring Guide, AASHTO's Guidelines for Traffic Data Programs and, most importantly, the HPMS Field Manual. The annual program involves the systematic collection of traffic data utilizing automatic traffic recorders located on various roadways throughout the State. In addition, the Statewide Traffic Data Collection group provides traffic data for MassDOT's pavement, highway, and bridge design efforts. This includes pavement rehabilitation, construction, maintenance, and construction staging and traffic management. Data gathered in support of the Department's program varies from single road tube automatic traffic recorder (ATR) counts to intersection turning movement counts (TMC) for traffic signal design and vehicle type classification for pavement design and environmental analyses (air quality and noise levels). Due to MassDOT's desire and interest to accommodate all road users and measure the performance of safety and mobility, continuing this year, there will be a focus on expanding the newly created pedestrian and bicyclist counter program and increasing the pedestrian and bicyclist counts available. In 2021, MassDOT purchased and installed twelve bicycle and pedestrian counters at eight locations across the state, including intersections, roadways, and shared-use trails. MassDOT will build upon the success of the bicycle and pedestrian pilot program initiated in the FFY21 SPR cycle and increase the bicycle and pedestrian count stations across the state. The goal is to standardize the collection of bicyclist and pedestrian count data; expand the scope of data collection to other parts of the state; and to continue populating to collect and populate our statewide traffic portal to create a more comprehensive network of counting sites. MassDOT will also work with Regional Planning Agencies (RPA) to upload their bicycle and pedestrian count data into the newly purchased Non-Motorized Database System. Likewise, MassDOT's desire to improve upon Weigh-In-Motion (WIM) data and technology to further assist the

Commercial Vehicle Enforcement Section and improve safety is being evaluated. This technology should also assist with pavement management and bridge evaluations and design. We understand MassDOT needs to improve upon commercial motor vehicle inspection and weight data and will work towards meeting the goal of obtaining WIM data and providing FHWA and the Federal Motor Carrier Safety Administration (FMCSA) with necessary information. The intention is to develop requirements and obtain assistance with vendor solicitations, proposal evaluations, deployment, testing and acceptance of a multi-purpose virtual weigh station pilot. The intent of a new WIM Program would be to identify the proper technology applications for additional WIM sensors in pavement.

### **Accomplishments in prior year:**

The STDC program supported and monitored continuous count activities monthly, capturing class, volume, and speed data to support FHWA requirements. The maintenance of special counts was performed by request in which data is used by MassDOT staff on various levels (e.g., Design, Project, Pavement, Traffic Engineering, etc.) for planning and evaluation of highway conditions. All operational, continuous count sites (438 out of 584) were monitored monthly. Monthly volume, classification, & WIM data were uploaded to FHWA's web-based QC software, "Travel Monitoring Analysis System (TMAS) 2.8 for TVT, VMT and vehicle type reports.

- 47 special request studies were completed during FFY23 Q1, Q2 and Q3 which included 222 volume, 152 classification and 146 speed studies.
- 216 turning movement count (TMC) studies were completed.
- Additional continuous count sites were configured and are using telemetry for a total of 438 out of the 584 sites.
- Counted 391 out of 436 2022 Coverage Program count locations over the course of calendar year 2022. The overall combined total counted in FFY23 Q1, Q2 and Q3 is 268.
- Counted a total of 484 ramps in calendar year 2022.

The overall combined total counted in FFY23 Q1, Q2 and Q3 is 363. There are a total of 459 locations in the Ramp Count Program per calendar year.

- Regional Planning Agencies (RPA) counted 201 of 216 assigned 2022 coverage program counts. In addition, they completed 449 additional (special) counts and 131 turning movement counts (TMC) in 2022.
- Ordered short-term, portable counters for bicycle and pedestrian counts.
- Installed new permanent bicycle and pedestrian counters
- In support of HPMS requirements:
  - Submitted short term coverage program counts.

- Submitted continuous count station data.
- Submitted the updated FAADT per MS2 average daily traffic (ADT) calculations.
- Submitted updated 2022 percentage peak single units (SU) and combination units (CU) data for all samples per MS2 calculations.
- Submitted corrected K factor data for those samples where they are less than 4.5 and improved the K factors reported for future years and reviewed with MS2.
- Submitted data for all ramps for 2022 and completed 2022 ramp data submittal.
- Submitted travel summary table, including rural interstates in the SU and CU.
- Bicycle/Pedestrian Count Program:
  - In Q3 and the start of Q4, MassDOT began installations for this year's permanent count stations, with four new locations including a new facility type with a pedestrian railroad underpass in Springfield. This expansion will be focused on counting in key locations around Boston, expanding to areas of the state without any counters in the network, counting in areas with projected bicycle infrastructure expansion, and building out groups of similar locations for seasonal comparison. MassDOT has begun initial pilot deployments of short-term portable counters. In collaboration with the Massachusetts Department of Conservation and Recreation, MassDOT deployed three counters on the Southwest Corridor Park, a major urban shared-use path in Boston. In Q3, MassDOT plans to begin training Traffic Data Collection field staff to install these counters for the purposes of future projects. In addition to counter installations, in Q3 MassDOT began discussions with regional planning agencies to utilize the state's MS2 public database to host short-term counts from these agencies. Many RPAs conduct regular micro mobility counts but do not have the resources to make these counts publicly available. In turn, the larger and more regionally varied data these counts can provide will help to calibrate and examine seasonal use patterns for counters already in MassDOT's network.

### **Proposed activities for next year:**

The focus of the STDC department is to continue telemetry upgrades to eligible, continuous permanent count stations, in which daily data studies of class, volume, and speed will be uploaded and processed through MS2, the application used to process all traffic studies by month. This approach will significantly reduce the delay in delivering the data to TMAS and the annual HPMS reports. Staff will include proper class portable counts on all functionally classified roadways including rural interstate roadways, which is a requirement of FHWA. In supporting HPMS requirements:

- Submit the 2023 FAADT data.

- Submit the 2023 percentage peak SU and CU data for all samples.
- Submit data for collected ramp counts for 2023.
- Vehicle miles traveled (VMT) weight HPMS summary data for future year's submittal.
- Class factor portable class counts to properly annualize them.
- Class factor from year to year for any non-current year data so the HPMS data for SU and CU.
- AADT is properly part of the current year with each year's submittal.
- Run all data through MS2 and quality control it before sending the data into TMAS.
- Begin conducting short-term bicycle and pedestrian counts to support statewide planning needs.
- Expand permanent bicycle and pedestrian counter network with 6-8 new permanent count stations.
- Continue development of the statewide FREEVAL model.
- Conduct technology assessment and develop formal plan for expanding WIM stations for each functional class of roadway as recommended in DAT Review and include enforcement capabilities to support MSP truck team activities.

#### **Anticipated products:**

- Clustering Analysis - Seasonal, axle and growth factor grouping.
- Short Count Assignment - Factor group assignment for all short count stations.
- HPMS Traffic Data Reporting: a. HPMS Segment Traffic Table b. HPMS Ramp Count Table c. HPMS Traffic Meta Data d. HPMS State Summary - Vehicle Type Table.
- Travel Time Database System (TTDS): a. 2023 Travel Time Metric HPMS Reports.
- FREEVAL interim model results.
- Bicycle and Pedestrian count program accuracy assessments.
- Bicycle and Pedestrian count program permanent counter expansion
- Bicycle and Pedestrian count program short-term counts
- WIM technology assessment report with expansion capabilities.
- Continue development of Statewide TDC Strategic Plan Report.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$1,007,207.64**

MassDOT staff members	% Time to task
John Amato	100.0
Brian Farrington	100.0
Michael Ribeiro	100.0

Misrak Sultan	100.0
Lori Suss	100.0
Ian Adams	100.0
Robert Belcastro	100.0
Tracy DeYoung	100.0
James Groomes	100.0
Hector Monet	100.0
Wayne Schofield Jr.	100.0
Zachary Medeiros	50.0
Spencer Cullen	50.0
Corey O'Connor	20.0
Neil Boudreau	5.0
Amy Getchell	5.0

*Estimated Other Costs: \$1,676,000.00*

**Estimated task budget: \$3,178,207.64**

Estimated consultant costs: **\$495,000.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>TrafInfo Consultant Contract / 116428</b>	\$1,097,000.00	\$560,000.00	\$395,000.00	\$142,000.00	TrafInfo	None	03-06-2025
<b>Development of Statewide FREEVAL model / 117018</b>	\$350,000.00	\$250,000.00	\$100,000.00	\$0.00	Kittleson & Associates	None	06-01-2026

*Consultant cost notes:* Requested and received approval from FHWA for an additional \$40,500.00 in funding for bike and ped counting program for Contract # 116428 Statewide Telemetry Program Support Services with TrafInfo Communications Inc. This will increase the total contract amount from \$1,057,000.00 to \$1,097,500.00. Existing TrafInfo Consultant Contract (Contract #116248)- estimated at \$345,000 for FFY24 - total remaining contract amount of \$598,000 divided by 21 remaining months multiplied by 12 months and rounded up a bit for even number). MassDOT executed the contract with Kittleson Associates (Contract # 117018) on May 9, 2022, to develop a statewide Freeval model. A portion of the \$350,000 contract value is funded through SPR funds. Through the end of FY23, \$197,100.80 of the \$350,000 has been paid out.

*Other Cost notes:*

- Midwestern Software Solutions (MS2) Traffic Count Database/Portal - Annual Vendor Support: --\$435,000



- Miovision (through PDI) Turning Movement Counts Support Services - Annual Vendor Support Services (Billed Quarterly): -- \$145,000
- State Police Details to support counter installations: --State Police details needed for traffic control and safety (\$120,000).
- Miscellaneous Equipment/Spare Parts:
  - Road tube clamps (\$10,000).
  - Road Tube (\$100,000).
  - Road Tube Tape (\$10,000).
  - Miscellaneous supplies from Home Depot (\$5,000).
  - Miscellaneous supplies from Grainger (\$5,000).
  - Automatic Traffic Recorders (ATRs) upgrades/replacement (\$200,000).
  - Verizon Wireless service for HERE Sensors, Co-located Stations and Telemetry Stations (\$150,000).
  - Solar Panels 60 Watt, 12V (\$20,000).
  - 15 AMP MPPT Charge Controller Prewired Assembly with Surge Option (\$25,000).
  - Batteries for Telemetry Stations (Boston Battery) (\$15,000).
  - Posts for solar panels (RoadSafe Traffic Systems) (\$5,000).
  - Utilities (\$15,000).
  - Modems and Antennas (\$35,000)
  - Hilti Automatic Powder-Actuated Fastening Nail Gun Package, supply of shot and nails (\$10,000)
- New Equipment Purchases to support continuous data needs:
  - Proposed purchase of TIRTL Light Based Non-Invasive Sensor for counting, vehicle classification and speed (\$15,000 ea.) (\$60,000)
- New Bike/Ped/Micromobility program:
  - Data storage, batteries and subscription fees: \$16,000

- New permanent and portable counters : \$45,000
- New Vehicle Purchases to support TDC field activities:
  - Two (2) Ford F150 4X4 SuperCrew XLT (G), White, sliding internal bed shelves with sliding weatherproof bed cover, \$45k each, (\$90,000)
  - One (1) Ford Escape SE AWD, White, (\$35,000)
  - One (1) Ford Transit T350 (W1Y) Cargo Van, LR, Yellow, (\$40,000)
  - One (1) Ford F150 4X4 SuperCrew XL, 5.5 Bed, Traffic Spec, Yellow, sliding internal bed shelves with sliding weatherproof bed cover (\$45,000)
- Training and Conference Travel Budget for ongoing education for TMG requirements, AASHTO best practices, peer to peer knowledge transfer for staff: Conference Travel and Training (\$20,000)
- Training and Conference Travel Budget for regional meetings in NH or other NE States, peer to peer knowledge transfer for staff: Conference Travel and Training (\$20,000).

# Survey

### B.3 / CORS Network Operation and Expansion

**Task Lead:** John Anthony

**Task Purpose:**

Work under this task will involve managing the Continuously Operating Reference Station (CORS) Network and accompanying website as well as supporting MassDOT departments, other state agencies, municipalities, planners, GIS users, and the architectural and engineering community on the use of the CORS Network. The Survey Section endeavors to expand the MaCORS Network by identifying suitable locations for the construction of additional CORS stations to expand and enhance the network.

**Accomplishments in prior year:**

- Registered approximately 160 new subscribers for the CORS network in Q3 of FFY2023. We have so far registered approximately 485 new subscribers for FFY2023.
- In Q1 of FFY2023 a full network adjustment was made to all stations. This included the newly constructed Martha's Vineyard CORS as well as a station owned and operated by the University of Rhode Island.

**Proposed activities for next year:**

Continue to register new subscribers to the CORS Network and perform equipment updates as may be necessary.

**Anticipated products:**

- The CORS network will receive all pertinent upgrades for the next three years.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$136,796.64**

MassDOT staff members	% Time to task
Evanson Browne	60.0
John Anthony	15.0
John Barnes	15.0
Jeffrey Bruce	10.0
Mehdi Sadjady	10.0

*Estimated Other Costs: \$26,000.00*

**Estimated task budget: \$162,796.64**

*Other cost notes: Cable/Internet bills*

## B.4 / Development and Training

**Task Lead:** John Anthony

**Task Purpose:**

To participate in national, regional, and statewide boards and conferences that promote continued professional development and training relative to GPS and the use of MassDOT's CORS Network. Attendance at these meetings will promote and help develop the statewide geodetic control network for statewide spatial data.

**Accomplishments in prior year:**

The MassDOT Survey section did not attend any conferences or seminars relating to geospatial or location functions that required SPR funding.

**Proposed activities for next year:**

Seek out and attend conferences and seminars relative to geospatial and location technologies that would be beneficial to MassDOT staff.

**Anticipated products:**

N/A

**Estimated task completion:** 09-30-2024

*Estimated Other Costs:* **\$5,000.00**

**Estimated task budget:** **\$5,000.00**

*Other cost notes:* Other costs include travel expenses to attend development and training events.

## B.5 / Geodetic Surveys for Statewide Project Control

**Task Lead:** John Anthony

### **Task Purpose:**

The MassDOT Survey Section maintains a statewide network of permanent geodetic control markers that provide public and private surveyors access to the NAD 83/NAVD 88 horizontal and vertical geodetic survey control datums. The Survey Section utilizes these markers, in conjunction with the MassDOT CORS Network, to establish semi-permanent survey control stations on MassDOT bridge and roadway projects throughout the Commonwealth. NAD 83 and NAVD 88 are common and widely recognized geodetic datums. Their use for project control is essential to maintain consistency throughout the various phases of project planning, design, and construction. The network is also used by MassDOT's Office of Transportation Planning, MassGIS, private surveyors, and numerous municipal and state agencies for various engineering, surveying, and GIS applications.

### **Accomplishments in prior year:**

- Performed GPS observations and electronic bar-code leveling to establish NAD 83 and NAVD 88 project survey control for eighty-three (83) bridge rehabilitation/reconstruction and highway reconstruction/improvement projects.
- Performed second order electronic bar-coded leveling to establish five (5) new NAVD 88 benchmarks and re-establish two (2) existing benchmarks that were disturbed from construction projects in the vicinity of the benchmarks.
- Performed twenty-three (23) GNSS observations as part of the National Geodetic Survey's (NGS) GPS on Priority NGS Benchmarks program. The results from five (5) were published by NGS.

### **Proposed activities for next year:**

- Continue ongoing surveys to maintain and densify the statewide network of horizontal and vertical control stations.
- Continue to set project controls for various bridge rehabilitation/reconstruction, highway reconstruction/improvement, and photogrammetric mapping projects.
- Coordinate survey efforts and work with NGS as we prepare for the future adoption of new horizontal and vertical survey datums.

### **Anticipated products:**

- Updated control point database and data card file enabling the MassDOT survey control point website to publish newly established controls to the public.
- Individual control reports for each MassDOT project to be distributed to end users.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$507,333.98**

MassDOT staff members	% Time to task
Arben Zhuri	60.0
Brian Knowles	60.0
Leo Scanlon	60.0
Michael Roberts	60.0
Eugene Tivnan	60.0
Jeffrey Bruce	40.0
Mehdi Sadjady	40.0
John Anthony	25.0
John Barnes	25.0
Michael Chouinard	20.0

**Estimated task budget:** \$507,333.98



## B.6 / GPS and Conventional Survey Equipment

**Task Lead:** John Anthony

**Task Purpose:**

To maintain and service MassDOT's GPS and conventional survey equipment to ensure accurate data collection and efficient data transmission to users.

**Accomplishments in prior year:**

Procured survey field supplies and mark setting equipment; extensions to the service/maintenance plans on our data collection and GNSS processing software; and repairs to one of our GNSS receivers.

**Proposed activities for next year:**

Procure new contract(s) with vendor(s) that will allow the Survey Section to purchase field equipment and supplies, and service equipment as necessary.

**Anticipated products:**

Incidental survey supplies such as batteries, cables, prisms, nails, markers, and other survey and CORS Network equipment as needed.

**Estimated task completion:** 09-30-2024

*Estimated Other Costs:* **\$50,000.00**

**Estimated task budget:** **\$50,000.00**

*Other cost notes:* This is an allocated amount for the purchase field equipment (batteries, cables, prisms, etc.) and supplies (stakes, nails, markers, paint, etc.), and service equipment as necessary.

# Traffic Crash Records and Safety Management

## B.7 / Improved Crash Data and Safety on Massachusetts Roadways

**Task Lead:** Bonnie Polin

### **Task Purpose:**

This work consists of improving data collection and dissemination through working with police, the Registry of Motor Vehicles (RMV), MassDOT's Office of Transportation Planning, and others to improve distribution efforts. MassDOT will work with consultants and MassDOT Information Technology (IT) to upgrade and improve data dissemination and assist with the development of an updated crash system so that an enhanced data-driven approach to safety can be utilized.

Data-driven safety analysis will be required to reach the goal areas related to zero deaths and serious injuries.

The data will then be used to develop and enhance a Safety Management System where effective and efficient programs and projects are identified, programmed and implemented.

We then apply highway safety methodologies to define and refine projects and programs to reduce fatalities and serious injuries. This will all be identified through the Strategic Highway Safety Plan (SHSP) and the Highway Safety Improvement Program.

### **Accomplishments in prior year:**

- Total users of IMPACT crash data portal = 14,820 users during this FFY year through July 12, 2023. Also, 27,807 page views.
- Used the IMPACT geocoding tool for crash location validation, editing, automated and operator-assisted geocoding, and roadway inventory matching (From October 1, 2022 through July 12, 2023 when this report was prepared – 106,821 crashes were geocoded, of those, 13,139 were manually geocoded by MassDOT Highway Safety staff) and 93,682 were automatically geocoded. In total, 96% of crashes are geocoded.
- SHSP plan was updated and approved in December 2022. The Vulnerable Road User Assessment and Action Plan related to the 2023 SHSP was started.
- Provided data quality information to the RMV, including monthly rejection reports, police agency reporting levels, etc., in an effort to improve the data quality of the crash system.
- Began development of calibration for SPFs for ramp termini, urban arterials and rural arterials.
- Assisted RMV's Merit Rating Board with the new public facing data portal (to go live in September 2023) as well as provided input and feedback on development of the RMV's new Crash Data System. (The new RMV crash data system went live in February 2023)

- Continued collecting and overseeing intersection data collection for Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDE) and collected nearly 99% of the eligible intersections. The remaining intersections waiting to be inventoried are those that have issues with the road file and are awaiting corrections before the intersection data can be entered.
- Provided data information, maps and reports for all MPOs and local communities so that they can prepare local safety plans and/or apply for IIJA/BII grants like Safe Streets for All as well as develop Local Road Safety Action Plans.
- Participated in meetings and activities of the Traffic Records Coordinating Committee (TRCC), Executive TRCC and subcommittees.

### **Proposed activities for next year:**

- Additional trainings on IMPACT and begin collecting feedback on additional needs to further enhance the MA Safety Management System.
- Continue geocoding crashes and bringing them up to real time geocoding so that we can follow up with the police who prepared the crash report. This should also help to improve data quality.
- Continue providing data quality information to the RMV, including monthly rejection reports, police agency reporting levels, etc., in an effort to improve the data quality of the crash system. Finalize input on RMV's Request for Quotes (RFQ) for a new Crash data System so that a new contractor is procured.
- Complete the collection of the intersection data collection for Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDE).
- Prepare and disseminate the updated risk models and network screening models so that top intersections and segments can be identified, visualized and disseminated.
- Continue participating in meetings and activities of the Traffic Records Coordinating Committee (TRCC), Executive TRCC and subcommittees.
- Continue developing SPFs so that HSM methodologies can be utilized.
- Conduct road safety audits (RSAs) throughout the Commonwealth to identify issues and propose recommendations so that data driven safety improvements can be made, whether in person or remote. We anticipate conducting over 60 RSAs.
- Put in place and publicize guidance on HSIP eligibility.
- Develop several systemic type projects where MassDOT procures materials and provides to the locals.
- Complete the Action Plan of the Strategic Highway Safety Plan based on a Safe System approach.
- Complete the Vulnerable Road User Assessment.

- Roll out the 2024 HSIP program to include infrastructure projects and non-infrastructure projects and focus on systemic approaches (like the EDC initiatives for FoRRRwD and Nighttime Visibility for Pedestrian Safety) based on the results of the soon-to-be-completed HSIP Implementation Plan.
- Assist with Safe Street and Roads For All Grants and other grants from IIJA / BIL and Local Road Safety Action Plans.
- Prepare the HSIP annual report.
- Continue to assist with raising awareness of safety messaging.
- Assist with Every Day Counts (EDC) Nighttime Visibility to Improve Pedestrian Safety Initiative and other EDC initiatives.
- Continue working with Safe System Intersection analyses and other Safe System methods to quantify safety.
- Work with RMV to finalize the updated crash form with 19 fields to improve reporting of vulnerable user crashes.

#### **Anticipated products:**

- Listing/plan to further enhance IMPACT Data quality reports for the RMV.
- Completed network screening to identify top crash and risk based locations.
- Additional MA-specific SPFs.
- VRU Assessment.
- SHSP Action Plan.
- Linked road attributes for automatically- and manually geocoded crashes.
- Completed SHSP.
- Completed Road Safety Audits.
- Guidance on HSIP eligibility.

*Estimated staff salaries and benefits: **\$1,360,314.77***

<b>MassDOT staff members</b>	<b>% Time to task</b>
<b>Rosalynd Scott</b>	90.0
<b>Darryl Valovcin</b>	90.0
<b>TPP II TBH</b>	90.0
<b>Dakota DelSignore</b>	88.0
<b>Michelle Deng</b>	88.0

<b>Ana Fill</b>	88.0
<b>Kevin Fitzgerald</b>	88.0
<b>Jennifer Inzana</b>	88.0
<b>Kirsten Johnson</b>	88.0
<b>Bonnie Polin</b>	88.0
<b>Stacey Schwartz</b>	88.0
<b>James Terlizzi</b>	88.0
<b>Kylie Braunius</b>	88.0
<b>Evelyn Densmore</b>	88.0
<b>Justin Meade</b>	88.0
<b>intern 2 co-op 2</b>	85.0
<b>Intern-1 co-op-1</b>	85.0
<b>intern 3 co-op 3</b>	85.0

**Estimated task budget: \$2,076,632.77**

Estimated consultant costs: **\$716,318.00**

Subtask / contract #	Total cost:	Pre-FFY 2024:	FFY 2024:	Post-FFY 2024:	Consultant/Contractor Name:	Consultant NTP:	Contract End Date:
<b>Visualizing and Linking Corrected Speed Regulation Data / 119636 / 119636</b>	\$50,976.00	\$10,000.00	\$40,476.00	\$0.00	Framingham State	09-04-2022	03-01-2024
<b>SPF Ramp Termini / 119204</b>	\$276,600.00	\$60,000.00	\$216,000.00	\$0.00	UMASS Lowell	09-01-2022	06-30-2024
<b>Design Level MA-Specific SPR Development (Rural) / 121595</b>	\$150,000.00	\$25,000.00	\$120,000.00	\$5,000.00	VHB	08-10-2023	02-10-2025
<b>Design Level MA-Specific SPR Development (Urban) / 121596</b>	\$250,000.00	\$25,000.00	\$200,000.00	\$25,000.00	Jacobs Engineering	08-01-2023	02-01-2025

<b>MA CRISS / TBD</b>	\$370,338.00	\$0.00	\$139,842.00	\$230,496.00	MA Department of Public Health	10-01-2023	04-01-2026
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## **B.8 / Prevent and Minimize Risks to MassDOT Staff and Workers on the Roadways**

**Task Lead:** Bonnie Polin

### **Task Purpose:**

Work is required to manage known and preventable risks to MassDOT employees and those working on the roadways by setting, communicating, and following safety standards to achieve our goal of zero fatalities and injuries.

### **Accomplishments in prior year:**

- As of the date of this preparation (July 12th), work was just beginning on the assessment (2 per each district) preparations. The bulk of the work will take place in the end of July, August and early September. But the previous 2022 assessments were completed in December 2022 (Q1 FFY2023)

### **Proposed activities for next year:**

- Continue to research and support work zone safety initiatives through participation in the Work Zone Technical Committee as part of the AASHTO Subcommittee on Traffic Engineering (SCOTE) and National Committee on Uniform Traffic Control Devices (NCUTCD).
- Continue involvement in the Strategic Highway Safety Plan (SHSP) emphasis area of Safety of Workers on the Roadways.
- Work with Highway Operations Center and FHWA on the Every Day Counts (EDC) crowdsourcing initiative. This will help with incident response and minimize exposure for workers on roadways.
- Continue work at the national level on work zone safety and integration of technology
- Perform work zone safety assessments (two per MassDOT district). This is anticipated to take place in the end of July, August, and September 2024.

The reports will then be completed in Q1 of 2025.

### **Anticipated products:**

12 Work Zone Safety Assessments. By end of FFY2024 the assessments will be completed; reports will be finalized during Q1 of FFY25.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits: **\$36,362.71***

MassDOT staff members	% Time to task
Zachary Medeiros	5.0
Fangyun Xi Goncalves	5.0
Thao Tran	5.0
Emmanuel Gonzalez	5.0
Buu Tran	5.0
Kevin Chiang	5.0
Noah Thompson	5.0
Everlyn Galloway	5.0

**Estimated task budget: \$36,362.71**

## B.9 / Training of MassDOT Staff to Keep Current and Cutting Edge

**Task Lead:** Bonnie Polin

### **Task Purpose:**

This task includes training for MassDOT Traffic and Safety staff with the intention of keeping up with the latest practices in highway safety to effectively reduce fatalities and injuries on Massachusetts' roadways.

### **Accomplishments in prior year:**

- Attended the Transportation Research Board (TRB) Annual Meeting, FHWA Peer Exchanges, and the AASHTO Committee on Safety and other AASHTO related meetings.
- Served as panel members for National Cooperative Highway Research Program (NCHRP) studies.
- Trained other staff members on HSM methodologies and data driven safety analyses and other trainings to further the efforts to reduce fatalities and injuries.

### **Proposed activities for next year:**

- Attend the TRB Annual Meeting, FHWA Peer Exchanges, and the AASHTO Committee on Safety, NCUTCD, and other meetings.
- Participate in NCHRP panels on safety research.
- Attend webinars on best practices and latest findings of enhancing and incorporating safety.
- MassDOT staff will avail themselves of training (May be virtual or in person).

### **Anticipated products:**

Better trained employees who can push new methodologies to reduce fatalities and injuries.

**Estimated task completion:** 09-30-2024

*Estimated staff salaries and benefits:* **\$66,248.89**

MassDOT staff members	% Time to task
Dakota DelSignore	4.0
Michelle Deng	4.0
Ana Fill	4.0
Kevin Fitzgerald	4.0
Jennifer Inzana	4.0
Kirsten Johnson	4.0

Bonnie Polin	4.0
Stacey Schwartz	4.0
Neil Boudreau	4.0
Amitai Lipton	4.0
James Terlizzi	4.0
James Danila	4.0
Kylie Braunius	4.0
Evelyn Densmore	4.0
Justin Meade	4.0
Rosalynd Scott	2.0

*Estimated Other Costs:* **\$22,000.00**

**Estimated task budget: \$88,248.89**

*Other cost notes:* Travel costs (airfare, mileage, hotel, registrations, per diems, etc.) to attend conferences, meetings, etc. by staff so that they can be trained. MassDOT leadership signaled this will be encouraged and more conferences, meetings and trainings will be approved.

# SPR I Parts A and B Financial Table

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## Totals

Task	Staff cost	Consultant cost	Other cost	Total task cost
<b>SPR I Part A</b>	\$4,943,543.32	\$3,974,414.85	\$3,000,350.00	\$11,918,308.17
<b>SPR I Part B</b>	\$4,309,477.72	\$3,619,983.00	\$1,924,000.00	\$9,853,460.72
<b>SPR I Parts A and B totals</b>	\$9,253,021.05	\$7,594,397.85	\$4,924,350.00	\$21,771,768.90

The SPR will be monitored throughout the year to determine if an amendment to the STIP is necessary to ensure adequate funding. The SPR II is 25% of the overall program, meeting the 25% minimum threshold.