PNF Page 1:

MassDOT - Highway Division
Project Need Form

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

Project Name:	INTERSECTION IMPROVEMENTS AT GREAT ROAD (RT. 119) & BEAVER BROOK ROAD		
Route System:	Interstate		
Proponent:	CHRISTOPHER STODDARD, P.E.	**Title:**	DIRECTOR OF PUBLIC WORKS
Municipality:	LITTLETON	**Proponent Email:**	cstoddard@littletonma.org
Organization:	Fuss & O'Neill, Inc.		
PNF completed by:	Nicholas Lapointe, P.E.	**Title:**	Project Manager
Phone:	(413)452-0445	**Submitter Email:**	NLapointe@fando.com
Date:	01/17/2020		

Part I – Facility Location and General Information

Location:

Municipality: LITTLETON

Primary Roadway(s) or Facility: Great Road (Rt. 119) / Beaver Brook Road

MPO Region: Boston Region

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

Route/Street ID	Route/Street Name	Begin	End	Mileage	Primary
SR119 WB	GREAT ROAD	8.097	8.415	0.3164	*
SR119 EB	GREAT ROAD	27.52	27.838	0.3164	
L123202 EB	OLD GREAT ROAD	0	0.135	0.1348	
L123202 NB	OLD GREAT ROAD	0	0.066	0.0655	
N4484 NB	BEAVER BROOK ROAD	0	0.038	0.0375	

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

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

☐ Interstate ☒ Urban Collector ☐ Rural Major Collector

☒ Urban Principal Arterial ☐ Rural Principal Arterial ☐ Rural Minor Collector

☐ Urban Minor Arterial ☐ Rural Minor Arterial ☐ Other Classification

Great Road - UPA, Beaver Brook - UC

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

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

City or Town	25 %
MassDOT	75 %
Other State Agency	0 %
Other	0 %

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

The primary project goal is to improve intersection operations/reduce congestion and introduce bicycle/pedestrian facilities along heavily traveled Route 119 corridor that serves access to Interstate 495 at the intersection of Great Road Route 119 and Beaver Brook Road. The Route 119 corridor serves as the main route for commuters to access Interstate 495 from the towns of Ayer and Groton The existing intersection is an unsignalized intersection with a Level of Service of F during peak hours on Beaver Brook Road. Queuing along Beaver Brook Road during peak hour becomes excessive because it is difficult for vehicles to make left hand turns at the intersection where these vehicles are stop controlled against free flow traffic. This intersection is perceived by both the Town of Littleton and Town of Westford as extremely dangerous. A Roundabout will improve safety for all users. This project will also introduce the first phase of bicycle and pedestrian accommodations along a corridor where no facilities currently exist.

PNF Page 2:

Part II: Project or Program Description
Provide whatever information is available to characterize the existing, general attributes of the facility.

Characterstics	Data	Comments
Number of Lanes	2	GREAT ROAD ONLY
Lane Width	13.00000000	GREAT ROAD ONLY
Shoulder Width	8.00000000	varies 8 - 10' GREAT ROAD ONLY
Sidewalk Availability/Width	0	GREAT ROAD ONLY
Existing Right of Way	Varies	60- 200+GREAT ROAD ONLY
Annual Daily Traffic (ADT)	22212	GREAT ROAD ONLY, ATR'S COMPLETED JULY 2019
Percent Truck Traffic	6.20 %	GREAT ROAD ONLY
Daily Bicycle Traffic		UNKNOWN
Daily Pedestrian Traffic		UNKNOWN
Traffic Control (signal, flash, signs, etc.)	STOP	AT BEAVER BROOK DRIVE
Roadway Lighting	NONE	
Posted Speed Limit	45	GREAT ROAD ONLY
Transit Routes & Facilities	NONE	

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

- ☐ Rural Natural
- ☐ Rural Village
- ☐ Rural Developed
- ☒ Suburban Low Density
- ☐ Suburban High Density
- ☒ Suburban Village/Town Center
- ☐ Urban Residential or CBD

How does the roadway/facility function in the community?

- ☐ High-speed, primary corridor with limited access
- ☒ Moderate speed, major corridor between towns/regions
- ☐ Low to moderate speed corridor between towns/regions
- ☐ Moderate speed, major street connecting residential areas to a town center or major connector
- ☐ Low to moderate speed street connecting residential areas with other streets

☐ Primarily or exclusively a residential street

☐ Exclusive pedestrian/bicycle facility

Regional Considerations:

Identify any regional use of the roadway (Characterize how neighboring communities use the roadway, what kind of link it provides to major arterials or highways).

Great Road and Beaver Brook Road provide the major roadway connections to Interstate 495 (3/4 mile from project location) and the Downtown Littleton Area (1 mile from project location) from the towns of Ayer and Groton. Beaver Brook Road serves a large commuter population from Westford. Beaver Brook is a critical connector for Westford to I-495.

PNF Page 3:

Part III: Identification of Problem, Need or Opportunity

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

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

A visual inspection of the project area has been performed to determine existing conditions. Rubber asphalt crack sealer has been placed along Beaver Brook Road. Great Road pavement is State Highway, and therefore exhibits acceptable service conditions with no apparent subbase failures or deteriorations that would warrant a full depth pavement repair. In general the primary infrastructure assets on Great Road within the project area are in good condition. Beaver Brook Road assets are in fair condition but will require corrective measure in the next 5 years to prevent full pavement failure.

There was no intersection with Interstate Pavement. • Non-Interstate Pavement: Present Serviceability Ratings within project limits: • SR119 EB: PSI:3.18,IRI:101.63

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

Crack sealing completed on Beaver Brook road in 2017. Based on observed Great Road Surface condition, it appears to have been overlayed within the past 10 years.

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

Facility appurtenances within the project area include pavement markings and street signs. All street signs are in good condition. Pavement markings for shoulders are worn out These appurtenances have exceeded their effective life spans. Roadside drainage ditches/swales are overgrown, however seem to be functioning as intended. Guardrail at project limit is in fair condition. it does not meet current MASH NCHRP standards. Roadside vegetation is encroaching into roadway creating sight distance concerns.

4. **Drainage System:** Please describe any specific concerns related to the existing drainage system. If there is a history of flooding in the project area, describe the potential solutions under consideration, such as increased maintenance, repair/replacement of drainage infrastructure, raising the vertical profile, or culvert replacement, etc. List any opportunities for improving storm water management, including drainage outfalls, within the project limits.

The existing drainage system consists of a drainage main line running through the Great Road Corridor. Stormwater currently sheetflows to either one or both sides of the roadway and collects in roadside ditches/swales. The existing shoulder has formed a "grass berm" which is obstructing proper sheetflow into ditches which do cause ponding at low points. There is some sections of bituminous curb in place which is functioning properly to manage stormwater. In general, there have been not been any notable reported issues with drainage within the project limits. There is opportunity to improve stormwater management and prevent further ponding by either reshaping or improving the roadside swales or closing the drainage system fully and treating stormwater in a detention/treatment basin due to the available ROW.

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

There are no bridges within the proposed project limits.

There was no intersection with Bridge Database.

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

there are a few utility poles and OHW's, however there are no other major utilities in the project area. This will allow for a much more streamlined utility design process.

PNF Page 4:

B. Mobility - Problem, Need, or Opportunity

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

The current state of motor vehicle mobility through Great Road Route 119 is two way single lane free flow traffic in both directions. The current state of motor vehicle mobility through Beaver Brook Road is two way single lane stop control traffic. The Level of Service at the Beaver Brook Approach is F during peak hour traffic. This a result of a moderate ADT (4,300)Urban Collector trying to enter a high ADT (22,000) NHS. Traffic delay at the Beaver Brook Road approach during peak hour is over 500 seconds during peak hours. Traffic delay is abnormally high during AM Peak Hour at the Beaver Brook Road approach because the majority of vehicles are making left hand turns onto a high volume free flow roadway. Because of the traffic delay and level of service at Beaver Brook Road there is a need to improve access for vehicles coming from the Town of Westford. There is also frequent 1000'+ queues that develop on Beaver Brook Road AND 2000' queues on Great Road due to vehicles backing up from the I-495 interchange all the way to Beaver Brook Road during times of peak congestion. Improvements to the Great Road/Beaver Brook INtersection would significantly reduce travel time during peak commuting hours for those traveling from Westford on Beaver Brook Road. A larger Corridor project should be considered by MassDOT on Great Road in the area of I-495 Interchange to connect this project (especially bike/ped).

2. **Pedestrian Mobility and Accommodations:** Please describe the condition of any existing pedestrian facilities. Include the limits and width of any existing sidewalks and identify any obstructions. Note if the existing sidewalks are ADA/AAB compliant. In addition, please characterize the pedestrian need, including any indication that pedestrians use the corridor beyond existing sidewalks (rutted paths, pedestrian using the roadway shoulder, etc.).

There are currently no pedestrian facilities within the project area. There is existing wide shoulders on Great Rd. that pedestrians and bikes share. The proposed project will introduce a combination of sidewalks and shared-use path along the Great Road Corridor. The project will propose sidewalk crossings with refuge islands from pedestrians wanting to cross the intersection.

3. **Bicycle Mobility and Accommodations:** Please describe the existing bike accommodation (5' minimum shoulder width, bike lane, or shared use path), including the limits and width of any existing facility. In addition, please characterize existing bike traffic, and condition of any bike racks or other associated appurtenances. Identify if project location is included in any local, regional or state bicycle routes.

The existing bicycle accommodation along Great Road Route 119 is two variable width (8 to 10 foot) shoulders. There is no existing bicycle accommodation along Beaver Brook Road The current bicycle traffic at this location is unknown. Under current conditions, Great Road is not a comfortable bike facility, with adjacent 85-percentile vehicles speeds of 46mph. Experienced cyclists will tend to not have any barriers on Great Road, however vulnerable users (youth, disabled, seniors, commuters) would be encouraged not to ride. The project is not located on any existing bicycle route. One of the project goals is to create a combination of separated bicycle lanes and 10' shared use paths through the project limits with the intent that future projects will incorporate extensions of the bicycle lanes and shared use path.

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

There are no existing transit accomodations within the project limits. There are no existing bus routes that are within the project limits.

- **There was no intersection with MBTA Transit Routes**
- **There was no intersection with Regional Transit - BAT.**
- **There was no intersection with Regional Transit - BRTA.**
- **There was no intersection with Regional Transit - CATA.**
- **There was no intersection with Regional Transit - CCRTA.**
- **There was no intersection with Regional Transit - FRTA.**
- **There was no intersection with Regional Transit - GATRA.**
- **There was no intersection with Regional Transit - LRTA.**
- **There was no intersection with Regional Transit - MART.**
- **There was no intersection with Regional Transit - MVRTA.**
- **There was no intersection with Regional Transit - MWRTA.**
- **There was no intersection with Regional Transit - NRTA.**
- **There was no intersection with Regional Transit - PVTA.**
- **There was no intersection with Regional Transit - SRTA.**
- **There was no intersection with Regional Transit - VTA.**
- **There was no intersection with Regional Transit - WRTA.**
- **There was no intersection with Park & Ride Lots.**

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

One of the main purposes of the project is to improve connectivity between the existing intersection, Interstate 495, and Downtown Littleton. Beaver Brook Road serves as the major roadway which vehicles travelling from Groton/Westford area connect to Interstate 495. Great Road Route 119 serves as the major roadway which vehicles traveling from Ayer connect to Interstate 495. The project will provide greater connectivity for the vehicles coming from both approaches. There is opportunity within the existing Right of Way along both roadways to install bicycle and pedestrians facilities. Facilities are currently limited for bicycles and nonexistent for pedestrians. Therefore, the project will improve pedestrian and bicycle mobility.

PNF Page 5:

C. Safety - Problem, Need, or Opportunity

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

The intersection had 16 crashes within the years 20152017 with a crash rate of 056 The majority of crashes have been angle crashes from vehicles trying to turn onto Great Road Route 119 from Beaver Brook Road The number of crashes at the intersection showed an upward trend in frequency during the 3year period spanning 2015 through 2017. The higher number of crashes in the most recent 3 years is likely
attributable to growing traffic volume as new mixed use development along Great Rd to the southeast of the intersection has occurred during the same timeframe. The increasing frequency of crashes is an indication that improvements are a pressing need at the intersection. DPW has indicated they receive monthly calls regarding "close calls" at the intersection from both residents and from staff within their department.

Severity of these crashes are mostly property damage and no fatalities have been reported

There is no pedestrian facility within the project limit which creates a safety concern for any pedestrians walking along the corridor There is no lighting within the project area either therefore pedestrians at night have a higher chance of being injured

This project would propose a roundabout, which would significantly reduce the likelihood of high-speed "T-bone" style collisions resulting in personal injury.

- **There was no intersection with Top 200 Crash Clusters 2013-2015.**
- **There was no intersection with Top 200 Crash Clusters 2012-2014.**
- **There was no intersection with Top 200 Crash Clusters 2011-2013.**
- **There was no intersection with HSIP Crash Clusters 2013-2015.**
- **There was no intersection with HSIP Crash Clusters 2012-2014.**
- **There was no intersection with HSIP Crash Clusters 2011-2013.**

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

The recently completed mixed-use developed "The Point" is directly adjacent to the project area which is major traffic generator. There is also a small industrial park within project limits for which employees walk on Great road as recreation during lunch hours. There are no MAJOR adjacent pedestrian activity centers within the project area at the moment, however this is likely due in part to the lack of existing facilities that connect Great Road with "The Point" development.

No massdot crash clusters are within project limits

- **There was no intersection with HSIP Pedestrians Crash Clusters.**
- **There was no intersection with HSIP Bicycle Crash Clusters.**

3. **Evacuation Routes:** Please describe whether there are any known evacuation routes identified at the state, local or private level.

Great Road itself does not serve as an evacuation route however it does serve as the principal arterial connection to I-495. Otherwise there are no known evacuation routes at the state, local, or private level.

D. Economic Development - Problem, Need, or Opportunity

1. **Economic Impact on a City, Town, or Village Center:** Identify if the project is located within a city/town/village center, an area ≥ 5000 population per square mile, or if the roadway provides an important connection to a city/town/village center or population center. If the roadway is a high truck ADT corridor, please note and provide documentation. Identify any economic needs or opportunities that can benefit from the project.

The project provides a direct connection to Downtown Littleton which is along the Great Road Corridor. Downtown Littleton has many businesses that could become more attractive if traffic congestion is greatly reduced. An economic opportunity specifically for the project is that property values will rise along the Beaver Brook Road Corridor. Installation of bicycle/pedestrian facilities and reduced traffic congestion will make this location more appealing to property owners.

The second economic development opportunity exists at "The Point" for which Great is access road too. There are future buildout plans on this corridor to expand "The Point" along Great Road Corridor.

2. **Priority Development Areas:** Identify any Priority Development Areas (PDAs) that benefit from the project. (Examples of PDAs are Designated Growth Districts, 43D Priority Development Sites, Brownfields Redevelopment Sites, Mill Revitalization Districts (MRD), or Undeveloped Land Zoned Industrial or Commercial). Identify any needs for improved access to services, industry clusters, or job creation in the project area or opportunities for improvement.

The project is diretly within the Littleton Common PDA. this is a major economic development opportunity area for the region. "The Point" mixed-use development is an on-going testament to the economic growth potential. This project would directly support to improve access and mobility for all modes within this PDA.

3. Local Economic Considerations: Identify needs or opportunities to fill vacant storefronts or office spaces in city/town/village center, or the need for any amenities that improve accessibility, wayfinding, pedestrian accommodations, or beautification of a city/town/village center with the intent of attracting consumers.

The project will support development around the Littleton Common PDA for which there are current master plans to reinvigorate the town common and businesses in this area. See Littleton's 2017 Master Plan for more info.

PNF Page 6:

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

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

There is an opportunity of improving Air Quality and reducing Greenhouse Gas emissions by reducing the amount of congestion through the intersection. The 2017 Littleton Master Plan indicates this intersection as a highly congested intersection. Reducing the amount of congestion for traffic entering from Beaver Brook Road will reduce the amount of vehicle stoppage through the intersection, which in turn reduces the amount of emissions from vehicles. It seems this project could qualify for CMAQ funding

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

Beaver Brook is located a quarter of a mile southeast from the project limits. Beaver Brook is considered to be a Category 5 TMDL water body according to the MassDEP Integrated List of Waters. There is no known reported stormwater issues associated with the project

• There was no intersection with a Category {category} MassDEP Impaired Water - 2014 Integrated List of Waters (305(b)/303(d)).

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

There are no wetlands adjacent to the project area.

• There was no intersection with Outstanding Resource Water.
• There was no intersection with the DEP
• There was no intersection with Areas of Critical Environmental Concern.
• There was no intersection with BioMap2 Core Habitat.
• There was no intersection with Coldwater Fish Resources within buffer limit.
• There was no intersection with NHESP 2008 Priority Habitats of Rare Species within buffer limit.
• There was no intersection with NHESP 2008 Estimated Habitats of Rare Wildlife within buffer limit.
• There was no intersection with NHESP Certified Vernal Pools.
• There was no intersection with Potential Vernal Pools.

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

There is a NHESP Priority Habitat of Rare Species (PH 1740) and a Certified Vernal Pool within 1/4 mile to the east from the project limits. It is expected that this project will not impact any wildlife habitats.

- **There was no intersection with Outstanding Resource Water.**
- **There was no intersection with Areas of Critical Environmental Concern.**
- **There was no intersection with BioMap2 Core Habitat.**
- **There was no intersection with Coldwater Fish Resources within buffer limit.**
- **There was no intersection with NHESP 2008 Priority Habitats of Rare Species within buffer limit.**
- **There was no intersection with NHESP 2008 Estimated Habitats of Rare Wildlife within buffer limit.**
- **There was no intersection with NHESP Certified Vernal Pools.**
- **There was no intersection with Potential Vernal Pools.**

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

The project is not located in a FEMA 100 year flood zone. There are no culverts on site. There are no signs of erosion scour or hydraulic restrictions. The roadway will be reviewed for the need to address any flood prone areas and undersized culverts during preliminary design. Any design improvements will incorporate climate resiliency strategies, such as green infrastructure and reducing stormwater runoff/improving stormwater quality

- **There was no intersection with FEMA National Flood Hazard Layer**

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

There are no National Register properties, open space, or 4(f)/Article 97 protected land in the project area.

- **There was no intersection with Open Space**

7. **Hazardous Materials:** Identify any hazardous materials or sites adjacent to the project. Discuss if the project will involve handling hazardous materials or on any adjacent properties.

There are two reportable release sites that were closed in the 1990's at 527 Great Road and 537 Great Road. There are no known other hazardous materials within the project limits.

PNF Page 7:

F. Social Equity - Problem, Need, or Opportunity

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

The project is not located within 1/4 miles of an Environmental Justice area.

• There was no intersection with Environmental Justice Populations or a Title VI Area

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

The project area is not located within 1/4 mile of a Title VI area.

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

Littleton is currently nearing 75% design stage with Proj. 609054 Foster Street. besides the aforementioned project, Littleton has not constructed a municipally initiated project in over a decade (603540-Goldsmith Street). It is extremely important to note that this project has strong support from the Town of Westford as most traffic through this intersection is Westford/Groton/Ayer residents. A letter of support from Westford BOS is in process. This project will benefit multiple towns beyond Littleton

PNF Page 8:

G. Planning and Public Outreach - Problem, Need, or Opportunity

1. Describe any Public Outreach that has occurred. Include any public informational meetings, local mailings, workshops, planning documents, etc., where the proposed improvements were specifically presented to abutters, businesses and/or the general public. Please note any local support or opposition to the project, including any local advocacy groups.

Community input from a two day charrette was collected and used to come up with the goals of the Littleton Master Plan, dated April 20, 2017. This project intersection is marked as a major roadway intersection because of its connection to the neighboring towns. Fuss & O'Neill, Inc. was hired in 2019 to study the intersection safety, LOS, and provide recommendations including funding programs. A planning document and concept plan was developed and presented to MassDOT District 3 in Fall 2019. Feedback was provided by D3 for which the preferred alternative and additional traffic analysis was completed. The resultant was a preferred alternative that was presented to the Littleton Board of Selectmen on December 2, 2019 for which the unanimously endorsed the design alternative and to pursue TIP funding.

Upon receiving Littleton BOS endorsement, the planning documents were sent to Boston Region CTPS.

2. Describe any special needs that need to be accommodated to fully engage the public with respect to public outreach.

It is anticipated the public will fully support the project because the project will reduce commute times for those traveling through the corridor as well as reduce the "perceived" traffic safety concerns. The Littleton Bike and Ped Committee will require their input be solicited as the design process continues. Public outreach process will be adequately accommodated through local town governments and MassDOT design public hearings.

3. Identify any local or regional planning documents that identify the problem, need or opportunity outlined within this PNF.

Littleton Master Plan, dated April 20, 2017, Identifies the problems, needs, and opportunities outlines within this PNF. Intersection Operational and Safety Study completed by Fuss & O'Neill, Inc dated August 13,2019 (with revisions dated 11/4/2019).

4. Identify efforts to coordinate with relevant government agencies, including RTA(s), DCR, regulatory agencies, or neighboring municipalities.

Multiple meetings have taken place with MassDOT District 3, Town of Littleton DPW, and the Town of Littleton Selectboard. All of these governing bodies have given their input upon the proposed project. All of these governing bodies have also have given approval towards the proposed project. Boston CTPS has been notified of the intent to proceed with TIP funding and has been sent the Planning documents and Concept. It is anticipated that DCR will not be involved with the project.

Thank you for completing this form. Upon clicking "Submit for Acceptance", this form will be sent to the Regional MPO/RPA and the MassDOT Highway Division District office.

MassDOT - Highway Division
Project Initiation Form

Project Name:	INTERSECTION IMPROVEMENTS AT GREAT ROAD (RT. 119) & BEAVER BROOK ROAD		
Route System:	Interstate		
Proponent:	CHRISTOPHER STODDARD, P.E.	**Title:**	DIRECTOR OF PUBLIC WORKS
Municipality:	LITTLETON	**Proponent Email:**	cstoddard@littletonma.org
Organization:	Fuss & O'Neill, Inc.		
PIF completed by:	Nicholas Lapointe, P.E.	**Title:**	Project Manager
Phone:	(413)452-0445	**Submitter Email:**	NLapointe@fando.com
Date:	01/17/2020		

Part I – General Information

Project Location:

Littleton, MA

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

The proposed project on Great Road (Route 119) extends approximately 1000 feet both east and west of Beaver Brook Road for a distance of approximately 2,000 ft. The project is intended to reduce significant traffic congestion and dramatically improve bicycle and pedestrian accommodations on a heavily traveled vehicular corridor. The existing unsignalized intersection includes Beaver Brook Road which operates at a Level of Service F during peak hour. The major proposed improvement to reduce this level of service is to construct a hybrid roundabout. Secondary improvements for the project will include the addition of a combination of sidewalks, a shared use path and separated bikes lines along the entire segment to address bicycle/pedestrian deficiencies that currently exist. Safety improvements will result from the roundabout construction because a roundabout will reduce the severity of crashes as well as help mitigate the trend of increasing frequency of accidents occurring at this intersection since the mixed-use "The Point" development. Pedestrian refuge islands at the roundabout crossings will be constructed to allow pedestrians a safe place to stand during peak hour traffic. All curbing, signs, pavement markings, and grass throughout the project area will be replaced/updated. Ramps will be added at the midblock pedestrian crossing.

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

The project will improve traffic flow to and from Interstate 495 (3/4 mile from project location) and Downtown Littleton (1 mile from project location) for all commuters travelling from neighboring towns. Beaver Brook Road serves a large commuter population and is a critical connector for those commuting to and from Westford. Commuters from Westford will notice a significant travel time decrease with the projected (year 2030) level of service going from a F to C. Great Road (Route 119) is a major state highway that is the critical connector to Interstate 495 for Ayer and Groton. Traffic Flow is expected to be similar to existing free flow conditions with construction of the roundabout. Relieving overall congestion along this corridor will permit quicker and safer travel for all users.

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

The project is anticipated to stay within the existing Massachusetts State Highway Layout. The existing state highway layout of Great Road at the Beaver Brook Road intersection is about 200 feet wide. The proposed roundabout is proposed to be less than 200 feet including the separated bicycle lane. Minor Permanent easements may be required to install sidewalks at the eastern project limit. The extent will be further defined as design progresses. Temporary easements will be required for construction and to repair loamed areas outside of state highway layout. Utility easements are not anticipated given the limited amount of above grade utilities.

Part II – Project Costs and Responsibilities

Estimated Costs: Provide available cost estimates or estimated cost ranges in current-year dollars and attach any cost estimate work sheets or summaries.

	Component	Value	Definition
A	Office Estimate (construction items)	$1,862,874.00	This is the portion of project cost based on definitive items of work. For conceptual project estimates, this value can be determined by making equivalencies to past projects. (character of work & lane miles)
B	Design Contingency	$465,718.00	This value accounts for the risk and uncertainty inherent to design development. The amount is calculated as a percentage of the construction items (A), based on guidance from MassDOT
C	Construction Contingencies	$186,874.00	This amount is calculated as a percentage of the construction items (A), and accounts for variation in quantities during construction. The following percentages should be used: 0% : NFA Maintenance Non-Site Specific 10% : All Federal Aided Projects and NFA Site Specific
D	Traffic Police	$93,143.00	This amount is calculated as a percentage of the construction items (A), and accounts for police details during construction. Refer to guidance from MassDOT.
E	Construction Engineering	$195,601.00	This amount is calculated as a percentage of the Construction Items & Traffic Police (A + D), and represents the cost of MassDOT construction management for the project. The following values should be used: 15% : Construction Items < $1m 10% : $1m <= Construction Items < $5m 5% : Construction Items => $5m
F	Utility Relocation	$111,772.00	This is the value of utility work necessitated by construction of the project. These costs are provided by utility owners once substantial design has been completed. During conceptual design, values are provided for specific projects, based on guidance from MassDOT
G	**Total Construction Cost**	$2,915,982.00	**This is the sum of lines A - F**
H	Consultant Planning/Design	$0.00	This is the value of Highway Division Consultant services necessary to deliver the project (if municipal consultant, reflect cost as $0)
I	MassDOT Project Development Costs	$87,479.00	This amount is calculated as a percentage of the total direct project cost (G) and represents the cost of MassDOT project development for the project
J	Right-of-way	$18,628.00	0% : Only municipal alterations or no alterations. 1% : For alterations to State Highway Layouts, assume 1% of Office Estimate (A) unless otherwise known - : If significant State Highways Layout alterations are possible, refer to guidance from MassDOT
K	**Total Project Costs**	$3,022,089.00	**This is the sum of lines G - J**

Anticipated Funding Program:
Indicate all potential sources of funding that may apply to the project

- [x] STP
- [x] CMAQ
- [ ] HSIP
- [ ] TAP
- [ ] NHPP
- [ ] HPP
- [ ] NFA
- [ ] Other (WT, Tobin, MHS, etc.)

Project Responsibilities :	**MassDOT**	**Community**	**Other (specify)**
Project Management	X	X	
Design		X	
Permitting		X	
Right of Way	X	X	

PIF Page 2:

Part III: Project Description

A. System Preservation

1. **Primary Asset and Condition**: Identify the Primary Asset included in the project area (e.g. roadway, bridge, or bike trail), condition of asset (specify if asset is a new facility), and what project improvements are anticipated by project.

The primary asset in this project is the roadway (Great Road). Rubber asphalt crack sealer has been placed along Beaver Brook Road. Great Road (Route 119) pavement is State Highway, and therefore exhibits acceptable service conditions with no apparent subbase failures or deteriorations that would warrant a full depth pavement repair. In general the primary infrastructure assets on Great Road within the project area are in good condition. Beaver Brook Road assets are in fair condition but will require corrective measure in the next 5 years to prevent full pavement failure. The proposed roundabout will be considered new construction and will require full depth pavement construction that is expected to have a long life expectancy. Segments outside of the roundabout along Great Road will have a pavement mill and overlay and box widening for construction of bicycle/pedestrian facilities.

There was no intersection with Interstate Pavement.
• Non-Interstate Pavement: Present Serviceability Ratings within project limits:
• SR119 EB: PSI:3.18,IRI:101.63

2. **Proposed Treatment to the Primary Asset**: Describe the proposed rehabilitation methods that are being considered for the primary asset (e.g. overlay, reclamation, full depth reconstruction). Keep in mind that the final pavement improvements will be identified through the development of a pavement design submitted as part of the project design process.

Full depth pavement construction will be required for the roundabout section of the project and Beaver Brook Road roadway segment, as the outer areas of the roundabout will be constructed on virgin ground as well as grade/profile changes. Pavement milling and overlay with box widening is proposed for the segments of Great Road outside of the roundabout area.

3. **Describe Improvements to Other Existing Assets**: Identify efforts to retain or preserve existing Infrastructure. Other existing assets may include: signal reconstruction, signal upgrades or improvements, large diameter culverts (4'+), box culverts, retaining walls, sidewalks, ramps, guardrail, drainage, signs, and curbing (or bridges, paths, and pavement if not already the primary asset).

Existing pavement markings within the project area are worn out and will be replaced as part of the project. Roadside ditches/swales have overgrown and will be assessed for the need for a redesign. Existing guardrail will be replaced to meet current MASH NCHRP standards. Roadside vegetation encroaches the roadway and will be cleared within select areas to improve vehicle sight distance.

There was no intersection with Bridge Database.

4. **Potential Impacts to Utilities**: Identify any anticipated impacts or complications the proposed improvements will have on utilities. List utilities that will be impacted.

One utility pole at the existing intersection will need to be re located within the current Right of Way. The existing drainage system that runs along the Great Road Corridor will not require a major reconstruction. Relocation of structures and the addition of catch basins within the roundabout area are expected to be the only minor drainage system improvements to the project.

PIF Page 3:

B. Mobility

1. **Effect on Motor Vehicle Mobility and Congestion**: Describe how the proposed improvements will impact the mobility of motor vehicles. Please note the presence of bottlenecks or congestion, and include any traffic analysis, including LOS (Level of Service) data, if available. Please include existing and proposed LOS, delays, queue lengths, and travel time.

The proposed improvements will improve the level of service through the intersection. Congestion exists at the intersection as a result of a moderate ADT 4300 Urban Collector trying to enter a high ADT (22,000) NHS. The Level of Service at the Beaver Brook Approach is F during peak hour traffic and the proposed Level of Service is C. Existing traffic delay at the Beaver Brook Road approach during peak hour is over 500 seconds and the proposed roundabout delay is projected to be 25 seconds, a significant drop. Traffic delay is abnormally high during AM Peak Hour at the Beaver Brook Road approach because the majority of vehicles are making left hand turns onto a high volume free flow roadway. There are also frequent 1000 foot plus queues that develop on Beaver Brook Road and 2000 foot queues on Great Road due to vehicles backing up from the I-495 interchange all the way to Beaver Brook Road during times of peak congestion. The proposed roundabout would reduce queue lengths by approximately half. Travel time during peak commuting hours for those traveling from Westford on Beaver Brook Road would reduce by at least 8 minutes with the proposed roundabout.

2. **Effect on Pedestrian Mobility and Accommodations**: Describe how the improvements are addressing pedestrian accommodation, including ADA/AAB requirements, through improving existing facilities, improving safety and traffic calming, or proposing new or expanded pedestrian facilities. HTP requires 2 sidewalks in urban areas. (Examples of improved pedestrian facilities are new or expanded sidewalks, crossings, pedestrian signals, RRFBs, shared-use paths, side-paths, etc.).

The proposed roundabout will introduce pedestrian facilities that are currently non-existent within the project limits. The proposed project will introduce a combination of sidewalks and shared use path along the Great Road Corridor. The proposed project will propose ADA compliant sidewalk crossings with refuge islands from pedestrians wanting to cross the intersection. This project will serve to compliment long rang plans to provide better mobility around "The Point" development and economic development currently underway and planned.

3. **Effect on Bicycle Mobility and Accommodations**: Describe how the improvements are addressing bicycle accommodation through new or improved facilities. HTP requires a minimum 5 ft. shoulder for improved bicycle accommodations. (Examples of improved bicycle facilities are new or expanded 5' shoulders, marked or buffered bicycle lanes, shared-use paths, etc.).

The proposed project will create a combination of separated bicycle lanes and 10 foot wide shared use paths through the project limits. The existing bicycle accommodation along Great Road is the use of the existing 8 foot to 10 foot shoulders. The incorporation of separated bicycle lanes and shared use paths will provide bicycle users a degree of separation from vehicle traffic. This separation turns into a safety improvement for bicycle users along the project limits. It is the intent that future projects will incorporate extensions of the bicycle lanes and shared use paths along the Great Road Corridor extending to downtown Littleton and the Point development

4. **Effect on Transit Mobility and Accommodations**: Describe how the improvements are addressing transit mobility through new or improved facilities or accommodations. (Examples include dedicated bus lanes, transit signal prioritization, BRT, or new park & rides, bus stops, shelters, bump outs, etc.)

There are no existing transit accommodation within the project limits There are no existing bus routes that are within the project limits Because there are no existing bus facilities or routes within the project limits there will be no proposed improvements related to transit accomodations.

- **There was no intersection with MBTA Transit Routes**
- **There was no intersection with Regional Transit - BAT.**
- **There was no intersection with Regional Transit - BRTA.**
- **There was no intersection with Regional Transit - CATA.**
- **There was no intersection with Regional Transit - CCRTA.**
- **There was no intersection with Regional Transit - FRTA.**
- **There was no intersection with Regional Transit - GATRA.**
- **There was no intersection with Regional Transit - LRTA.**
- **There was no intersection with Regional Transit - MART.**
- **There was no intersection with Regional Transit - MVRTA.**
- **There was no intersection with Regional Transit - MWRTA.**
- **There was no intersection with Regional Transit - NRTA.**
- **There was no intersection with Regional Transit - PVTA.**
- **There was no intersection with Regional Transit - SRTA.**
- **There was no intersection with Regional Transit - VTA.**
- **There was no intersection with Regional Transit - WRTA.**
- **There was no intersection with Park & Ride Lots.**

5. **Connectivity**: Identify whether the proposed improvements will impact connectivity or access along the corridor or to other facilities. Please specify whether the project completes a link between existing bicycle and pedestrian facilities, or if the project creates new connections to businesses, residences, open space, transit stops, etc.

The proposed roundabout improvements will improve connectivity between the existing intersection, Interstate 495, and Downtown Littleton. Beaver Brook Road serves as the major roadway which vehicles travelling from the Groton/Westford area connect to Interstate 495. Great Road (Route 119) serves as the major roadway which vehicles traveling from Ayer connect to Interstate 495. The project will provide greater connectivity for the vehicles coming from both approaches through reducing travel times for vehicles going through the intersection. There is opportunity within the existing Right of Way along both roadways to install bicycle and pedestrians facilities that could eventually link to the Downtown Littleton area.

6. **Design Exceptions**: Identify whether any exceptions to MassDOT design criteria are anticipated, such as exemptions for meeting AASHTO 13 design requirements or HTP.

There will be a design justification (formerly DER)report to be included with 25% design submission of the proposed project. At this time, it is anticipated that one design exception will be needed for the project. This will be for pedestrian facilities because the design will propose a shared use path on one side of the road through the course of the project as opposed to two sidewalks on both sides of the street. It is expected that all other criteria shall be met (including latest Engineering directive in jan. 2020 for separated bike on ATD>10000

PIF Page 4:

C. Safety

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

The project proposes a roundabout which would significantly reduce the likelihood of high speed "T-bone" style collisions. Crash data has been collected from 2015-2017 and found that the majority of the crashes occurring at this intersection are angle "T-bone" crashes resulting from vehicles trying to turn onto Great Road (Route 119) from Beaver Brook Road. The crash data also found that the number of crashes per year has been on the rise since every year the past 5 years, which is likely due tot he increased economic development and marketing that has been invested at "The Point" and within the PDA identified in the town's master plan. With the correlation of more crashes with more vehicles along the corridor, free flow traffic along the Great Road Corridor cannot remain. The roundabout will properly regulate traffic coming from all approaches with yield control at all directions.

- **There was no intersection with Top 200 Crash Clusters 2013-2015.**
- **There was no intersection with Top 200 Crash Clusters 2012-2014.**
- **There was no intersection with Top 200 Crash Clusters 2011-2013.**
- **There was no intersection with HSIP Crash Clusters 2013-2015.**
- **There was no intersection with HSIP Crash Clusters 2012-2014.**
- **There was no intersection with HSIP Crash Clusters 2011-2013.**

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

The project will create facilities for pedestrians and bicyclists that currently do not exist within the project limits. There is limited lighting along the corridor which creates a safety concern for users during nighttime hours. Creation of separated bicycle lanes will provide buffer in between vehicle travel lanes and the bicyclists to significantly reduce the chance of a bicyclist/vehicle accident. Pedestrians will use the separated bicycle lanes & shared use paths as well. The implementation of the separated lanes will create that extra buffer of safety for these users.

- **There was no intersection with HSIP Pedestrians Crash Clusters.**
- **There was no intersection with HSIP Bicycle Crash Clusters.**

3. **Evacuation Routes**: If the project is a known evacuation route identified at the state, local or private level, indicate how the project impacts the route.

There are no known evacuation routes at or near the project area at the state local or private level. Great Road does serve as the principal arterial connection to I-495 and would be the most likely travelled route for users coming from Ayer, Groton, and Westford in the event of an emergency.

D. Economic Impacts

1. **Economic Impact on a City, Town, or Village Center**: If the project is located within a city/town/village center, an area ≥ 5000 population per square mile, or is a roadway that provides an important connection to a city/town/village center or population center, please identify any economic impacts the project is anticipated to have on the city/town/village or population center.

Downtown Littleton is one mile from the project limits. An expanding economic development called "The Point" is less than one mile from project limits. This intersection has been identified in the Town's Master plan in order to facilitate traffic to these planned and future developments along Great Road. This intersection is within a Priority Development Area along with Littleton Common. The town has long term plans to engage the State (MassDOT) to revitalize and upgrade the Great Road Corridor in multiple phases (this project being Phase 2. Phase 1 was completed via MassWorks grant in 2015/16 at I-495/Russell Street/The Point). Phase 3 will be to connect this project to "The Point", which is will be the most costly segment. The ultimate goal is to full alleviate traffic congestion for commuters and residents from Beaver Brook Road to Littleton Common as well as provide a full bike/ped connectivity between these major economic generators and destination points.

2. **Priority Development Areas**: Identify any positive impacts to a Priority Development Area(s), as well as any improved access to services, industry clusters, or job creation in the project area (including the number of jobs to be created, if available). Please note any other proposed improvements that reflect the Commonwealth's Smart Growth/Smart Energy programs or Sustainable Development principles.

The project is within the Littleton Common Priority Development Area. The proposed changes will provide quicker access and mobility to the businesses within the priority development area. Reduction of traffic congestion and introduction of bicycle/pedestrian facilities will properly equip the corridor for the anticipated growth of users projected with the rapidly expanding development of "The Point".

3. **Local Economic Considerations**: Identify if the project includes any improvements with the specific intent to fill vacant storefronts or office spaces in city/town/village center, or if it incorporates any amenities that improve accessibility, wayfinding, pedestrian accommodations, or beautification of a city/town/village center with the intent of attracting consumers. (Examples of amenities or improvements can be new or ornamental lighting, benches, bike racks, landscaping enhancements, new parking, wayfinding signs, etc.)

The project will be the first step in initiating pedestrian accommodations from Great Road (Route 119) to the Downtown Littleton Priority Development Area. The rapid expansion of "The Point" (a shopping plaza near the I-495 interchange) will require new wayfinding signs and beautification to the overall Great Road Corridor for all users. The project will include new landscaping and sidewalk accommodations to attract consumers to "The Point". Improving the level of service will provide accessibility to the Priority Development Area and attract more consumers due to the decrease in travel time. This project will be one component of the reinvigoration of the Town Common and businesses See Littleton's 2017 Master Plan for more info.

PIF Page 5:

E. Environmental & Health Effects

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

Air quality will be improved and the reduction of Greenhouse Gasses within the project area. This will be because the level of service for the intersection with roundabout construction is expected to increase from F to C. Reducing the amount of congestion for traffic entering from Beaver Brook Road will reduce the amount of vehicle stoppage through the intersection, which in turn reduces the amount of emissions from vehicles. The introduction of separated bicycle lanes and shared use paths will promote bicycling and walking as an alternative to driving. This project should be reviewed for use of CMAQ funding due to the significant reduction in vehicle delay/idling on Beaver Brook Road.

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

Beaver Brook is located a quarter of a mile southeast from the project limits. Beaver Brook is considered to be a Category 5 TMDL water body according to the MassDEP Integrated List of Waters. The project is expected not to impact Beaver Brook. The project proposed will repair and expand the existing roadside swales along the Great Road Corridor. Modification to the swales will provide enhanced natural filtration for stormwater and account for the amount of additional impervious cover being added to the project for roadway widening and shared use path construction.

• There was no intersection with a Category {category} MassDEP Impaired Water - 2014 Integrated List of Waters (305(b)/303(d)).

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

There are no wetlands adjacent to the project area.

• There was no intersection with Outstanding Resource Water.
• There was no intersection with Areas of Critical Environmental Concern.
• There was no intersection with BioMap2 Core Habitat.
• There was no intersection with Coldwater Fish Resources within buffer limit.
• There was no intersection with NHESP 2008 Priority Habitats of Rare Species within buffer limit.
• There was no intersection with NHESP 2008 Estimated Habitats of Rare Wildlife within buffer limit.
• There was no intersection with NHESP Certified Vernal Pools.
• There was no intersection with Potential Vernal Pools.

4. **Wildlife Habitat(s):** Identify any priority habitats within a 1/2 mile of the project limits, and discuss how the project may impact any locations identified. Include a discussion of temporary and permanent impacts, and any improvements that are being proposed. If project includes work on bridges or culverts, discuss if new structures will meet the Massachusetts River and Stream Crossing standards. (Examples of priority development areas include: Core Habitat and Critical Natural Landscape, Coldwater fisheries, diadromous fish runs, Vernal Pools, and NHESP Priority and Estimated Rare species habitat.)

There is a NHESP Priority Habitat of Rare Species (PH 1740) and a Certified Vernal Pool within 1/4 mile to the east from the project limits. It is expected that this project will not impact any wildlife habitats.

- **There was no intersection with Outstanding Resource Water.**
- **There was no intersection with Areas of Critical Environmental Concern.**
- **There was no intersection with BioMap2 Core Habitat.**
- **There was no intersection with Coldwater Fish Resources within buffer limit.**
- **There was no intersection with NHESP 2008 Priority Habitats of Rare Species within buffer limit.**
- **There was no intersection with NHESP 2008 Estimated Habitats of Rare Wildlife within buffer limit.**
- **There was no intersection with NHESP Certified Vernal Pools.**
- **There was no intersection with Potential Vernal Pools.**

5. **Resiliency:** Indicate if the project is located within a 100-year floodplain or any area identified as vulnerable through a municipal, state, or federal vulnerability assessment. Identify any improvements to the system's resiliency to flood events and other climate change stressors through resiliency best management practices (BMPs) such as increasing the hydraulic opening of a bridge or culvert(s), armoring of hydraulic and/or hydrologic features, replacement of a standalone headwall, scour protection at a structure, or erosion prevention along a bank or shoreline.

The project is not located in a FEMA 100 year flood zone. The project area is also not within any area that is identified as vulnerable on any government vulnerability assessment. There are no culverts on site. There are no signs of erosion scour or hydraulic restrictions. The roadway will be reviewed for the need to address any flood prone areas and undersized culverts during preliminary design. Any design improvements will incorporate climate resiliency strategies, such as green infrastructure and reducing stormwater runoff improving stormwater quality.

- **There was no intersection with FEMA National Flood Hazard Layer**

6. **Historic/Cultural/Archaeological Resource(s):** If there is any Open Space, National Register listed or eligible properties, or 4(f) or Article 97 protected land in the area, discuss any positive or negative impacts to these resources, including improved or hindered access. Please reference the MACRIS database to determine if any National-Register Listed or Eligible properties are located within the project limits.

There are no National Register properties, open space, or 4(f)/Article 97 protected land in the project area.

- **There was no intersection with Open Space**

7. **Hazardous Materials:** If there are any hazardous materials or sites adjacent to the project, discuss how the project will handle any hazardous materials.

There are two reportable release sites that were closed in the 1990's at 527 Great Road and 537 Great Road. There are no known other hazardous materials within the project limits.

PIF Page 6:

F. Social Equity

1. **Environmental Justice**: If the project is located in, or within a ¼ mile of, an Environmental Justice area, please identify any elements of the project designed to decrease environmental impacts or improve the safety, sustainability, or mobility of the EJ community. Identify any improvements that involve community planning and equitable sharing of benefits/burden or are particularly targeted within an Environmental Justice area.

The project is not located within 1/4 miles of an Environmental Justice area.

• There was no intersection with Environmental Justice Populations or a Title VI Area

2. **Title VI:** If the project is located in, or within a ¼ mile of, a Title VI area, please identify any elements of the project designed to have a positive impact on the community through public outreach. Identify any improvements that involve community planning and equitable sharing of benefits/burden or are particularly targeted within a Title VI community.

The project area is not located within 1/4 mile of a Title VI area.

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

Littleton is currently nearing 75% design stage with Proj 609054 Foster Street. Besides the aforementioned project, Littleton has not constructed a municipally initiated project in over a decade (603540 - Goldsmith Street). It is extremely important to note that this project has strong support from the Town of Westford as most traffic through this intersection is Westford/Groton/Ayer residents. A letter of support from Westford BOS is in process. This project will benefit multiple towns beyond Littleton.

PIF Page 7:

G. Policy Support

1. **Risk Assessment and Appropriateness:** Discuss any other alternatives considered, and how the chosen concept is the most appropriate solution to the projects needs and potential risks in comparison to other alternatives, if any. Identify whether the project involves any innovative or non-traditional design or construction techniques intended to improve safety, reduce costs, improve customer service, reduce environmental or climate impacts, expedite project completion, or enhance the statewide or national transportation system.

Two alternatives aside from the preferred roundabout concept were considered for the Great Road Route 119 Beaver Brook Road intersection. The first alternative was a signalized intersection with one lane approaches from all directions (Projected Delay 253 seconds, LOS F). The second alternative was a signalized intersection with two lane approaches from both approaches of Great Road (Projected Delay 26 seconds, LOS C). The chosen alternative of a two lane roundabout (Projected Delay 17 seconds, LOS C) was the most appropriate solution because it has the lowest projected traffic delay and the highest reduction in ROW impacts/cost. The roundabout alternative was also preferred because roundabouts are known to have lower crash rates than signalized intersections, making the roundabout the safest alternative.

2. **Statewide Policies and Plans**: If the project concept or location is mentioned or supported by any other MassDOT policy or plan not noted elsewhere, please describe. If the project is supported by any other state entities, please describe level of support. Examples of other state entities may be DCR, MBTA, RTA, etc. Statewide Plans may include, but are not limited to, the following: Bicycle, Freight, Pedestrian, Port, Rail or ITS.

The project concept is supported by the MassDOT Healthy Transportation Policy, which requires all state transportation projects to increase bicycle, transit, and pedestrian options.

3. **Regional Policy:** Describe how the project meets regional policies or performance measures supported by a regional entity such as a Regional Planning Agency. Reference any regional studies or plans that include the project location. Identify efforts to coordinate with relevant government agencies, including RTA(s), DCR, regulatory agencies, or neighboring municipalities.

The Great Road Route 119 corridor has been the subject of numerous planning studies and is viewed as a priority transportation corridor needing improvement as it connects many neighborhoods and communities with large employment centers and major state highways. Improving traffic congestion will benefit commuters in Ayer, Groton, Westford, and Littleton. There is no recent major planning study for Rt. 119 by any RPA's or DOT

4. **Local Policy:** Describe how the project meets local policies. Reference any local studies or plans that reference the project or location. (Examples of local policies or plans may include the Master Plan, community compacts, livability plans, health assessments, local ordinances, bylaws, a designated Green Community, a Complete Streets Policy, etc.)

The project will meet the transportation goals set forth in the 2017 Littleton Master Plan to redo great road in three phases. The project will "make sure the transportation system is safe and accessible to all users regardless of age ability or how one chooses to move around town". Littleton design policies and regulations will be met.

5. **Planning and Public Outreach and Support:** Describe any Public Outreach that has occurred. Include any public informational meetings, local mailings, workshops, planning documents, etc., where the proposed improvements were specifically presented to abutters, businesses and/or the general public. Please note any local support or opposition to the project, including any local advocacy groups.

Community input from a two day charrette was collected and used to come up with the goals of the Littleton Master Plan, dated April 20, 2017. This project intersection is marked as a major roadway intersection because of its connection to the neighboring towns. Fuss & O'Neill Inc was hired in 2019 to study the intersection safety, Level of Service, and provide recommendations including funding programs. A planning document and concept plan was developed and presented to MassDOT District 3 in Fall 2019. Feedback was provided by District 3 for which the preferred alternative and additional traffic analysis was completed. The resultant was a preferred alternative that was presented to the Littleton Board of Selectmen on December 2, 2019 for which the unanimously endorsed the design alternative and to pursue TIP funding.

Upon receiving Littleton BOS endorsement, the planning documents were sent to Boston Region CTPS.

Thank you for completing this form. Upon clicking "Submit for Acceptance", this form will be sent to the Regional MPO/RPA and the MassDOT Highway Division District office.

massDOT
Massachusetts Department of Transportation

Geo Processing Summary

Running script PitGPTask.

Intersection found with Districts.

Intersection found with Regions.

Intersection found with Municipalities.

No Intersection found with Interstate Pavement.

Intersection found with Non-Interstate Pavement.

No Intersection found with Bridge Database.

No Intersection found with Transit Routes.

No Intersection found with Regional Transit - BAT.

No Intersection found with Regional Transit - BRTA.

No Intersection found with Regional Transit - CATA.

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No Intersection found with Regional Transit - WRTA.

No Intersection found with Park & Ride Lots.

No Intersection found with Top 200 Crash Clusters 2013-2015.

No Intersection found with Top 200 Crash Clusters 2012-2014.

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No Intersection found with HSIP Crash Clusters 2013-2015.

No Intersection found with HSIP Crash Clusters 2012-2014.

No Intersection found with HSIP Crash Clusters 2011-2013.

No Intersection found with HSIP Pedestrians Crash Clusters 2006-2015.

No Intersection found with HSIP Bicycle Crash Clusters 2006-2015.

No Intersection found with MassDEP Impaired Waters - 2014 Integrated List of Waters (305(b)/303(d)).

No Intersection found with Outstanding Resource Water.

No Intersection found with MassDEP Wetlands.

No Intersection found with Areas of Critical Environmental Concern.

No Intersection found with BioMap2 Core Habitat.

No Intersection found with Coldwater Fish Resources.

No Intersection found with NHESP 2017 Priority Habitats of Rare Species.

No Intersection found with NHESP 2017 Estimated Habitats of Rare Wildlife.

No Intersection found with NHESP 2009 Certified Vernal Pools.

No Intersection found with Potential Vernal Pools.

No Intersection found with FEMA National Flood Hazard Layer.

No Intersection found with Open Space.

No Intersection found with Environmental Justice Populations.

Intersection found with Schools.

Completed script PitGPTask.

Succeeded at Fri Jan 17 14:52:29 2020 (Elapsed Time: 23.51 seconds)

Project Scope of Work

- No recommendations for this project.

GIS MAP

IMAGERY MAP