City of Portsmouth
New Hampshire

Peverly Hill Road Sidewalk Improvement/ Complete Street Project

Portsmouth NH

Engineering Study

State Project No. 20258

Prepared By:

McFarland Johnson

53 Regional Drive • Concord, NH 03301

September 2016

McFarland Johnson

TABLE OF CONTENTS

Project Description

The project is located along Peverly Hill Road in Portsmouth, New Hampshire. The approximately 5,000-foot long project area has an eastern boundary of West Street and a western boundary of Middle Road (NH Route 33). Peverly Hill Road is a main roadway for vehicles traveling Route 33 and I-95 to the west and Lafayette Road (US Route 1) to the east.

The purpose of the project is to enhance safety for all modes of travel (motor vehicles, bicyclists, and pedestrians) in conformance with the City of Portsmouth's Complete Street policy that was adopted in 2013.

Existing Conditions

Peverly Hill Road is an East-West two lane roadway that connects NH Route 33 and I-95 to US Route 1. The width of the existing paved roadway varies between 26 feet and 30 feet with a variable width gravel shoulder in many places and auxiliary turn lanes at the intersection of Banfield/Mirona Road and at the intersection of Middle Road (NH Route 33). The majority of the roadway is uncurbed with small sections of bituminous concrete curb approaching Middle Road and another section from the intersection of Banfield/Mirona Road east up the hill to the Portsmouth Department of Public Works (DPW) driveway. The existing condition of the roadway pavement is in fair condition with some signs of cracking and rutting. Land uses along the roadway consist of both residential and commercial buildings.

The Base plan mapping used to prepare this report and the proposed alternatives is a combination of GIS data provided by the City and aerial images.

There is approximately 1,200 feet of existing concrete sidewalk on the north side of the roadway that starts at the existing YMCA and continues east through the signalized intersection of Banfield/Mirona Road to a point approximately 100 feet east of the DPW driveway. In addition, there is a short section of sidewalk at the intersection of Peverly Hill Road and Middle Road. The sidewalk condition is good but lacks ADA Tactile Warning Devices at the existing sidewalk ramps. The lack of continuous sidewalk along the entire corridor creates an unaccommodating environment for all users, especially people with mobility challenges. The only crosswalk locations within the project limits are at the signalized intersections of Peverly Hill Road at Banfield/Mirona Road and Peverly Hill Road at Middle Road. There are existing utility pole mounted luminaires along the south side of the roadway and at both the signalized and unsignalized intersections.

The horizontal alignment of Peverly Hill Road consists of a series of tangent sections and curves with radii that range from 600 to 2000 feet. It begins at Middle Road with a 700-foot long

tangent section followed by a 2000-foot radius curve ending near the church. From there the roadway is on a short 560-foot long tangent section to just east of Greenleaf Avenue before transitioning into a 600-foot radius curve past the horse farm and then back to a 500-foot long tangent section before transitioning back to a 600-foot radius curve that ends just west of the YMCA. At the YMCA the alignment is on a 200-foot long tangent section that transitions into another 600-foot radius curve through the intersection of Banfield/Mirona Road. From there to the limit of the project at West Street the alignment is generally straight. The posted speed limit within the project area is 25 MPH. All horizontal curves meet the minimum AASHTO Standards for the posted speed.

The vertical profile of the roadway drops in elevation as the roadway heads east away from Middle Road for about 1,100 feet before rising to a short crest curve between Moffet Street and Greenleaf Avenue. From Greenleaf Avenue heading east the roadway continues to drop in elevation to a low point near the intersection of Banfield/Mirona Road before climbing at a steeper grade back up to the end of the project at West Street. The cross slope of the existing roadway varies but is generally crowned about the center line. A preliminary review of sight distances along the roadway revealed that there is an existing vertical curve near the church that will require further investigation and may require modification to meet the minimum standards.

According to the latest traffic data obtained by the City of Portsmouth in the Spring of 2016, the average annual daily traffic (AADT) volume on Peverly Hill Road through the project area is 9,100 vehicles per day.

The existing stormwater drainage system is limited to closed drainage systems along the curbed section near Middle Road and from the intersection of Banfield/Mirona Road east to the DPW driveway. Based on an initial field review, the closed drainage structures appear to be in good condition. There are also a number of cross culverts within the project limits that will need to be reviewed as the project moves forward. Several land owners have indicated seasonal flooding of a portion of their properties as a result of roadway runoff.

Crash History

Crash data for the most recent five year period (2010-2015) were obtained from the Portsmouth Police Department. There were a total of 31 crashes over the five year period. Of those, approximately 81 percent (25 of 31) were property damage only and approximately 19

percent (6 of 31) included some level of non-fatal injury. There were no fatal crashes reported during this time period. Of the crashes reviewed the majority (23 of 31) were located at one of the two signalized intersections within the study area.

A review of the crashes did not provide a definitive roadway deficiency that could be considered a root cause of the crashes. For the majority of the crashes, driver error or inattentiveness appears to be the underlying causal factor.

Resource Identification

Environmental resources were identified using GIS and other mapping resources and through a brief field visit. A summary of existing resources and permits that are anticipated with the proposed project follows. The referenced figures can be found in Appendix A.

Landscape Setting

Along Peverly Hill Road's western section, the development consists mainly of residential homes, open fields, and forest. On the east end of the roadway, the landscape changes to more developed areas consisting of mixed industrial, commercial and retail uses. These areas tend to have less undeveloped areas and vegetation is limited to grassed lawns and shade trees.

Water Resources

Surface Waters

The Sagamore Creek, which generally runs north-south alignment crossing Peverly Hill Road just west of the Intersection of Banfield/Mirona Road, is the only surface water in the project area. The portion of the creek located to the south of Peverly Hill Road is fresh water with various wetlands areas including emergent, scrub-shrub and forested. The portion of the creek on the north side of Peverly Hill Road is under tidal influence with a mix of wetland types. A tributary to Sagamore Creek (Upper Sagamore Creek) crosses under Greenleaf Road at the edge of the project area. The tributary is under tidal influence and is surrounded by wetlands.

Both waterways are subject the NH Wetland Act rules, Shoreland Water Quality Protection Act rules and City of Portsmouth Wetland Protection Ordinance. Impacts to waters, wetlands and buffers would require approval from the NH Department of Environmental Services. Approval from the City of Portsmouth Conservation Commission would also be required.

Wetlands

Wetlands are located within the project area. At the time of this report, a formal wetland delineation has not been conducted, however, an inspection of the project area was conducted by a qualified professional including review of publicly available information. The wetlands areas within the project area consist of both freshwater and tidal. Large wetland areas are located on the south side of Peverly Hill Road near Calvary Cemetery and on the east side of Greenleaf Avenue. Wetlands are present along Sagamore Creek and its tributary (Upper Sagamore Creek). Swales and smaller wetland pockets are located throughout the project area. Wetland buffers are also present. The City of Portsmouth regulates the land area within 100 feet surrounding wetlands. Refer to Figure 1 Wetlands enclosed in Appendix A.

Water Quality

The NHDES 2012 List of All Impaired Waters (most recent available) identifies Sagamore Creek and its tributary (Upper Sagamore Creek) as impaired waters. Sagamore Creek is impairment based upon concentrations of chlorine and Ph. Upper Sagamore Creek is impaired for various contaminants including heavy metals which are typically found in stormwater runoff from roadways. Refer to Figure 2 Impaired Waters Overview enclosed in Appendix A. To mitigate additional impacts to these waters as a result of increased stormwater runoff associated with the project and maintain existing Total Maximum Daily Loads (TMDL) for the receiving waters, it will be necessary to provide stormwater treatment measures.

Floodplains

There are floodplains associated with the Sagamore Creek and its tributary (Upper Sagamore Creek). Impacts to these floodplain areas are not anticipated to occur from the proposed project. Refer to Figure 3 Flood Hazard Areas Overview enclosed in Appendix A.

Rare Species

The New Hampshire Natural Heritage Bureau (NHNHB) was consulted regarding the presence of rare species in the project area. The NHNHB responded that although there is an NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, they do not expect that it will be impacted by the proposed project.

Conservation Land

The project area was investigated for the presence of conservation land or conservation easements. A large parcel is present on the west side of Peverly Hill Road that has been

preserved from funding provided to the City of Portsmouth by the NH LCIP Program. The property is currently managed and protected by the City of Portsmouth. Coordination with the City and the NH Office of Energy and Planning has begun to determine the specific requirements and avoidance measures necessary.

In addition, a second parcel is suspected of being conservation land, however, inquiries to various funding agencies has not resulted in a definitive finding at this time. Additional research on this parcel, located to the east of Greenleaf Avenue, is currently underway. Refer to Figure 4 Conservation Lands enclosed in Appendix A.

Cultural Resources

Above Ground Historical Resources

The project corridor and immediately surrounding area has been determined to contain 25 buildings that are more than 50 years old (built in or before 1966) out of a total of 55 buildings within the corridor. These structures will be evaluated to determine if any historic architecture concerns are present. Consultation has begun with the NH Division of Historic Resources (DHR) to evaluate the project relative to these structures.

Archaeological Resources

The project corridor has been evaluated for the presence of archaeological resources. It has been determined that areas of the corridor are considered sensitive for both Pre-Contact Native American resources and Post-Contact Euroamerican resources. Consultation with the NHDHR has begun to evaluate the project relative to the sensitive areas.

Hazardous Materials

A review of the New Hampshire Department of Environmental Services (NHDES) hazardous materials database reveals that there no hazardous material remediation sites in the vicinity of the project area. As the project advances, the database will be consulted for updates that may occur.

Summary of Permits Required

- *National Environmental Policy Act* (NEPA): Clearance under NEPA is required because of federal funding for the project. It is assumed that the project will be cleared under a Programmatic Categorical Exclusion.
- *Section 106 of the National Historic Preservation Act:* Project level screening and evaluation is required. Additional coordination with NHDHR is ongoing.

- *NHDES Alteration of Terrain Permit:* The project will disturb more than 100,000 square feet of existing terrain so a permit will be required.
- *NHDES Dredge and Fill Permit and Shoreland Permit:* If wetlands, waterways or Shoreland buffers are impacted, permits from the NHDES will be required. The U.S. Army Corps of Engineers also review the permit application for compliance to their rules.
- *City of Portsmouth:* If wetland buffers are impacted, the Conservation Commission must approve a Wetland Permit for these impacts.

Initial Public Involvement

A fundamental aspect of Conceptual Design is to develop an alternative that the public can support. The best way to gain this support is to involve the public in the process of developing alternatives. The public involvement process is as much about informing the designers as it is about involving the public.

The first public meeting for this project was a *Public Listening Session* held on June 2, 2016 at the Portsmouth Public Library. The City gave a brief overview of the background for the project then MJ gave an overview of the project limits and design process including some conceptual cross sections based on the recommendations from the City's Bicycle and Pedestrian Plan. After the overview the meeting moved into a breakout session where the public was provided an existing conditions map and was encouraged to offer their observations and opinions about the study area to help the designers understand the fundamental problems the public experiences with the roadway and what they would like to see in the future. The public was given sticky notes and pens to note their observations and opinions. At the close of the breakout session, MJ gave an overview of all of the comments from the public and allowed them time to ask additional questions or provide additional information. There was an extensive exchange of information, ideas, challenges, and opportunities from all who attended. See Appendix B for a summary of the *Public Listening Session*.

The information from the Listening Session was used to develop a Project Purpose and Need statement. The Purpose and Need statement is the basis for determining why the project is being undertaken and whether the proposed solutions actually address the needs. The Project Purpose and Need statement is shown below:

PROJECT PURPOSE AND NEED

Purpose

The project's purpose is to reconstruct Peverly Hill Road from Middle Road to West Road in order to provide a safer roadway for all users in conformance with the City of Portsmouth's Complete Street Policy.

Need

- Vehicles currently travel at high rates of speed along the roadway
- There are some sight distance restrictions that contribute to safety issues
- Lack of bicycle or pedestrian accommodations
- Mix of residential and commercial traffic
- Drainage issues exist along the roadway

The public noted some of these issues and concerns within the project area:

- Concerns about mixing bikes with motor vehicles. It is better to separate.
- Trucks are a major concern relative to volume, speed and noise.
- Speed of all vehicles is a major concern. Slowing speeds is critical.
- Families do walk on the street and a safety issue is present.
- Crosswalks – yes, we want these.
- Does the plan need to be the same the entire way?
- Shared path is good for runners, but not ideal for cyclists.
- Don't need sidewalks on both sides (could alternate one side to another).
- Lowering the road on the hill by the church is needed for better view of oncoming traffic.
- Drainage must be improved throughout, especially where it drains onto people's properties.

Using the Purpose and Need statement as a guide and incorporating some of the additional comments from the public and the City, MJ prepared Conceptual Alternative Plans. Because this is a designated pedestrian and bicycle route by the City of Portsmouth, all alternatives need to incorporate accommodations for these users. In addition, the alternative development also looked at horizontal alignment changes to try to minimize the potential impacts to Right-of-Way and natural resources, vertical alignment of the roadway to improve sight lines, and stormwater runoff collection to improve water quality and address abutter concerns. (See Appendix C- Alternative Plans).

Utilities

The City has identified existing underground water, sewer, and drainage utilities within the project area. At this time there are no proposed changes to the existing water and sewer lines as part of this project. There is also an existing gas line that runs along a portion Peverly Hill Road with the project limits. The City will coordinate with the gas company to determine if they need to perform any upgrades to this line prior to the start of this project. There will be adjustments required to the existing drainage structures based on the proposed grading and curb placement.

Utility poles exist within the project limits and are mostly located on the south side of the roadway. These poles would most likely require relocation in order to facilitate the construction of a shared use path on the south side of the roadway. Utility coordination is planned during the final design phase to relocate these utility poles to provide sufficient sidewalk clear width to meet the ADA standards and allow for winter maintenance.

Alternatives Development

The intent of alternatives development is to identify reasonable alternatives for achieving the goals established in the Project Purpose and Need. For this project, providing adequate bicycle and pedestrian accommodations and improving overall safety are key.

Three alternatives were developed to address pedestrian and bicycle accommodations both on and off the roadway while improving safety along the corridor. They include consideration for constructing sidewalks, shared use paths or bike lanes. A description of each of these alternatives follows. Each alternative provides improvements to bicycle and pedestrian accommodations and includes granite curbing and a landscape buffer along the roadway to better define the edge of pavement and separate the various uses of the roadway. Each alternative is compared to the No-Build which is described below.

No-Build Alternative

This alternative would maintain the roadway and sidewalks in their existing condition. High vehicle speeds, inconsistent pedestrian and bicycle accommodations would continue to be a safety concern. As vehicle, pedestrian, and bicycle volumes continue to increase on this roadway in the future, there is increased in risk of crashes.

Alternative 1 – Shared Use path on South Side of the Road

This alternative would involve installing granite curb along both sides of the roadway to provide a narrowed roadway cross section with a defined pavement edge. The roadway cross section would consist of a 10-foot wide shared use path on the south side of the roadway, a 4-foot wide landscape strip, 2-foot wide shoulders and 11-foot wide travel

lanes. The shared use path was located on the south side of the roadway to reduce potential impacts to property owners and reduce the potential conflicts between bicycles and vehicles at all of the driveway access points. At the signalized intersection of Peverly Hill Road and Middle Road and at the signalized intersection of Peverly Hill Road and Banfield/Mirona Roads the existing auxiliary lanes will be maintained. In addition, the project would include reconstruction of the existing pavement surface and installation of a closed drainage system.

The proposed shared use path and sidewalk extension would be constructed to meet the American with Disabilities Act (ADA) standards. Any existing sidewalks or ramps that are to remain that do not meet ADA Standards would be upgraded. In addition, the existing sidewalk on the north side of the roadway, east of Banfield/Mirona Road, would be extended east to West Street. See Appendix C for plans showing the concept plan and typical section for this alternative.

Alternative 2 – Shared Use path on South Side and Sidewalk on the North side of the Road

This alternative would involve installing granite curb along both sides of the roadway to provide narrowly defined pavement edge. Similar to Alternative 1, the roadway cross section for Alternative 2 would consist of a 10-foot wide shared use path on the south side of the roadway, a 4-foot wide landscape strip, 2-foot wide shoulders and 11-foot wide travel lanes. In addition, this Alternative would include a 4-foot wide landscape strip and a 6-foot wide concrete sidewalk on the north side of Peverly Hill Road so that pedestrians would not need to cross the roadway directly from their homes or business to access a safe pedestrian accommodation, (i.e. the shared use path), but could use the sidewalk on the north side of the roadway to either continue along Peverly Hill Road or gain access to one of the proposed crosswalks along the corridor to cross over to the shared use path. The existing auxiliary lanes will be maintained at the signalized intersection of Peverly Hill Road and Middle Road and at the signalized intersection of Peverly Hill Road and Banfield/Mirona Roads. In addition, the work would include reconstruction of the existing pavement surface and installation of a closed drainage system.

The proposed shared use path and sidewalk would be constructed to meet the American with Disabilities Act (ADA) standards. Any existing sidewalks or ramps that are to remain that do not meet ADA Standards would be upgraded. See Appendix C for plans showing the concept plan and typical section for this alternative.

Alternative 3 – Sidewalk on the North side of the Road and Bike Lanes

This alternative would involve installing granite curb along both sides of the roadway and provide a wider roadway cross section with a defined pavement edge. The roadway cross section for Alternative 2 would be expanded to consist of 5-foot wide bike lanes and 11-foot wide travel lanes. In addition, this Alternative would include a 4-foot wide landscape

strip and a 6-foot wide concrete sidewalk on the north side of Peverly Hill Road. This alternative has dedicated bicycle lanes along the roadway to provide bicycle accommodations along this designated bike route. At the signalized intersection of Peverly Hill Road and Middle Road and at the signalized intersection of Peverly Hill Road and Banfield/Mirona Roads the existing auxiliary lanes will be maintained. In addition, the work would include reconstruction of the existing pavement surface and installation of a closed drainage system.

The proposed sidewalk would be constructed to meet the American with Disabilities Act (ADA) standards. Any existing sidewalks or ramps that are to remain that do not meet ADA Standards would be upgraded. See Appendix C for plans showing the concept plan and typical section for this alternative.

Cost Estimates

Conceptual Cost estimates were developed for each of the build alternatives and are summarized below. The total cost for each alternative includes both construction costs and construction engineering costs. There will be right of way costs for the project, however, the extent is not known at this time.

Alternative 1 – Shared Use path on South Side of the Road

Construction	$3,220,000
Construction Engineering	$250,000
Total Cost	**$3,470,000**

Alternative 2 – Shared Use path on South Side and Sidewalk on the North side of the Road

Construction	$3,400,000
Construction Engineering	$250,000
Total Cost	**$3,650,000**

Alternative 3 – Sidewalk on the North side of the Road and Bike Lanes

Construction	$2,990,000
Construction Engineering	$250,000
Total Cost	**$3,240,000**

See Appendix D for a detailed breakdown of the cost estimates for each alternative.

Right-of-Way

Existing Aerial and GIS information was used during the preparation of the alternative plans. No ground survey has been performed at this time; therefore the property line and Right-of-Way lines provided on the plans are approximate. Consequently any property impacts shown on the plans are approximate and will be better defined during the final design effort. Overall, the project will attempt to minimize the impacts to private properties while also minimizing impacts to natural and cultural resources.

These Alternatives were presented to the public at an Alternatives Workshop on July 27th, 2016 at the Portsmouth Public Library. MJ gave a brief overview of the project and presented the three proposed Alternatives. At that point the meeting was opened up to allow the public to walk around and look at the three Alternatives that were on display. Each member of the public was given a colored dot and asked to place it on their preferred alternative. In addition, sticky notes and pens were made available to the public so they could provide additional comments on the proposed plans. After the meeting, the plans were posted on the City's website to allow the public to review them and provide additional comments.

Stormwater Treatment

The stormwater runoff from Peverly Hill Road and most of the adjacent properties is within the watershed of Upper Sagamore Creek and Sagamore Creek. As noted in the Water Quality section previously, both of these streams are considered impaired. Several of the impairments listed can be directly attributed to stormwater runoff from roadways and other paved surfaces. This project proposes to increase the amount of impervious area within this watershed through the introduction of additional paved surface for sidewalks and shared use paths. Therefore, as part of this project, it will be important to collect and treat, at a minimum, the runoff that is attributed to this increased runoff. At this time treatment options are still being evaluated and will be furthered investigated as the design moves forward and the volume of stormwater to be treated is determined. Given the topography of the area, the most likely location of any above ground treatment ponds would be along Peverly Hill Road just west of the intersection of Banfield/ Mirona Roads adjacent to Sagamore Creek or along Greenleaf Avenue adjacent to Upper Sagamore Creek.

Summary

The Conceptual Design Phase of this project developed multiple alternatives along with the no-build alternative for consideration by the City of Portsmouth. The no-build alternative was quickly dismissed as it did not address the purpose and need for the project. The three build alternatives were evaluated by comparing them to the purpose and need statement as well as the additional comments and concerns of the public. The City of Portsmouth reviewed the

three alternatives and the input from the public meeting to determine the preferred alternative. They reviewed the ability of the alternatives to address safe access for pedestrians and bicyclist, the ability of the alternatives to address vehicles speeds, and how the project would impact adjacent properties and resources.

Alternative 3 with the sidewalk on the north side of the roadway provides good pedestrian access for the majority of homes and businesses located along the roadway. Several homes and a church on the south side of the roadway, would however, still need to cross the roadway to access the sidewalk, which many residents did not feel was safe. While this alternative met the basic needs for all users it was believed that Alternative 3, with the dedicated bike lanes, provided too much pavement for vehicles and would not provide any traffic calming to slow vehicles down so it was removed from further consideration.

To address the vehicle speed concerns, Alternative 1 provided a shared use path on the south side of the road to accommodate bicyclist and pedestrian off the roadway thus minimizing the roadway width and providing a measure of traffic calming to slow vehicles down. However, this alternative placed the pedestrian accommodations on the opposite side of the roadway from the majority of the intended users requiring more uncontrolled crossing which residents did not feel was safe. While this alternative met the basic needs for all users it was believed that Alternative 1 did not provide adequate safety for the pedestrians to access the shared use path so it was removed from further discussion.

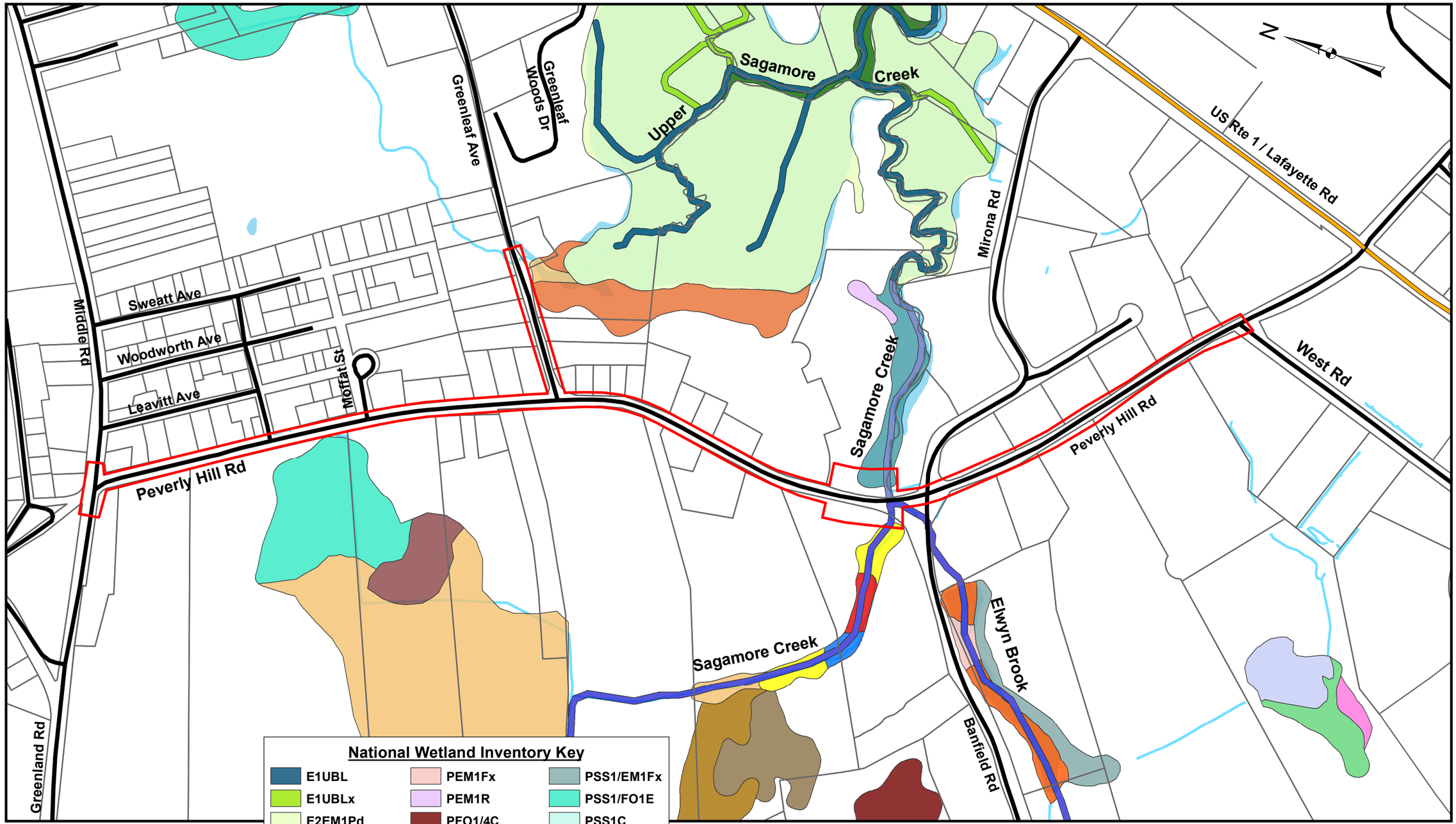
During the review of these alternatives the City also discussed placing the shared use path along the north side of the roadway to reduce the need for pedestrian to cross the roadway. However, as noted previously, there was concern with the increased number of conflict points between bicyclist and vehicles at the driveways and intersecting roadways. Therefore, it was determined that if the project moved forward with a shared use path it would be located on the south side of the roadway.

To address the vehicle speed concerns, Alternative 2 provided a shared use path on the south side of the road to accommodate bicyclist and pedestrians off the roadway thus minimizing the roadway width and providing a measure of traffic calming to slow vehicles down. In addition, this alternative included a sidewalk along the north side of the roadway to reduce the number of pedestrian crossing the roadway at uncontrolled locations, thus improving safety. This alternative has a greater impact on private property and resources, but it improves safety for all users.

Based on this evaluation, the preferred alternative was determined to be: **Alternative 2 - Shared Use path on South Side and Sidewalk on the North side of the Road.**

APPENDIX A

Resource Figures



Data Source:

Wetlands: U.S. Fish and Wildlife Service, Division of Ecological Services, Branch of Geospatial Mapping and Technical Support, National Wetlands Inventory

National Wetland Inventory Key

E1UBL	PEM1Fx	PSS1/EM1Fx
E1UBLx	PEM1R	PSS1/FO1E
E2EM1Pd	PFO1/4C	PSS1C
E2US3N	PFO1/4D	PSS1E
PABHx	PFO1/4E	PSS1R
PEM1/SS1C	PFO1C	PUBFx
PEM1Cx	PFO1E	PUBHx
PEM1E	PFO4/1D	R1UBV
PEM1F	PSS1/EM1F	R2UBH

Legend

- Project_Boundary
- Parcels
- Stream
- OpenWater

New Hampshire DOT

McFarland Johnson

PEVERLY HILL ROAD, PORTSMOUTH, NH

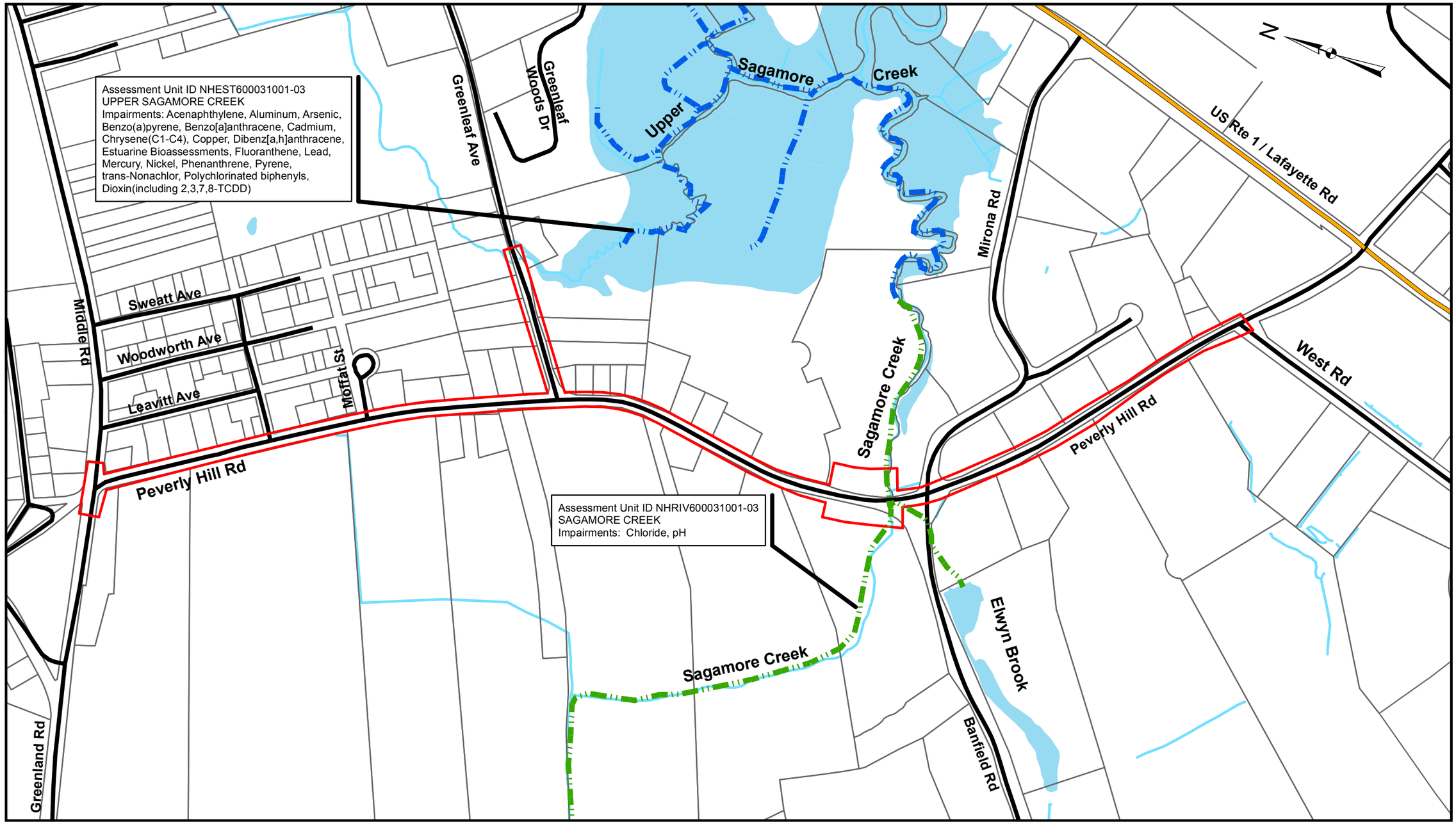
WETLANDS

FIGURE 1

DATE: JULY 2016

SCALE: 1 " = 400 '

\\mjcolo-dc-x64\M\18082.00 Peverly Hill Road\Draw\GIS\Figures\Wetlands_NWI.mxd



Data Source:

Wetlands: U.S. Fish and Wildlife Service, Division of Ecological Services, Branch of Geospatial Mapping and Technical Support, National Wetlands Inventory

Legend

- Project_Boundary
- Parcels
- Stream
- OpenWater

Total Maximum Daily Load (TMDL) is Required, 2012 Section 303(d) List, (Low-Priority)

- NHEST600031001-03
- NHRIV600031001-03

New Hampshire DOT

McFarland Johnson

PEVERLY HILL ROAD, PORTSMOUTH, NH

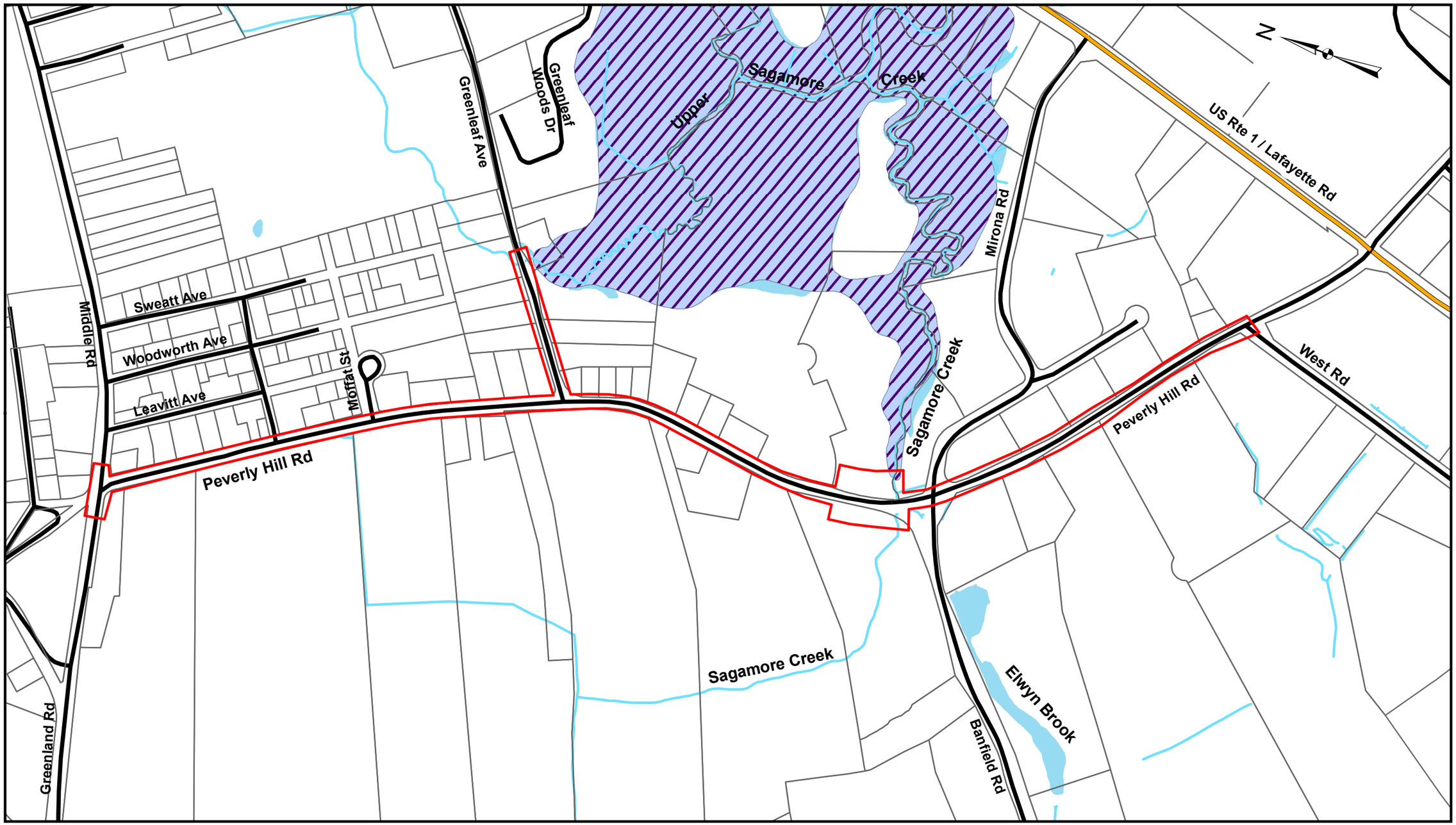
IMPAIRED WATERS OVERVIEW

FIGURE 2

DATE: JULY 2016

SCALE: 1 " = 400 '

\\mjcolo-dc-x64\M\18082.00 Peverly Hill Road\Draw\GIS\Figures\Impaired Waters.mxd



Data Source:

Flood Data: FEMA National Flood Hazard Layer (NFHL)

Legend

- Project_Boundary
- Parcels
- Stream
- OpenWater
- Regulatory Floodway - NONE
- ZONE A - No Base Flood Elevation - NONE
- ZONE AE - Base Flood Elevation Provided

New Hampshire DOT

McFarland Johnson

PEVERLY HILL ROAD, PORTSMOUTH, NH

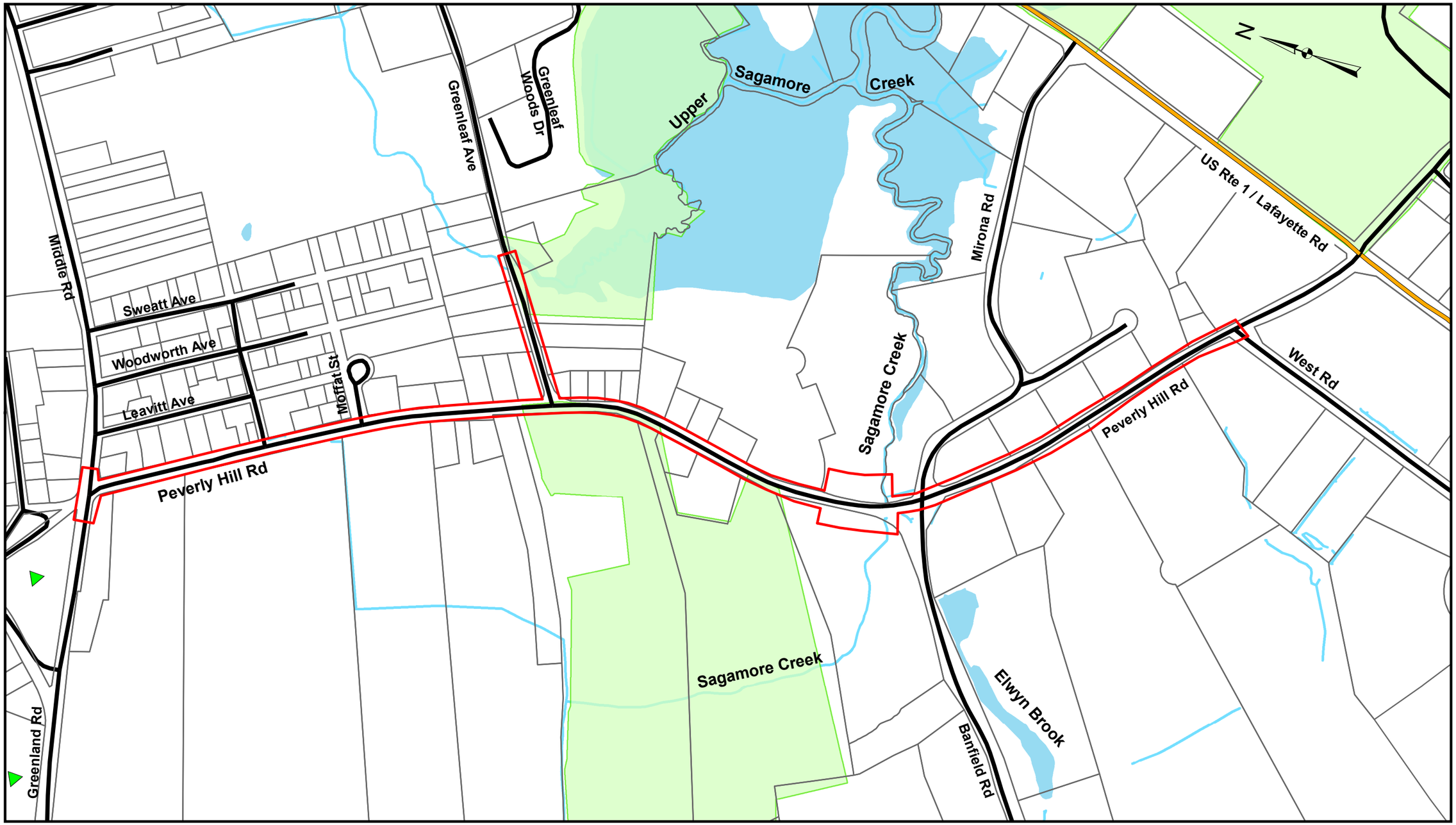
FLOOD HAZARD AREAS OVERVIEW

FIGURE 3

DATE: JULY 2016

SCALE: 1 " = 400 '

\\mjcolo-dc-x64\M\18082.00 Peverly Hill Road\Draw\GIS\Figures\Flood Hazard Area.mxd



Data Source:

Conservation Lands: Earth Systems Research Center, 1953 - 05/26/2016
NH GRANIT, University of New Hampshire

Legend

- Project_Boundary
- Parcels
- Stream
- OpenWater
- Conservation Lands
- Field Sports

New Hampshire DOT

McFarland Johnson

PEVERLY HILL ROAD, PORTSMOUTH, NH

CONSERVATION AND PUBLIC LANDS

FIGURE 4

DATE: JULY 2016

SCALE: 1 " = 400 '

\\mjcolo-dc-x64\M\18082.00 Peverly Hill Road\Draw\GIS\Figures\Conservation and Public Lands.mxd

APPENDIX B

Public Listening Session Summary
Alternative Workshop Summary

PEVERLY HILL ROAD SIDEWALK IMPROVEMENT / COMPLETE STREETS PROJECT

Project Listening Session Summary

The City of Portsmouth conducted a Listening Session to provide a forum for residents, business owners, bicyclists, pedestrians and commuters to express their concerns and influence the future vision for the Peverly Hill Road corridor extending from Middle Road/State Route 33 east to Banfield Road. The City has long sought to improve this important travel route. The project looks to improve safety along the corridor and improve access and use by bicyclists and pedestrians.

When: Thursday, June 7, 2016
6:30 p.m.

Where: Portsmouth Library
Parrott Avenue
Portsmouth, NH

MEETING SUMMARY

Eric Eby, Parking and Transportation Engineer, from the City of Portsmouth began the meeting by giving a project overview. The proposed project is intended to calm traffic, improve safety and improve bicycle and pedestrian use along the Peverly Hill Road corridor between Middle Road/State Route 33 and Banfield Road. Previous studies conducted by the city of this area include:

- Complete Streets Policy 2013
- Bicycle and Walk Friendly Community Policies 2013
- Bicycle and Pedestrian Plan 2014

PEVERLY HILL ROAD SIDEWALK IMPROVEMENT / COMPLETE STREETS PROJECT

The City has secured funding for the project through the NHDOT Congestion Mitigation and Air Quality Funding for Sidewalks and Bicycle Shoulders and the City will fund additional improvements.

The process for the project moving forward can be broken down into three phases. The first phase will consist of the Alternatives Design and is anticipated to be completed at the end of July 2016. Once the alternatives design is completed it is anticipated that a preferred alternative will be selected in August 2016. The second phase is Final Design of the preferred alternative. It is anticipated that this phase would then be competed in the fall of 2016 or spring of 2017. Upon completion of the final design the project would move into the third phase which is construction. The start of construction is currently pending on when funding becomes available.

Jeff Santacruce of the design team from McFarland Johnson provided additional information during the presentation. The project is currently in the first phase which will complete the conceptual design. McFarland Johnson has already begun information gathering and resource identification and is now compiling input from the public, which is the main purpose of this Listening Session. After gaining public input, McFarland Johnson will begin developing alternatives that will be presented to the public on July 27, 2016.

The public in attendance was then broken into two groups facilitated by Jeff Santacruce and Brian Colburn, also from McFarland Johnson. The purpose of these groups was to receive input from the members of the public on their concerns within the corridor and their vision of the future Peverly Hill Road corridor. Below is the input received from the public and other pertinent information.

Here's what we heard and the questions that were asked

- Concerns about mixing bikes with motor vehicles. It is better to separate.
- Widening the road (for bike lanes) would increase the speed of traffic.
- Don't need sidewalks on both sides (could alternate one side to another).
- Trucks are a major concern relative to volume, speed and noise.
- Speed of all vehicles is a major concern. Slowing speeds is critical.
- Multi-use path is not ideal for cyclists.
- Shared path is good for runners.
- Use two different materials asphalt and concrete to create a separation of spaces.

PEVERLY HILL ROAD SIDEWALK IMPROVEMENT / COMPLETE STREETS PROJECT

- Drainage must be improved throughout, especially where it drains onto people's properties.
- Will there be curb both sides?
- How will snow removal be done on a separated path?
- Lowering the road on the hill by the church is needed for better view of oncoming traffic.
- Does plan need to be the same the entire way?
- A sidewalk on both sides is not needed.
- Use City owned land along the road for a stopping place or pocket park.
- Bike lane option would make the road too wide and increase speeds.
- Like shared use path with buffer space.
- How will property be impacted with wider options?
- Sand, trash and tree debris are washed into my driveway. Please fix the drainage.
- Blind corners exist throughout corridor.
- Bike/Pedestrian path should be on south side, not next to residents close to street.
- Putting bikes on road with cars is not a good idea.
- The trucks on the road caused my house to shake. Consider banning all truck traffic.
- Problem with safely getting to our mail boxes.
- A road shoulder is not needed.
- High amount of litter along the road.
- More landscaping would require more residential upkeep, we are not in favor of this.
- Is moving our mailboxes possible?

PEVERLY HILL ROAD SIDEWALK IMPROVEMENT / COMPLETE STREETS PROJECT

- Bike/Pedestrian path combined is the best option.
- Granite curbing is needed on 1-side only.
- Crosswalks – yes, we want these.
- Families do walk on street and a safety issue is present.
- A vehicle was clocked at 93 mph.
- Cars pass, and use the oncoming lane, while you are turning into your own driveway. This is a major safety concern

Jeff Santacruce and Brian Colburn then presented the input received from the two groups to the entire audience and presented some preliminary findings from McFarland Johnson based on their initial work.

The next steps for the project are for McFarland Johnson and the City to develop potential alternatives that will be presented to the public on July 27, 2016.

PEVERLY HILL ROAD SIDEWALK IMPROVEMENT / COMPLETE STREETS PROJECT

Project Alternatives Workshop Summary

The City of Portsmouth conducted a Project Alternatives Workshop to provide a forum for residents, business owners, bicyclists, pedestrians and commuters to offer input on the Alternatives developed to improve the Peverly Hill Road corridor extending from Middle Road/State Route 33 east to Banfield Road. The City has long sought to improve this important travel route. The project looks to improve safety along the corridor and improve access and use by bicyclists and pedestrians.

When: Wednesday, July 27, 2016
6:30 p.m.

Where: Portsmouth Library
Parrott Avenue
Portsmouth, NH

MEETING SUMMARY

Jeff Santacruce, Project Manager, from McFarland Johnson began the meeting by giving a quick project overview. The proposed project is intended to calm traffic, improve safety and improve bicycle and pedestrian use along the Peverly Hill Road corridor between Middle Road/State Route 33 and Banfield Road. Previous studies conducted by the city of this area include:

- Complete Streets Policy 2013
- Bicycle and Walk Friendly Community Policies 2013
- Bicycle and Pedestrian Plan 2014

PEVERLY HILL ROAD SIDEWALK IMPROVEMENT / COMPLETE STREETS PROJECT

The City has secured funding for the project through the NHDOT Congestion Mitigation and Air Quality Funding for Sidewalks and Bicycle Shoulders and the City will fund additional improvements.

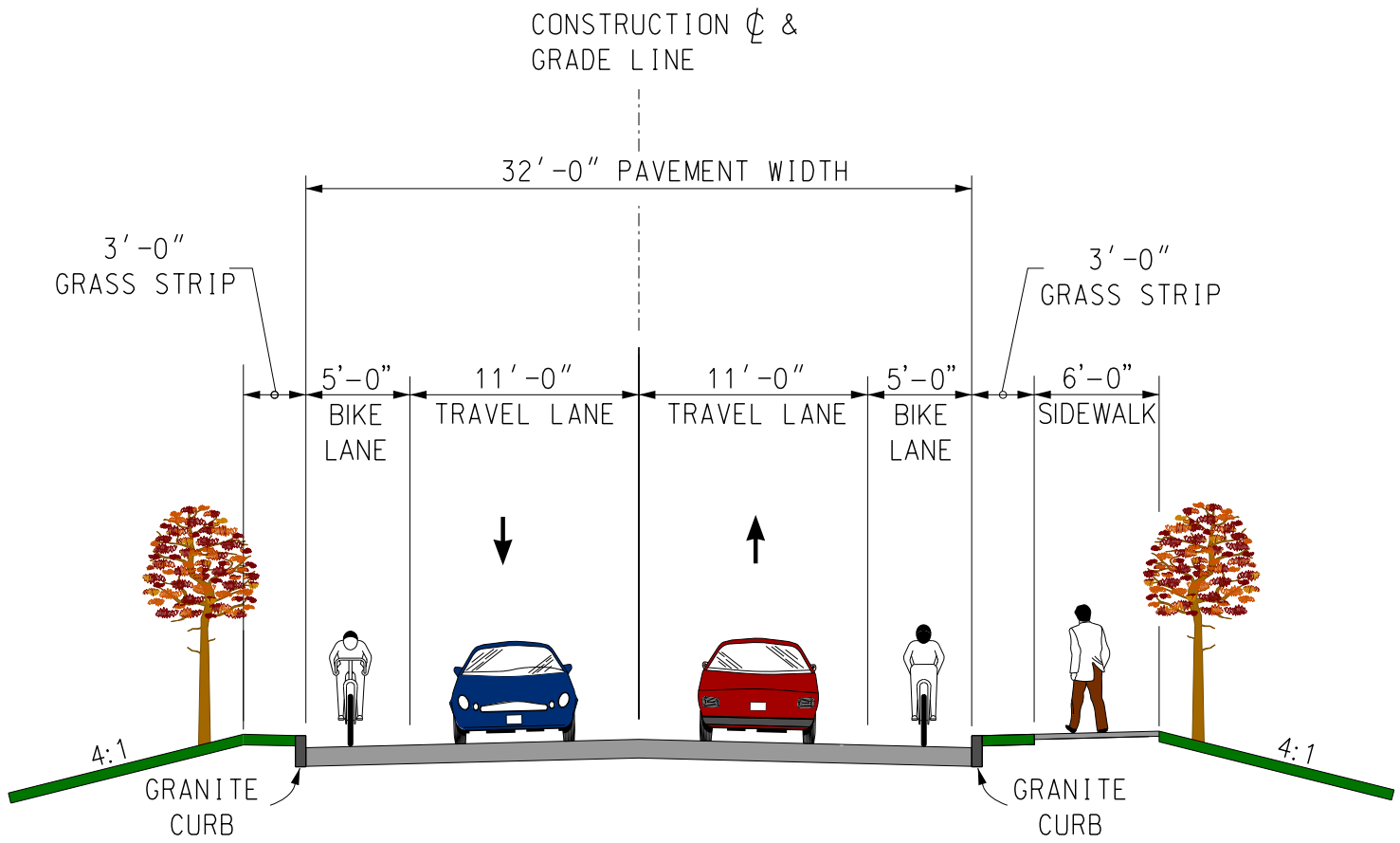
The process for the project moving forward can be broken down into three phases. The first phase will consist of the Alternatives Design which has been completed and would be presented. The purpose of the meeting was to present the three alternatives to the Public in order to gain consensus on a preferred alternative. Once the preferred alternative is selected, the Engineering Report will be prepared and submitted to the NHDOT for review. The second phase is Final Design of the preferred alternative. It is anticipated that this phase would then be competed in the fall of 2016 or spring of 2017. Upon completion of the final design the project would move into the third phase which is construction. The start of construction is currently pending on when funding becomes available.

Jeff Santacruce reviewed the three alternatives in detail and opened the floor up for any questions or additional information during the presentation. Since there weren't any questions, the public in attendance was allowed to walk around the room looking at the alternatives and asking questions which was facilitated by Jeff Santacruce and Jennifer Zorn, also from McFarland Johnson. The purpose of these groups was to receive input from the members of the public on their preferred alternative. Each participant was given a colored sticker to place on their preferred alternative. In addition, sticky notes and pens were available for the public to provide additional comments and concerns on any of the alternatives presented. The consensus of the public opinion, as noted by the large quantity of colored stickers stuck to the plan, was that Alternative 2 provided the safest roadway for bicyclist and pedestrians and provided features to help slow down traffic.

The next steps for the project are for McFarland Johnson and the City to determine the preferred alternative and prepare the Engineering Report for submission to the NHDOT for review.

APPENDIX C

Proposed Improvement Plans

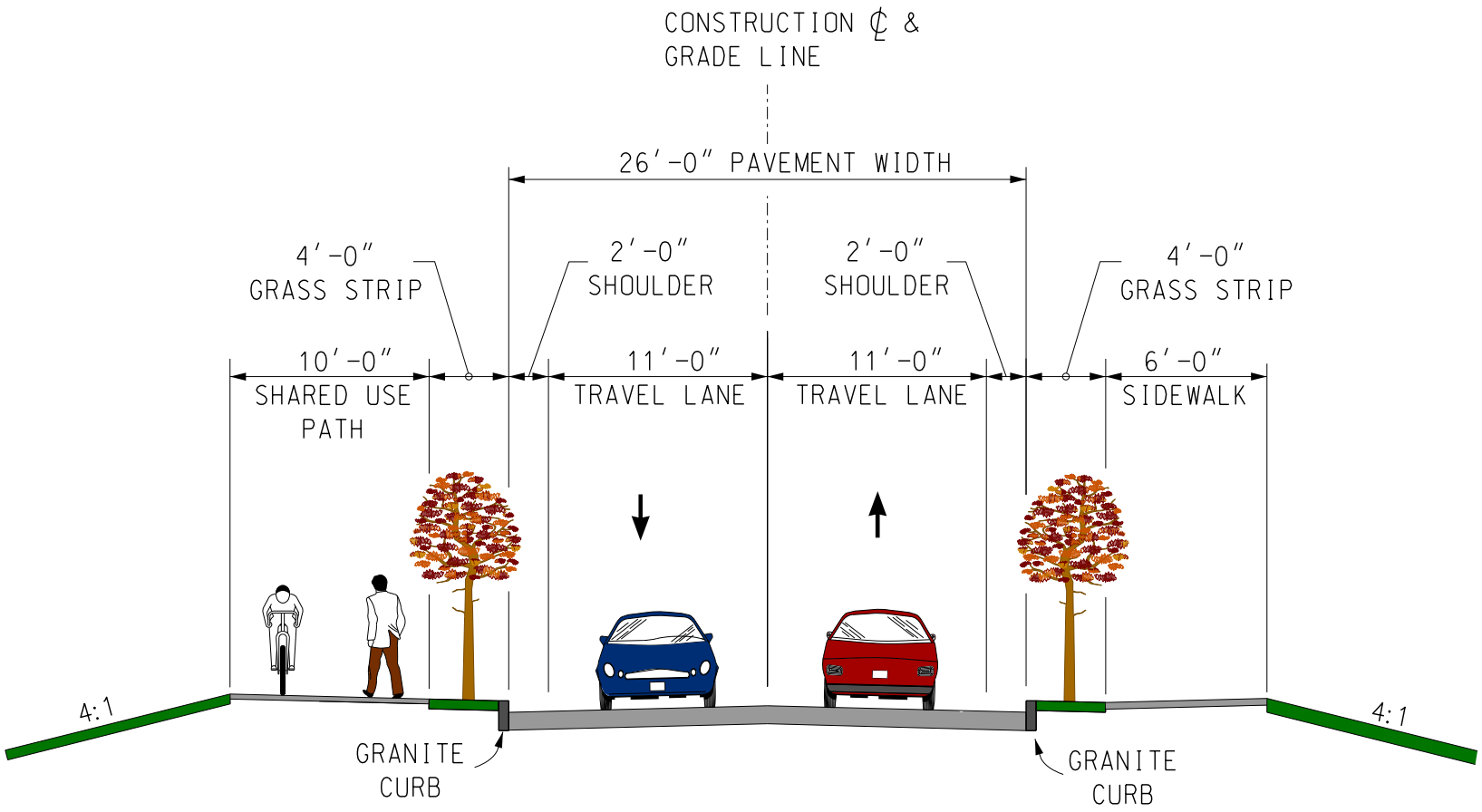


ALTERNATIVE 3 - SIDEWALK ON NORTH SIDE AND BIKE LANES

NOT TO SCALE

McFarland Johnson

PEVERLY HILL ROAD
SIDEWALK IMPROVEMENT / COMPLETE STREET PROJECT
PORTSMOUTH, NEW HAMPSHIRE

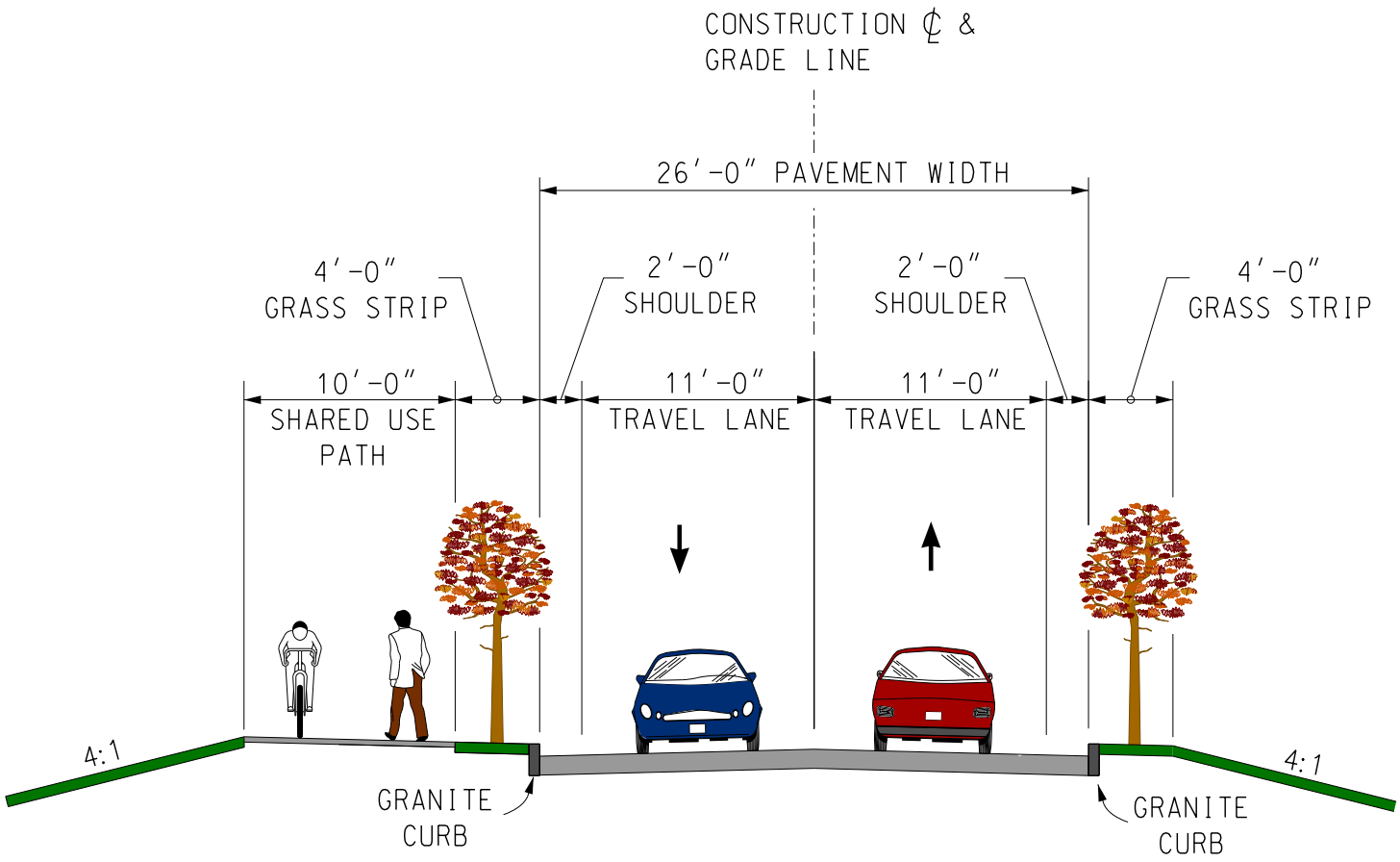


ALTERNATIVE 2 - SHARED USE SIDE PATH ON SOUTH SIDE AND SIDEWALK ON NORTH SIDE

NOT TO SCALE

McFarland Johnson

PEVERLY HILL ROAD
SIDEWALK IMPROVEMENT / COMPLETE STREET PROJECT
PORTSMOUTH, NEW HAMPSHIRE



ALTERNATIVE 1 - SHARED USE SIDE PATH ON SOUTH SIDE

NOT TO SCALE

McFarland Johnson

PEVERLY HILL ROAD
SIDEWALK IMPROVEMENT / COMPLETE STREET PROJECT
PORTSMOUTH, NEW HAMPSHIRE

DATA SOURCE:

EXISTING CONDITIONS DATA OBTAINED FROM THE CITY OF PORTSMOUTH GIS LAYERS AND AERIAL IMAGERY.

WETLAND NOTES:

1. WETLAND LOCATIONS WERE DETERMINED BY VISUAL INSPECTION FROM THE PEVERLY HILL ROAD RIGHT-OF-WAY AND REVIEW OF PUBLISHED DATA ON PRIME WETLAND LOCATIONS WITHIN THE CITY OF PORTSMOUTH. A FORMAL ON-SITE WETLAND DELINEATION WAS NOT COMPLETED.
2. WETLAND BUFFER LOCATIONS HAVE BEEN ESTIMATED AND BASED UPON THE CITY OF PORTSMOUTH REGULATIONS REQUIRING 100 FOOT WIDE BUFFERS.
3. THIS WETLAND VISUAL INSPECTION WAS CONDUCTED ON JUNE 7, 2016 BY McFARLAND JOHNSON.

LEGEND
- WETLAND
- PRIME WETLAND
- 100' WETLAND BUFFER
- SWALE

ALTERNATIVE 3 - SIDEWALK ON NORTH SIDE AND BIKE LANES

McFarland Johnson

PEVERLY HILL ROAD
SIDEWALK IMPROVEMENT / COMPLETE STREET PROJECT
PORTSMOUTH, NEW HAMPSHIRE

DATA SOURCE:

EXISTING CONDITIONS DATA OBTAINED FROM THE CITY OF PORTSMOUTH GIS LAYERS AND AERIAL IMAGERY.

WETLAND NOTES:

1. WETLAND LOCATIONS WERE DETERMINED BY VISUAL INSPECTION FROM THE PEVERLY HILL ROAD RIGHT-OF-WAY AND REVIEW OF PUBLISHED DATA ON PRIME WETLAND LOCATIONS WITHIN THE CITY OF PORTSMOUTH. A FORMAL ON-SITE WETLAND DELINEATION WAS NOT COMPLETED.
2. WETLAND BUFFER LOCATIONS HAVE BEEN ESTIMATED AND BASED UPON THE CITY OF PORTSMOUTH REGULATIONS REQUIRING 100 FOOT WIDE BUFFERS.
3. THIS WETLAND VISUAL INSPECTION WAS CONDUCTED ON JUNE 7, 2016 BY McFARLAND JOHNSON.

LEGEND
- WETLAND
- PRIME WETLAND
- 100' WETLAND BUFFER
- SWALE

ALTERNATIVE 2 - SHARED USE SIDE PATH ON SOUTH SIDE AND SIDEWALK ON NORTH SIDE

McFarland Johnson

PEVERLY HILL ROAD
SIDEWALK IMPROVEMENT / COMPLETE STREET PROJECT
PORTSMOUTH, NEW HAMPSHIRE

DATA SOURCE:

EXISTING CONDITIONS DATA OBTAINED FROM THE CITY OF PORTSMOUTH GIS LAYERS AND AERIAL IMAGERY.

WETLAND NOTES:

1. WETLAND LOCATIONS WERE DETERMINED BY VISUAL INSPECTION FROM THE PEVERLY HILL ROAD RIGHT-OF-WAY AND REVIEW OF PUBLISHED DATA ON PRIME WETLAND LOCATIONS WITHIN THE CITY OF PORTSMOUTH. A FORMAL ON-SITE WETLAND DELINEATION WAS NOT COMPLETED.
2. WETLAND BUFFER LOCATIONS HAVE BEEN ESTIMATED AND BASED UPON THE CITY OF PORTSMOUTH REGULATIONS REQUIRING 100 FOOT WIDE BUFFERS.
3. THIS WETLAND VISUAL INSPECTION WAS CONDUCTED ON JUNE 7, 2016 BY McFARLAND JOHNSON.

LEGEND
- WETLAND
- PRIME WETLAND
- 100' WETLAND BUFFER
- SWALE

ALTERNATIVE 1 - SHARED USE SIDE PATH ON SOUTH SIDE

McFarland Johnson

PEVERLY HILL ROAD
SIDEWALK IMPROVEMENT / COMPLETE STREET PROJECT
PORTSMOUTH, NEW HAMPSHIRE

APPENDIX D

Cost Estimates

PEVERLY HILL ROAD - PORTSMOUTH
STATE PROJECT 40802
ALTERNATIVE 1 - CONCEPTUAL ESTIMATE
July 27, 2016

McFarland-Johnson, Inc.
Concord, NH

EARTHWORK, PAVEMENT & BASE COURSE ITEMS:

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
203.1	Common Excavation	CY	16,290	$15.00	$244,347
203.2	Rock Excavation	CY	814	$12.00	$9,774
304.1	Sand	CY	3,832	$15.00	$57,483
304.2	Gravel	CY	3,832	$30.00	$114,967
304.3	Crushed Gravel	CY	6,140	$30.00	$184,210
403.11	Hot Bituminous Pavement, Machine Method	Ton	5,406	$90.00	$486,568
417.	Cold Planing Bituminous Surfaces	SY	0	$5.00	$0
603.00218	18" RCP Pipe, 2000D	LF	5,405	$75.00	$405,375
604.0007	Polyethylene Liners	EA	30	$180.00	$5,400
604.12	Catch Basins, Type B	U	30	$2,100.00	$63,000
608.12	2" Bituminous Sidewalk	SY		$20.00	$0
608.24	4" Concrete Sidewalk	SY	6,475	$45.00	$291,393
609.01	Straight Granite Curb	LF	9,972	$25.00	$249,300
609.216	Straight Granite Slope Curb 6" High	LF	0	$27.00	$0
614.511	Concrete Pullbox, 14"	EA	0	$350.00	$0
614.73118	3" PVC Conduit, Schedule 80	LF	0	$28.00	$0
641.	Loam	CY	407	$30.00	$12,200
643.21	Fertilizer for Refertilization	LB	659	$1.00	$659
644.82	Salt Tolerant Grass Seed Type 82	LB	14	$51.00	$694
646.31	Turf Establishment with Mulch and Tackifiers	SY	556	$1.00	$556
N/A	Ornamental Lighting w/base and foundation	EA	0	$4,500.00	$0

MAJOR ITEM SUB-TOTAL COST $2,125,925

Costs Estimated by Contract Percentages**:	Contract %	Estimate
TRAFFIC CONTROL	10.00%	$212,592
OTHER ITEMS AND CONTINGENCIES	30.00%	$637,777
HIGHWAY SUB-TOTAL COST		$2,976,294
MOBILIZATION	8.00%	$238,104
SUB-TOTAL COST		$3,214,398
CONSTRUCTION ENGINEERING		$250,000
OVERALL TOTAL COST		$3,464,398
	Use	***$3,470,000***

PEVERLY HILL ROAD - PORTSMOUTH
STATE PROJECT 40802
ALTERNATIVE 2 - CONCEPTUAL ESTIMATE
July 27, 2016

McFarland-Johnson, Inc.
Concord, NH

EARTHWORK, PAVEMENT & BASE COURSE ITEMS:

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
203.1	Common Excavation	CY	17,187	$15.00	$257,812
203.2	Rock Excavation	CY	859	$12.00	$10,312
304.1	Sand	CY	3,921	$15.00	$58,810
304.2	Gravel	CY	3,921	$30.00	$117,620
304.3	Crushed Gravel	CY	6,651	$30.00	$199,521
403.11	Hot Bituminous Pavement, Machine Method	Ton	5,531	$90.00	$497,797
417.	Cold Planing Bituminous Surfaces	SY	0	$5.00	$0
603.00218	18" RCP Pipe, 2000D	LF	5,409	$75.00	$405,675
604.0007	Polyethylene Liners	EA	30	$180.00	$5,400
604.12	Catch Basins, Type B	U	30	$2,100.00	$63,000
608.12	2" Bituminous Sidewalk	SY		$20.00	$0
608.24	4" Concrete Sidewalk	SY	8,190	$45.00	$368,553
609.01	Straight Granite Curb	LF	10,028	$25.00	$250,700
609.216	Straight Granite Slope Curb 6" High	LF	0	$27.00	$0
614.511	Concrete Pullbox, 14"	EA	0	$350.00	$0
614.73118	3" PVC Conduit, Schedule 80	LF	0	$28.00	$0
641.	Loam	CY	366	$30.00	$10,969
643.21	Fertilizer for Refertilization	LB	592	$1.00	$592
644.82	Salt Tolerant Grass Seed Type 82	LB	12	$51.00	$624
646.31	Turf Establishment with Mulch and Tackifiers	SY	556	$1.00	$556
N/A	Ornamental Lighting w/base and foundation	EA	0	$4,500.00	$0

MAJOR ITEM SUB-TOTAL COST $2,247,941

Costs Estimated by Contract Percentages**:	Contract %	Estimate
TRAFFIC CONTROL	10.00%	$224,794
OTHER ITEMS AND CONTINGENCIES	30.00%	$674,382
HIGHWAY SUB-TOTAL COST		$3,147,117
MOBILIZATION	8.00%	$251,769
SUB-TOTAL COST		$3,398,887
CONSTRUCTION ENGINEERING		$250,000
OVERALL TOTAL COST		$3,648,887
	Use	***$3,650,000***

PEVERLY HILL ROAD - PORTSMOUTH
STATE PROJECT 40802
ALTERNATIVE 3 - CONCEPTUAL ESTIMATE
July 27, 2016

McFarland-Johnson, Inc.
Concord, NH

EARTHWORK, PAVEMENT & BASE COURSE ITEMS:

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
203.1	Common Excavation	CY	17,915	$15.00	$268,727
203.2	Rock Excavation	CY	896	$12.00	$10,749
304.1	Sand	CY	2,370	$15.00	$35,551
304.2	Gravel	CY	2,370	$30.00	$71,101
304.3	Crushed Gravel	CY	3,277	$30.00	$98,300
403.11	Hot Bituminous Pavement, Machine Method	Ton	6,507	$90.00	$585,635
417.	Cold Planing Bituminous Surfaces	SY	0	$5.00	$0
603.00218	18" RCP Pipe, 2000D	LF	5,481	$75.00	$411,075
604.0007	Polyethylene Liners	EA	30	$180.00	$5,400
604.12	Catch Basins, Type B	U	30	$2,000.00	$60,000
608.12	2" Bituminous Sidewalk	SY	0	$20.00	$0
608.24	4" Concrete Sidewalk	SY	2,720	$45.00	$122,395
609.01	Straight Granite Curb	LF	10,254	$25.00	$256,350
609.216	Straight Granite Slope Curb 6" High	LF	0	$27.00	$0
614.511	Concrete Pullbox, 14"	EA	10	$350.00	$3,500
614.73118	3" PVC Conduit, Schedule 80	LF	264	$28.00	$7,401
641.	Loam	CY	428	$30.00	$12,845
643.21	Fertilizer for Refertilization	LB	9	$1.00	$9
644.82	Salt Tolerant Grass Seed Type 82	LB	556	$51.00	$28,333
646.31	Turf Establishment with Mulch and Tackifiers	SY	10	$1.00	$10
N/A	Ornamental Lighting w/base and foundation	EA	0	$4,500.00	$0

MAJOR ITEM SUB-TOTAL COST $1,977,382

Costs Estimated by Contract Percentages**:	Contract %	Estimate
TRAFFIC CONTROL	10.00%	$197,738
OTHER ITEMS AND CONTINGENCIES	30.00%	$593,214
HIGHWAY SUB-TOTAL COST		$2,768,334
MOBILIZATION	8.00%	$221,467
SUB-TOTAL COST		$2,989,801
CONSTRUCTION ENGINEERING		$250,000
OVERALL TOTAL COST		$3,239,801
	Use	***$3,240,000***