

DANBURY & NEW FAIRFIELD ROUTE 37



CORRIDOR STUDY

RECOMMENDATIONS AND IMPLEMENTATION REPORT JUNE 2021



CITY OF DANBURY
TOWN OF NEW FAIRFIELD



DANBURY AND NEW FAIRFIELD CORRIDOR STUDY

Recommendations and Implementation Report

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1 BACKGROUND AND PURPOSE

What is the Purpose of the Study?

The purpose of the Danbury and New Fairfield Corridor Study (Study) is to develop a conceptual plan for current and long-range intermodal travel, economic development, and sustained quality-of-life along Route 37 in the municipalities of Danbury and New Fairfield, Connecticut. Based on public and stakeholder input, data analysis, and recently completed plans, the Study identifies conceptual design options for future transportation project within the corridor.

The major objectives of the Study are to develop solutions to alleviate traffic congestion, improve pedestrian mobility and safety, and promote healthy and environmentally friendly modes of transportation. Specifically, the objectives are to:

- Reduce congestion during peak hours,
- Improve safety at problem intersections,
- Create safe bicycle connections,
- Create safe pedestrian connections, and
- Assess the feasibility of a multi-use trail between Saw Mill Road and Bear Mountain Reservation.

The Study incorporates Complete Streets policies wherever feasible. It emphasizes enhancing the safety, capacity, and multimodal options along Route 37, while factoring in smart growth planning, more livable, economically sustainable communities, and Complete Streets.

In addition, the Study:

- Establishes a vision, goals, and objectives for the corridor – both locally and regionally,
- Evaluates current transportation and land use conditions, future conditions and investigate opportunities for improvements,
- Develops recommendations and priorities for transportation and land use that are aimed at achieving the corridor vision. These can create and test alternatives scenarios and establish a preferred scenario, and
- Provides a corridor improvement and implementation plan, including cost estimates, prioritized initiatives, and champions to advance them.

Who is Responsible for the Study?

The development of the Study is sponsored by the Connecticut Department of Transportation (CTDOT) and is being administered by the Western Connecticut Council of Governments (WestCOG) in partnership with the City of Danbury and Town of New Fairfield.

What are the Phases of the Study?

The Study has four phases:

- Phase 1: Existing Conditions
- Phase 2: Vision, Goals, and Objectives
- Phase 3: Recommendations
- Phase 4: Implementation

This report documents the efforts of Phase 3 and 4 of the Study: Recommendations and Implementation. The *Existing Conditions Technical Memorandum* includes information related to existing conditions in the Study area.

Who Provided Input into the Study?

Throughout the Study process, several community engagement and stakeholder outreach methods were utilized to ensure that the Study was well informed by a variety of stakeholders in the corridor.

A Technical Advisory Committee (TAC), consisting of representatives from Danbury and New Fairfield municipal staff, CTDOT, HARTransit, and WestCOG, provided input to the Study.

The role of the TAC was to:

- Offer information and expertise on corridor conditions and issues,
- Provide a broad range of perspectives,
- Brainstorm with the Study team on solutions,
- Review and comment on corridor recommendations,
- Help raise awareness of the Study efforts to support public events, and
- Help establish a consensus with the community.

In addition to the TAC, technical input from stakeholders and professionals such as fire, police, ambulance, maintenance, and school transportation providers was solicited to help clarify issues that might not be apparent through data or field visits. Three stakeholder meetings were conducted as part of Phase I of the Study. Topics of the meetings were as

follows: Trails and Open Space Resources, Planning and Economic Development, and Local Businesses.

Several other public input venues and events to support the plan development included:

- A project webpage hosted on the WestCOG website: <https://westcog.org/transportation/studies/dnfcs/>
Study information was posted and updated periodically;
- Small group stakeholder interviews;
- Two public workshops that included a review of existing conditions, a presentation of potential recommendations and improvements, and break-out working sessions; and
- A public presentation at a public meeting to present the draft Study recommendations and receive comments on its content.

Study Area

The Study area corridor spans approximately 4.5 miles and connects New Fairfield from Route 39 to Interstate 84 (I-84) and points south in Danbury. Route 37 is a north/south link that serves local and regional mobility needs. **Figure 1** displays the Study area.

Figure 1: Study Area



The Study effort focuses on Route 37 between the I-84 westbound Exit 6 off-ramp in Danbury to 0.2 mile north of Route 39 in New Fairfield. Based on the varied nature of the Route 37 Corridor, the roadway has been delineated into three sections:

The southernmost section of the corridor runs between Jeanette Street and the I-84 westbound off ramp at its terminus. This segment contains mostly large-scale commercial development such as the ShopRite plaza and the North Street Shopping Center.

The middle portion of the corridor, between Bear Mountain Road and Jeanette Street is home to a mix of small-scale commercial, single-family, and multi-family housing. This section is zoned as residential and multi-family. This segment of the corridor is home to the Pembroke Elementary School, Bear Mountain Reservation, and Danbury Federal Corrections Institute.

The northern section of the corridor, between New Fairfield Center (0.2 miles north of Route 39 near the New Fairfield Senior Center) and Bear Mountain Road is largely rural, with large swaths of wooded areas and agricultural uses. This segment is primarily residential in makeup and features mostly single-family homes, but its terminus ends near New Fairfield Center, which features both commercial and civic uses typically found in town centers.

Planning Context

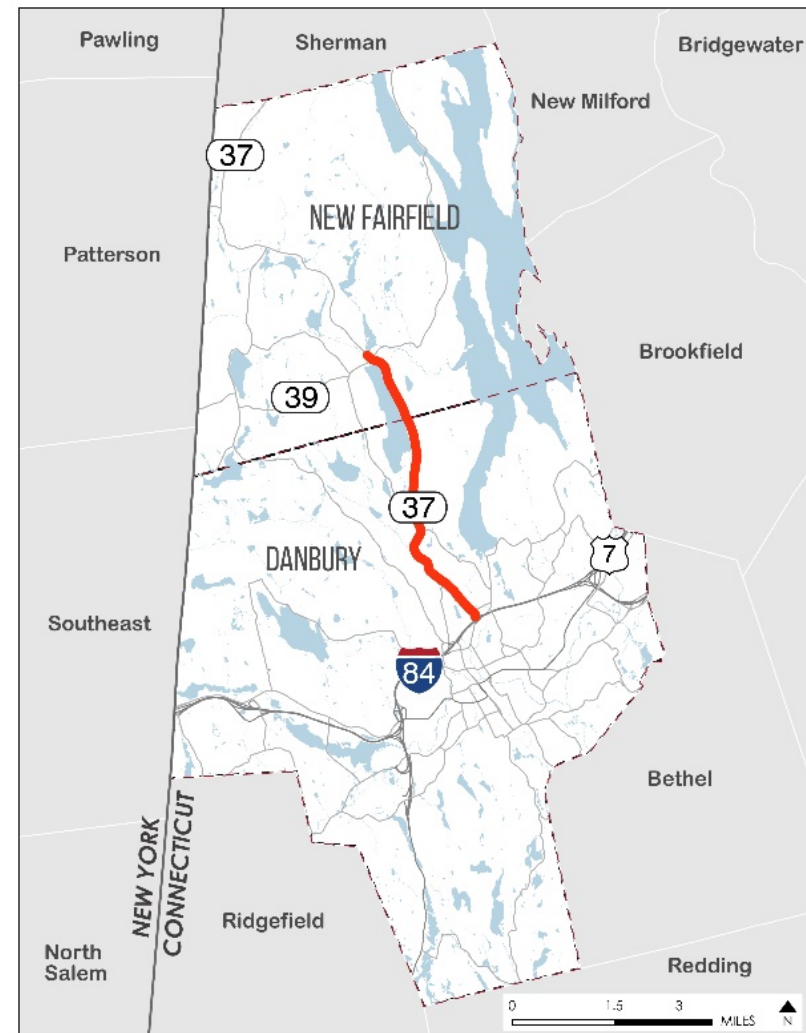
WestCOG initiated the Study to take both a local and regional look at the future of the corridor with respect to the transportation network.

Regional Access

The Route 37 corridor is a state highway which begins at the intersection of the I-84 westbound interchange at Exit 6 and North Street in Danbury. It connects Route 53, I-84 and other points south, to northern locations and eventually Route 7. Route 37 travels northward, connecting the Towns of New Fairfield, Sherman, and New Milford with points south such as Danbury and I-84. At its terminus in New Milford, Route 37 intersects US Route 7, linking points north and south within the region. **Figure 2** displays Route 37's connection to the regional road network.

Connections between I-84 and points north are an important consideration in this study area. More specifically, I-84 Exit 6 only maintains direct connection to Route 37 for traffic exiting I-84 in the westbound direction and entering I-84 in the eastbound direction. Other movements must be completed at Exit 5 to the west on Route 39 (Main Street). For traffic originating from Route 37 to the north, Golden Hill Road makes the most direct connection between Route 37 and I-84 Exit 5. Due to this connection, higher traffic volumes between Route 37 and Golden Hill Road are seen at this intersection compared to other cross streets on Route 37 in the study area. This traffic pattern is a key consideration in the Route 37 study area.

Figure 2: Regional Access



2 RECOMMENDATIONS

Recommendations for the Study are divided into two sections. The first section details recommendations for improvements to the existing transportation infrastructure on Route 37 within the Study area. These recommendations include improvements which would enhance vehicular, transit, pedestrian, and bicyclist mobility and safety on the roadway.

The second section details recommendations for a multi-use path between Bear Mountain Road and New Fairfield Center along the eastern bank of the Margerie Lake Reservoir. The section details three separate alternatives reviewed for a multi-use path within this area along with final recommendations for the alignment of the path.

2.1 Transportation Recommendations

Transportation improvements for the Route 37 corridor are based on findings of the *Existing Conditions Technical Memorandum* for the Study. Recommendations are based on two primary goals: 1) to enhance safety for all users, and 2) to enhance mobility for all users.

Safety conditions were established using crash data between 2017 and 2019. The crash analysis uncovered the following:

- Most crashes were located on Route 37 between Padanaram Road and the I-84 westbound off-ramp.
- Crash hot spots included:
 - Route 37 at Route 39
 - Route 37 at Peck Road

- Route 37 at Barnum Road
- Route 37 at Stacey Road
- Route 37 between Padanaram Road and Jeanette Street
- Route 37 at and near Jeanette Street
- Route 37 at and near Golden Hill Road
- Route 37 at and near ShopRite Driveway
- Route 37 at and near Hayestown Avenue

Mobility was evaluated for all users in this corridor including motorists, transit, pedestrian, and bicyclists. The *Existing Conditions Technical Memorandum* found several shortcomings to mobility of users, including:

- Motorist mobility is limited at:
 - Route 37 at Saw Mill Road – Increased side street delay due to high minor street volumes and high mainline traffic volumes
 - Route 37 at Peck Road and Kevin Drive – Increased side street delay due to mainline traffic volumes
 - Route 37 at Padanaram Road - Increased side street delay in AM due to mainline traffic volumes
 - Route 37 at Jeanette Street – Increased vehicular delay due to intersection traffic demand
 - Route 37 at Golden Hill Road – Increased vehicular delay due to intersection traffic demand

In addition, the recommendations presented herein consider recent and on-going improvements to the Study area. This report considers these improvements to ensure consistency and compatibility of the network (e.g. sidewalk planned on east versus west sides of road). Generally, areas of recent and on-going improvements are not recommended for further improvement if there are limited deficiencies found. These areas include:

- Route 37 including the intersections of Stacey Road and Barnum Road
 - This project is on-going with completion anticipated in 2021. The project includes realignment of the Stacey and Barnum Road intersections, installs a traffic signal at Stacey Road and a sidewalk on the west side of Route 37.
- Route 37 between I-84 eastbound on-ramp and the ShopRite Driveway
 - These improvements were completed in 2017. They included additional travel lanes and new traffic signal equipment to handle traffic more efficiently. The work also included pedestrian accommodations via sidewalks and crosswalks and pedestrian signals at all intersections.

Based on the evaluation of existing conditions, the following improvement focus areas were identified:

- Route 37 at Route 39
- Route 37 at Saw Mill Road
- Route 37 at Peck Road
- Route 37 at Padanaram Road
- Route 37 between Padanaram Road and Jeanette Street
- Route 37 between Jeanette Street and Golden Hill Road
- Route 37 near 23 Padanaram Road (Subway)
- Route 37 north of ShopRite Driveway

Route 37 at Route 39

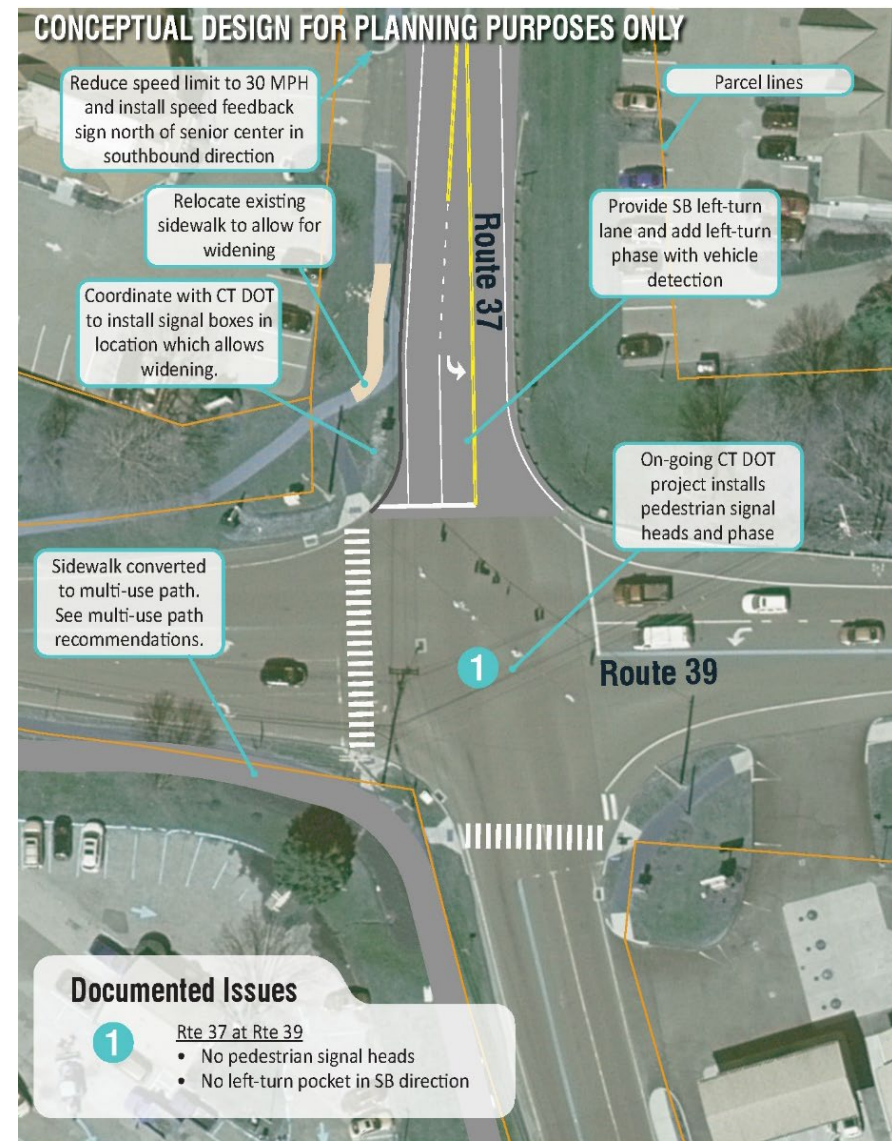
The intersection of Route 37 at Route 39 defines the center of New Fairfield. Traffic volumes are similar for all approaches, making this the busiest intersection in the northern portion of the Study area. This busy intersection is in the middle of several civic destinations including New Fairfield Town Hall, New Fairfield Public Library, and the New Fairfield Senior Center. Many commercial destinations including a Stop & Shop grocery store and other restaurant and retail destinations are located at this busy location. **Figure 3** displays the conceptual design of the intersection of Route 37 and Route 39.

The CTDOT has planned a project at this intersection that will replace the existing signal equipment. Span wires will be replaced with four steel mast arms and pedestrian signal heads that will include an exclusive pedestrian phase will be included at the intersection.

Recommendations in this location include the planned CTDOT signalization work, but also call for the reduction of the posted speed limit to 30 miles per hour (mph). This will match the posted speed limit on Route 39 in this area. Additional recommendations include the installation of a speed feedback sign in the southbound direction of Route 37 north of the Senior Center, and the installation of a southbound left-turn lane on Route 37 with an added left-turn phase for this movement. This modification would prevent through traffic from being delayed behind left-turning vehicles waiting for a gap in on-coming traffic.

Finally, the proposed recommendations show the existing sidewalk in the southwest quadrant being upgraded to a multi-use path. This would connect the New Fairfield Town Hall area with the proposed multi-use path. This is discussed further in the following sections.

Figure 3: Route 37 at Route 39



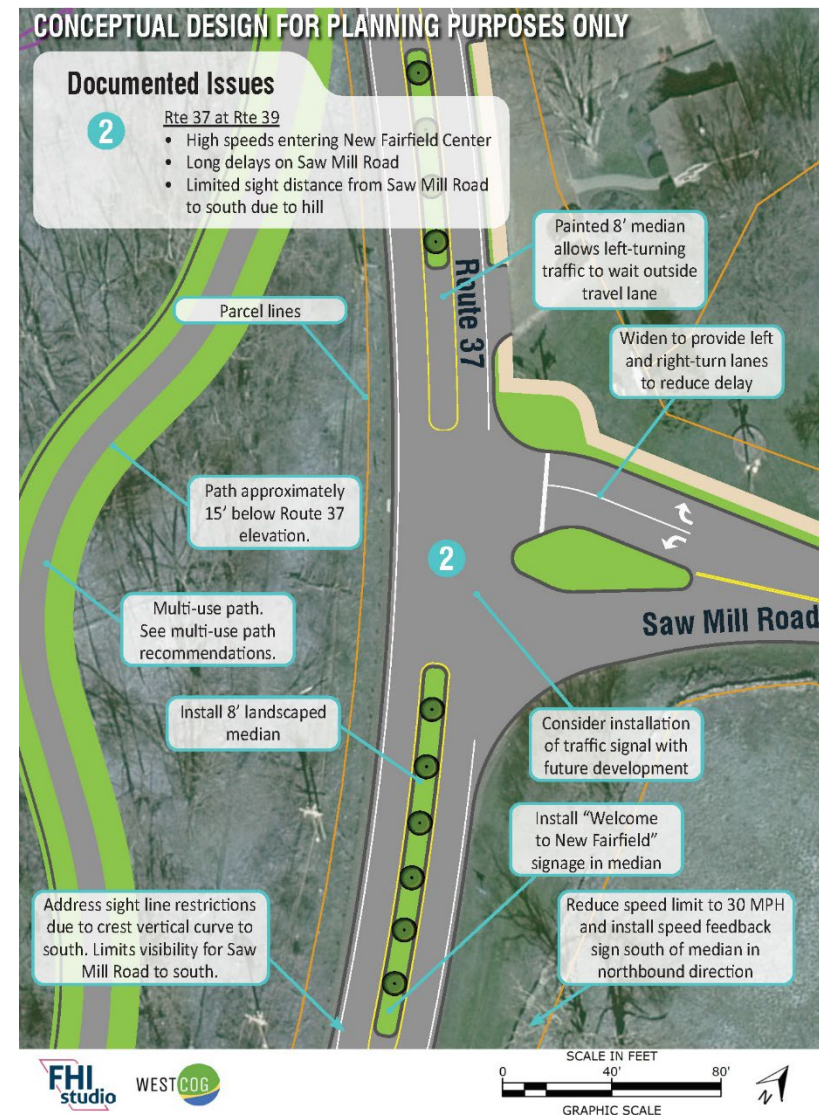
Route 37 at Saw Mill Road

The intersection of Route 37 at Saw Mill Road was identified in the public engagement process as an intersection of concern because of difficulty making turning movements from Saw Mill Road. Traffic analysis revealed that this approach operates at level-of-service (LOS) F during the Saturday peak hour, and a hill to the south limits sight distance for vehicles making this maneuver. Additionally, concern for high traffic speeds entering New Fairfield Center on Route 37 northbound were also identified.

Recommendations for this intersection include widening the Saw Mill Road approach to allow for dedicated left and right-turn lanes to be striped, installing a 8-foot landscaped median that would serve as a gateway to New Fairfield Center; reducing the posted speed limit to 30 mph, and installing a speed feedback sign. Additionally, the team recommends that sight lines from Saw Mill Road be improved.

A traffic signal warrant analysis was also conducted for this intersection. Meeting a signal warrant is a necessary condition prior to the installation of a traffic signal, however, it does not mean that a signal is required to be installed. The warrant analysis conducted shows that this intersection likely meets the requirements based on traffic volumes (eight-hour, four-hour, and peak-hour volumes). While these conditions are likely met, a traffic signal is not proposed for this location at this time because of geometric considerations and cost. However, proponents of future development in this area which increases traffic demand should review the applicability of a traffic signal at that time. Crosswalks to connect Saw Mill Road to the proposed multi-use path should be considered with signalization in the future. A crosswalk is not proposed without signalization due to high traffic volume, speeds, and geometry. **Figure 4** displays the conceptual design for Route 37 at Saw Mill Road.

Figure 4: Route 37 at Saw Mill Road



Route 37 at Peck Road

The intersection of Route 37 at Peck Road is in a somewhat rural location of the corridor. Approximately 16 crashes occurred at the intersection or in its vicinity in the three-years of evaluated crash data. This area of Route 37 is commonly characterized by fast, free-flowing traffic.

Crash data indicated several angle crashes at the intersection of Peck Road, and several front-to-rear crashes in the vicinity of the intersection. Angle crashes typically occur between traffic entering the mainline from a side street, while front-to-rear crashes typically occur because of unexpected, stopped or slowing traffic on a mainline. Review of site conditions found that sight distance for vehicles on the Peck Road approach is limited in the southbound direction because of vegetation and a small topographical rise. Visibility on the Kevin Drive approach to the northbound direction was also found to be limited because of overgrown vegetation to the north. Additionally, the mainline does not include shoulders that are adequate for traffic to by-pass stopped traffic waiting to make a left turn.

The recommendations for this intersection include: 1) realignment of Peck Road within existing right-of-way, 2) reducing the width of all gas station driveways and removing the southern driveway from the intersection of Route 37 and Peck Road, 3) clearance of vegetation and elevation on the southwest quadrant, 4) clearance of vegetation north of Kevin Drive, and 5) widening of Route 37 in the vicinity of this intersection to include eight-foot shoulders to allow through traffic to by-pass turning traffic. A sidewalk on the west side is included to meet Study area goals for pedestrian connectivity along the extent of Route 37. **Figure 5** displays the conceptual design for Route 37 at Peck Road.

Figure 5: Route 37 at Peck Road



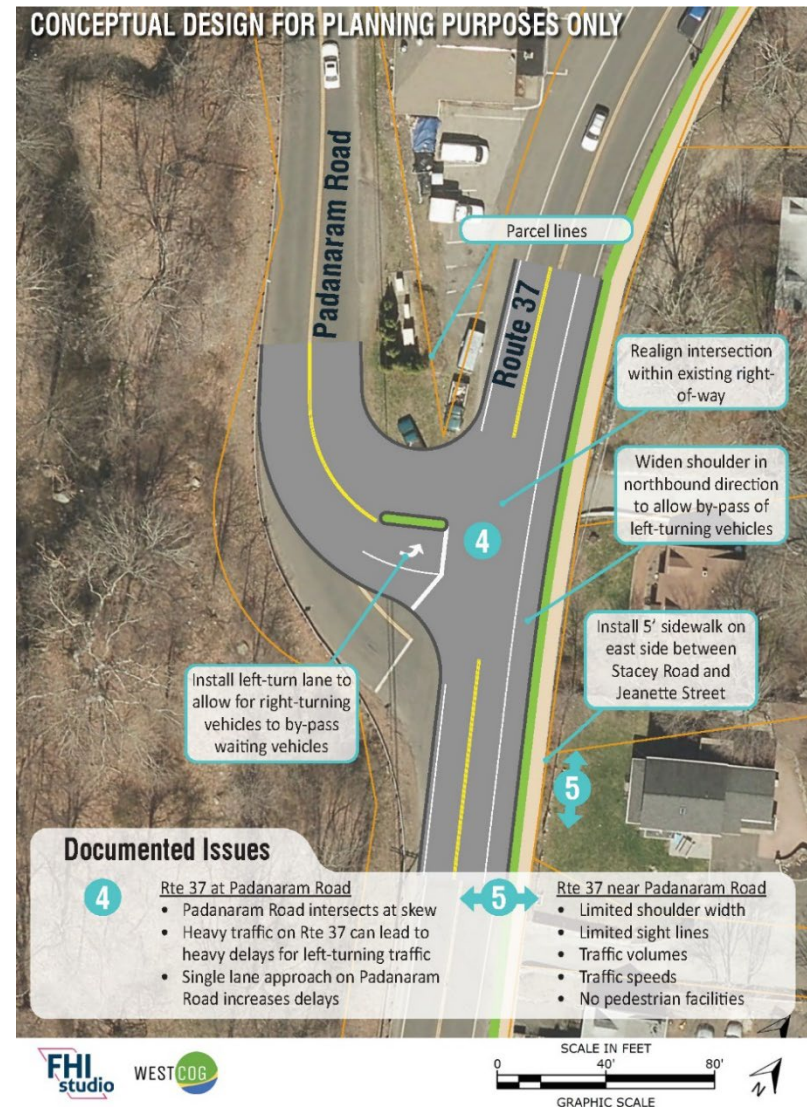
Route 37 at Padanaram Road

This intersection was identified through traffic analysis which shows increased delay for users approaching the intersection via Padanaram Road. This is because of high volumes on both Route 37 and Padanaram Road. This intersection is in a rural location of the corridor, characterized by fast, free-flowing traffic. The intersection is between the signal at Route 37 and Jeanette Street, approximately ½ mile to the south, and the signal at Route 37 and Stacey Road, approximately ¼ mile to the north.

The intersection is defined by a very high angle of entry for Padanaram Road. The configuration of Padanaram Road is such that there is not enough space for right-turning vehicles to by-pass left-turning vehicles waiting for a gap in traffic. Additionally, northbound through traffic must wait for left-turning traffic to Padanaram Road. The recommendations propose to address these issues in three ways: 1) realign the intersection to reduce the angle between Padanaram Road and Route 37, 2) provide a left-turn lane on Padanaram Road to allow for right-turning vehicles to by-pass vehicles waiting to make this movement, and 3) widen the shoulder in the northbound direction to allow for through traffic to by-pass left-turning traffic towards Padanaram Road.

Finally, the recommendations include a 5-foot sidewalk which would be constructed on the east side of Route 37 between Jeanette Street and Stacey Road. Constraints on Route 37 to the south result in challenges for construction of a sidewalk on the west side of Route 37. Since an uncontrolled crosswalk on Route 37 here would be unacceptable because of safety reasons due to restricted sightlines and the speed and volume of traffic, this sidewalk is proposed to extend to Stacey Road, where a safe crossing may be made at the signal. **Figure 6** displays the conceptual design of Route 37 at Padanaram Road.

Figure 6: Route 37 at Padanaram Road



Route 37 at Jeanette Street

Route 37 at Jeanette Street represents the northern intersection of a dense commercial corridor in the Study area that spans from this intersection to I-84 approximately one mile to the south. This intersection is a section of a larger segment between Jeanette Street and Golden Hill Road that was identified as problematic because of consistent traffic congestion and crash history. Traffic level of service varies based on the time-of-day period analyzed at this intersection, but several approaches operate at LOS D in several time periods, including the Route 37 northbound approach in the morning peak hour.

Recommendations for physical improvements at this intersection include: 1) addition of marked crosswalks, 2) addition of pedestrian signal heads with a concurrent pedestrian phase with a leading pedestrian interval (LPI), and 3) addition of northbound and southbound left-turn pockets with vehicular detection and a leading turn phase provided. Additionally, the signal would be optimized and coordination with the signal at Golden Hill Road would be reevaluated. Coordination with the City of Danbury coordination system at I-84 Exit 6 was found to be impractical due to a pre-emption phase which clears exiting traffic from I-84 Exit 6 westbound. **Figure 7** displays a picture and **Figure 9** displays the conceptual design of Route 37 at Jeannette Street.

Route 37 between Jeanette Street and Golden Hill Road

Route 37 between Jeanette Street and Golden Hill Road was identified in the existing conditions memo as an area with numerous driveways and curb cuts. Between these two intersections there are approximately 20 driveways on both sides of Route 37 within this 1,500-foot segment of the

Study area. This is approximately one driveway every 75 feet. The lack of left-turn lanes and heavy traffic volumes in this segment (nearly 1,500 vehicles per hour in the afternoon peak hour) can lead to traffic delays because of left-turning traffic. This segment experienced many front-to-rear crashes in the three-year crash history evaluated (approximately 40), which is indicative of frequent and unexpected stopped traffic, likely caused in part because of the many driveways located in this segment.

Recommendations for this segment feature the addition of a two-way left-turn lane (TWLTL) between the intersections of Jeanette Street and Golden Hill Road. The TWLTL allows for left-turning traffic to exit the through lane to allow through movements to pass without delay. The TWLTL would serve movements in both directions. Research has shown that installation of a TWLTL on a two-lane road can reduce all crashes by approximately 25% and reduce front-to-rear crashes by approximately 50%¹. Lane and shoulder widths should be sized according to the CTDOT design guide. Five-foot bike lanes should be considered as an additional alternative to the recommendations presented here if constraints permit.

Pedestrian improvements are also a critical component of recommendations in this segment. Observations around Golden Hill Road showed that pedestrian traffic in this area was frequent, and often marked by pedestrian “goat paths” or areas of worn grass because of pedestrian traffic. Pedestrian recommendations include the addition of sidewalks between Jeanette Street and Golden Hill Road on both sides of Route 37. In addition to the installation of sidewalks, it is recommended that driveways be reconstructed so that driveway aprons are provided at-grade with the sidewalk level and are constructed in the same material as the sidewalks (e.g. concrete). This gives visual preference to pedestrians in

¹Research as published on <http://www.cmfclearinghouse.org/>

this corridor and requires that turning traffic to slow down when passing through the pedestrian realm. It is also recommended that driveways be narrowed where possible, including large driveways located at 39 Padanaram Road (e.g. M&MPrecast). These driveways would be narrowed but designed to accommodate the large vehicle movements required.

Route 37 at Golden Hill Road

Route 37 at Golden Hill Road was identified as the single intersection with the most traffic congestion issues throughout the corridor. Although this intersection operates at LOS C overall in the afternoon peak hour, the eastbound and southbound approaches operate at LOS D and northbound and southbound queues extend more than 600 feet. Observations confirmed the findings in the traffic model, and the three-year crash history evaluated as part of this project shows this location as a significant location of crashes, primarily front-to-rear crashes. While pedestrian activity was observed in this area on site visits, this location does not include any marked crosswalks or pedestrian signal heads.

Recommendations at this location include: 1) providing a southbound right-turn lane, 2) the addition of marked crosswalks, 3) addition of pedestrian signal heads with a concurrent pedestrian phase with a leading pedestrian interval (LPI), and 4) modifying signal phases as noted below. Additionally, the signal would be optimized and coordination with the signal at Jeanette Street would be reevaluated. Coordination with the City of Danbury coordination system at I-84 Exit 6 was found to be impractical due to a pre-emption phase which clears exiting traffic from I-84 Exit 6 westbound.

Signal phases would be modified such that Golden Hill Road westbound includes a left-turn phase in advance of an eastbound-westbound phase.

This will allow for the addition of a southbound right-turn arrow to be included which significantly alleviates much of the traffic at this intersection. **Figure 8** displays a picture and **Figure 10** displays the conceptual design of Route 37 at Golden Hill Road.

Additional evaluation of a second northbound through lane should be considered as an alternative to the recommendations provided at the direction of the City of Danbury.

Figure 7: Intersection at Jeannette Street



Figure 8: Intersection at Golden Hill Road



Figure 9: Route 37 at Jeanette Street

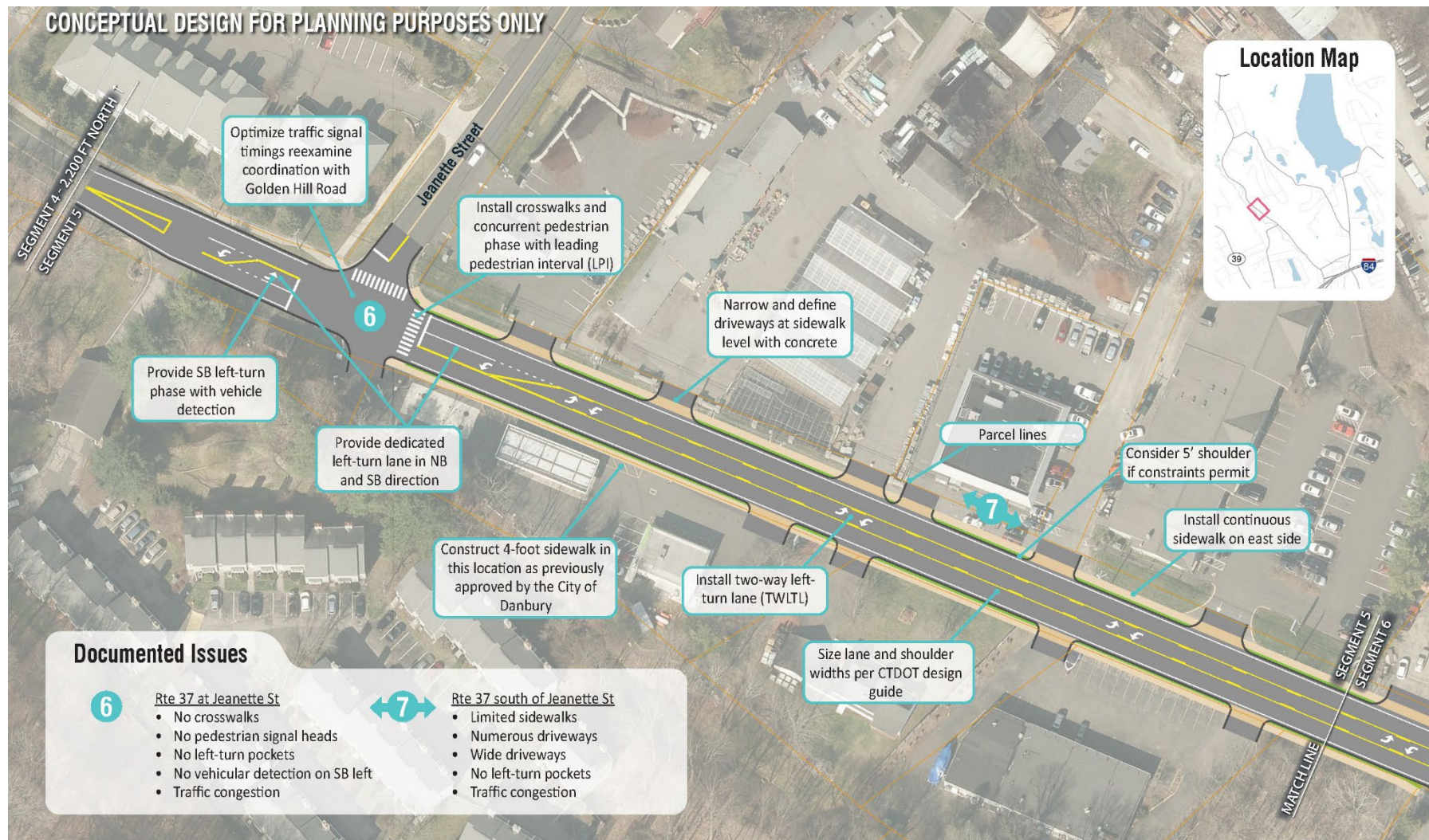
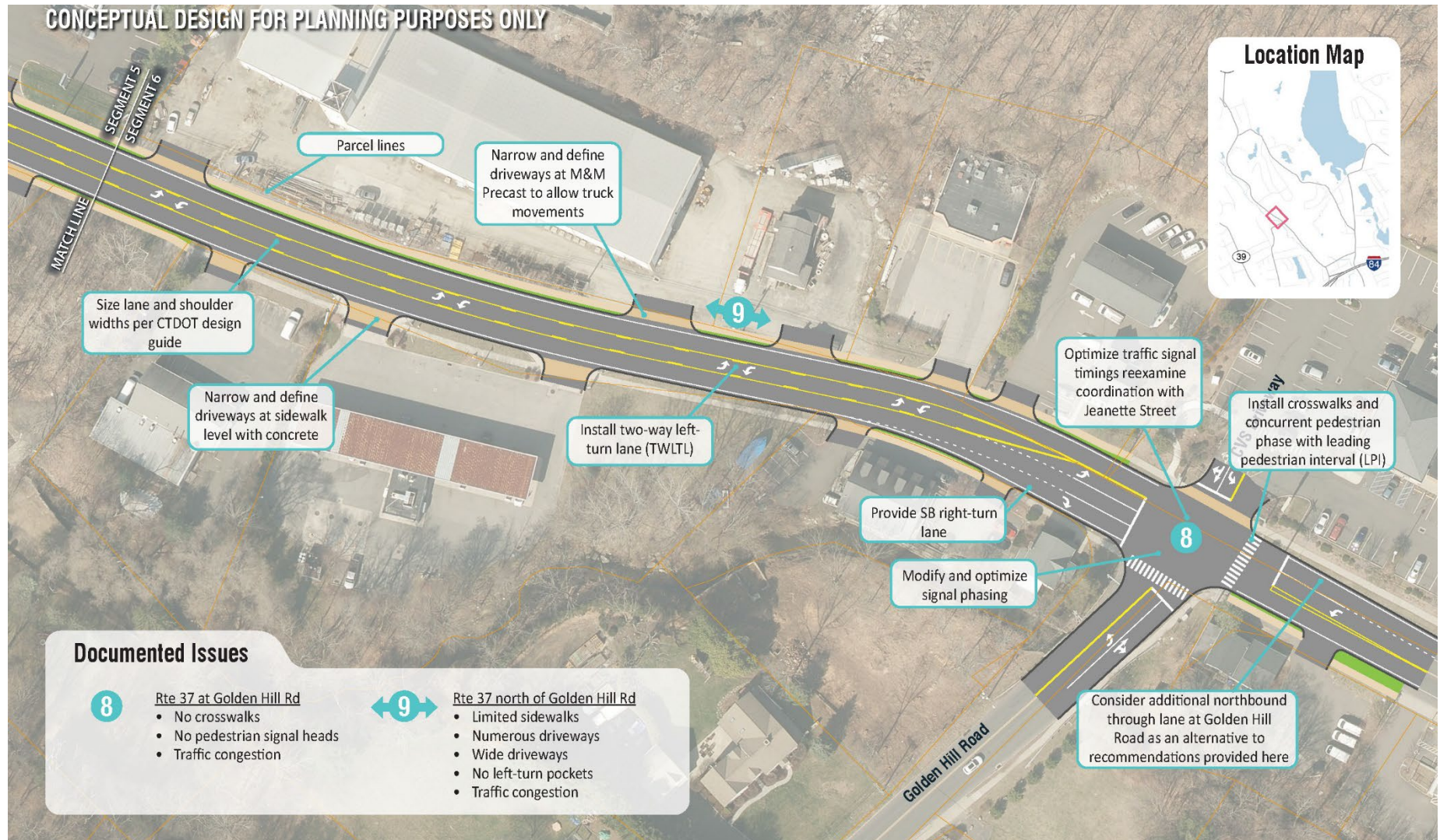


Figure 10 : Route 37 at Golden Hill Road



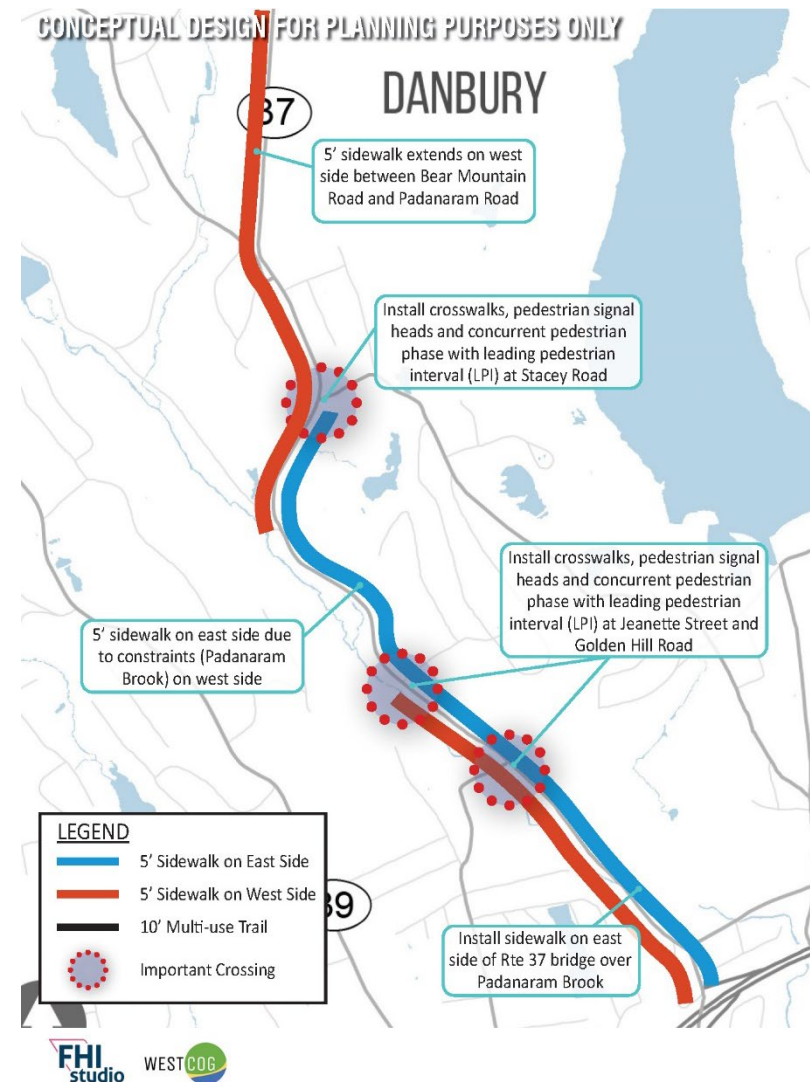
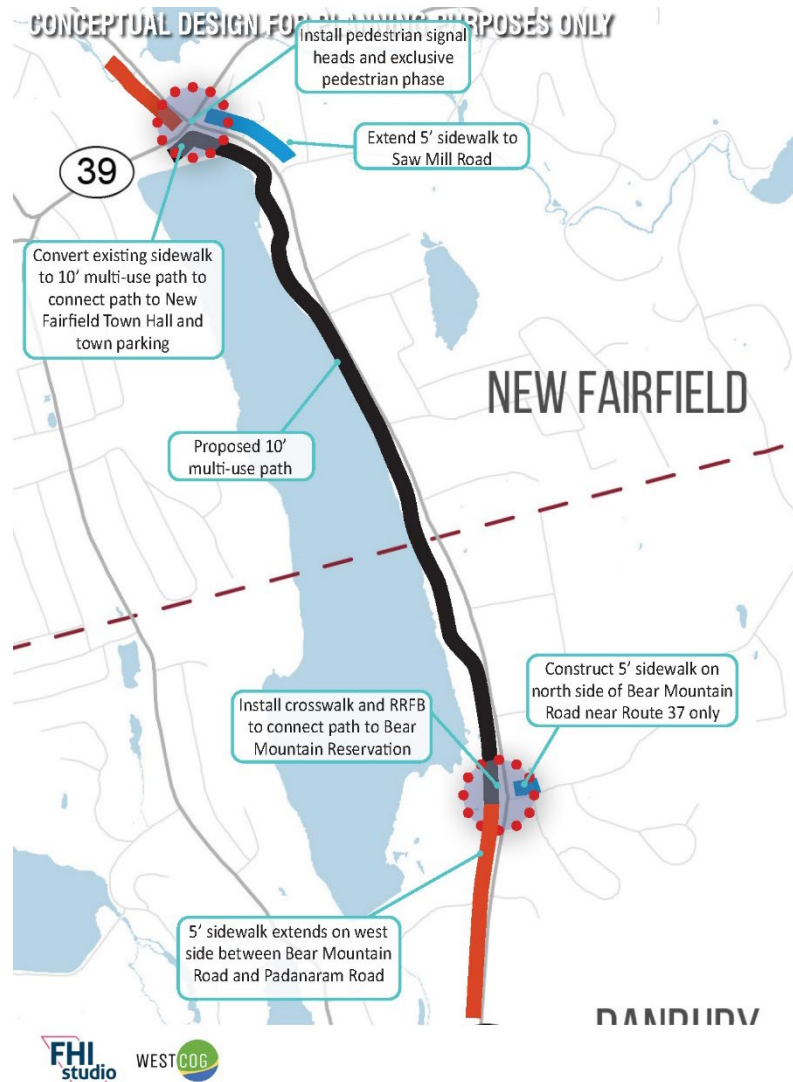
Pedestrian Recommendations

This Study recommends full pedestrian accommodations on Route 37 through the extent of the Study area between I-84 ramps to the south and New Fairfield Senior Center to the north. Pedestrians would be accommodated via a proposed 10-foot multi-use path between New Fairfield Center and Bear Mountain Road. These recommendations are noted in the following sections. South of Bear Mountain Road, pedestrians would be accommodated on the existing sidewalk networks on the west side of Route 37 until Stacey Road. At the Stacey Road intersection, the network would be upgraded with pedestrian features and crosswalks to connect to a sidewalk which continues south of Stacey Road on the east side of Route 37. This enhanced crossing is needed because a sidewalk on the west side of Route 37 between Padanaram Road and Jeanette Street may be cost-prohibitive because of steep slopes to Padanaram Brook. While pedestrian demand between Padanaram Road and Stacey Road does not necessitate sidewalks on both sides of Route 37, this pedestrian crossing is preferred at a signal because of restricted sightlines and traffic volumes and speeds on Route 37 at Padanaram Road.

South of Jeanette Street, sidewalks are proposed on both sides of Route 37. This is an area identified to have greater pedestrian activity than the rest of the corridor.

Figure 11 displays pedestrian recommendations in the corridor.

Figure 11: Pedestrian Recommendations



Bicyclist Recommendations

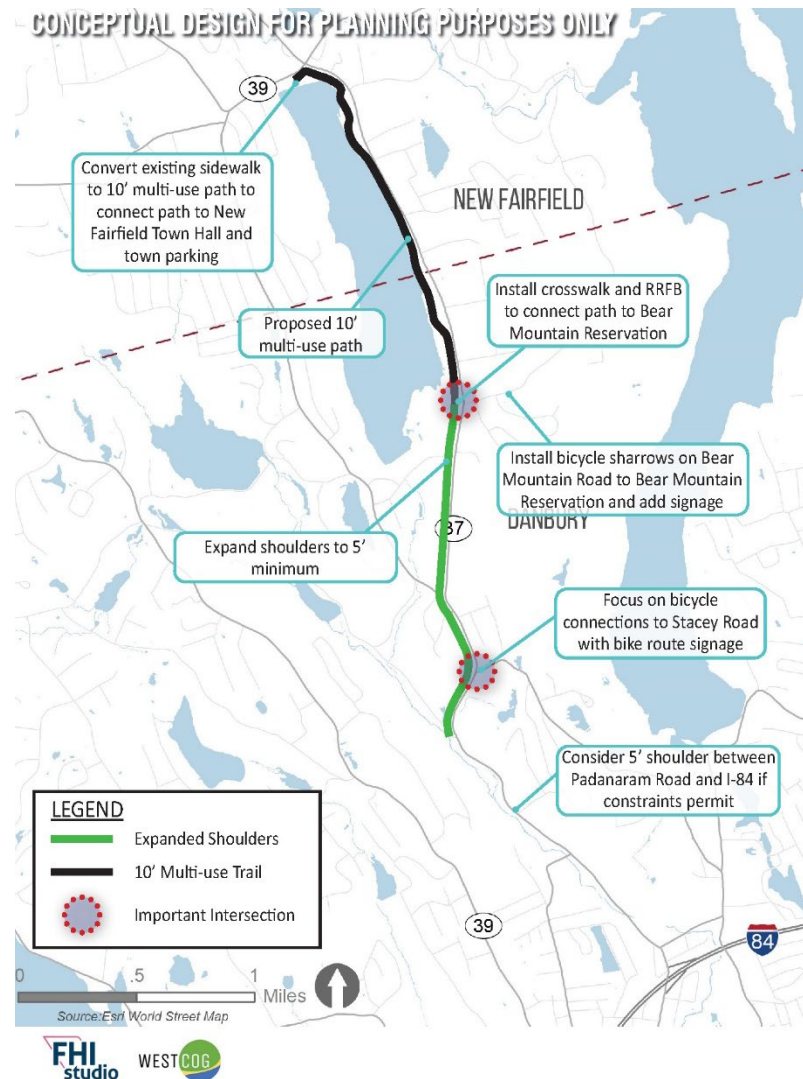
Existing bicyclist conditions and comfort in this corridor are limited. Throughout the extent of the Study area, there is limited shoulder width for bicyclists, and there are no dedicated bicyclist facilities.

Bicyclist recommendations in this area includes: 1) a multi-use path proposed between New Fairfield Center and Bear Mountain Road, and 2) expansion of Route 37 shoulder width to 5-feet (minimum) south to Padanaram Road. The multi-use path will be a bicyclist asset. Parking facilities on either end of the multi-use path are recommended. Users will likely bring their bicyclists via car to use this proposed path. In addition, bicyclist connections to the path are recommended.

The Study team evaluated existing bicyclist activity on Strava (a smartphone-based activity tracker used by many recreational cyclists).² This data revealed that most bicycling occurred north of Padanaram Road, with additional heavy riding on parallel routes such as Stacey Road and Barnum Road.

Given the expense of widening roadway shoulders, improvements would be limited to areas where bicycle demand is apparent, particularly a 5-foot (minimum) shoulder between Bear Mountain Road to Padanaram Road. Connections to Stacey Road would also be considered as these allow for additional bicyclist connections between the Study area and areas to the south via Stacey Road and to Candlewood Lake. **Figure 12** displays bicycling recommendations in the corridor. Continuation of the 5-foot bike lanes for the entire project area should be considered as an additional alternative to the recommendations presented here if constraints permit.

Figure 12: Bicycling Recommendations in the Corridor



²<https://www.strava.com/heatmap#13.82/-73.48042/41.44260/hot/ride>

Other Recommendations

In addition to the specific focus area recommendations noted in this memo, other recommendations include:

- Horizontal curve signage on Route 37 between Jeanette Street and Padanaram Road. Many single-vehicle crashes were observed in the three-year crash data analyzed. This curve signage should include curve warning signage as well as chevrons. An example of chevrons is displayed in **Figure 13**.
- Shoulder widening on Route 37 in the vicinity of 23 Padanaram Road (Subway, Sal's Pizza etc.). This will allow thru-vehicles to by-pass left-turning vehicles.
- For the 2-to-1 lane merge on Route 37 northbound north of the North Street Shopping Center (ShopRite), this taper would be lengthened to CTDOT standards.
 - Existing merge point is approximately 350-feet after North Street Shopping Center (ShopRite) northbound stop bar.
 - Recommended merge point should be approximately 545-feet after North Street Shopping Center (ShopRite) northbound stop bar based on CTDOT standards.
- Signal optimization for all traffic signals in the Study area.
- Further evaluation of additional Route 37 upgrades between North Street Shopping Center (ShopRite) and Jeanette Street as future traffic demands warrant.
- City of Danbury and CTDOT should further evaluate I-84 ramp operations and network configuration and impact on Route 37 and adjacent local roadways.

Figure 13: Horizontal Curve Signage



*Source: Texas Transportation Institute, Accessed from Federal Highway Administration;
https://safety.fhwa.dot.gov/roadway_dept/horcurves/fhwasa15084/ch4.cfm*

Property Impacts

To the extent possible, Study team recommendations are made with preference to avoid adjacent uses along the corridor such as parking, access, and buildings. Whenever feasible, recommendations within existing right-of-way are preferred. This reduces potential project costs as well as reduces potential project timelines for each of these recommendations. Right-of-way is estimated using GIS data provided by the City of Danbury, Town of New Fairfield, and WestCOG. This data is shown in each of the focus area maps. This data could be incomplete or inaccurate, and FHI Studio makes no claims to the accuracy of the GIS data.

Based on this data, right-of-way acquisition outside of the existing right-of-way may be required at the following locations:

- Route 37 at Peck Road
 - Proposed roadway widening for shoulder, the addition of a sidewalk on the west side of the roadway, realignment of Peck Road and clearance of vegetation obstructions could require right-of-way acquisition.
- Route 37 between Jeanette Street and Golden Hill Road
 - Proposed roadway widening for a two-way left-turn lane and the addition of sidewalks could require right-of-way acquisitions. However, GIS data in this area appears inaccurate. Design strategy for this area emphasized eliminating impacts to right-of-way uses including buildings and parking. No impacts to parking or reconfigurations to sites were found, as necessary.
- Multi-use path

- The proposed multi-use path between the proposed parking lot at Bear Mountain Road and the New Fairfield Town Hall will be required to be located, in part, on City of Danbury owned land. The proposed alternative for the multi-use path reduces impacts to the reservoir to the extent possible. The sidepath proposed between Saw Mill Road and New Fairfield Town Hall may require additional right-of-way.

Future Traffic Operations

Changes to operations at some intersections within the corridor are proposed to address concerns associated with LOS and delay. Changes to lane configurations and signal timings are also proposed. Signal timings were evaluated and optimized for four time periods, including the AM, mid-day, PM and weekend (Saturday) time periods. All intersections are anticipated to operate at a LOS C or better under the 2040 Build Scenario.

From a traffic capacity standpoint, the major changes incorporated in the 2040 build recommendations include:

- At Route 37 and Route 39, a southbound left-turn lane is added with a dedicated left-turn phase
- At Route 37 and Saw Mill Road, the westbound approach is modified to include dedicated left and right-turn lanes. A painted median in the southbound direction provides space for left-turning vehicles to exit the through lane.
- At Route 37 and Padanaram Road, the eastbound approach is modified to include dedicated left and right-turn lanes.
- At Route 37 and Jeanette Street, a left-turn lane is added to the northbound and southbound approaches. These movements include a dedicated left-turn phase with vehicular detection.
- At Route 37 and Golden Hill Road, a southbound right-turn lane is added. Phasing changes which allow for a southbound right-turn arrow concurrent with an eastbound left-turn phase.

A high-level summary of the expected traffic conditions compared to the 2040 No-Build scenario is provided below and in **Table 1**. All results of the traffic operations are included in **Appendix A- C**.

- All intersections are anticipated to operate at a LOS C or better under the 2040 Build Scenario.
- At Route 37 and Route 39, while the addition of a southbound left-turn phase lowers overall intersection level of service in some analysis periods, it improves LOS for the southbound approach in the mid-day to LOS E to LOS D. Overall LOS for this intersection remains at LOS C.
- At Route 37 and Saw Mill Road, Saturday delay on the westbound approach is reduced from 179.9 seconds to 128.7 seconds. This is the most significant delay experienced at this intersection in any of the four time periods evaluated.
- At Route 37 and Padanaram Road, delay on the eastbound approach in the afternoon peak hour is reduced from 106.3 seconds to 67.5 seconds. This is the most significant delay experienced at this intersection in any of the four time periods evaluated.
- At Route 37 and Jeanette Street, intersection LOS improves from LOS B to LOS A for all time periods. Northbound delays improved from LOS D to LOS A in the AM and from LOS C to LOS A in the Saturday time-period.
- At Route 37 and Golden Hill Road, intersection LOS improves from LOS E to LOS C in the afternoon time-period, and from LOS C to LOS B in the morning time-period. Southbound LOS is improved from LOS D to LOS C in the mid-day, from LOS F to LOS C in the afternoon peak-hour, and from LOS D to LOS B in the Saturday time-period. Queue lengths are also notably reduced in all time periods.

Table 1: Intersection LOS in the 2040 No-Build and Build Scenarios (Appendices B-C includes additional LOS information)

	2040 No Build				2040 Build			
	<i>Morning</i>	<i>Mid-Day</i>	<i>Afternoon</i>	<i>Saturday</i>	<i>Morning</i>	<i>Mid-Day</i>	<i>Afternoon</i>	<i>Saturday</i>
Pembroke Road (Route 37) at Brush Hill Road (Route 39) and Candlewood Lake Road (Route 39)	B/0.62	C/0.63	C/0.70	C/0.66	C/0.60	C/0.56	C/0.75	C/0.80
Padanaram Road (Route 37) at Jeannette Street	B/0.73	B/0.72	B/0.81	B/0.78	A/0.59	A/0.48	A/0.70	A/0.62
Padanaram Road (Route 37) at Golden Hill Road	C/0.83	C/0.85	E/1.00	C/0.87	B/0.60	C/0.69	C/0.96	C/0.73
Padanaram Road (Route 37) at Shoprite Driveway	A/0.67	B/0.77	B/0.69	C/0.79	A/0.67	B/0.73	B/0.73	B/0.81
Padanaram Road (Route 37) at Hayestown Road	B/0.65	B/0.78	B/0.84	B/0.83	B/0.65	B/0.69	B/0.81	B/0.80

2.2 Multi-Use Path Recommendations

The Study reviewed the feasibility of a multi-use path within the Study area between New Fairfield Center and Peck Road. Stakeholders in the local area such as residents, land trust groups, business owners, and others have expressed the desire for a multi-use path within the Margerie Lake Reservoir property. Additionally, during the January 2021 Session of the General Assembly, Representative Kenneth Gucker, of the 138th District, proposed Bill number 6177, an act authorizing bonds of the State for the design and planning of a walking trail adjacent to the Margerie Reservoir in New Fairfield.

Approximately half of the reservoir property on the southern side is in Danbury, while the northern section of property is in New Fairfield. The reservoir property is owned, operated, and maintained by the City of Danbury. As such, any path development would require an agreement with the City of Danbury.

Environmental Constraints

To explore the feasibility of a multi-use path, the Study team conducted a site visit of the Margerie Lake Reservoir property in October 2020. The purpose of the site visit was to analyze the environmental constraints within the property as well as within the Route 37 roadway right-of-way. Permitting needs for a potential multi-use path were also considered.

During the site visit, Dan Hageman, a Professional Soil Scientist with FHI Studio, conducted an analysis of the property, noting environmental constraints that he encountered. These included steep slopes that are present in a variety of locations between Route 37 and the reservoir, estimated wetland locations and stream and drainage crossings and the 100-year floodplain. Additional constraints include the presence of

forested lands that would need to be cleared for the multi-use path construction, potential Class 1 and 2 Watershed Lands, and the Margerie Lake Reservoir's function as a public surface water reservoir. The Margerie Lake Reservoir provides Danbury with part of its drinking water supply and as such, pollution and stormwater runoff is a concern. Fishing is currently allowed on the lake but swimming and recreational boating are not.

Figures 14-16 display several pictures of environmental constraints.

Wetlands

Figure 17 displays the approximate locations of environmental constraints within the multi-use path Study area vicinity. Wetlands identified by Connecticut Department of Energy and Environmental Protection (CT DEEP) GIS layers (light purple on the map) and wetlands estimated by FHI Studio during the site visit (purple cross hatching on the map) are shown. Wetlands exist in a variety of locations including:

- South of the New Fairfield/Danbury municipal boundary
- North of the intersection of Bear Mountain Road
- Surrounding 136 Pembroke Road and Lakewood Condominiums, north of the reservoir dam towards Bear Mountain Road

Steep Slopes

Slopes with a greater than 15% elevation change are also displayed in **Figure 17**. Constructing a multi-use path on these slopes would be challenging. Typically, side slopes would be limited to a 2:1 (horizontal: vertical, approximately 26% grade) slope because of stability concerns for slopes. Slopes more than this grade should undergo geotechnical analysis or be designed as a retaining wall. Therefore, areas of significant slope are often avoided because of cost constraints.

Figure 14: Wetland Area



Figure 15: Elevation Change Near Saw Mill Road



Near Saw Mill Road, the average cross slope is 36%, located approximately 55 feet from the Route 37 right-of-way. This slope is approximately 750 feet in length, traversing a long section of the Margerie Lake Reservoir property to the north. Near Colonial Road, the average cross slope is 21%, located between the Route 37 right-of-way and a point of measurement 95 feet from the Route 37 right-of-way. Between Wheeler Drive and Woodbridge Lane, the average cross slope is 24% and runs for approximately 1,400 feet, located 165 feet from the Route 37 right-of-way.

Figure 16: Steep Slope South of Woodbridge Lane

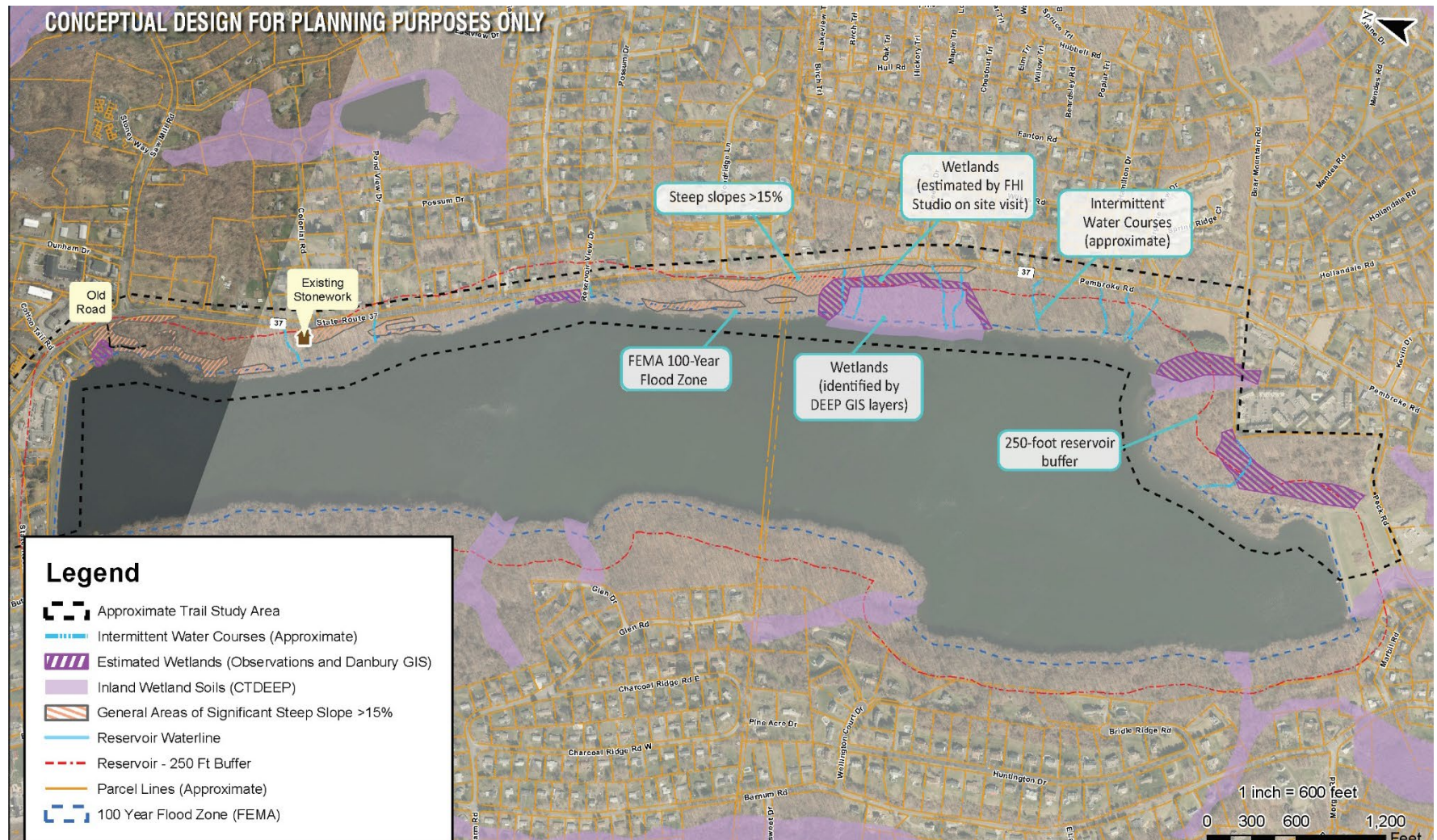


FEMA 100- Year Flood Zone

The FEMA 100-Year Flood Zone surrounds the Margerie Lake Reservoir. Displayed on **Figure 17**, the 100-Year Flood Zone is an area that has been mapped by the Federal Emergency Management Agency. The 100-Year Flood Zone is an area that will be inundated by a flood event having a one-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.³ Any development within the Study area would be prohibited from being constructed within the 100-Year Flood Zone.

³ <https://www.fema.gov/glossary/flood-zones>

Figure 17: Environmental Constraints



2.3 Conceptual Alignments

Following the October 2020 site visit, the Study team developed three separate conceptual alignments. The first two conceptual alignments were in response to different strategies the project team heard from stakeholders during the Study process. These two concepts are as follows:

- Conceptual Alignment 1: Off-road Trail Through Reservoir Property
 - This conceptual alignment maintains a multi-use path as close to the reservoir as feasible based on other environmental constraints such as topography, wetlands, and floodplains. This alignment responds to desires from the community members for a multi-use path as close to reservoir as feasible.
- Conceptual Alignment 2: Multi-use path within the Route 37 Right-of-Way
 - This conceptual alignment maintains a multi-use path along the Route 37 right-of-way between Peck Road and New Fairfield Center. This alignment responds to concerns for a pathway within reservoir property and potential for access to the reservoir.

Significant impediments exist for each of these concepts. Thus, the third concept was developed to mitigate the concerns from each. It is a hybrid of Conceptual Alignment 1 and Conceptual Alignment 2 and includes:

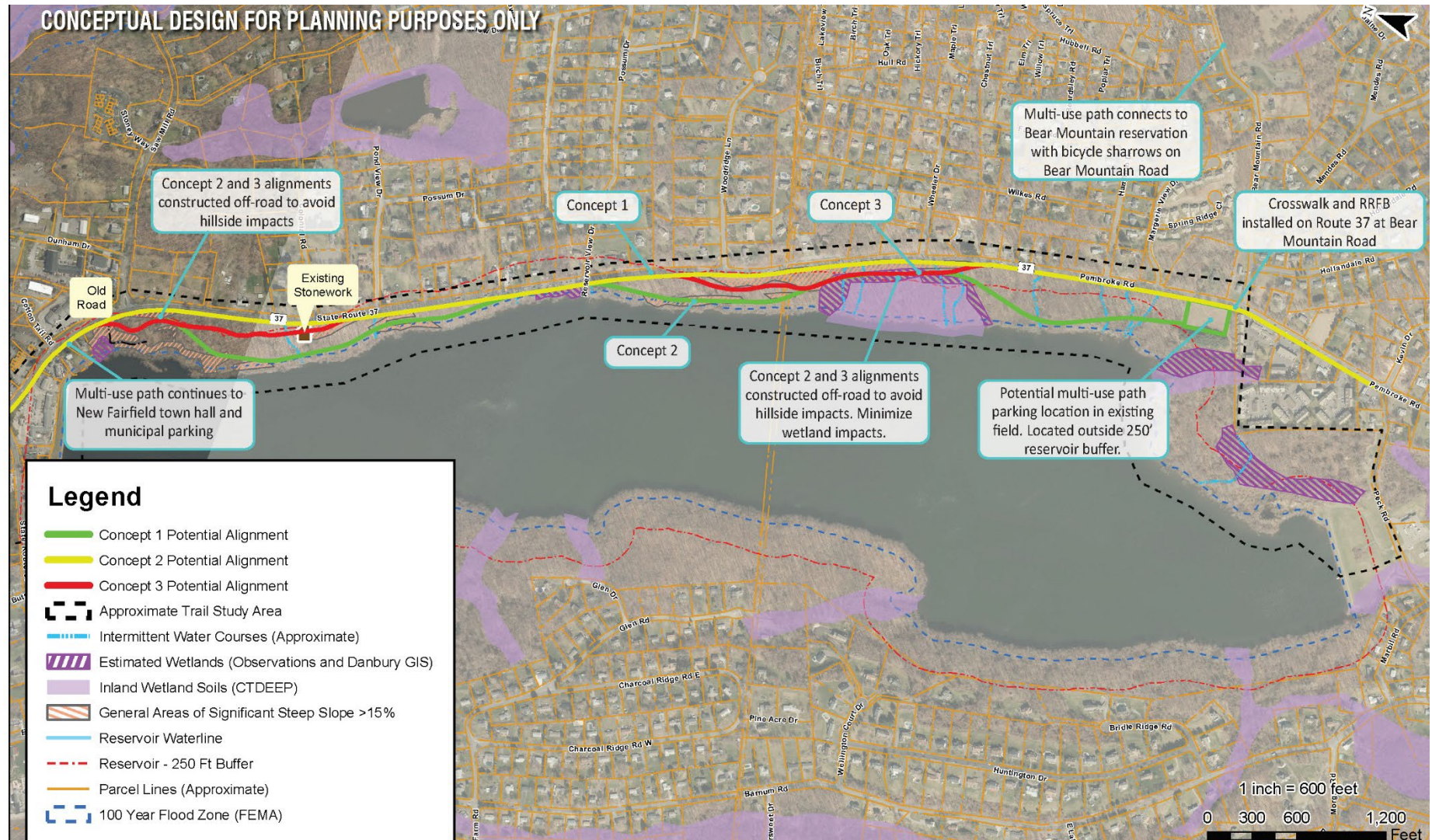
- Conceptual Alignment 3: Hybrid Concept
 - This conceptual alignment maintains a multi-use path along the Route 37 right-of-way where feasible. In locations where a sidepath along Route 37 is not feasible, the multi-use path uses reservoir property, but maintains as much distance to the reservoir as possible. Scenic overlooks are proposed.

Each of these conceptual alignments are discussed in further detail below. **Figures 18-19** display pictures of the east bank of the reservoir and **Figure 20** presents the three alignments.

Figure 18-19: Views of the Margerie Lake Reservoir from East Bank



Figure 20: Multi-Use Path Alignment Alignments



Conceptual Alignment 1 – Off-road Trail Through Reservoir Property

After conducting the site visit in October 2020, the Study team reviewed the findings and concluded that based on physical constraints, a trail entirely within reservoir property would likely be feasible, especially north of the municipal boundary. The reservoir shoreline, north of Colonial Road is relatively suitable for trail construction based on physical constraints. South of the New Fairfield and Danbury Town Lines, large areas of wetlands are present and would likely be impacted if a trail were constructed. Wetland impacts would require mitigation if permitted.

Conceptual Alignment 1 would provide a scenic trail, with water views throughout. It would be separate from the operational roadway, providing a noise buffer as well as a physical buffer away from Route 37 roadway traffic. Although technically feasible, this Conceptual Alignment 1 would be difficult to achieve. The alignment would require the highest level of permitting as it would require more wetland impacts, tree removal and slope disturbance to build the trail, as well as the greatest impact to watershed lands. This alignment would require multiple stream and intermittent water course crossings, likely requiring boardwalk structures and other mitigation techniques.

Figure 21 displays an example of what Concept Alignment 1 might look like.

Figure 21: Example Multi-Use Path at West Hartford Reservoir



Note: The West Hartford Reservoir multi-use path was constructed before National Environmental Policy Act (NEPA) and Connecticut Environmental Policy Act (CEPA) regulations were enacted, which limit development in wetland or floodplain areas. Any multi-use path created at the Margerie Lake Reservoir would be required to comply with NEPA, CEPA, and local wetlands and watercourse standards.

Conceptual Alignment 2 – Multi-use path within the Route 37 Right-of-Way

Conceptual Alignment 2 consists of a 10-foot-wide multi-use path within the Route 37 right-of-way, where feasible. The concept would keep the path adjacent to Route 37, from New Fairfield Center to Peck Road. To the extent possible, a 7-foot landscaped buffer would be provided between the Route 37 roadway shoulder and the proposed multi-use path. When a landscaped buffer would not be feasible, a vertical barrier to the roadway would be provided. **Figure 22** provides an example of a cross sectional view of the proposed sidepath. **Figure 23** shows an example of the appearance of the proposed sidepath on a similar facility in Middlebury, Connecticut.

Figure 22: Multi-Use Path Cross Section

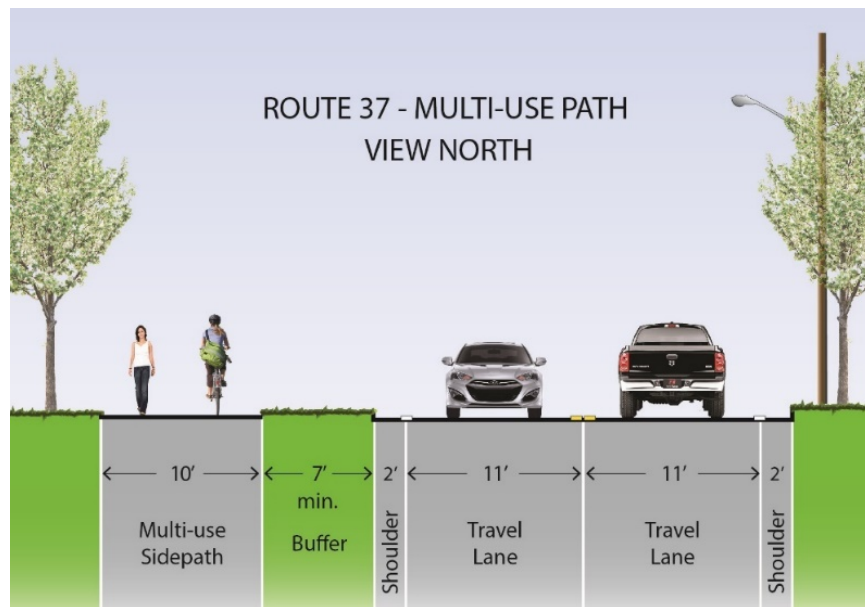


Figure 23: Middlebury Greenway Multi-use Path

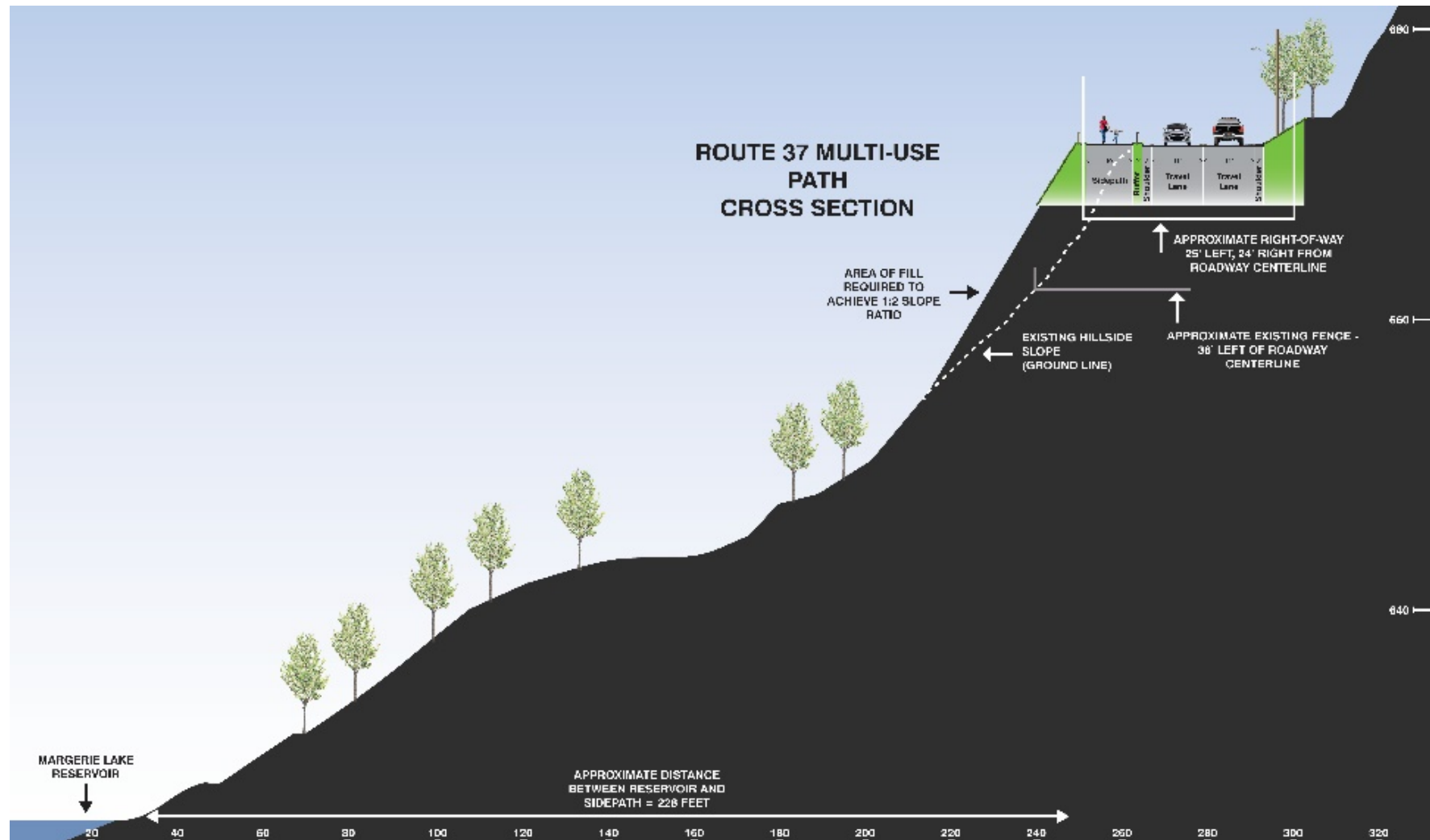


Source: Google Earth

An advantage to Conceptual Alignment 2 is that it would require minimal impacts to wetlands and watercourses compared to Conceptual Alignment 1. Tree removal and soil disturbance would be minimal in areas without steep slopes, and this alignment would require the lowest level of environmental permitting. Maintenance would be required, like by one or both municipalities. Limited policy/security would be required as the path would be in a highly visible location adjacent to Route 37.

Conceptual Alignment 2, however, presents challenges in areas where there are significant slopes on the west side of Route 37. Steep slopes are noted in three separate areas. In these locations, significant sideslope or extensive retaining structures would be required to meet existing grade. The sideslope require in a section north of Hamilton Drive is displayed in **Figure 24**.

Figure 24: Conceptual Alignment 2 Cross Section north of Hamilton Drive



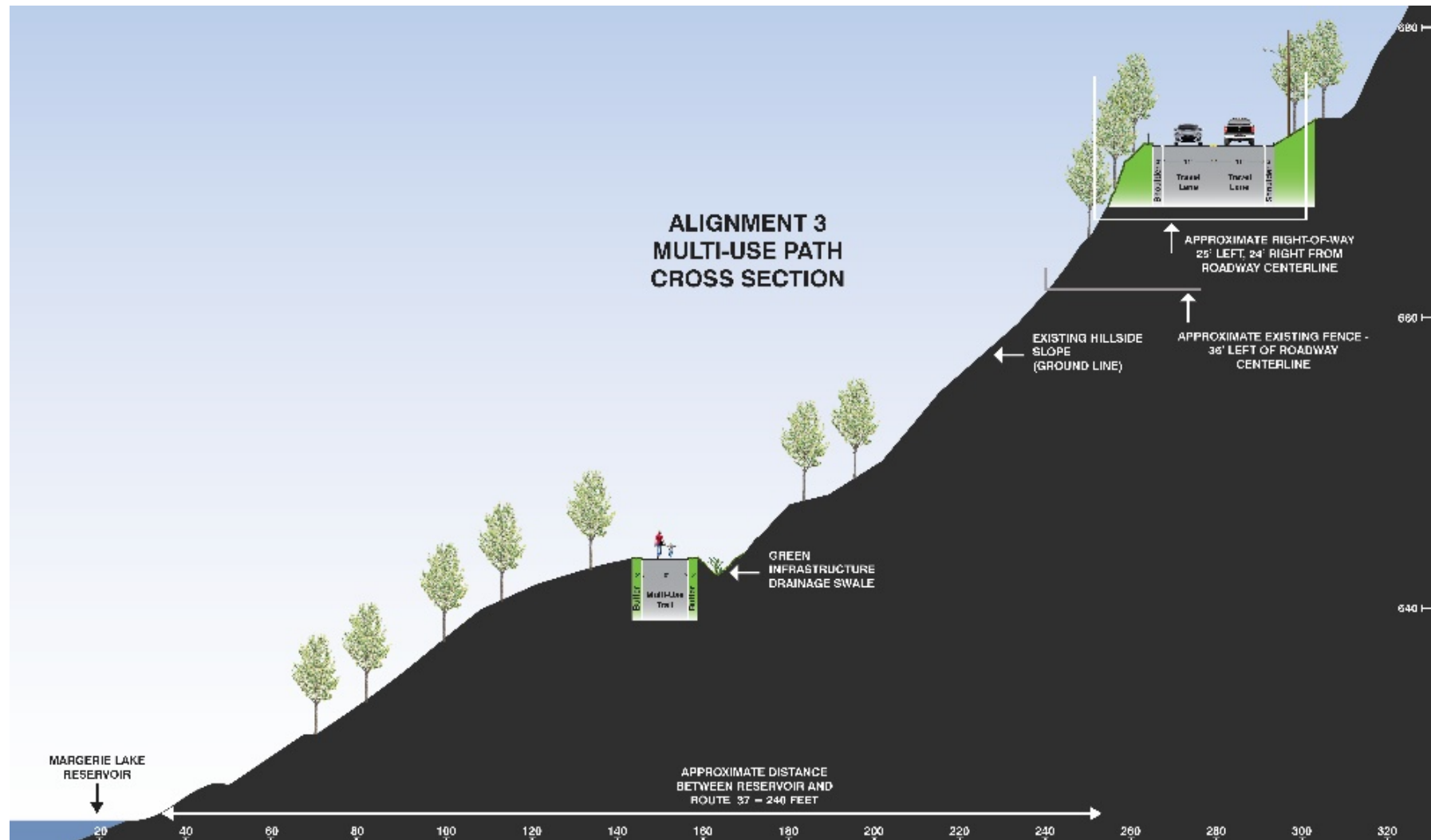
Conceptual Alignment 3 – Hybrid Concept

Conceptual Alignment 3 consists of a hybrid concept that blends both the reservoir trail (Conceptual Alignment 1) and the Route 37 sidepath (Conceptual Alignment 2). The proposed concept would keep the sidepath adjacent to Route 37 where possible, limiting the environmental impacts to both wetlands and forested slopes. Where terrain and grade change make the sidepath infeasible, the path would be routed onto the reservoir property, but would be located as eastward as possible, keeping it towards Route 37. This path would maintain ADA accessibility with grades no larger than +/- 5%. Overlooks and scenic rest areas would be provided. The existing stonework that is located across from Colonial Road (on Margerie Lake Reservoir property) could be a potential point of interest for the multi-use path.

Conceptual Alignment 3 would provide the greatest level of flexibility, allowing for construction to avoid steep or “tight” areas along the Route 37 right-of-way where design and implementation may be challenging. Conceptual Alignment 3 would also allow for avoidance or minimal impacts to environmentally sensitive areas such as wetlands and watercourses. The multi-use path could meander into the Margerie Lake Reservoir property, avoiding wetlands and slope areas to the fullest extent possible.

Conceptual Alignment 3 includes approximately 4,700 feet of sidepath and 4,100 feet of path interior to reservoir property. **Figure 25** displays a cross section view of Conceptual Alignment 3.

Figure 25: Conceptual Alignment 3 Cross Section north of Hamilton Drive



2.4 Preferred Alternative

The preferred alternative was selected based on the following criteria:

- Physical constraints
- Environmental impacts
- Likelihood of implementation
- Acceptability to the City of Danbury – Owner of the Margerie Reservoir property
- Cost

Conceptual Alignment 3 was selected as the preferred alignment for the multi-use path for a variety of reason. As a hybrid of both Conceptual Alignments 1 and 2 (trail fully within Margerie Reservoir property, or sidepath within the Route 37 right-of-way), Alignment 3 aims to minimize impacts to the natural resources in the area including wetlands and forested slopes. Additionally, this alignment is responsive to grade challenges and would be aligned to best minimize construction costs wherever possible. Finally, Conceptual Alignment 3 is sensitive to the direction received from the City of Danbury, who are the owners of the Margerie Reservoir property. At the City's direction, the multi-use path alignment will maintain as much distance from the Margerie Lake Reservoir as possible, with the security fence remaining between the reservoir and the multi-use path. Acceptance of a conceptual alignment for the trail from the City of Danbury is seen as critical to the implementation of this concept as the City will be responsible for securing appropriate permits in the future as the owners of the property.

Conceptual Alignment 3 delivers a multi-use path option that provides both a scenic recreational trail and a transportation asset along Route 37.

It would provide a multi-modal connection between New Fairfield Center and points further south in Danbury.

Conceptual Alignment 3 would complement the pedestrian recommendations such as the proposed sidewalk on Route 37, spanning between Bear Mountain Road and Pandaram Road, and the proposed crosswalk and RRFB across Route 37 at Bear Mountain Road (connects to the proposed sidepath).

Potential Parking Locations

Parking could be provided at the southern end of the multi-use path, across from Bear Mountain Road. Within the Margerie Lake Reservoir property parcel, there is an open field that could accommodate a parking lot up to 109-spaces. This parking lot could be reduced in size if desired. It is recommended that green infrastructure be incorporated to infiltrate stormwater runoff and a permeable or porous pavement be utilized to further reduce runoff. The parking lot would be located outside of the 100-Year Floodplain and would avoid wetlands and slopes. This site is located outside the 250-foot buffer to the reservoir, which mitigates any impact to this area a parking facility may have on the reservoir.

The northern terminus of the multi-use path would end opposite to the New Fairfield Town Hall. It is anticipated that users of the path could either park at the southern end of the trail or they could utilize existing town-owned parking at the Town Hall and associated ball fields. It is anticipated that users of the multi-use path would be patrons of the various business in the Center, spending money within the Town.

Pedestrian and Bicycle Connections to the Multi-use Path

Connections between the multi-use path and Bear Mountain Reservation would be provided for. It is recommended that a crosswalk with a Rectangular Rapid Flash Beacon (RRFB) be installed crossing Route 37 at Bear Mountain Road. Bicycle sharrow markings are recommended along Bear Mountain Road, further establishing a multi-modal connection between the two recreational resources (future multi-use path and Bear Mountain Reservation). Along Route 37 to the south, connections would continue in the form of a sidewalk on the west side, and a 5-foot shoulder. The sidewalk would allow pedestrian connectivity to Danbury. The 5-foot shoulder would allow for on-road bicycle connectivity between the southern terminus of the multi-use path at Bear Mountain Road to Padanaram Road to the south. This would allow for connections to highly frequented bicycle routes on Barnum Road and Stacey Road. **Figure 26 - 28** display the proposed multi-use path alignment in various locations, highlighting the proposed southern parking location, green infrastructure, and scenic rest areas.

Scenic Rest Areas and Green Infrastructure

Rest areas would be provided for at several locations along the multi-use path's route. These would be bench type rest areas that would include overlooks outwards to the Margerie Lake Reservoir.

Green infrastructure would be incorporated into the multi-use path design wherever possible. It would be located on the upland side of the path and would be designed to handle stormwater runoff coming off the steep hillsides that spans between the Reservoir and Route 37. Native plant species would be utilized.

Figure 29 - 30 are photo renderings displaying different path conditions that would be provided under Conceptual Alignment 3 (the Preferred Alternative).

Figure 29 displays the on-road, 10-foot multi-use path that would be constructed within the existing Route 37 right-of-way. At this location, a 2-foot shoulder and a 7-foot landscape buffer would be provided. In locations along Route 37 where the right-of-way is constrained, landscaped buffers may be substituted for a vertical barrier such as a metal guardrail.

Figure 30 shows the multi-use path condition as it would be aligned within the reservoir property. The path would continue to be a minimum of 10-feet wide in all locations and it is envisioned that it would be constructed out of permeable pavement material. A green infrastructure swale would be included on the upland side of the path, and the existing security fence would be relocated to maintain security for the reservoir as it is a public drinking water supply.

Figure 26: Potential Parking Location and Path Alignment

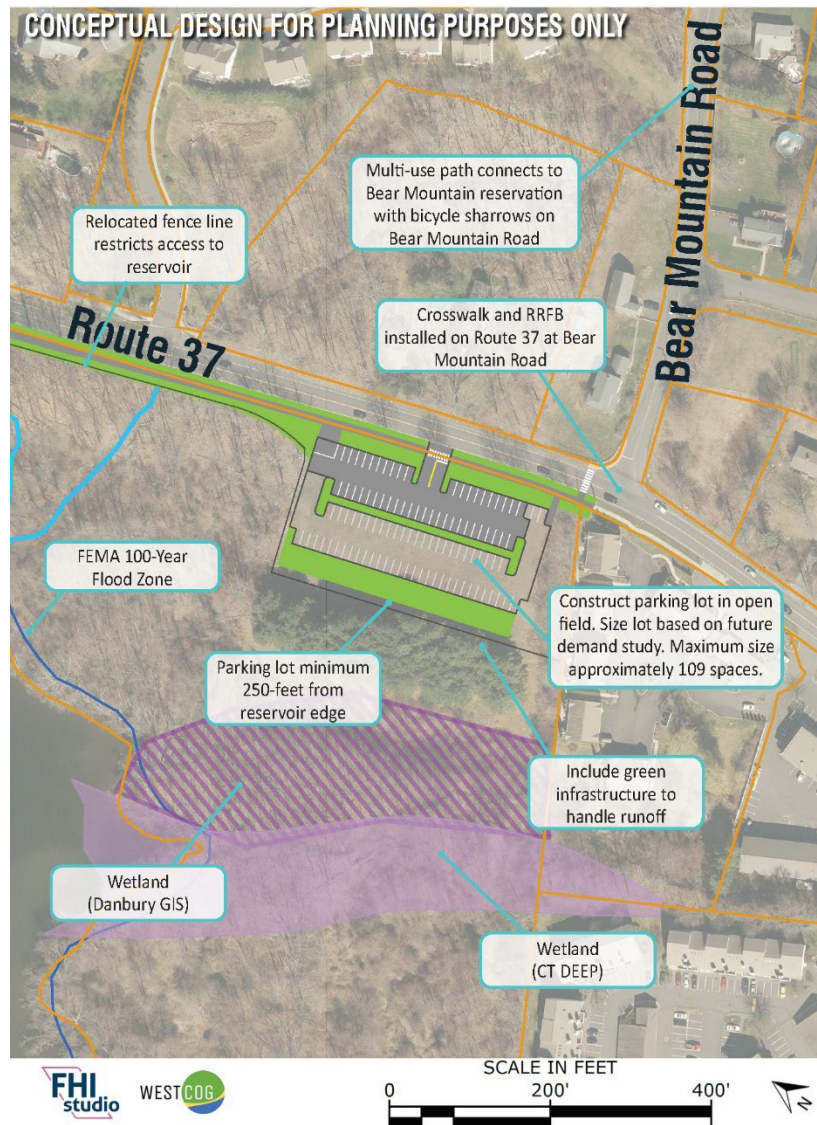


Figure 27: Multi-Use Path Alignment

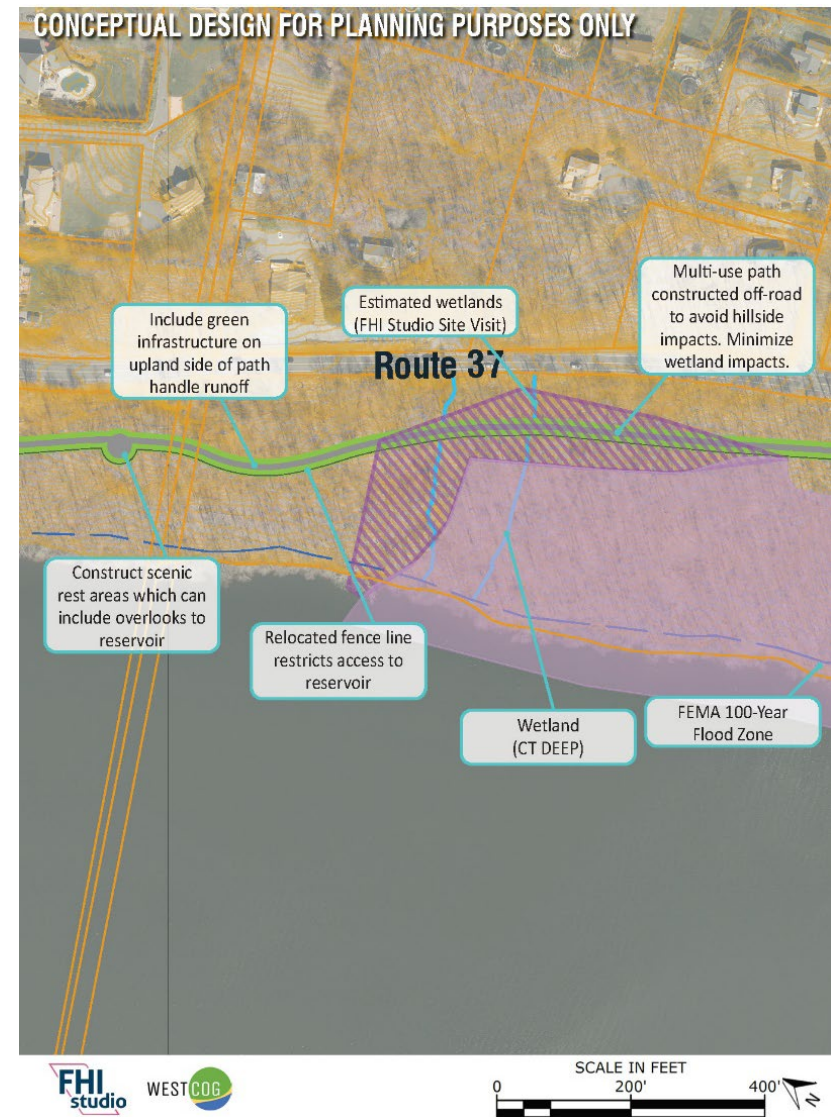


Figure 28: Multi-use Path Alignment at Saw Mill Road



Figure 29: Multi-Use Path On-Road Alignment

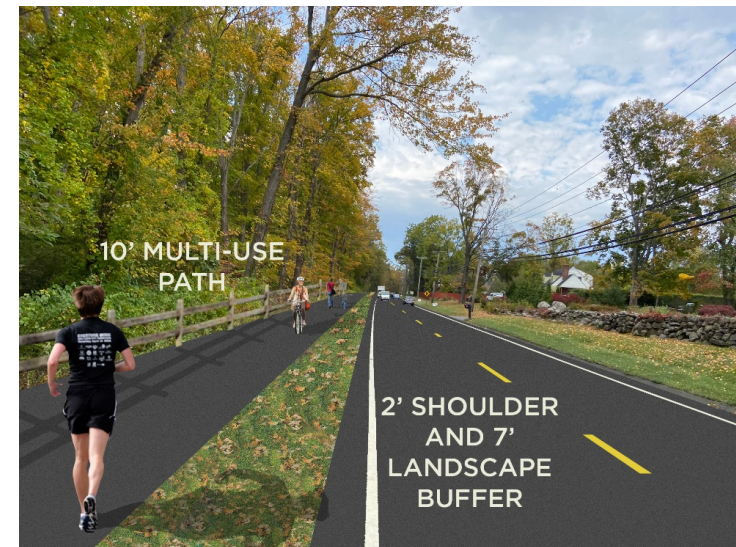


Figure 30: Multi-Use Path Reservoir Property Alignment



3 IMPLEMENTATION PLAN

Following the initiation of a project and identification of a funding source, the remaining steps to implement an improvement will involve detailed design and construction. Based on the complexity of a project, an initial Preliminary Engineering phase may be required to conduct a more detailed engineering study and refine the concept plans and project scope. A preliminary engineering study can help establish the potential impacts to environmental and natural resources, identify potential property and utility impacts, and help refine the expected costs in current dollars rather than forecasting based on estimates reported in this Study, which are provided in current, 2021 dollars. There would also be continued public engagement throughout the design process.

Once Preliminary Engineering is complete and the decision is made to move forward with a project, final design will take place to add detail to the plan, conduct a right of way acquisition process, address utility conflicts and possible relocations, and develop construction documentation to facilitate bidding and construction of the improvements. Generally, projects that are identified as having a low level of complexity can be designed within 12-18 months from initiation of the project by the Towns. As complexity grows, so does the timeframe required to design improvements. Design phases can potentially last three years or more for highly complex projects. The following sections detail the permitting and compliance issues that will need to be incorporated during the design processes.

3.1 Project Phasing

In recognition of the varying degrees of scale and complexity of each of the recommendations included in this report, each recommendation is broken into a phased approach for suggested implementation. Recommendations which are lower cost, less complex, and would have greater impact are recommended to occur on a shorter timeline than those that are higher cost and more complex. In general, short term improvements are those that could be expected to be completed within the next two years (2022-2024). These improvements can be thought of as “low-hanging fruit” and could be completed with limited funds or roadway disruption.

Mid-term recommendations are those that could be expected to be completed in the next three to five years (2025-2027). These are recommendations that could require moderate design work, or more design intensive projects that would result in a notable safety improvement (e.g. intersection realignments).

Long term recommendations are those recommendations that are more complex and will require more funding and may result in more roadway disruption to complete. In general, these recommendations may take a longer duration for design and several years to secure funding. These recommendations are typically at least five years out from construction start-up because of their complexity (2028+).

Table 2 displays a summary of recommendations by priority.

Table 2: Prioritization Matrix for Study Area Recommendations

Location	Short-term Recommendations	Parties Responsible
Route 37 at Route 39	<ul style="list-style-type: none"> • Reduce speed limit to 30 MPH • Install speed feedback sign in southbound direction • Install pedestrian signal heads and exclusive pedestrian phase 	Town of New Fairfield Town of New Fairfield CTDOT
Route 37 at Saw Mill Road	<ul style="list-style-type: none"> • Reduce speed limit to 30 MPH • Install speed feedback sign in northbound direction 	Town of New Fairfield Town of New Fairfield
Route 37 at Peck Road	<ul style="list-style-type: none"> • Clear vegetation to north of Kevin Drive 	CTDOT District 4
Other Recommendations	<ul style="list-style-type: none"> • Install horizontal curve signage on Route 37 between Jeanette Street and Padanaram Road 	CTDOT District 4

Location	Mid-term Recommendations	Parties Responsible
Route 37 at Route 39	<ul style="list-style-type: none"> • Provide SB left-turn lane 	CTDOT
Route 37 at Saw Mill Road	<ul style="list-style-type: none"> • Install sidewalk to Saw Mill Road 	Town of New Fairfield
Route 37 at Peck Road	<ul style="list-style-type: none"> • Realign Peck Road • Widen shoulders on Route 37 	Town of New Fairfield, CTDOT CTDOT
Route 37 at Padanaram Road	<ul style="list-style-type: none"> • Realign Padanaram Road • Widen northbound shoulder on Route 37 	City of Danbury, CTDOT CTDOT
Route 37 at Jeanette Street	<ul style="list-style-type: none"> • Install crosswalks, pedestrian signal heads and concurrent pedestrian phase with leading pedestrian interval (LPI) 	City of Danbury, CTDOT
Route 37 between Jeanette Street and Golden Hill Road	<ul style="list-style-type: none"> • Provide sidewalk on both sides of Route 37 	City of Danbury
Route 37 at Golden Hill Road	<ul style="list-style-type: none"> • Widen and provide southbound right-turn lane • Install new traffic signal equipment • Install crosswalks, pedestrian signal heads and concurrent pedestrian phase with leading pedestrian interval (LPI) 	CTDOT CTDOT City of Danbury, CTDOT
Pedestrian (Other Areas)	<ul style="list-style-type: none"> • Install 5-foot sidewalk for missing gaps between Golden Hill Road and North Street Shopping Center • Install 5-foot sidewalk on east side of Route 37 bridge over Padanaram Brook 	City of Danbury City of Danbury, CTDOT
Other Recommendations	<ul style="list-style-type: none"> • Widen shoulders on Route 37 in the vicinity of 23 Padanaram Road (Subway, Sal's Pizza etc.) • Improve 2 to 1 lane merge on Route 37 northbound north of North Street Shopping Center (ShopRite) • Incorporate Golden Hill Road and Jeanette Street signals into Danbury coordinated signal system and optimized system 	CTDOT CTDOT City of Danbury, CTDOT

Location	Long-term Recommendations	Parties Responsible
<i>Route 37 at Saw Mill Road</i>	<ul style="list-style-type: none"> • Install 8- foot landscape median • Remove vertical curve to south 	Town of New Fairfield, CTDOT
<i>Route 37 at Jeanette Street</i>	<ul style="list-style-type: none"> • Widen and provide left-turn lanes on Route 37 • Install new traffic signal equipment 	CTDOT
<i>Route 37 between Jeanette Street and Golden Hill Road</i>	<ul style="list-style-type: none"> • Widen and provide two-way left-turn lane (TWLTL) 	CTDOT
<i>Pedestrian (Other Areas)</i>	<ul style="list-style-type: none"> • Install 5-foot sidewalk between Bear Mountain Road and Barnum Road • Install 5-foot sidewalk between Stacey Road and Padanaram Road (east side) • Install 5-foot sidewalk between Padanaram Road and Jeanette Street • Install pedestrian signal heads and concurrent pedestrian phase with leading pedestrian interval (LPI) at Stacey Road 	City of Danbury City of Danbury City of Danbury City of Danbury, CTDOT
<i>Bicycle (Other Areas)</i>	<ul style="list-style-type: none"> • Widen shoulders on Route 37 to 5-foot (minimum) between Bear Mountain Road to Padanaram Road 	CTDOT
<i>Multi-use Path</i>	<ul style="list-style-type: none"> • Sidepath - Bear Mountain Road to 400 ft south of Wheeler Drive • Path - 400 feet south of Wheeler Drive to 300 feet north of Woodbridge Lane • Sidepath - 300 feet north of Woodbridge Lane to 200 feet south of Colonial Road • Path - 200 feet south of Colonial Road to 200 feet north of Bear Mountain Road • Sidepath - 200 feet north of Bear Mountain Road to opposite New Fairfield Town Hall • Construct up to 100 space parking lot at Bear Mountain Road • Install crosswalk and RRFB at Bear Mountain Road with sidewalk landing pad to Bear Mountain Road • Stripe bicycle sharrows on Bear Mountain Road between Route 37 and Bear Mountain Reservoir 	WestCOG, City of Danbury, Town of New Fairfield WestCOG, City of Danbury, Town of New Fairfield WestCOG, City of Danbury, Town of New Fairfield WestCOG, City of Danbury, Town of New Fairfield WestCOG, City of Danbury, Town of New Fairfield WestCOG, City of Danbury, Town of New Fairfield WestCOG, City of Danbury, CTDOT City of Danbury

3.2 Improvement Costs

To assist in the budgeting of funding for the improvements, order-of-magnitude costs are presented in the following table. These costs are based on the concepts as described above. When possible, these cost ranges are based on data as published in the *Connecticut Department of Transportation 2019 Estimating Guidelines*. These order-of-magnitude costs are provided to assist in the planning process of implementing the recommendations provided. To the extent possible, quantities are utilized

in the development of these costs, but cost could be subject to substantial change throughout the design process.

Table 3 includes a table of the estimated range of cost for each of these recommendations, as well as a suggested champion and potential funding source.

Table 3: Order-of-Magnitude Cost Matrix for Study Area Recommendations

Location	Cost Range			
	Short Term	Mid Term	Long Term	Total
Route 37 at Route 39	\$5,000 - \$10,000	\$80,000 - \$100,000	-	\$85,000 - \$110,000
Route 37 at Saw Mill Road	\$5,000 - \$10,000	\$25,000 - \$35,000	\$150,000 - \$300,000	\$180,000 - \$345,000
Route 37 at Peck Road	\$5,000 - \$20,000	\$120,000 - \$200,000	-	\$125,000 - \$220,000
Route 37 at Padanaram Road	-	\$100,000 - \$160,000	-	\$100,000 - \$160,000
Route 37 at Jeanette Street	-	-	\$230,000 - \$340,000	\$230,000 - \$340,000
Route 37 between Jeanette Street and Golden Hill Road	-	\$110,000 - \$170,000	\$80,000 - \$160,000	\$190,000 - \$330,000
Route 37 at Golden Hill Road	-	\$230,000 - \$360,000	-	\$230,000 - \$360,000
Pedestrian (Other Areas)	-	\$415,000 - \$770,000	\$620,000 - \$740,000	\$1,035,000 - \$1,510,000
Bicycle (Other Areas)	-	-	\$420,000 - \$740,000	\$420,000 - \$740,000
Other Recommendations	\$1,000 - \$5,000	\$80,000 - \$200,000	-	\$81,000 - \$205,000
Multi-use Path	-	-	\$2,000,000 - \$3,500,000	\$2,000,000 - \$3,500,000
Total	\$16,000 - \$45,000	\$1,160,000 - \$1,995,000	\$3,500,000 - \$5,780,000	\$4,676,000 - \$7,820,000

3.3 Environmental Permitting and Compliance

If state funding is involved as part of the multi-use path construction, screening through public scoping and an Environmental Classification Document would likely be required, as required through the Connecticut Environmental Policy Act (CEPA). It is anticipated a Post Scoping Memorandum will fulfil CEPA requirements for this project, rather than a more detailed Environmental Impact Evaluation (EIE).

Various environmental permits would also likely be required. These include a Town of New Fairfield Inland Wetlands and Watercourses Permit and a City of Danbury Inland Wetlands and Watercourses Permit. These would be necessary if any wetland or watercourse impacts were proposed. If work is expected to take place in the 100-year floodplain, and State funding is involved, a CT DEEP Flood Management Certification would be required. An approval from the Connecticut Department of Public Health (DPH) may be required, along with a Change-in-Use Permit as the reservoir property is a public drinking water supply with Class I and Class II lands. No Natural Diversity Database areas or critical habitat for state-listed special concern, threatened, or endangered species are located within the project area according to the most recent mapping.

A list of anticipated Environmental Permits and associated estimates for approval are provided below:

- Town of New Fairfield Inland Wetlands and Watercourses Permit; estimated 3-4 months for approval once submitted to Town
- City of Danbury Inland Wetlands and Watercourses Permit; estimated 3-4 months for approval once submitted to Town

- CT DEEP Flood Management Certification (if State money and work in Floodplains); estimated 6-12 months for approval once submitted to CT DEEP
- Potential CT Department of Public Health Change-in-Use Permit and/or approval; estimated 6-12 months for approval once submitted to DPH

Table 4 summarizes the potential benefits and challenges associated with each of the three conceptual alignments. It also provides a high-level assessment of permitting effort for each alignment.

Table 4: Conceptual Alignment Permitting Summary

	Pros	Cons
Conceptual Alignment 1: Reservoir-side Trail	<ul style="list-style-type: none"> • Most scenic • Most separation from Route 37 	<ul style="list-style-type: none"> • Most environmental impacts • Higher level of permitting • Higher maintenance / policing of facility due to proximity to reservoir • Most tree removal • Most impact to watershed lands
Conceptual Alignment 2: Route 37 Sidepath	<ul style="list-style-type: none"> • Minimal impacts to wetlands / watercourse • Least tree removal • Limited dedicated policing required • Least impact to watershed lands • Lowest level of environmental permitting 	<ul style="list-style-type: none"> • Adjacent to roadway (noise, traffic speeds, etc.) • Higher construction costs in areas of steep slopes • Potential impacts in areas near steep slopes
Conceptual Alignment 3: Hybrid	<ul style="list-style-type: none"> • Greatest flexibility in design • Avoids/minimizes most impacts to sensitive environmental areas • Minimize “tight” areas along roadway 	<ul style="list-style-type: none"> • Mid-level environmental permitting

APPENDICES