Final Report

Route 1
Corridor Study
Boston Post Road
Darien, CT

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South Western Regional
Planning Agency

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Executive Summary

Introduction

The *Route 1 Corridor Study* was undertaken by the South Western Regional Planning Agency (SWRPA) in cooperation with the Town of Darien and the Connecticut Department of Transportation (CTDOT). The purpose of the study was to develop a comprehensive transportation plan for US Route 1 (Boston Post Road) in Darien that will: provide improved mobility, accessibility, and safety for all users; incorporate land uses and development strategies that support the transportation system; and benefit the overall quality-of-life in Darien.

The Route 1 *study corridor* included approximately 2.3 miles of Boston Post Road through Downtown Darien from Nearwater Lane to Old Kings Highway North. The broader *study area* included the network of local streets adjacent to Route 1 such as Old Kings Highway South, West Avenue, and Leroy Avenue.

The study evaluated conditions in the study area relative to vehicular and multimodal safety, mobility, and accessibility. The study also considered future Downtown development opportunities and forecasted the potential traffic and parking demands associated with those opportunities.

The result of the study is a set of recommendations – built upon *Complete Streets* and *Smart Growth* strategies – that address identified issues in the study area, and that provide for transportation system enhancements and economic growth opportunities. A detailed implementation plan, also contained in this study, outlines how these recommendations can be realized over time through a variety of projects and implementation mechanisms. This study was developed with input from local stakeholders to ensure that both the recommendations and the implementation plan reflect the immediate as well as long-term needs and priorities of the community.

This summary highlights the key findings of the existing and future conditions assessments of the study and provides synopses of the transportation and land use recommendations and implementation plan.

Public Involvement Summary

The study process involved the active participation of many stakeholders, including Darien residents and business owners, Town representatives, SWRPA, CTDOT, and representatives from other local interest groups. Public outreach mechanisms included: Study Committee meetings; Community Open House and Stakeholder Meetings – five of which were conducted between March 2010 and June 2012; a variety of surveys, library postings; local media coverage; and a study web site.

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Summary of Key Findings

The existing conditions assessment of this study included evaluations of: roadway and traffic conditions; vehicular mobility, circulation, and access; pedestrian, bicycle, and public transit accommodations; safety; the Metro-North railroad underpass; and land use and development opportunities. The future conditions assessment included evaluations of potential traffic growth and potenial traffic and parking needs associated with a Downtown development scenario. The key findings of these various assessments are summarized as follows:

- **Roadway Conditions.** Noted concerns relative to operations and safety include: insufficient roadway width between Noroton Avenue and Rings End Road to accommodate on-street parking and four travel lanes; no delineation of on-street parking stalls; a general lack of lane definition, particularly north of Sedgwick Avenue; and poor intersection geometry at the Old Kings Highway South and the I-95 Interchange 11 northbound on-ramp intersections with Route 1.
- **Traffic Conditions.** The study corridor carries up to 16,000 vehicles per day. Peak travel periods cause the longest delays and traffic backups at the West Avenue, Mansfield Avenue, and Sedgwick Avenue intersections, particularly in the southbound direction. Traffic growth is anticipated to be 20% or more in some sections of the corridor by 2030, which will exacerbate existing traffic delays.
- **Vehicular Mobility, Circulation, and Access.** There are limited opportunities to significantly increase traffic capacity in the corridor. As such, vehicular mobility will have to be maintained by maximizing existing capacity; supplementing Route 1 capacity by developing alternate routes, connections, and access drives that facilitate better access to, and circulation within, Downtown; and mitigating future traffic growth.
- **Pedestrian Accommodations.** There are pedestrian safety and walkability issues throughout the corridor associated with gaps in the sidewalk network; numerous pedestrian crossings that lack adequate signals or signage, crosswalks, and handicap accessible ramps; and limited crossing opportunities in Downtown.
- **Bicycle Accommodations.** There are no defined bicycle facilities in the study corridor to encourage and facilitate safe bicycle travel. In particular, there are no striped shoulders, markings, or signs on Route 1 that help define space for bicyclists on the roadway or alert motorists to the potential for bicyclists in the area.
- **Public Transit Accommodations.** There are opportunities to enhance the convenience of using transit in the corridor including better amenities at key bus stops; improved commuter parking and rail station information; and better connections between modes.
- **Safety.** There were more than 300 accidents recorded in the study corridor during the most recent three-year period for which data is avaiable. The accident data indicates that the most predominant collision types during this period were rear-end and side-swipe collisions. Nine of these accidents involved pedestrians.
- **Railroad Underpass.** There is limited vertical clearance at the Metro-North railroad underpass that has resulted in a relatively high frequency of truck collisions. Underpass flooding has also been a persistent issue. The long-term effectiveness of recent CTDOT improvements – including new low clearance warning signs in the corridor and minor drainage improvements at the underpass – will require further evaluation.
- **Land Use and Development.** Existing development density in Downtown is lower than the preferred density (based on community input) and lower than the density that could be achieved by pursuing *Smart Growth* strategies. Several policy and regulation changes would be required to address zoning constraints that include parking minimums, building height limits, and parking structure prohibitions.

Downtown Development Scenario Summary

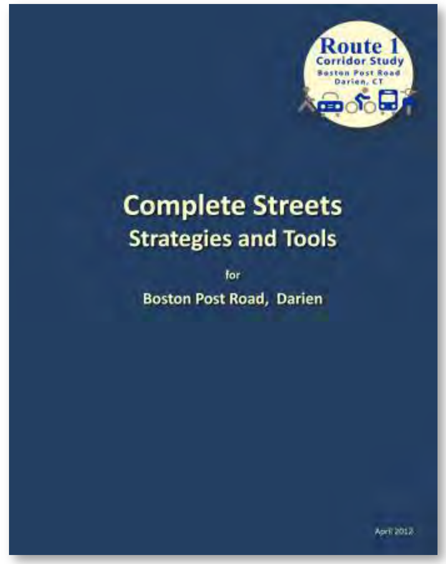
By 2020, Downtown development density could increase up to 20% over existing levels. In terms of traffic, this increase could result in up to 4.5% additional traffic growth on Route 1 in the Central Business District. In terms of parking, this increase could require 563 new parking spaces to meet anticipated parking demand (or, approximately 1161 new spaces to satisfy current zoning regulations).

Transportation Improvement Recommendations

The transportation improvement recommendations of this study promote the concept of ***Complete Streets*** – or streets that are designed to provide safe access for all users including pedestrians, bicyclists, transit riders, and motorists.

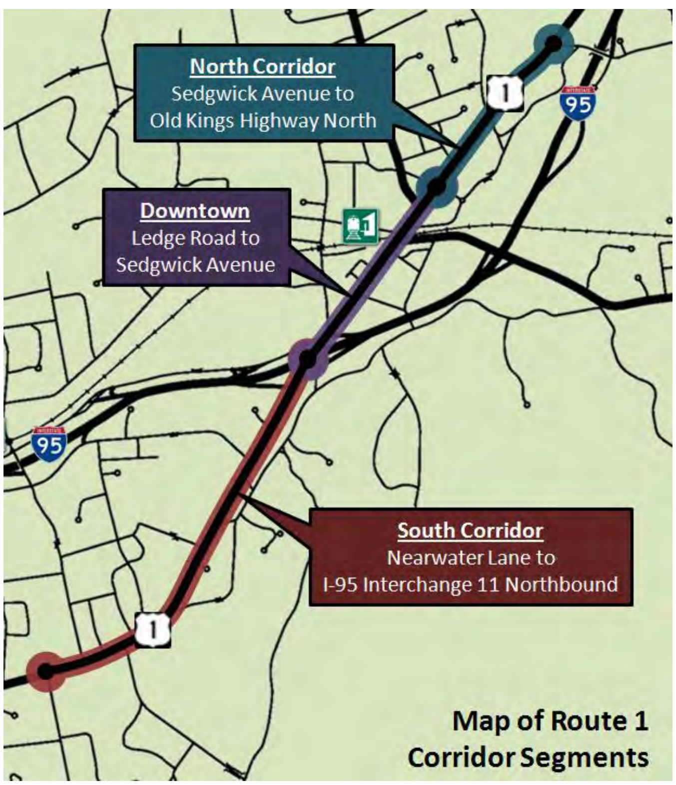
Complete Streets strategies for the Boston Post Road (Route 1) study area aim to improve roadway and driving conditions, walkability, bicycling, and transit use by applying tools or measures that will:

- Address high accident locations and roadway safety issues.
- Provide better roadway definition.
- Maintain Downtown mobility.
- Provide continuity of accessible pedestrian facilities.
- Improve pedestrian crossings.
- Mitigate pedestrian safety concerns.
- Provide defined space for bicyclists on Route 1.
- Create a system of bike facilities.
- Provide multimodal accessibility.
- Provide better on-line transit service and parking information.



Descriptions of the Complete Streets strategies and tools recommended for the Route 1 study area are provided in *Complete Streets Strategies and Tools for Boston Post Road, Darien* provided in Appendix 4 of the Final Report.

A summary of how the Complete Streets strategies and tools can be applied on a location-specific basis in the Route 1 study area is presented on the following pages for each of three primary corridor segments shown on the map at bottom – **South Corridor, Downtown, and North Corridor**.



Above map illustrates the three primary corridor segments as they are been defined for this study. The recommendations are summarized for various sub-segments within each of these primary segments.

In general, the recommendations in each of these three corridor segments include:

South Corridor: A *road diet* that will reduce the number of vehicular travel lanes from four to two while utilizing the balance of the roadway space for improved bicycle and pedestrian facilities.

Downtown: Improvements to traffic operations, pedestrian facilities, bicycle facilities, and transit accommodations with limited widening of the roadway and some limited impacts to on-street parking.

North Corridor: A *road diet* with provisions for better roadway definition to reduce the amount of roadway space allocated to motor vehicles; improve bicycle and pedestrian facilities; and minimize vehicular conflicts and driver uncertainty.

A full discussion of the transportation improvement recommendations for the Route 1 study area is provided in Section 4 of the Final Report.

South Corridor Recommendations

The South Corridor consists of approximately 1.3 miles of Route 1 located between Nearwater Lane and the northbound ramps of I-95 Interchange 11.

The base recommendation for this segment is to implement a *road diet* that will reduce the number of vehicular travel lanes from four to two while utilizing the balance of the roadway space for improved bicycle and pedestrian facilities.

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What is a *Road Diet*?

A *road diet* is a strategy to reduce the amount of roadway space allocated to motor vehicles by reducing the number of travel lanes or by reducing the width of travel lanes. For more information, see the Complete Streets Toolbox provided in Appendix 4 of the Final Report.

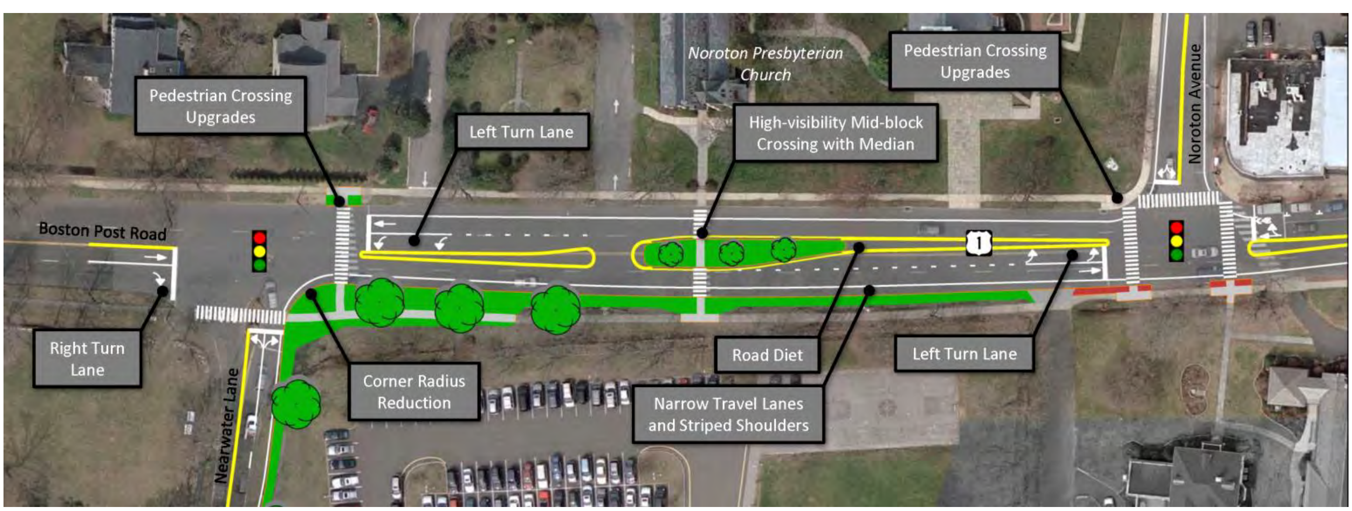
It is noted that a reduction in the number of travel lanes on Route 1 will reduce traffic capacity. However, analyses show that acceptable traffic operations can be maintained under a road diet condition as long as turn lanes are provided at signalized intersections. During off peak hours and weekends, or more than 80% of the time, the reduced traffic capacity will generally not affect traffic operations.

The following sections summarize the recommendations in each of the four sub-segments of the South Corridor.

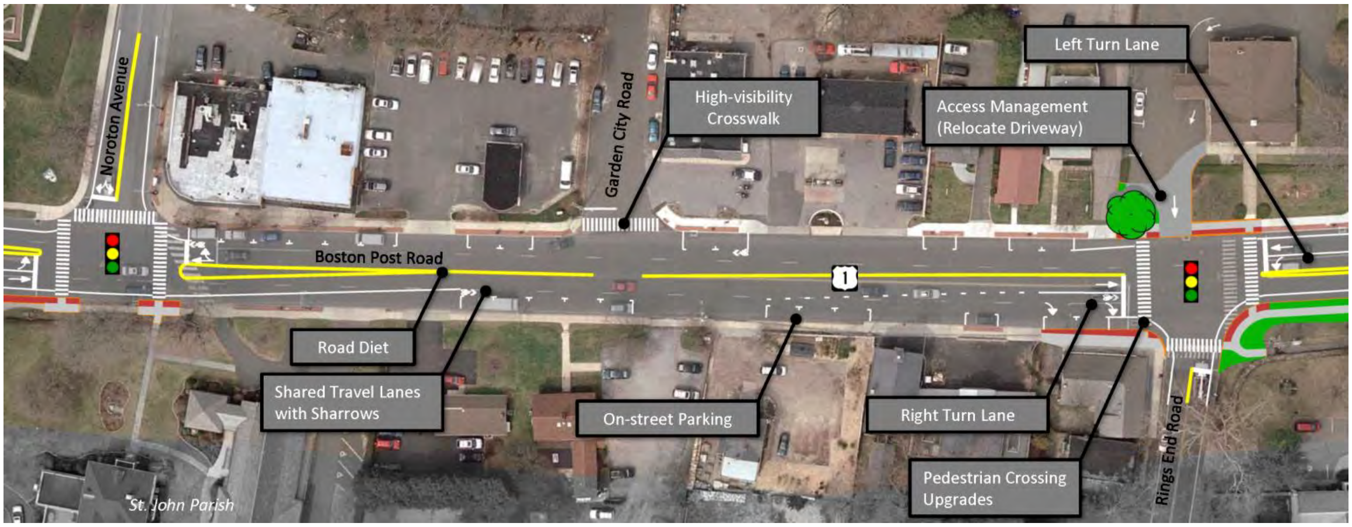
Nearwater Lane to Noroton Avenue

Route 1 in this sub-segment is characterized by two travel lanes in each direction with signalized intersections at Nearwater Lane and Noroton Avenue. The key recommendations for this area include:

- **Road Diet.** Reduce the number of travel lanes from four to two north of Nearwater Lane.
- **Narrow Travel Lanes and Striped Shoulders.** Delineate 11 ft travel lanes and 5 ft wide shoulders to encourage safe bicycle use.
- **Turn Lanes.** Provide a right turn lane and a left turn lane on the northbound and southbound approaches, respectively, to Nearwater Lane. Provide a left turn lane on the northbound approach to Noroton Avenue.
- **Corner Radius Reduction.** Modify the curb line in the northeast corner of the Nearwater Lane intersection to minimize turning speeds and to shorten the pedestrian crossing distance.
- **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the Nearwater Lane and Noroton Avenue intersections.
- **High-visibility Mid-block Crossing with Median.** Install pedestrian warning signs, high-visibility crosswalk, accessible sidewalk ramps, and landscaped curbed median (for pedestrian refuge) at the existing mid-block crossing at Noroton Presbyterian Church.



Noroton Avenue to Rings End Road



Route 1 in this sub-segment is characterized by two travel lanes in each direction with on-street parking permitted in the outside travel lane, and a signalized intersection at Rings End Road. The key recommendations for this area include:

- **Road Diet.** Reduce the number of travel lanes from four to two between Noroton Avenue and Rings End Road and maintain on-street parking with delineated parking stalls.
- **Shared Travel Lane with Sharrows.** Provide sharrow markings alongside the shared travel lanes adjacent to the on-street parking.
- **Turn Lanes.** Provide a right turn lane and a left turn lane on the northbound and southbound approaches, respectively, to Rings End Road.
- **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the Rings End Road intersection.

Rings End Road to Hecker Avenue

Route 1 in this sub-segment is characterized by two travel lanes in each direction with signalized intersections at Old Kings Highway South and Hecker Avenue. The key recommendations for this area include:

- **Road Diet.** Reduce the number of travel lanes from four to two and provide a shared center left turn lane between Rings End Road and Hecker Avenue.
- **Narrow Travel Lanes and Striped Shoulders.** Delineate 11 ft travel lanes and 4 ft wide shoulders to encourage safe bicycle use.
- **Turn Lanes**. Provide a right turn lane and a left turn lane on the northbound and southbound approaches, respectively, to Old Kings Highway South; provide a left turn lane on the southbound approach to Cross Street; and provide a left turn lane on the northbound approach to Hecker Avenue.

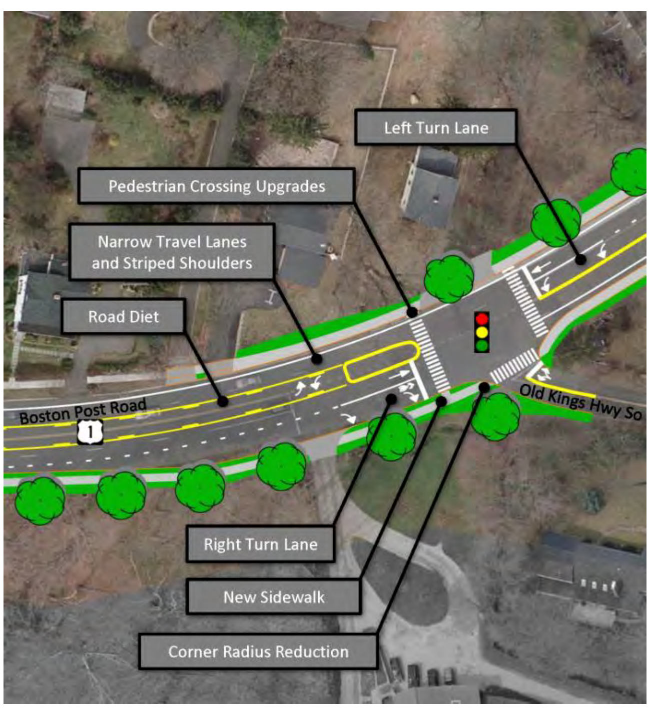
Looking north (east) along Route 1 from Old Kings Highway South. This rendering illustrates recommendations for a road diet, new sidewalk, and pedestrian crossing upgrades.

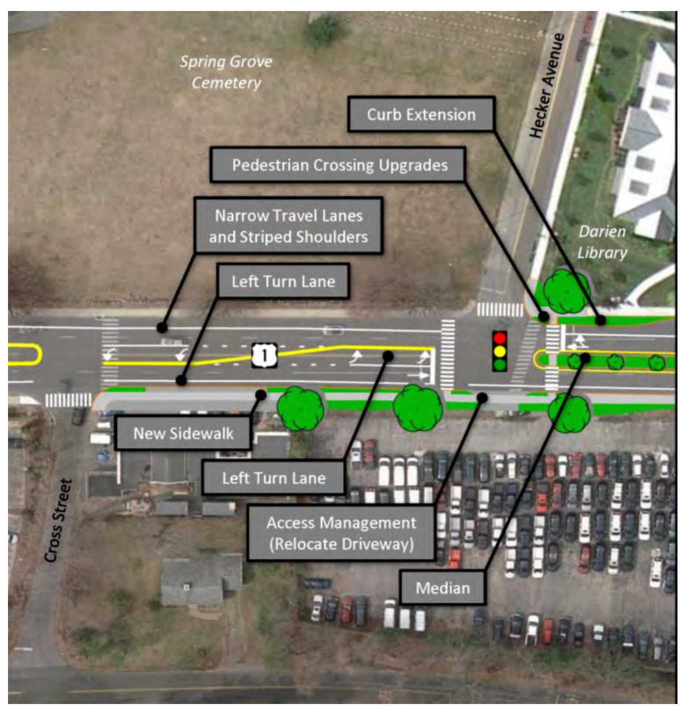
Rings End Road to Hecker Avenue (continued)

The key recommendations for this area also include:

Looking north (east) along Route 1 from just south of Hecker Avenue. This rendering illustrates recommendations for a road diet, striped shoulders, curbed median, and pedestrian crossing upgrades.

- **Corner Radius Reduction.** Modify the curb line in the southeast corner of the Old Kings Highway South intersection to minimize turning speeds from northbound Route 1 to Old Kings Highway South**.**
- **New Sidewalks.** Install new sidewalk in gaps along the east side of Route 1 to promote walkability and to provide continuity of accessible pedestrian facilities.
- **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility cross-walks at the Old Kings Highway South and Hecker Avenue intersections.
- **High-visibility Unsignalized Crossing with Median.** Install pedestrian warning signs, high-visibility crosswalk, accessible sidewalk ramps, and landscaped curbed median (for pedestrian refuge) for a new crossing at Renshaw Road.
- **Medians.** Provide landscaped curbed medians on Route 1 just south of Cross Street and on the southbound approach to Hecker Avenue to provide a traffic calming effect in these areas.
- **Curb Extension.** Install a curb extension in the northwest corner of the Hecker Avenue intersection to shorten the pedestrian crossing distance and to provide a traffic calming effect.

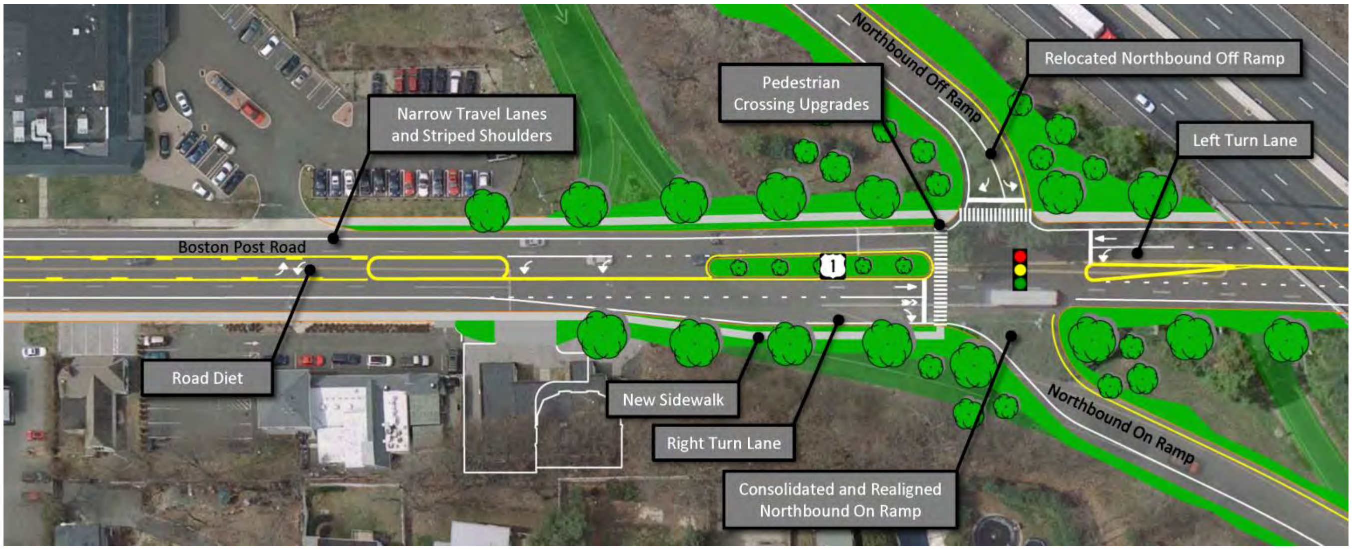




Hecker Avenue to I-95 Interchange 11

Route 1 in this sub-segment is characterized by two travel lanes in each direction with a signalized intersection at the Interchange 11 northbound ramps. Two alternative concepts – Concept A and Concept B – were explored for this segment of the South Corridor.

In general, Concept A continues the road diet that is recommended between Nearwater Lane and Hecker Avenue north through the interchange.



More specifically, the key recommendations of Concept A include:

- **Road Diet.** Reduce the number of travel lanes from four to two and provide a shared center left turn lane between Hecker Avenue and Interchange 11 northbound ramps.
- **Narrow Travel Lanes and Striped Shoulders.** Delineate 11 ft travel lanes and 4 ft wide shoulders to encourage safe bicycle use.
- **Turn Lanes.** Provide a right turn lane and a left turn lane on the northbound and southbound approaches, respectively, to the relocated northbound on ramp to provide acceptable traffic operations.
- **Intersection Modification.** Realign the Thorndal Circle approach to Route 1 to provide better sight lines to approaching southbound traffic and to provide more direct pedestrian access across the intersection.
- **Consolidated and Realigned Northbound On Ramp.** Combine the two existing northbound on ramp entrances into one ramp entrance from Route 1.
- **Relocated Northbound Off Ramp.** Realign the northbound off ramp opposite the consolidated on ramp to create a single signalized intersection and to provide a smaller interchange footprint.
- **New Sidewalk.** Install new sidewalk in gaps along the east side of Route 1 between Thorndal Circle and the recommended northbound on ramp intersection to provide continuity of accessible pedestrian facilities.
- **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the northbound ramps intersection.

Alternatively, Concept B ends the road diet recommendation at Hecker Avenue and transitions to the existing four lane roadway to the north. This concept provides outside shared travel lanes with sharrows in the four lane section and, similarly to Concept A, includes: modification of the Thorndal Circle intersection; consolidation of the northbound on ramps; realigment of the northbound off ramp; new sidewalk; and pedestrian crossing upgrades at the northbound ramps intersection.

Other Improvement Considerations

To promote walkability and to help create an enhanced gateway into Downtown, consider providing the following I-95 underpass treatments as part of either Concept A or B:

- Improved lighting, particularly along the sidewalk.
- Murals or other visual interest on the bridge abutments.

Downtown Recommendations

The Downtown segment consists of approximately 0.5 miles of the Route 1 study corridor located between Ledge Road and Sedgwick Avenue in the Central Business District (CBD).

Sub-segment Index for Downtown Corridor

Ledge Road to Leroy Avenue........................... ES-8
Corbin Drive to Day Street................................ ES-9
Day Street to Sedgwick Avenue......................ES-10

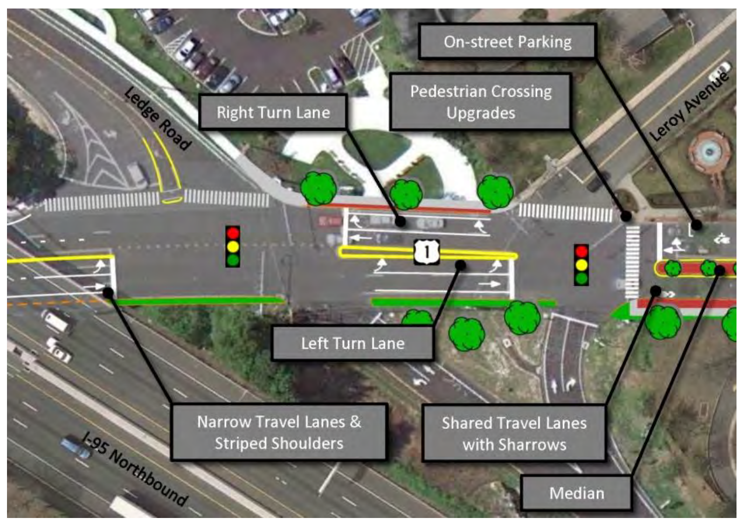
In general, the transportation improvement recommendations for this segment assume that improvements to mobility, access, and safety in the CBD should be provided without significantly impacting existing rights-of-way, businesses, or on-street parking. More specifically, the recommendations improve traffic operations, pedestrian facilities, bicycle facilities, and transit accommodations with limited widening of the roadway and some limited impacts to on-street parking.

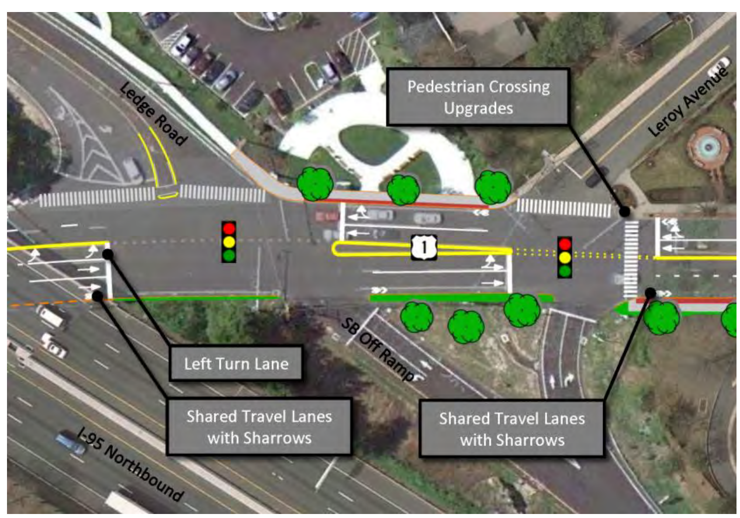
The following sections summarize the recommendations in each of the three sub-segments of Downtown.

Ledge Road to Leroy Avenue

Route 1 in this sub-segment is characterized by two travel lanes in each direction, no on-street parking, and two closely-spaced signalized intersections. Two alternative concepts – Concept A and Concept B – were explored for this sub-segment. In general, Concept A continues the road diet from the South Corridor and includes these key recommendations:

- **Narrow Travel Lanes and Striped Shoulders.** South of Leroy Avenue, provide one through travel lane in each direction and delineate 4 ft wide shoulders to encourage safe bicycle use.
- **Shared Travel Lanes with Sharrows and On-street Parking.** North of Leroy Avenue, provide sharrow pavement markings alongside shared travel lanes. Delineate new parking stalls along southbound Route 1.
- **Turn Lanes.** Provide a left turn lane and a right turn lane on the northbound and southbound approaches, respectively, to Ledge Road and Leroy Avenue to provide acceptable traffic operations.
- **Median.** Provide a short, landscaped curbed median on the southbound approach to Leroy Avenue to shadow the northbound left turn lane.





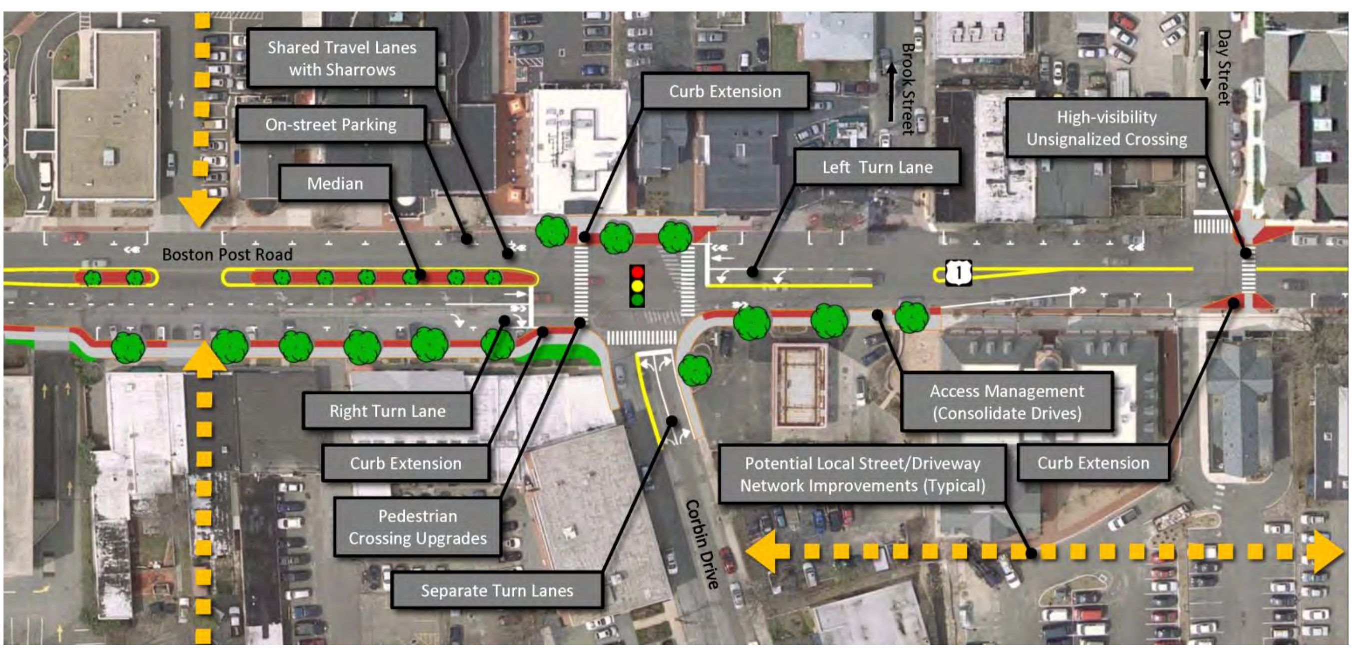
Alternatively, Concept B maintains two through travel lanes in the northbound and southbound directions through the interchange area and through the Leroy Avenue intersection. This concept also provides a left turn lane at Ledge Road and outside shared travel lanes with sharrows. It will be necessary to modify the southbound curb line between Ledge Road and Leroy Avenue and the northbound curb line north of Leroy Avenue to provide sufficient width for shared travel lanes.

Corbin Drive to Day Street

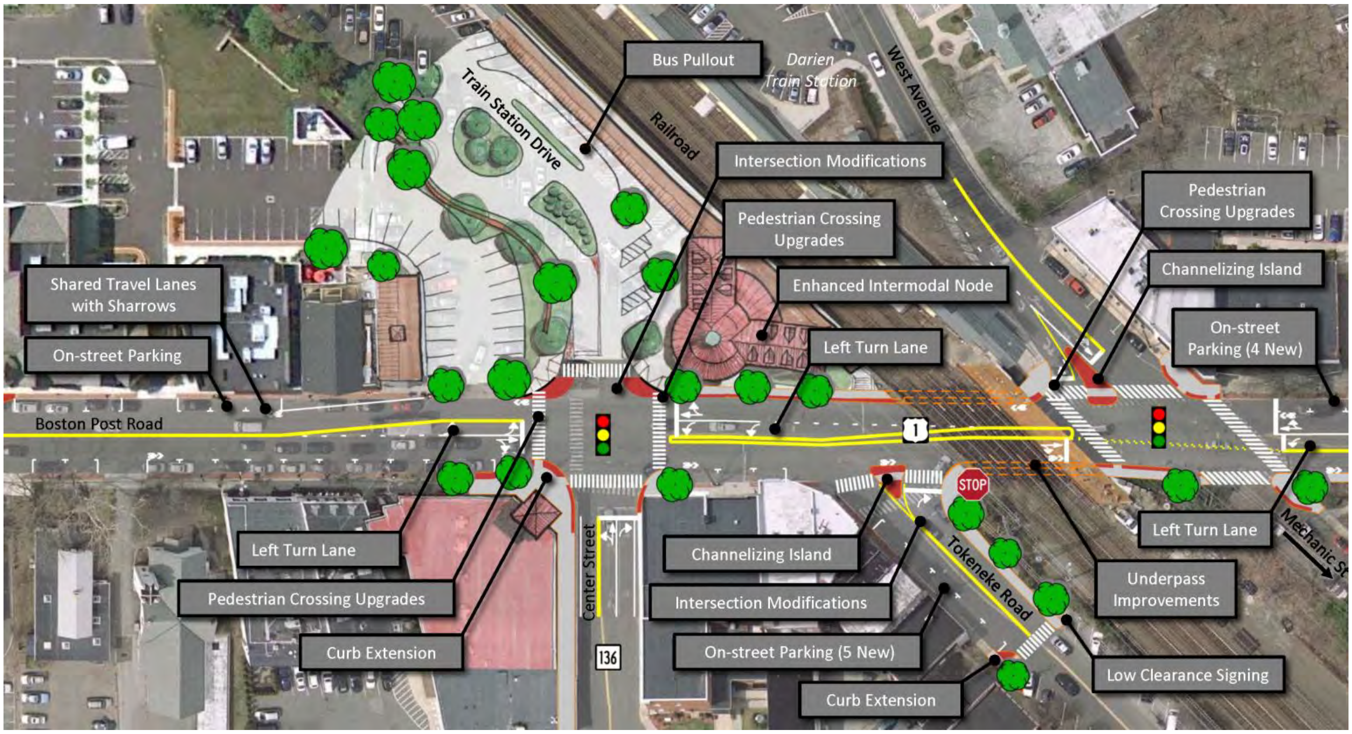
Route 1 in this sub-segment is characterized by one travel lane in each direction, with on-street parking, and a signalized intersection at Corbin Drive. The key recommendations for this area include:

Looking south (west) along Route 1 from Corbin Drive. This rendering illustrates the recommendations at this location including: curb extensions, landscaped curbed median, pedestrian crossing upgrades, and on-street parking.

- **Shared Travel Lanes with Sharrows.** Provide shared travel lanes with sharrows and modify the existing northbound curb line between Leroy Avenue and Corbin Drive to provide sufficient width for shared travel lanes, new on-street parking, and medians.
- **On-street Parking.** Delineate existing parking stalls. Provide new on-street parking to replace existing pull-in parking that fronts businesses along northbound Route 1 just south of Corbin Drive (contingent upon future redevelopment of these businesses).
- **Curb Extensions.** Provide curb extensions at Corbin Drive and Day Street to improve pedestrian visibility at crossings and to shorten crossing distances.
- **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the Corbin Drive intersection.
- **High-visibility Unsignalized Crossing.** Install a new pedestrian crossing on Route 1 at Day Street to provide a new formalized crossing location in the CBD.
- **Median.** Provide a landscaped curbed median on the northbound Route 1 approach to Corbin Drive to provide a traffic calming effect for vehicles entering the CBD.
- **Potential Local Street/Driveway Network Improvements.** Improve access, circulation, and walkability within the CBD by creating new interconnections between local streets, commercial driveways, and Route 1. Opportunities for new streets or driveways within various areas of Downtown could be realized concurrently with future redevelopment opportunities.



Day Street to Sedgwick Avenue



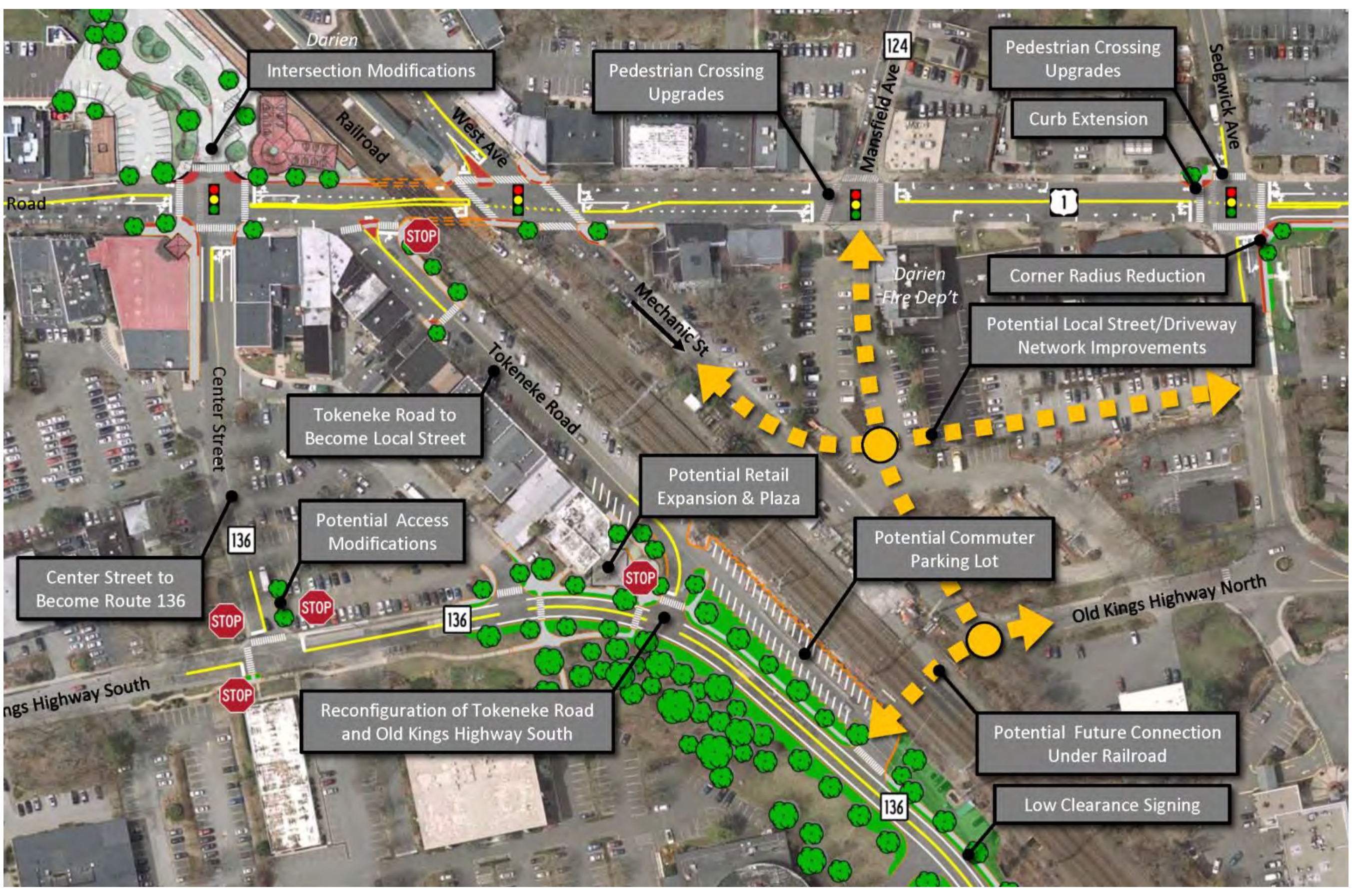
Route 1 in this sub-segment is characterized by one travel lane in each direction, with on-street parking, a railroad underpass, and signalized intersections at Center Street, Tokeneke Road, West Avenue, Mansfield Avenue, and Sedgwick Avenue. The key recommendations for this area include:

- **Shared Travel Lanes with Sharrows.** Provide a shared travel lane with sharrows through the CBD.
- **On-street Parking.** Delineate existing parking stalls and provide new on-street parking spaces along southbound Route 1 approaching West Avenue and along eastbound Tokeneke Road just east of Route 1.
- **Intersection Modifications.** Consolidate the existing one-way train station driveways and locate a new bi-directional driveway opposite Center Street. Eliminate the existing traffic signal at Tokeneke Road and prohibit left turns at the intersection; provide new stop sign for the Tokeneke Road approach.
- **Curb Extensions.** Provide curb extensions at Center Street (southeast and northeast corners), on Tokeneke Road (at terminus of diagonal parking), and at Sedgwick Avenue (southwest corner) to improve pedestrian visibility and to shorten crossing distances.
- **Corner Radius Reduction.** Modify the curb line in the northeast corner of the Sedgwick Avenue intersection to shorten the pedestrian crossing distances at the intersection.
- **Channelizing Islands.** Provide channelizing islands on Tokeneke Road and West Avenue approaches to Route 1 to better define vehicular movements and to provide pedestrian refuge for long crossings.
- **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the Center Street, West Avenue, and Sedgwick Avenue intersections. Install new accessible sidewalk ramp and high-visibility crosswalks at Mansfield Avenue to complement recent pedestrian signalization improvements completed by CTDOT.
- **Enhanced Intermodal Node.** Create an intermodal node adjacent to the train station with access from the newly consolidated train station driveway. Features of the intermodal node could include an off-line transit bus drop-off and turnaround; and a new transportation center that houses multimodal amenities such ticket vending, covered waiting areas, long-term bicycle parking, bus and train schedule information, and Downtown information kiosks. The center could also accommodate retail uses.

Day Street to Sedgwick Avenue (continued)

The key recommendations for this area also include:

- **Secondary Roadway Modifications.** To facilitate potential traffic diversion from Tokeneke Road to Center Street, reconfigure the intersection of Tokeneke Road and Old Kings Highway South and relocate a section of Old Kings Highway South to provide a direct movement to Tokeneke Road "East". The remaining segment of Tokeneke Road "West" can be realigned to provide a T-intersection with the new alignment.
- **Commuter Parking Lot.** In conjunction with the secondary roadway modifications, provide approximately 20 new parking spaces between the new Tokeneke Road East alignment and the railroad.
- **Potential Local Street/Driveway Network Improvements.** Create new interconnections between local streets, commercial driveways, and Route 1 that would improve overall circulation, access, and walkability within the north side of the CBD. These network improvements will accommodate alternate routes and modes of travel within the CBD thereby reducing motorist dependence on Route 1 for Downtown travel and mitigating traffic delays. Opportunities for new streets or driveways within various areas of Downtown could be realized concurrently with future redevelopment opportunities.
- **Low Clearance Signing Improvements.** To mitigate the high frequency of over-height vehicle collisions with the Metro-North railroad bridge, monitor and evaluate the effectiveness of current low vertical clearance warning signage in the downtown area. Implement appropriate signing modifications or enhancements (such as "Low Bridge Ahead" pavement markings and LED-enhanced warning signs on Route 1).
- **Railroad Underpass Drainage Improvements.** Evaluate the feasibility of near and long-term solutions to persistent flooding inssues that routinely close Route 1 to through traffic. Potential Drainage improvements could include a pump station that would maintain positive drainage from this location during heavy rains.



North Corridor Recommendations

The North Corridor segment consists of approximately 0.5 miles of the Route 1 study corridor located between Sedgwick Avenue and Old Kings Highway North. In this segment, existing Route 1 is characterized by one wide travel lane in each direction, with no delineated shoulders or turn lanes, and two signalized intersections.

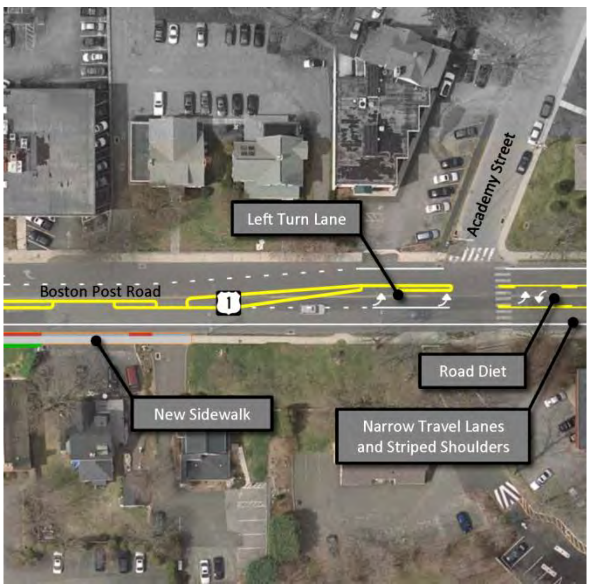
Sub-segment Index for North Corridor

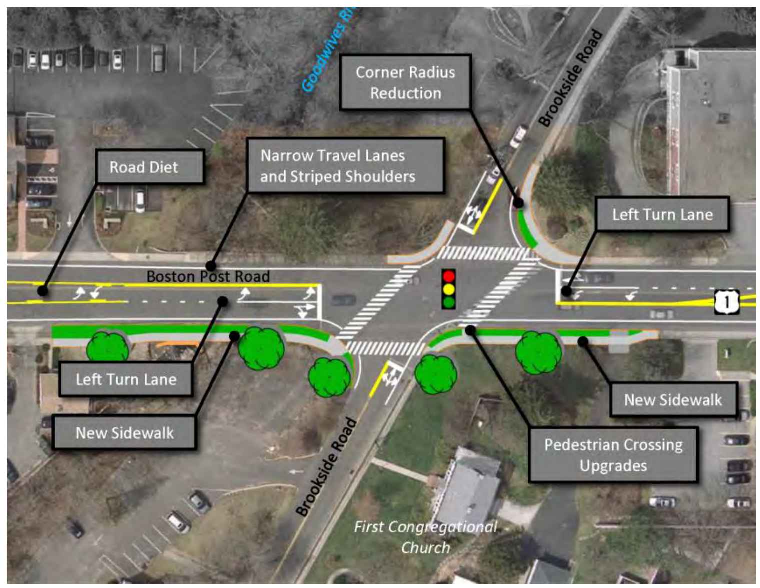
Sedgwick Avenue to Brookside Road…………………ES-12
Brookside Road to Old Kings Highway North………ES-13

In general, transportation improvement recommendations for this segment include implementing a *road diet* and providing better roadway definition to address safety and mobility issues. These recommendations will reduce the amount of roadway surface allocated to motor vehicles; improve bicycle and pedestrian facilities; and minimize vehicular conflicts and driver uncertainty.

The following sections summarize the recommendations in the two sub-segments of the North Corridor.

Sedgwick Avenue to Brookside Road



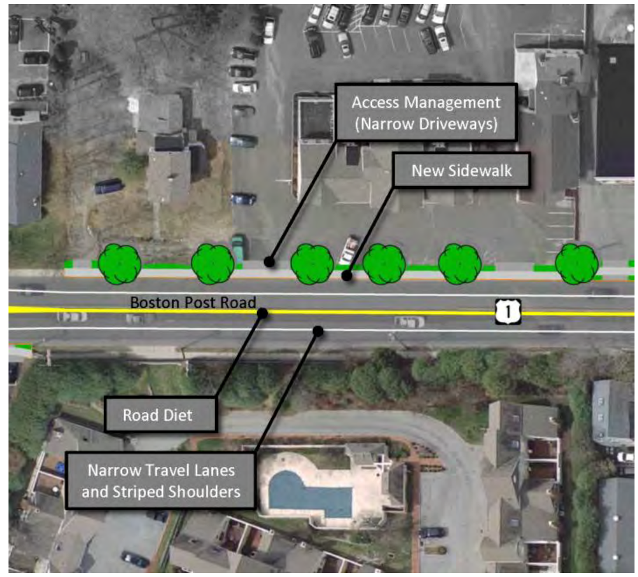


The key recommendations for this sub-segment of the North Corridor include:

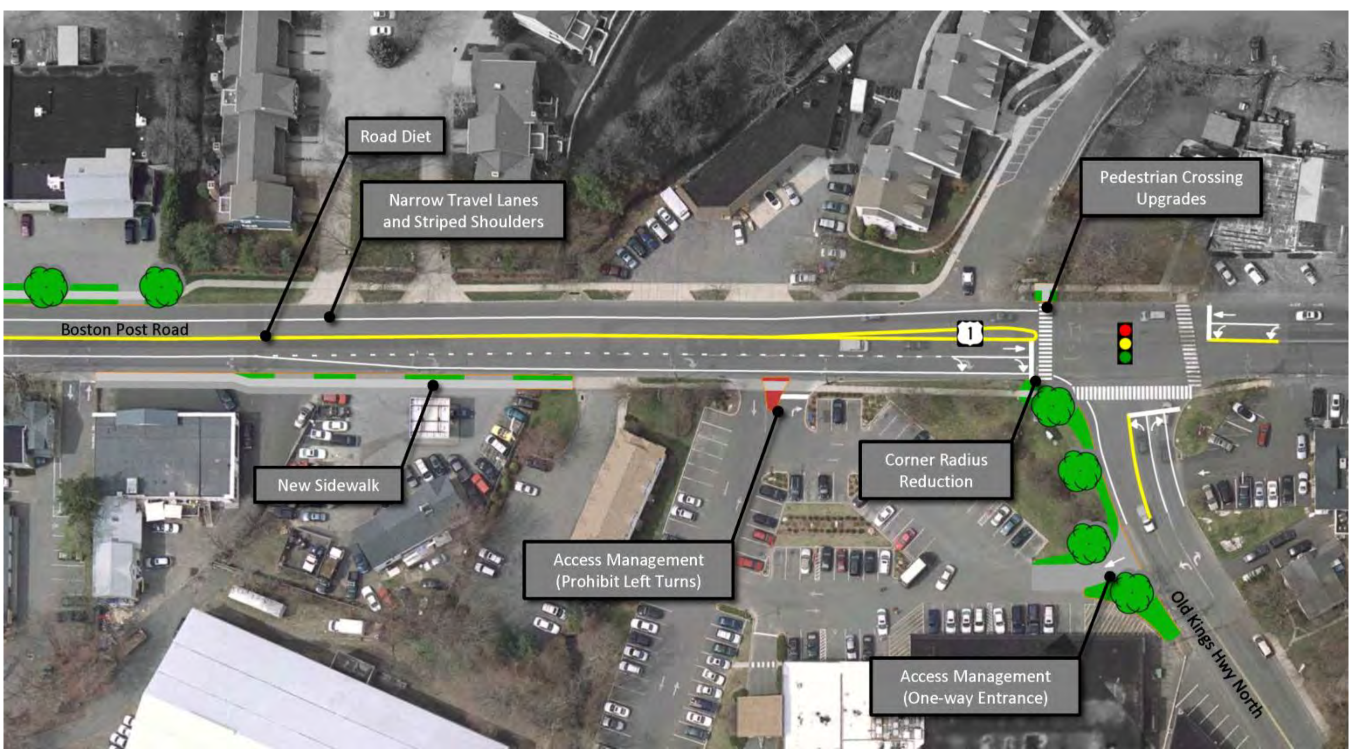
- **Road Diet.** Reduce the width of the existing wide travel lanes and utilize the balance of existing roadway space to provide turn lanes and shoulders south of Academy Street, and a center left turn lane with 4 ft wide shoulders north of Academy Street.
- **Narrow Travel Lanes and Striped Shoulders.** Delineate 11 ft travel lanes and 4 ft wide (or greater) shoulders to encourage safe bicycle use.
- **Left Turn Lanes.** Provide new left turn lanes on the unsignalized northbound approach to Academy Street, and on the northbound and southbound approaches to Brookside Road.
- **Corner Radius Reduction.** Modify the curb line in the northwest corner of the Brookside Road intersection to minimize turning speeds and to shorten pedestrian crossing distances.
- **New Sidewalks.** Install new sidewalk to close gaps along the east side of Route 1 to promote walkability and to provide continuity of accessible pedestrian facilities in the corridor.
- **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the intersection of Brookside Road.

Brookside Road to Old Kings Highway North

The key recommendations for this sub-segment of the North Corridor include:



- **Road Diet.** Reduce the width of the existing travel lanes and utilize the balance of existing roadway space to provide turn lanes at Old Kings Highway North and to maximize shoulder widths throughout this area.
- **Narrow Travel Lanes and Striped Shoulders.** Delineate 11 ft travel lanes and 4 ft wide (or greater) shoulders to encourage safe bicycle use.
- **New Sidewalks.** Install new sidewalk to close gaps along the east and west sides of Route 1 to promote walkability and to provide continuity of accessible pedestrian facilities in the corridor.
- **Access Management.** Implement commercial driveway modifications to minimize turning conflicts and improve safety, including: reducing the width and increasing the spacing of the driveways for the retail plaza on the west side of Route1 in this area; and prohibiting left turns to and from Route 1 and the parking lot for the retail plaza located in the southeast quadrant of the Old Kings Highway North intersection, while providing a new one-way entrance for the plaza from Old Kings Highway North to accommodate traffic from Route 1.
- **Corner Radius Reduction.** Modify the curb line in the southeast corner of the Old Kings Highway North intersection to minimize turning speeds from northbound Route 1 to Old Kings Highway North and to shorten pedestrian crossing distances.
- **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the intersection of Old Kings Highway North.



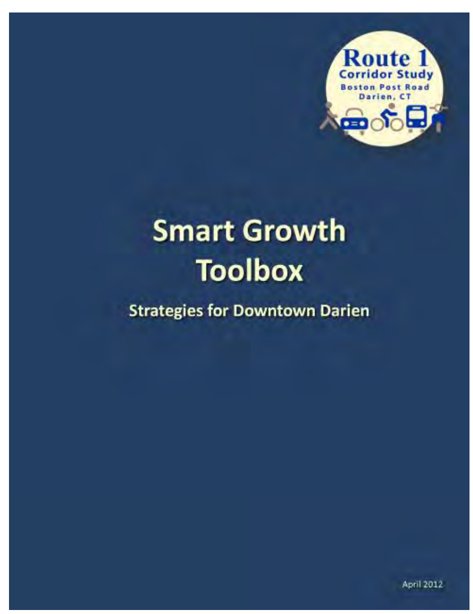
Land Use Recommendations

The land use recommendations of this study suggest ways in which Downtown Darien can continue to grow economically, while addressing issues associated with limited space, and while mitigating the potential traffic growth and potential parking needs associated with increasing development density. These recommendations are consistent with a ***Smart Growth*** planning philosophy and include:

- **Increasing Retail Density and Diversity of Uses.** The Town of Darien should continue to encourage development that provides a compact mix of retail, professional service, office, restaurant, and residential uses in Downtown. Residential uses provided in close proximity to stores, offices, and services encourage people to work and shop close to where they live. This promotes walking and bicycling for short trips and helps mitigate traffic growth that would otherwise be associated with new development and greater development density.
- **Creating Mixed-use Centers from Strip Plazas.** New development opportunities can be created where there are currently parking-intensive, suburban-style strip plazas – like Goodwives Shopping Center – by encouraging the redevelopment of these plazas into pedestrian-oriented, walkable, mixed use developments. Larger existing stores can be complemented with new multi-story, mixed-use buildings that increase floor areas and real estate values within a fixed amount of space. Parking needs can be met by allowing shared parking for complementary and proximate mixed uses.
- **Infilling along Downtown Streets.** Where possible, infill gaps between buildings and redevelop existing uses with closely spaced, multistory buildings, located close to sidewalks to create corridors of consistent, unbroken building façades along Downtown streets. Streets that have fewer gaps between buildings are generally more walkable, particularly when the streets are complemented with attractive streetscape and relatively wide sidewalks that comfortably accommodate street-level activity.
- **Optimizing Downtown Parking.** The Town should consider implementing measures and policies to better manage municipal parking supplies and allow structured parking in Downtown to sustain long-term economic growth and viability. More specifically, the Town should consider reducing mandated parking requirements and adopting parking maximums; allowing structured parking under its Special Permit process to accommodate more area for new development opportunities and to support greater development density; implementing paid parking for short-term parking; and implementing programs that encourage reduced-price parking for employees in targeted, outlying off-site parking facilities.

Top: Image of parking-intensive Goodwives Shopping Center [source: Bing Maps].

Bottom: Rendering of potential redevelopment of the shopping center to create a pedestrian-friendly mixed use center [source: CHA, 2010].



Detailed descriptions of the Smart Growth strategies recommended for the Route 1 study area are provided in a *Smart Growth Toolbox, Strategies for Downtown Darien* provided in Appendix 4 of the Final Report.

Implementation Plan

The Implementation Plan outlines a transportation improvement program that consists of 22 potential projects and initiatives that could be implemented over time to accomplish the transportation recommendations of this study. Projects in the program are defined by project complexity, planning-level cost, implementation horizon (very near, near, mid, or long-term horizon), and priority.

Complexity describes the level of engineering and potential impacts associated with the project. Implementation horizon describes the approximate timeline required to complete the implementation process from project initiation through construction; it is generally dependent upon complexity and cost. Priority describes the urgency with which the project should be initiated and implemented based on the potential safety, operational, accessibility, and community benefits of the project. The improvement program is summarized in Table ES-1; a full discussion of the improvement program is provided in Section 5 of the Final Report.

Table ES-1. Summary of Transportation Improvement Program

Project Description	Overall Complexity	Planning-level Cost	Priority
Very Near-term Program (0 to 2-year timeline)			
1. Vertical Clearance Warning Improvements at Railroad Bridge Two-phase project to address over-height truck collisions with the Route 1 railroad bridge in Downtown.	Low	$40,000	High
2. Phase 1 Speed Mitigation for Old Kings Highway South First phase of a two-phase initiative to address speeding issues on Old Kings Highway South, particularly near the Route 1 intersection.	Low	$15,000	Medium
3. Pavement Marking and Signing Improvements – by Darien Various pavement marking and signing improvements implemented and maintained by the Town.	Low	$10,000	Medium
4. Pavement Marking and Signing Improvements – by CTDOT Various pavement marking and signing improvements implemented and maintained by CTDOT.	Low	$65,000	Medium
5. Bus Stop Signing Improvements Provide bus route and schedule information at bus stops in the study corridor.	Low	$5,000	Low
6. Bus Stop Amenity Improvements Provide new amenities at Center Street and Ledge Road bus stops.	Low	$40,000	Low
7. Website Updates – Town of Darien Provide current and user-friendly parking and transit service information on the Town of Darien's website.	Low	$5,000	Low
8. Bike Rack Deployment Provide new bike racks at key community and commercial destinations throughout the study area.	Low	$11,000	Low
Very Near-term Program Subtotal Cost:		**$191,000**	

Table ES-1. Summary of Transportation Improvement Program

Project Description	Overall Complexity	Planning-level Cost	Priority
Near-term Program (3 to 5-year timeline)			
1. Feasibility Study for Drainage Improvements at RR Underpass Evaluate the feasibility of near and long-term solutions to persistent flooding issues at the railroad underpass.	Low	$250,000	High
2. Pedestrian Improvements at Day Street Install safety measures to provide a high-visibility, unsignalized pedestrian crossing on Route 1 at Day Street.	Low	$40,000	High
3. Phase 2 Speed Mitigation for Old Kings Highway South Second phase of a two-phase initiative to address speeding issues on Old Kings Highway South, particularly near the Route 1 intersection.	Moderate	$65,000	High
4. Phase 1 Program of Pedestrian Safety Improvements First phase of a two-phase program to provide new facilities that enhance pedestrian safety and create a more walkable corridor.	Moderate	$1,350,000	High
5. Phase 2 Program of Pedestrian Safety Improvements Second phase of a two-phase program to provide new facilities that enhance pedestrian safety and create a more walkable corridor.	Moderate	$1,150,000	High
6. Trial Road Diet – Nearwater Lane to Rings End Road Provide pavement markings and traffic signal modifications to implement a temporary road diet condition in Noroton.	Moderate	$200,000	Medium
7. Road Diet – Sedgwick Avenue to Old Kings Highway North Provide pavement markings, traffic signal upgrades, and associated improvements for a road diet.	Moderate	$1,050,000	Medium
Near-term Program Subtotal Cost:		**$4,105,000**	
Mid-term Program (6 to 10-year timeline)			
1. Street and Intersection Improvements – Leroy Ave to Corbin Dr Modify Route 1 between Leroy Avenue and Corbin Drive to address safety and mobility issues.	Moderate	$600,000	Medium
2. Road Diet – Nearwater Lane to Hecker Avenue Provide a permanent road diet by reducing the number of travel lanes from four to two.	Moderate	$1,800,000	Medium
3. Interchange 11 NB Ramps & Street Improvements – Hecker Ave to Leroy Ave Consolidate the northbound ramps intersections and improve Route 1 (Option A or B) between Hecker Avenue and Leroy Avenue.	Moderate	$1,900,000	Medium
Mid-term Program Subtotal Cost:		**$4,300,000**	

Table ES-1. Summary of Transportation Improvement Program

Project Description	Overall Complexity	Planning-level Cost	Priority
Long-term Program (Greater than 10-year timeline)			
1. Drainage Improvements at Railroad Underpass Provide drainage system improvements to resolve persistent flooding issues at the railroad underpass.	High	TBD	High
2. Center Street-Tokeneke Road-West Avenue Improvements Modify the intersections of Center Street, Tokeneke Road, and West Avenue to improve traffic operations in the CBD.	High	$2,100,000	Medium
3. Enhanced Intermodal Node at Train Station Expand the scope of Long-term Program Project 2 to incorporate elements of an intermodal node at the Darien train station.	Moderate	$2,000,000	Low
4. Tokeneke Road – Old Kings Highway North Connection Provide a new local roadway connection between Tokeneke Road and Old Kings Highway North via a new bridge passage under the existing railroad.	High	$10,000,000	Low
Long-term Program Subtotal Cost:		**$14,100,000 + TBD**	

As shown in Table ES-1, the planning-level cost for the complete program is approximately $22.7 million in defined costs, plus an additional cost to-be-determined for the drainage improvements at the railroad underpass. Approximately $2.9 million of high-priority projects are included in the program.

Table ES-2 (page ES-18) provides a summary of the evaluation that was completed to qualitatively determine the implementation horizon and priority of each project contained in the transportation improvement program. The projects are grouped top to bottom in ascending order of implementation horizon (from top: very near, near, mid, and long-term). Projects at the top of the table are relatively low complexity (in terms of overall impacts and the level of additional planning and engineering design required for the project) and relatively low cost and are therefore defined as very near-term projects that could be implemented over an implementation horizon of two years or less. Projects at the bottom of the table are relatively moderate to high in terms of complexity and cost and are generally defined as long-term projects that could require 10 years or more to implement. Within each group of projects, individual projects are listed in descending order of priority (from top: high, medium, and low priority). In general, the projects with a high level of safety need, a high level of safety benefits, and a high or moderate level of non-safety benefits were ranked as high-priority projects. Whether each project is expected to provide various safety and non-safety (mobility, accessibility, community, aesthetic, and quality-of-life) benefits is also shown in Table ES-2.

Funding Opportunities

Traditional Funding Programs. State and Federally funded transportation projects can be financed through one of numerous programs subject to eligibility requirements and a competitive application process. In general, State and Federally funded projects must be incorporated into the regional Transportation Improvement Program (TIP) and Statewide TIP (STIP).

Locally funded projects can be financed from the Town's capital improvement program and will be subject to the annual budget approval process. Many Federal funding programs will also require local participation, which typically equates to 10% to 20% of the project's construction cost.

Other Funding Opportunities. It is recommended that the Town establish a business improvement district (BID) within Downtown through which tax-based contributions from district businesses can be used to finance public infrastructure improvements within the BID.

The Town should also incentivize private developers to finance and implement various recommendations included in this plan as a contingency of the site plan approval process.

Table ES-2. Evaluation of Implementation Horizon and Priority for Projects in Transportation Improvement Program

Project Description	Direct Benefits: Motorist			Pedestrian			Bicyclist			Transit User			Other			Impacts				Complexity				Implementation				
	Safety	Mobility	Accessibility	Safety	Mobility	Accessibility	Safety	Mobility	Accessibility	Safety	Mobility	Accessibility	Community	Aesthetic	Quality-of-Life	Environmental	Utility	Right-of-Way	Overall	Overall Impacts	Additional Planning	Design Effort	Overall Complexity	Approximate Cost	Safety Need	Safety Benefits	Non-safety Benefits	Priority
Very Near-term Program (0 to 2-year timeline)																												
1 Vertical Clearance Warning Improvements at Railroad Bridge	Y	Y	N	N	Y	N	N	Y	N	Y	Y	N	Y	N	Y	L	L	L	L	L	L	L	L	L	H	H	M	H
2 Phase 1 Speed Mitigation for Old Kings Highway South	Y	N	N	Y	Y	N	Y	Y	N	N	N	N	Y	N	Y	L	L	L	L	L	L	L	L	L	M	H	L	M
3 Pavement Marking and Signing Improvements – by Town/Darien	Y	Y	N	N	N	N	Y	Y	N	N	Y	N	Y	N	Y	L	L	L	L	L	L	M	L	L	L	M	M	M
4 Pavement Marking and Signing Improvements – by CTDOT	Y	Y	N	Y	Y	N	Y	Y	N	N	N	Y	Y	N	Y	L	L	L	L	L	L	M	L	L	M	M	M	M
5 Bus Stop Signing Improvements	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	Y	L	L	L	L	L	L	L	L	L	L	L	L	L
6 Bus Stop Amenity Improvements	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	Y	L	L	L	L	L	L	M	L	L	L	L	L	L
7 Town of Darien Website Updates	N	N	Y	N	N	N	N	N	N	N	Y	Y	Y	N	N	L	L	L	L	L	L	L	L	L	L	L	L	L
8 Bike Rack Deployment	N	N	N	N	N	N	N	Y	Y	N	N	N	Y	N	Y	L	L	L	L	L	L	L	L	L	L	L	L	L
Near-term Program (3 to 5-year timeline)																												
1 Feasibility Study for Drainage Improvements at Railroad Underpass	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	NA	NA	NA	NA	NA	M	L	L	M	H	H	H	H
2 Pedestrian Improvements at Day Street	Y	N	N	Y	Y	Y	N	N	N	Y	N	N	Y	Y	Y	L	L	L	L	L	L	M	L	L	H	H	M	H
3 Phase 2 Speed Mitigation for Old Kings Highway South	Y	N	N	Y	Y	Y	Y	Y	N	N	N	N	Y	N	Y	L	L	L	L	L	L	M	L	L	H	H	M	H
4 Phase 1 Program of Pedestrian Safety Improvements	Y	N	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	Y	L	M	L	L	L	M	M	M	M	H	H	M	H
5 Phase 2 Program of Pedestrian Safety Improvements	Y	N	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	Y	L	M	L	L	L	M	M	M	M	H	H	M	H
6 Trial Road Diet – Nearwater Lane to Rings End Road	Y	N	N	Y	N	N	Y	Y	Y	Y	N	N	Y	N	Y	L	M	L	L	L	M	M	M	M	M	M	L	M
7 Road Diet – Sedgwick Avenue to Old Kings Highway North	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	L	M	L	L	L	L	M	L	M	M	M	H	M
Mid-term Program (6 to 10-year timeline)																												
1 Street and Intersection Improvements – Leroy Ave to Corbin Dr	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	M	M	M	M	M	H	M	M	M	M	H	M
2 Road Diet – Nearwater Lane to Hecker Avenue	Y	N	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	L	M	M	M	M	M	H	M	M	M	M	H	M
3 Interchange 11 Northbound Ramps and Street Improvements – Hecker to Leroy	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	M	M	L	M	M	M	H	M	M	M	M	H	M
Long-term Program (Greater than 10-year timeline)																												
1 Drainage Improvements at Railroad Underpass	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	H	H	H	H	H	L	H	H	H	H	H	H	H
2 Center Street-Tokeneke Road-West Avenue Improvements	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	M	M	M	M	H	H	H	H	M	M	H	M
3 Enhanced Intermodal Node at Train Station	N	N	N	N	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	L	M	M	M	M	M	M	M	H	L	L	H	L
4 Tokeneke Road – Old Kings Highway North Connection	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	Y	N	Y	M	H	H	H	H	M	H	M	VH	L	L	H	L

Ratings Key

Benefits provided by the projects are rated as Yes (Y) or No (N).
Impacts and Complexity are rated as Low (L), Moderate (M), High (H), or Not Applicable (NA).
Approximate Costs are rated as Low (L), Moderate (M), High (H), or Very High (VH).
Safety Need, Safety Benefits, and Non-safety Benefits of projects are rated as High (H), Moderate (M), or Low (L).
Priority is rated at High (H), Medium (M), or Low (L).

On-going Transportation Improvement Initiatives

There are several transportation improvement initiatives that could occur progressively over time and are not tied to any specific project outlined in the transportation improvement program. These initiatives include:

- **Access Management Improvements.** In general, access management improvements will be implemented in the corridor in conjunction with new development or redevelopment of existing parcels and uses in the corridor.
- **Local Street/Driveway Network Improvements.** Opportunities for new interconnections between local streets, commercial driveways, and Route 1 that would serve to improve access, circulation, and walkability within the Central Business District would require the assemblage of rights-of-way across numerous parcels. As such, it is anticipated that the improvements could be implemented or accommodated in conjunction with future redevelopment plans for the parcels on which these new network connections would be provided.
- **Transportation Demand Management (TDM) Strategies.** Several TDM strategies that aim to reduce the daily traffic impact of single occupancy vehicle use on the roadway network are implemented through policy initiatives, rather than physical transportation improvements. These policy initiatives can be endorsed by the Town and region, but will generally be implemented by private employers and utilized by individuals.

Non-traditional Implementation Mechanisms

The implementation of the transportation improvement recommendations and projects presented in this study will generally follow a traditional implementation process that is initiated and led by a public entity (typically Town of Darien) and carried through implementation by traditional funding mechanisms and design-bid-build processes. Some projects could be initiated and implemented by private entities or private developers through a variety of other, non-traditional mechanisms. Mechanisms by which these projects or project elements could be implemented include: Office of the State Traffic Administration (OSTA) Major Traffic Generator certification process, Town site plan approval process, and sponsorship programs.

Implementation Plan Monitoring

SWRPA will work with the Town of Darien, CTDOT, and other stakeholders to monitor the implementation plan. This will be a dynamic effort initiated by SWRPA on an annual or as-needed basis to review and update the plan relative to:

- **Project Status.** Projects moving through the implementation process will be tracked in terms of which stage of the process each project has reached (such as initiation/funding, preliminary engineering, final design, construction). Next steps, timelines, and roles/responsibilities of various entities involved in the process will be updated for each project.
- **Project Priorities.** The need and urgency for various projects can change over time as community priorities shift, critical needs are reevaluated, and funding opportunities arise. The priority level of projects in the plan will be regularly reviewed and updated relative to other projects in the town and region so that the highest priority projects are identified and advanced in a timely manner.
- **Funding and Implementation Opportunities.** Both traditional and innovative public and private-sector mechanisms for funding and implementation will be identified for each project. SWRPA will help determine the eligibility of various projects for State and Federal funding programs.

For additional information about this study, please visit:

The study website at: **www.darienroute1study.org**

or

The South Western Regional Planning Agency website at: **www.swrpa.org**

1
Introduction

The *Route 1 Corridor Study* was undertaken by the South Western Regional Planning Agency (SWRPA) in cooperation with the Town of Darien and the Connecticut Department of Transportation (CTDOT). The purpose of the study was to develop a comprehensive transportation plan for US Route 1 (Boston Post Road) in Darien that will:

- Provide for improved mobility, accessibility, and safety for all travelers, business owners, and residents along the corridor.
- Incorporate land uses and development strategies to support the transportation system recommendations, and vice versa.
- Benefit the overall quality-of-life in the corridor.

1.A Study Limits

The Route 1 ***study corridor***, as shown in Figure 1-1, included approximately 2.3 miles of Boston Post Road through Downtown Darien from Nearwater Lane to Old Kings Highway North. The broader ***study area***, also shown in Figure 1-1, included the network of local streets adjacent to Route 1 such as Old Kings Highway South, West Avenue, and Leroy Avenue.

The Route 1 study corridor represents a small segment of the 117-mile long Route 1 corridor that extends along southern Connecticut from Greenwich to Stonington, connecting important urban centers and paralleling I-95 for much of its length. In Darien, the Route 1 study corridor serves many important functions relative to both regional and local travel by:

- Providing a travel link between regional destinations along Route 1 such as Stamford to the west (south) and Norwalk to the east (north).
- Providing a travel link to other regionally significant roadways such as Route 124 (Mansfield Avenue) and Route 136 (Tokeneke Road).
- Providing direct access to I-95 at Exit 11, and indirect access at Exit 10 via Noroton Avenue and Exit 12 via Tokeneke Road.
- Providing access to businesses and municipal services in the Central Business District and Downtown.
- Providing access to residential uses and neighborhoods along Route 1 and proximate to Route 1.
- Providing access to public transit services such as commuter train service via the Darien train station and fixed route bus service via stops along Route 1.

In addition, Route 1 in the study area is a primary alternate route to I-95 and regularly accommodates traffic diversions resulting from traffic congestion and other traffic incidents on I-95. Increasing regional and through-traffic demands on Route 1, particularly during periods of significant traffic diversions, reduces corridor mobility; increases delays on Route 1; encourages the use of local streets and other regional roadways to bypass delays on Route 1; and inhibits access to local destinations in Downtown.

Additional details regarding the transportation system, travel environment, and land use in the Route 1 study area are discussed in detail in **Section 2, Existing Conditions Assessment**.

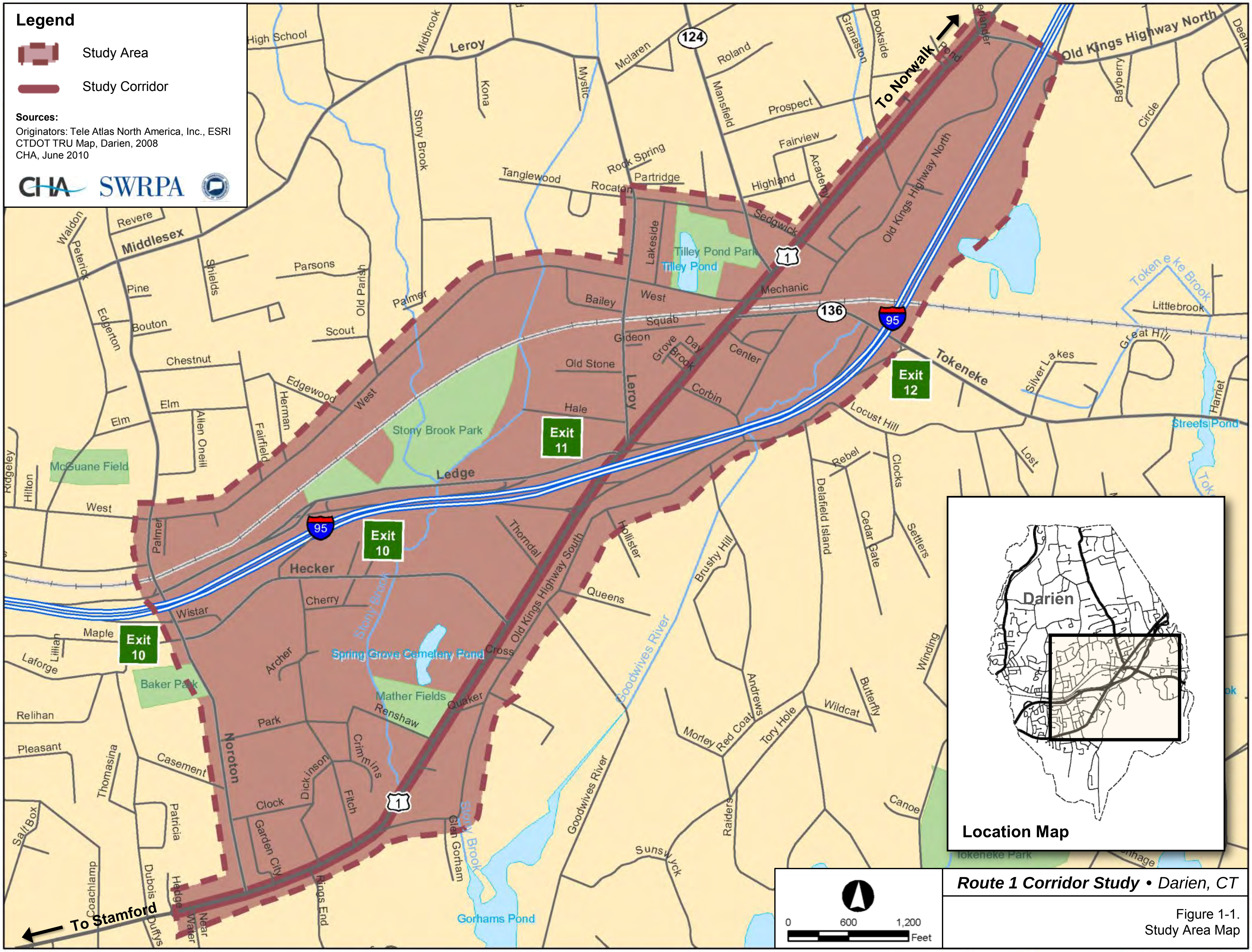


Figure 1-1.
Study Area Map

1.B Study Goals and Objectives

The study goals and objectives outlined below were developed with input from the Study Committee and served as a guide for defining the long-term community vision for transportation and land use in the Route 1 study corridor. The goals reflect the overall community desire to provide an efficient and safe multimodal transportation system that will help sustain the economic viability of Downtown while preserving the character and context of the study area.

Goal: Improve Mobility and Accessibility for All Users

Objectives:

- Optimize traffic operations by minimizing delays at critical intersections and managing traffic demands.
- Optimize traffic capacity by managing access to Route 1 and facilitating Downtown circulation through new connections adjacent to Route 1.
- Manage traffic diversions and the use of local streets for bypass.
- Address mobility constraints imposed by railroad bridge and associated drainage and flooding issues.
- Provide new and improved pedestrian facilities and intermodal connections.
- Provide new and improved bicycle facilities and intermodal connections.
- Improve convenience and attractiveness of public transit options.

Goal: Improve Corridor Safety

Objectives:

- Address safety concerns and deficiencies in high accident locations and other areas of concern.
- Provide measures to enhance visibility and safety of pedestrians and bicyclists.
- Minimize vehicular conflicts.
- Minimize conflicts between motorists and other users.
- Provide measures to calm traffic flow and manage vehicular speeds.

Goal: Assess Downtown Development Opportunities

Objectives:

- Investigate potential locations for new development and redevelopment.
- Define development areas, land uses, and development densities associated with a preferred Downtown development scenario and based on community preferences.
- Assess potential traffic impacts associated with a preferred Downtown development scenario.

Goal: Coordinate Land Use and Transportation Strategies and Recommendations

Objectives:

- Develop land use strategies and transportation recommendations based on *smart growth* principles that incorporate mixed uses, transportation choices, and context.
- Determine specific transportation improvements that will foster economic viability of Downtown.
- Assess potential access and parking needs and investigate alternative parking strategies to facilitate future Downtown development opportunities.

Goal: Preserve Character and Context of Study Area

Objectives:

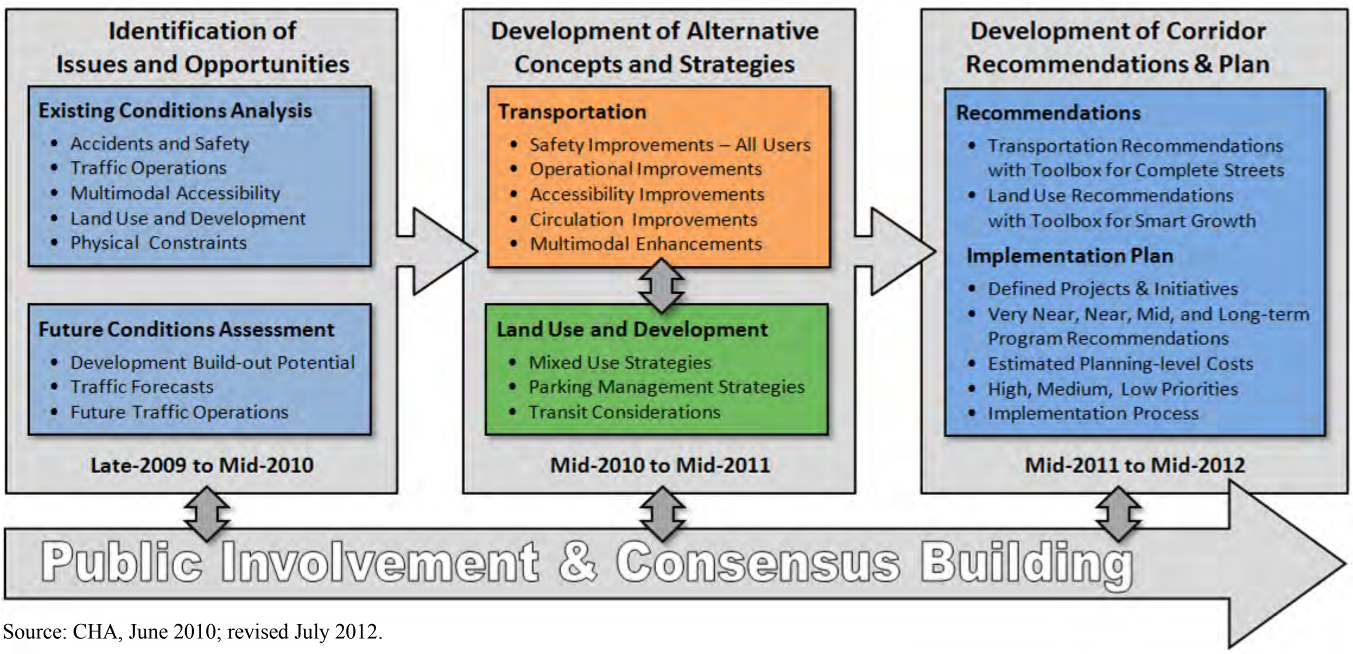
- Develop strategies and recommendations that fit the existing character of Darien.
- Avoid impacts to aesthetic, historic, environmental, and scenic resources.

1.C Study Process

This study was conducted through an iterative and collaborative process that actively involved study stakeholders in the development of the study and its recommendations, including: the identification of issues and opportunities in the study area; the development of alternative improvement concepts and strategies; and the development of an implementation plan to realize the programming and implementation of the study recommendations. Study stakeholders included the citizens of Darien, Town representatives, SWRPA, CTDOT, and representatives of other local and regional entities.

The study development process, illustrated in Figure 1-2, was defined by the public involvement components of the study. Public outreach was continuous throughout the study and engaged community participation at major study milestones. Community participation and input helped focus the study efforts and helped shape the recommendations, strategies, and implementation plans for future improvements in the study corridor. The intent of involving the community in the decision-making process was to help build consensus and support for the study and its recommendations.

Figure 1-2. Study Development Process



Source: CHA, June 2010; revised July 2012.

The public outreach mechanisms used throughout the study to facilitate community participation are detailed in the Public Involvement Summary (see Appendix 1.1, page A1-1, for details) and included:

- **Committees and Meetings** – Study Committee (SC) meetings with Town, SWRPA, and CTDOT representatives; Community Stakeholder Group (CSG) meetings with local business owners and citizen representatives; and community open house/informational meetings.
- **Surveys** – Visual Character Survey; survey of community priorities relative to transportation and land use; survey of corridor issues.
- **Study Information Outlets** – Study web site (www.darienroute1study.org); public television spots; study updates/newsletters; and study "business" cards to promote the study web site.

1.D Document Organization

The remainder of this document consists of four sections, including:

- **Section 2 – Existing Conditions Assessment.** Provides a detailed assessment of existing conditions in the study area relative to transportation system conditions (including roadway characteristics; traffic conditions; pedestrian accommodations; bicycle facilities; public transit services; and accident history), and land use and development (including study area context; zoning provisions; municipal parking; zoning constraints; infill development opportunities; and development trends).
- **Section 3 – Future Conditions Assessment.** Provides an evaluation of the potential future traffic growth in the study area and an assessment of the resultant traffic operations. Also presents a hypothetical future Downtown development scenario and discusses the potential parking needs associated with the scenario.
- **Section 4 – Recommendations.** Provides detailed descriptions and graphics for the transportation improvement recommendations that were developed for the South Corridor, Downtown, and North Corridor segments of Route 1. Also provides a summary of the Smart Growth land use recommendations for Downtown Darien.
- **Section 5 – Implementation Plan.** Provides a detailed program of 22 potential projects and initiatives that can be implemented over time to accomplish the transportation improvement recommendations of this study. Also presents guidance on the implementation process including discussion on project funding opportunities.

This document also includes appendices containing: a glossary of technical terms and acronyms; a public involvement summary; supporting technical data and figures; supporting documents including *Complete Streets Strategies and Tools for Boston Post Road, Darien* and *Smart Growth Toolbox, Strategies for Downtown Darien*; and other information relevant to discussion contained in the body of the text. Cross-references to the appendices are provided in the document to direct the reader to additional information.

2

Existing Conditions Assessment

The existing conditions assessment identifies and evaluates the issues, deficiencies, and opportunities relative to the current transportation system and land use conditions in the Route 1 study area. The existing conditions assessment also establishes a baseline to which anticipated future conditions can be measured and various improvement recommendations can be compared.

2.A Transportation System

The transportation system in the Route 1 study area includes the state and local roadway network, pedestrian and bicycle facilities, and public transit services and amenities that facilitate the mobility of people and goods to and from the study area and between regional destinations.

Understanding how efficiently and safely the various components of the existing transportation system are meeting the mobility and accessibility needs of the system users is an important first step in identifying the near and long term needs of the system.

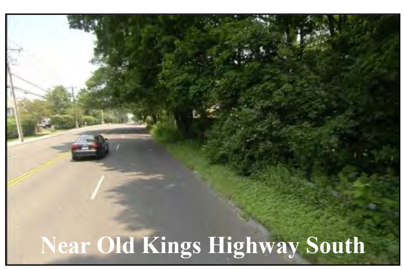
This section presents the baseline conditions of the transportation system in the Route 1 study area relative to characteristics of the Route 1 study corridor; traffic conditions and operations; traffic circulation; multimodal accommodations for pedestrians, bicyclists, and public transit users; and accident history.

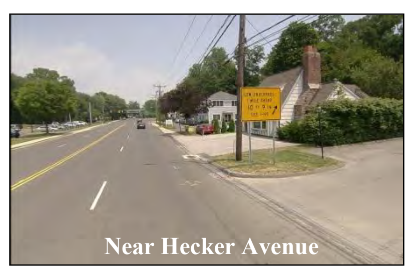
2.A.1 Roadway Characteristics

The physical roadway characteristics of the Route 1 study corridor are described below for each of three distinct corridor segments: Nearwater Lane to Ledge Road; Ledge Road to Sedgwick Avenue (Central Business District); and Sedgwick Avenue to Old Kings Highway North. This section provides a general summary of the roadway itself (between the curbs); pedestrian accommodations such as sidewalks and crossings are discussed separately in Section 2.A.5 (page 2-15). Appendix 2.1 (page A2-1) provides a detailed summary of the roadway characteristics for each intersection and roadway segment in the Route 1 study corridor.

Nearwater Lane to Ledge Road


North of Noroton Avenue


Near Old Kings Highway South


Near Hecker Avenue

This segment of Route 1 is approximately 1.3 miles long and is generally characterized by:

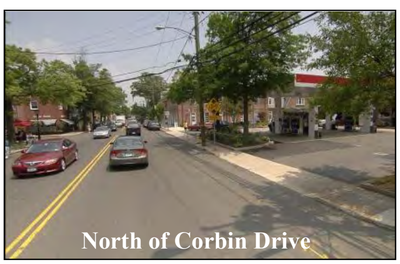
- Two travel lanes in each direction.
- Inside travel lane widths of 10.5 – 11 ft. Outside travel lane widths of 10.5 – 16 ft depending on overall road width.
- Overall road width that varies between 42 ft (at Stony Brook Crossing) and 60 ft (near Nearwater Lane).
- No defined shoulders.

- Some on-street parking on both sides of Route 1 in Noroton between Noroton Avenue and Rings End Road. Parking spaces are not delineated and encroach on the right travel lanes.
- Seven signalized intersections at: Nearwater Lane, Noroton Avenue, Rings End Road, Old Kings Highway South, Hecker Avenue, Exit 11 northbound ramps, Exit 11 southbound off ramp/Ledge Road.
- Generally no exclusive turn lanes at signalized or unsignalized intersections (with the exception of a southbound left turn lane at Exit 11 northbound on ramp and a northbound left turn lane at Ledge Road).
- Access density of approximately 65 access points per mile, 60% of which are commercial access.
- Posted speed limit of 30 mph between Nearwater Lane and Fitch Avenue; 35 mph elsewhere.

Specific issues and constraints associated with this segment of Route 1 include:

- Poor intersection geometry at Old Kings Highway South. The skewed alignment of the Old Kings Highway South approach to Route 1, the large pavement area in the southeast quadrant of the intersection, and the downgrade on Route 1 in the northbound direction are conditions that accommodate relatively high speed vehicular movements from northbound Route 1 to Old Kings Highway South, which is a narrow, residential roadway that is commonly used as an alternate route to Downtown and Tokeneke Road (see Section 2.A.4, page 2-12).
- Poor intersection geometry at Exit 11 northbound on ramp. The skewed alignment of the ramp and large pavement area in the southeast quadrant of the intersection are conditions that accommodate relatively high speed vehicular movements from northbound Route 1 to the ramp. These movements are a particular concern because the sidewalk along the east side of Route 1 terminates at this location and there is no crosswalk here to warn motorists that the interchange is a potential pedestrian environment.
- Wide roadway section with wide right travel lanes and no striped shoulders in some areas can encourage higher travel speeds.
- Roadway flooding issues near Darien Automotive Group. These issues were detailed in a *Drainage Study Report* (State Project No. 35-191) published in December 2007.

Ledge Road to Sedgwick Avenue (Central Business District)


North of Corbin Drive


North of Center Street


South of Mansfield Drive

This segment of Route 1 is 0.5 miles long and is generally characterized by:

- One travel lane in each direction.
- Overall road width that varies between 44 ft (near West Avenue) and 52 ft (near Tokeneke Road).
- No defined shoulders.
- On-street parking along west side between Playhouse and Dunkin' Donuts and between Mansfield Avenue and Starbucks. Parking spaces are generally not delineated.
- On-street parking along east side between Brook Street and Center Street and between Mansfield Avenue and Sedgwick Avenue. Parking spaces are generally not delineated.
- Seven signalized intersections at: Leroy Avenue, Corbin Drive, Center Street, Tokeneke Road, West Avenue/Mechanic Street, Mansfield Avenue, Sedgwick Avenue.
- Exclusive turn lanes defined at Corbin Drive, West Avenue, Mansfield Avenue, and Sedgwick Avenue.
- Access density of approximately 67 access points per mile, 100% of which are commercial access.
- Posted speed limit of 25 mph.

Specific issues and constraints associated with this segment of Route 1 include:

- Limited and non-standard vertical clearance at railroad underpass that has resulted in 18 vertical clearance-related fixed object collisions between trucks and the bridge in a three year period from 2006 to 2008 (see Section 2.A.9, page 2-25, for additional details).
- Roadway flooding issues at railroad underpass.
- Closely spaced signalized intersections of Center Street, Tokeneke Road, and West Avenue that essentially dictate traffic operations in the CBD (see Section 2.A.3, page 2-4, for additional discussion).
- Poorly defined lane usage, particularly at some signalized intersections, where sufficient roadway width exists to accommodate a single travel lane and a left or right turn lane but no lanes are defined with pavement markings. This condition can lead to motorist confusion and uncertainty, potentially creating safety concerns and delays at these locations. Examples: Route 1 southbound approach to Center Street, adjacent to bus stop for rail station; Route 1 southbound approach to Leroy Avenue.
- Northbound motorists in the right-turn-only lane approaching Corbin Drive traveling straight through the intersection and merging with through traffic north of the intersection. On-street parking is located just north of this area, and pedestrian activity crossing Route 1 is relatively high in this area, creating safety concerns.

Sedgwick Avenue to Old Kings Highway North


North of Sedgwick Avenue


North of Academy Street


North of Brookside Road

This segment of Route 1 is 0.5 miles long and is generally characterized by:

- One travel lane in each direction.
- Overall road width that varies between 37 ft (near Goodwives River crossing) and 48 ft (at Old Kings Highway North).
- No defined shoulders.
- Limited on-street parking near Academy Street.
- Two signalized intersections at: Brookside Road and Old Kings Highway North.
- Exclusive turn lanes defined at Old Kings Highway North.
- Access density of approximately 80 access points per mile, 94% of which are commercial access.
- Posted speed limit of 25 mph from CBD north to Academy Street; 35 mph elsewhere.

Specific issues or constraints associated with this segment of Route 1 include:

- Lack of defined lanes and shoulders along this segment encourage motorists to use the roadway as a four lane roadway and pass vehicles that are slowing or turning.
- Crest vertical curve north of Brookside Road intersection limits sight lines approaching the intersection.

2.A.2 Route 1 Relative to Current Standards

Route 1 is classified by the Connecticut Department of Transportation (CTDOT) as an urban principal arterial roadway. This classification serves to define minimum standards – shown in Table 2-1 – for roadway features such as travel lane and turning lane widths, parking lane widths, and shoulder widths.

As presented above, segments with travel lane widths that are 11 ft wide meet current minimum design standards for travel lane width. Because shoulders and parking lanes are not delineated in the corridor, the overall roadway width needs to be assessed to determine whether there is sufficient space within the existing roadway to provide the required minimum widths for existing travel lanes, turning lanes, parking lanes and/or shoulders.

Table 2-1. Urban Arterial Road Standards

Design Element	Minimum Design Value
Lane Widths	
• Travel Lane	11 ft
• Turning Lane	11 ft
• Parking Lane	10 ft
Shoulder Widths	4 ft

Source: CTDOT Highway Design Manual, 2003, Figs. 5B/5C
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, June 2010

The minimum overall roadway widths required to provide standard lane and shoulder widths for various typical roadway sections in the study corridor are:

- 64 ft for four 11 ft travel lanes with on-street parking both sides
- 52 ft for four 11 ft travel lanes, 4 ft shoulders, with no on-street parking
- 42 ft for two 11 ft travel lanes with on-street parking both sides, no turn lanes
- 41 ft for two 11 ft travel lanes, one 11 ft turn lane, 4 ft shoulders, with no on-street parking
- 36 ft for two 11 ft travel lanes with on-street parking one side, no turn lanes
- 30 ft for two 11 ft travel lanes, 4 ft shoulders, with no on-street parking

Based on these required minimum roadway widths, the following roadway sections are not sufficiently wide to provide standard widths for the existing lane and/or shoulder arrangements:

- Route 1 between Noroton Avenue and Rings End Road – four lanes with on-street parking both sides.
- Route 1 between Rings End Road and I-95 Exit 11 – four lanes, with shoulders, no on-street parking.

It is noted that areas with insufficient road widths relative to current standards are not necessarily in need of immediate widening to improve the existing roadway. In fact, narrow travel lanes and roadways can serve as traffic calming measures by encouraging slower traffic speeds. However, areas that are particularly constrained due to on-street parking, presence of turn lanes, and other factors, should be considered for reallocation of the available roadway width to best suit the overall corridor needs and goals relative to mobility and accessibility.

Furthermore, sections of roadway that are poorly defined relative to lane use, shoulders, and on-street parking, or that are overly wide relative to current and/or future needs, should be considered for better-defined use or reallocation of space for features such as new on-street parking, bike lanes, or wider sidewalks.

2.A.3 Traffic Conditions

Existing traffic conditions are assessed to establish a baseline against which the anticipated future conditions and potential impacts of future traffic growth can be evaluated. The assessment of traffic in the Route 1 study corridor included compilation and analysis of average daily traffic volumes, peak hour traffic volumes, peak hour travel trends, and peak hour traffic operations.

Daily Volumes

CTDOT maintains a database of average daily traffic (ADT) volumes for all State and some select local roadways that was referenced for this study. The database is updated approximately every three years as new count data is collected. CTDOT most recently collected counts in the Route 1 study area in 2011. Counts were also collected in 1996, 1999, 2002, 2005, and 2008. The 2011 ADT volumes are illustrated in Figure 2-1 and are summarized in Table 2-2. Historical ADT volumes obtained from CTDOT are also summarized in Table 2-2.

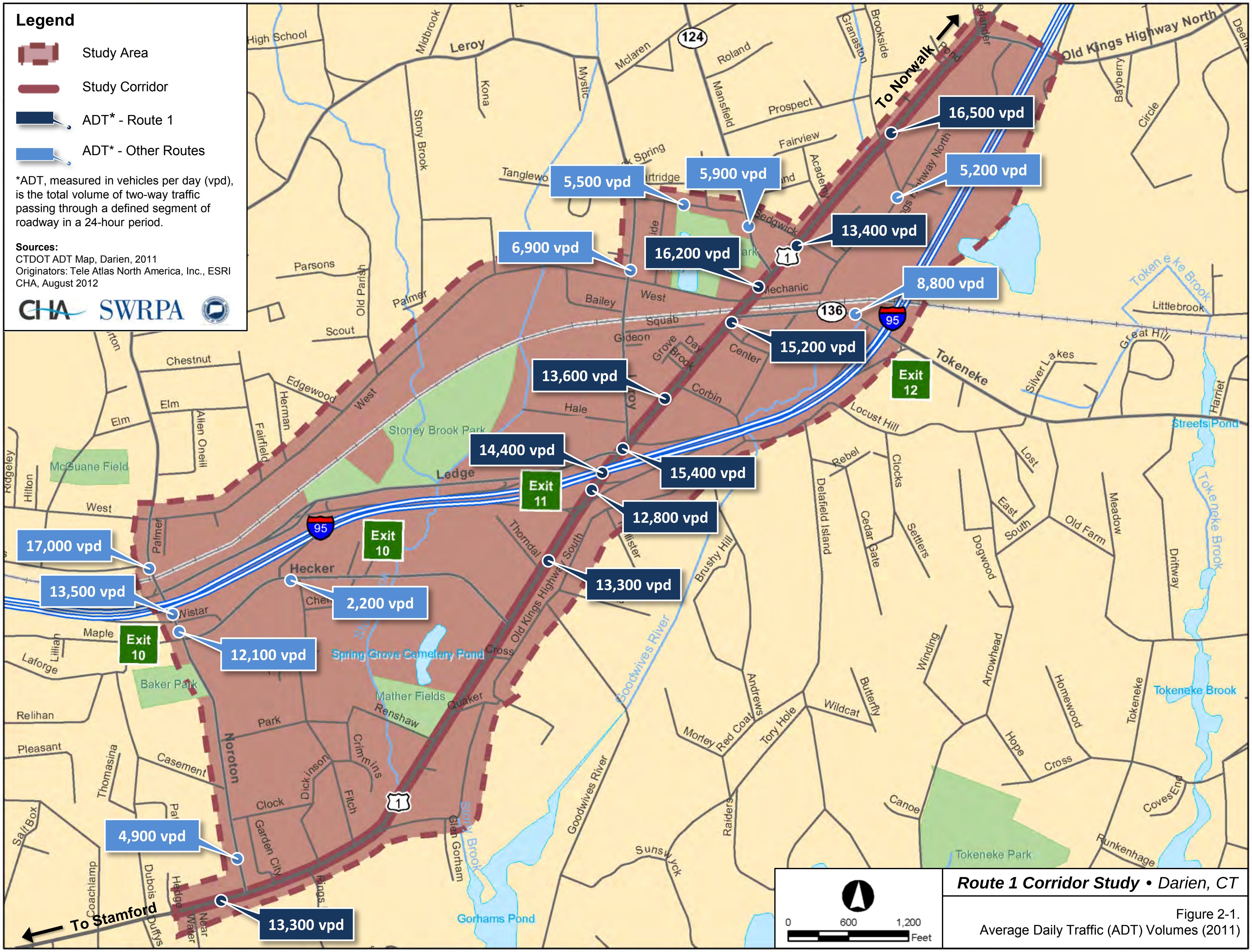


Figure 2-1.
Average Daily Traffic (ADT) Volumes (2011)

Table 2-2. ADT Volume Summary, 1996 – 2011

Location	ADT Volume [vehicles per day]					
	1996	1999	2002	2005	2008	2011
South of Exit 11						
Between Nearwater Lane and Noroton Avenue	11,900	-	13,500	10,600	11,500	13,300
Between Thorndal Circle & Exit 11 NB Ramps	13,200	14,400	13,000	12,100	13,900	13,300
Exit 11						
Between Exit 11 NB Ramps & Ledge Road	-	-	12,600	12,800	13,100	14,400
North of Exit 11						
North of Leroy Avenue	16,300	16,700	13,900	14,000	14,700	13,600
Between Center St & Rte 136 (Tokeneke Rd)	17,500	17,500	15,500	16,600	16,200	15,200
South of Route 124 (Mansfield Avenue)	17,800	17,900	17,500	18,000	17,800	16,200
North of Route 124 (Mansfield Avenue)	15,500	15,300	15,000	15,100	14,600	13,400

Source: CTDOT Traffic Count Locator Program, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, August 2012

As shown in the figure and table, the highest daily volumes occur between Mansfield Avenue and Center Street where traffic from Route 1, Tokeneke Road (Route 136), Mansfield Avenue (Route 124), and other local roadways are concentrated at the railroad crossing – which is one of only two crossings in Downtown. The lowest daily volumes occur at the southern end of the study corridor where development density and traffic generation is lower than in other areas of the corridor that are near the influence of the interchange and CBD.

The historic data shows that volumes in the study corridor have generally fluctuated higher and lower between 1996 and 2011. Overall, 2011 volumes at most locations are lower than their respective historical highs, and 2011 volumes at several locations, particularly north of Exit 11, are lower than 1996 volumes. This data indicates that volumes have not consistently increased over time in the area.

The historic daily traffic data for the Route 1 study corridor is consistent with historic data for the entire Route 1 corridor in the South Western region. An assessment of the overall daily vehicle miles traveled (VMT) on Route 1 in the region shows that there have been fluctuations in VMT from year to year and an overall decrease of approximately 1% between 1996 and 2008. For comparison, other arterials in the region have experienced consistent traffic growth over that time period, including Route 15 (Merritt Parkway) and I-95, which have both experienced an increase in VMT of approximately 12%.[1,2]

Peak Hour Volumes and Trends

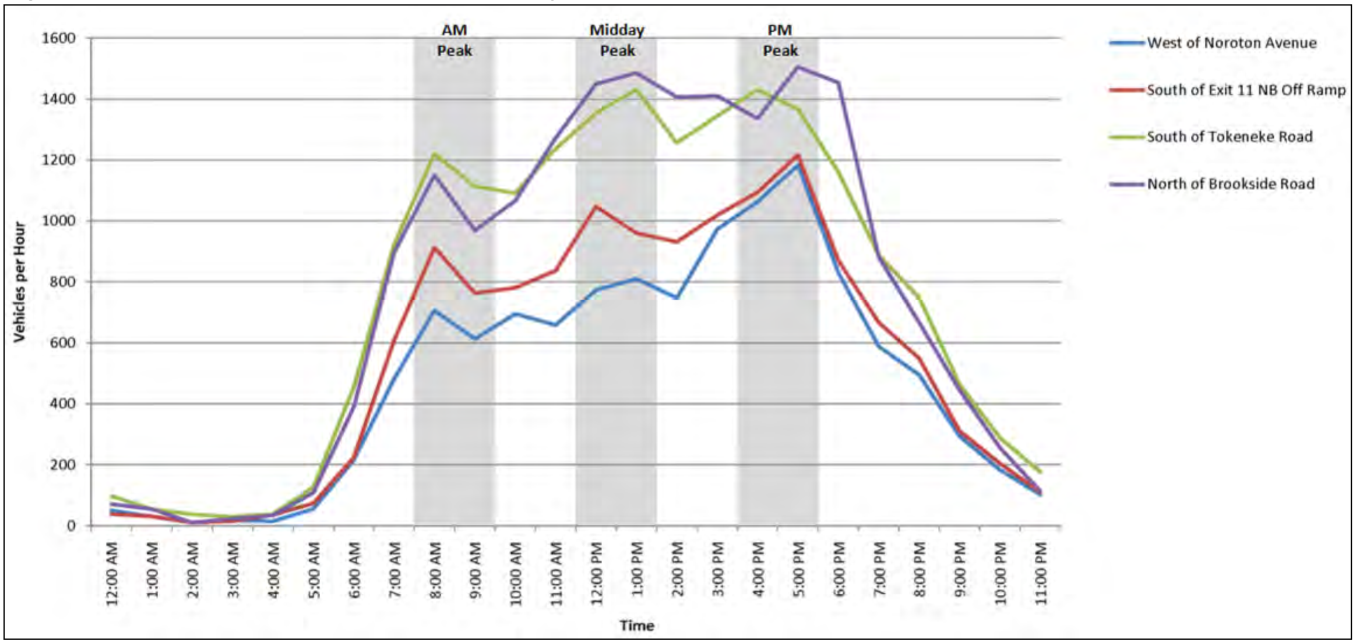
Intersection turning movement counts were obtained at 17 intersections in the Route 1 study corridor in October 2009. Counts were also obtained at two additional intersections in March 2011. These counts were taken during the weekday midday peak period (12 to 2 pm) and afternoon (PM) peak period (4 to 6 pm) to correspond with the peak travel periods in the study corridor as shown in Figure 2-2.

As shown in Figure 2-2, traffic volumes (in vehicles per hour) are higher during the midday peak period than during the morning (AM) peak period. In many corridors, the AM and PM peak periods typically experience the highest volumes when commuter traffic is the predominant component of overall daily traffic. In Darien, however, the influence of Downtown development and traffic generation to and from commercial developments in the CBD, particularly during the midday period, are more predominant that the influence of commuter traffic during the AM peak period. As such, the traffic counts and subsequent traffic operations analyses were conducted for the midday and PM peak periods to reflect these trends.

[1] *2001 Congestion Screening and Monitoring Report*, CTDOT, September 2001.

[2] *2009 Congestion Screening and Monitoring Report*, CTDOT, October 2009.

Figure 2-2. Peak Travel Periods in Route 1 Study Corridor



Source: CTDOT Traffic Count Locator Program, 2008
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, June 2010

The existing midday and PM peak hour volumes, which were used as the basis for the existing traffic operations analyses, are provided in Appendix 2.2 (page A2-19). CTDOT assisted in the development of these volumes based on the peak period intersection turning movement counts that were completed in October 2009 and March 2011.

Inspection of the existing peak hour volumes indicates several notable travel trends in the Route 1 study corridor including:

During the Midday Peak Hour

- Traffic is relatively evenly distributed between the northbound and southbound directions throughout the study corridor.
- Highest two-way volumes occur between Ledge Road and Leroy Avenue and between Tokeneke Road (Route 136) and Mansfield Avenue (Route 124), approximately 1570 vph and 1350 vph, respectively.
- Lowest two-way volumes occur south of Hecker Avenue and between Corbin Drive and Center Street, approximately 1000 vph in both areas.

During the PM Peak Hour

- Traffic is predominantly traveling northbound throughout the study corridor, though the difference between southbound and northbound traffic is most predominant south of Corbin Drive and north of Tokeneke Road (Route 136).
- Highest two-way volumes occur between Tokeneke Road (Route 136) and Mansfield Avenue (Route 124) and north of Brookside Road, approximately 1800 vph in both areas.
- Lowest two-way volume occurs between Corbin Drive and Center Street, approximately 1250 vph.

Traffic Operations

> **About Level of Service (LOS)**
>
> **LOS** for an intersection is a qualitative measure of traffic operations that reflects the delay experienced by vehicles at the intersection. LOS values range from A to F. LOS A represents the best operational conditions with little delay. LOS F represents generally congested conditions with long delays and traffic queues. For the Route 1 study corridor, LOS D or better represents an acceptable degree of congestion; LOS E and F represent unacceptable degrees of congestion.

The existing conditions assessment included evaluation of existing traffic operations at 12 intersections between Exit 11 and Brookside Avenue in the Route 1 study corridor to assess the level of traffic delays and congestion that are currently being experienced during the midday and PM peak hours. A *level of service* (LOS) was determined for each intersection and for each intersection approach by performing capacity analyses using the existing midday and PM peak hour turning movement volumes (see Appendix 2.2, page A2-19) and SimTraffic modeling software. The SimTraffic model was calibrated using travel time run data obtained by SWRPA (see Appendix 2.3, page A2-21) and observations of actual traffic queue lengths during the peak hours. The midday and PM peak hour traffic operations are summarized in Table 2-3 and illustrated in Figure 2-3.

Table 2-3. Midday and PM Peak Hour Traffic Operations – Existing Condition

Intersection / Approach	Midday Peak LOS (Sec. Delay)	PM Peak LOS (Sec. Delay)
Route 1 at Exit 11 NB Off Ramp (Signalized)		
Route 1 Northbound	A (2.6)	A (4.3)
Route 1 Southbound	A (2.5)	A (3.4)
Exit 11 Northbound Off Ramp Eastbound	D (50.8)	D (47.9)
Overall	**B (12.4)**	**B (12.9)**
Route 1 at Ledge Road (Signalized)		
Route 1 Northbound	B (10.3)	A (6.1)
Route 1 Southbound	A (2.0)	A (1.3)
Ledge Road Eastbound	D (40.9)	E (55.9)
Exit 11 Southbound Off Ramp Westbound	N/A	N/A
Overall	**A (8.6)**	**A (6.7)**
Route 1 at Leroy Avenue (Signalized)		
Route 1 Northbound	A (4.7)	A (3.6)
Route 1 Southbound	A (9.9)	A (6.2)
Leroy Avenue Eastbound	B (11.6)	B (16.2)
Exit 11 Southbound Off Ramp Westbound	C (31.2)	C (32.6)
Overall	**B (13.2)**	**A (8.5)**
Route 1 at Corbin Drive (Signalized)		
Route 1 Northbound	A (1.8)	A (6.0)
Route 1 Southbound	A (3.9)	B (10.4)
Corbin Drive Westbound	C (34.2)	C (36.8)
Overall	**A (5.9)**	**B (11.9)**
Route 1 at Brook Street/Commercial Drive (Unsignalized)		
Route 1 Northbound	A (1.3)	A (2.0)
Route 1 Southbound	A (1.1)	A (3.6)
Commercial Drive (Gas Station) Westbound	A (4.1)	A (7.8)
Overall	**A (1.2)**	**A (2.7)**

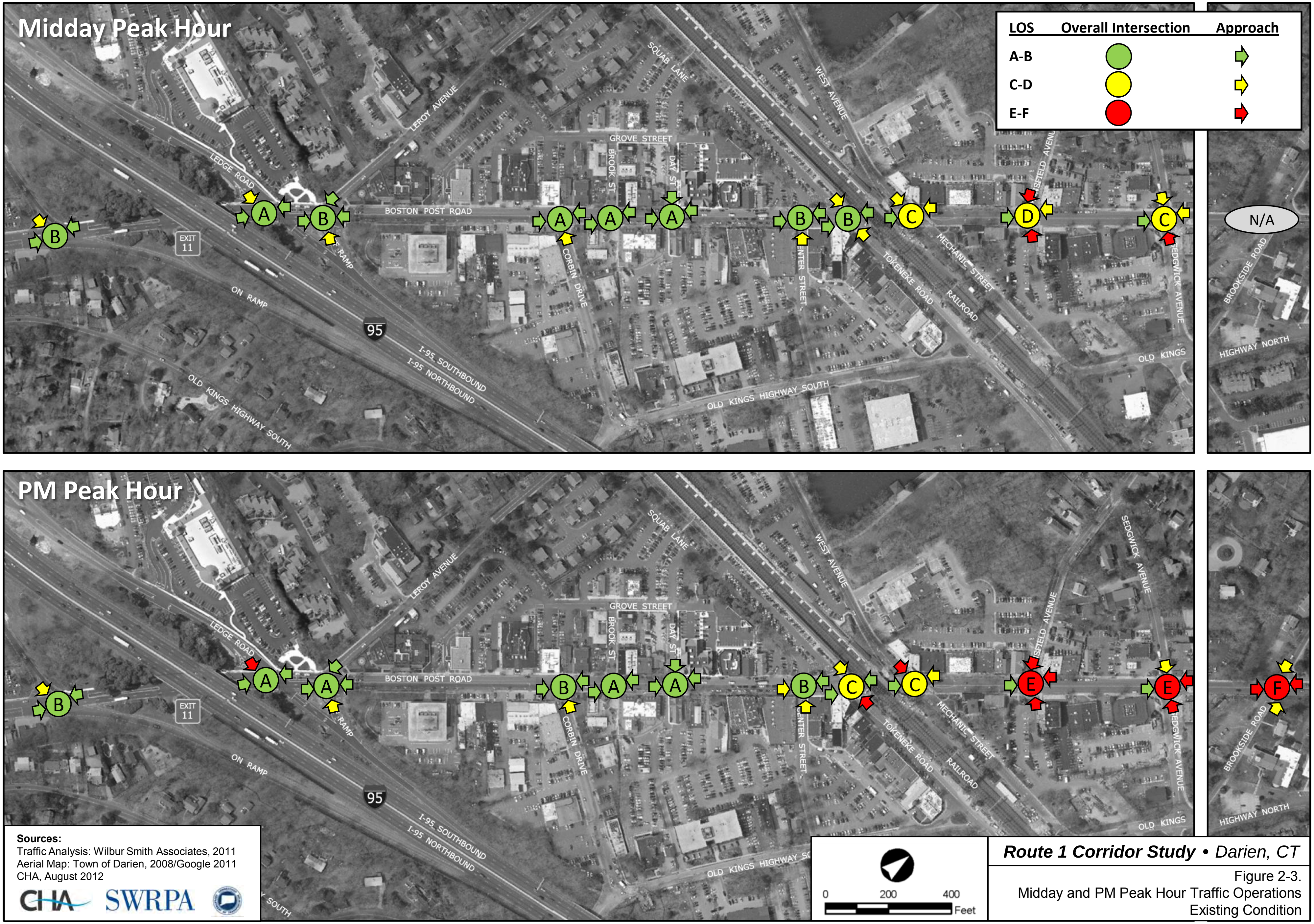
Source: Wilbur Smith Associates, 2010; revised 2011.
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA; revised August 2012

Table 2-3. Midday and PM Peak Hour Traffic Operations – Existing Condition (continued)

Intersection / Approach	Midday Peak LOS (Sec. Delay)	PM Peak LOS (Sec. Delay)
Route 1 at Day Street/Commercial Drive (Unsignalized)		
Route 1 Northbound	A (0.2)	A (2.7)
Route 1 Southbound	A (0.6)	A (1.3)
Day Street Eastbound	A (5.4)	A (7.2)
Commercial Drive (Bank) Westbound	A (3.3)	B (10.2)
Overall	**A (1.1)**	**A (2.4)**
Route 1 at Center Street/Railroad Station Entrance (Signalized)		
Route 1 Northbound	B (14.7)	C (25.3)
Route 1 Southbound	A (3.1)	A (3.4)
Center Street Westbound	C (21.3)	D (49.7)
Overall	**B (10.1)**	**B (18.2)**
Route 1 at Tokeneke Road/Rail Station Exit (Signalized)		
Route 1 Northbound	A (3.0)	A (4.2)
Route 1 Southbound	A (9.6)	A (9.6)
Rail Station Exit Eastbound	D (42.2)	D (48.9)
Tokeneke Road Westbound	C (27.2)	E (59.7)
Overall	**B (12.5)**	**C (20.5)**
Route 1 at West Avenue/Mechanic Street (Signalized)		
Route 1 Northbound	A (3.6)	A (4.0)
Route 1 Southbound	D (39.4)	D (49.2)
West Avenue Eastbound	D (38.6)	E (79.6)
Overall	**C (22.8)**	**C (30.1)**
Route 1 at Mansfield Avenue/Municipal Lot Drive (Signalized)		
Route 1 Northbound	A (6.0)	B (10.5)
Route 1 Southbound	C (31.9)	F (106.1)
Mansfield Avenue Eastbound	F (203.6)	F (154.9)
Municipal Lot Drive Westbound	F (127.0)	F (95.9)
Overall	**D (48.7)**	**E (57.0)**
Route 1 at Sedgwick Avenue (Signalized)		
Route 1 Northbound	A (5.0)	B (18.5)
Route 1 Southbound	C (22.7)	F (119.6)
Sedgwick Avenue Eastbound	D (44.9)	D (49.4)
Sedgwick Avenue Westbound	E (59.6)	E (62.2)
Overall	**C (24.9)**	**E (60.5)**
Route 1 at Brookside Road (Signalized)		
Route 1 Northbound	-[1]	E (72.0)
Route 1 Southbound	-[1]	F (246.7)
Brookside Road Eastbound	-[1]	D (40.3)
Brookside Road Westbound	-[1]	C (21.6)
Overall	**-[1]**	**F (122.3)**

Note: (1) Midday LOS not determined at Brookside Road under this study.

Source: Wilbur Smith Associates, 2010; revised 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA; revised August 2012



Sources:
Traffic Analysis: Wilbur Smith Associates, 2011
Aerial Map: Town of Darien, 2008/Google 2011
CHA, August 2012

CHA SWRPA

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Figure 2-3.
Midday and PM Peak Hour Traffic Operations
Existing Condition

As shown in Table 2-3 and Figure 2-3, overall operations during the midday peak hour are generally acceptable at LOS D or better at all intersections. Notably, the West Avenue, Mansfield Avenue, and Sedgwick Avenue intersections with Route 1 are more congested than the other intersections located south of the railroad. The analysis shows that several intersecting roadway approaches to these intersections are currently experiencing unacceptable delays at LOS E or F during the midday peak hour. In general, intersecting roadway approaches at signalized intersections experience greater delays than the Route 1 approaches because the signal timing plans assign a majority of the available green time to Route 1 movements to maintain through-traffic mobility and minimize delays on Route 1.

Congestion during the PM peak hour is generally greater than during the midday peak hour because traffic volumes are generally higher during the PM peak hour. The analysis shows that the Mansfield Avenue and Sedgwick Avenue intersections experience unacceptable levels of delay at LOS E. In addition, intersecting roadway approaches experience unacceptable delays at the Ledge Road, Tokeneke Road, West Avenue, Mansfield Avenue, and Sedgwick Avenue intersections with Route 1.

Traffic analysis and local experience both indicate that traffic delays and traffic queues on Route 1, particularly in the southbound direction, are issues during both the midday and PM peak hours between West Avenue and Sedgwick Avenue. Traffic queues begin at West Avenue and extend north through the Mansfield Avenue and Sedgwick Avenue intersections. It has been noted by concerned stakeholders that motorists on Route 1 compound this condition often by blocking intersecting roadway access by progressing into one of these intersections during a green or yellow signal and not clearing the intersection prior to the intersecting roadway receiving a green signal.

Southbound traffic queues often extend north from West Avenue through the intersection of Mansfield Avenue and beyond.

In addition to the relatively high volumes in the vicinity of West Avenue and Mansfield Avenue, poor southbound progression and associated poor LOS is this area are consequences of the signal phasing and timing requirements of the closely-spaced signalized intersections of Center Street, Tokeneke Road, and West Avenue.

I-95 Effect

Traffic conditions on Route 1 in Darien can be volatile at any time of the day or day of the week due to the effect of potential traffic diversions from I-95 to the Route 1 corridor. Daily delays on northbound I-95 that extend south from Exits 14 and 15 in Norwalk commonly result in some commuters exiting I-95 from any one of four exits in Darien and using alternate routes, such as Route 1 and other state and local roadways, to bypass delays. Other less predictable traffic incidents on I-95, especially those that result in partial or full lane closures, can result in far more traffic diverted to Route 1 and other area roadways than is common for a typical day. Because the traffic volumes for this study were collected on a day when no major traffic incidents occurred on I-95 in the area, the traffic operations analyses are representative of typical peak hour conditions.

Community Concerns

In addition to the traffic operational issues described above, several common traffic-related issues were noted by community stakeholders and participants during the early public outreach phases of this study. These include:

- Excessive delays for vehicles on intersecting road approaches to Route 1.
- Long queues on Route 1 that block access from intersecting roads.
- Vehicles traveling northbound in right-turn-only lane at Corbin Drive illegally proceeding straight through the intersection and merging with vehicles in through travel lane.
- Various issues with traffic signals and lane arrangements at intersections throughout the corridor.

2.A.4 Traffic Mobility, Circulation, and Access

A key objective of this study was to understand how traffic delays and congestion and other mobility constraints in the study area affect travel behaviors, and to suggest how these conditions can be addressed in conjunction with other multimodal and land use strategies to enhance overall mobility and access, particularly within Downtown and the Central Business District.

Relative to vehicular traffic, opportunities for significant capacity improvements in the Route 1 study corridor are limited by virtue of little or no space to expand the roadway. As such, maintaining traffic mobility in the future will depend upon: 1. maximizing existing capacity on Route 1, in part by managing access; 2. exploring opportunities to supplement Route 1 capacity by developing alternate routes, connections, and access drives that facilitate better access to, and circulation within, Downtown; and 3. mitigating future traffic growth through a combination of land use and transportation strategies.

Relative to pedestrian and bicycle traffic, improvements that enhance vehicular mobility and access will also enhance pedestrian and bicycle mobility and access provided that these improvements are planned and designed with considerations and accommodations for safe, multimodal use.

The recommendations of this study are intended to provide an efficient and safe transportation system that will encourage local citizens and area commuters to enjoy and patronize Downtown, rather than avoid Downtown for the purpose of avoiding traffic delays and congestion. This section highlights some of the existing impediments to mobility and circulation in Downtown, characterizes local roadways that are being used to bypass sections of Route 1, and discusses current access management practices and needs in the study corridor.

Impediments to Downtown Mobility and Circulation

Several key impediments to improved mobility and circulation in Downtown Darien include:

- **Metro-North railroad**, which bisects the Central Business District and can only be crossed via Route 1 or Leroy Avenue in the study area. All local north-south traffic movements are concentrated to these two crossings, primarily the Route 1 crossing, resulting in traffic delays and congestion that also impede mobility at adjacent intersections. Additionally, persistent flooding problems make the crossing impassable occasionally during heavy rains, and the nature of the underpass – relatively narrow and dark with limited clearance and generally uninviting – discourages pedestrian passage. Park-once-and-walk behavior in this area of Downtown is less likely if destinations are located on either side of the railroad.
- **Lack of continuous, parallel routes adjacent to Route 1** that would facilitate convenient access to and between Downtown establishments and municipal and private parking lots without necessarily requiring travel on already heavily travelled sections of Route 1.
- **Inconsistent and incomplete information** for the availability and location of commuter parking spaces in Downtown resulting in people who are unfamiliar with parking availability unnecessarily driving around in search of parking (see Train Service, Parking and Access under Section 2.A.7, page 2-21).

Local Bypass and Alternate Routes

Insight provided by area stakeholders indicates that several local roadways are commonly used to bypass sections of Route 1, or are used as alternate routes to Route 1. These roadways, shown in Figure 2-4, include:

- **West Avenue** – linking Exit 10 to Route 1 via Noroton Avenue. West Avenue is also part of a formal CTDOT diversion route for closures on I-95 between Exit 11 and Exit 13.
- **Leroy Avenue** – connecting West Avenue to Sedgwick Avenue for alternate connection to Route 1.
- **Sedgwick Avenue** – providing alternate connection between Route 1 and Leroy Avenue and Mansfield Avenue.
- **Old Kings Highway South** – providing alternate connection to Downtown and Tokeneke Road (Route 136) from points south on Route 1.
- **Old Kings Highway North** – providing alternate route from West Avenue, via Mechanic Street, to Brookside Road and points north.

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Figure 2-4.
Local Bypass and Alternate Routes

As shown in Figure 2-4, roadways being used for bypass and alternate routes are generally collector or minor arterial roadways that carry approximately 4000 to 6000 vehicles per day, or approximately one-third to one-half the volume of traffic that Route 1 carries in the study area. Four of the five roadways being used for bypass are predominantly residential in nature; this is of particular concern given that pedestrian activity and the presence of children are more common along residential roadways. In addition, the lack of sidewalks and adequate shoulders on many sections of these roadways means that the roadways must be shared between vehicles and other non-motorized users, creating safety concerns for all users. These concerns are exacerbated by the fact that motorists who use these roadways for the purpose of bypassing delays on other routes are likely more focused on traveling from Point A to Point B in the shortest amount of time and likely less focused on the presence of pedestrians and bicyclists in the roadway.

Input provided by concerned citizens during the early public outreach phases of this study indicates that safety on Old Kings Highway South is a key community concern because it is heavily used by pedestrians and other recreational users. Because there is no sidewalk and sections of this roadway are very narrow (less than 20 ft wide), relatively high traffic volumes and speeding are safety concerns for residents.

Access Management

Access management strategies – such as one-way drives, shared drives, interconnected drives, right-out only drives, left turn prohibitions, and primary access from side roads – have been implemented in various locations throughout the Route 1 study corridor, particularly in the CBD where the number of access points and turning conflicts need to be minimized to the benefit of safety and traffic flow. As new developments are planned and existing commercial sites are redeveloped, it will be necessary for the Town to continue seeking opportunities to improve access management in the corridor through the site plan approval process.

> "**Access Management** (AM) is the proactive management of vehicular access points to land parcels adjacent to all manner of roadways. Good access management promotes safe and efficient use of the transportation network. AM encompasses a set of techniques that state and local governments can use to control access to highways, major arterials, and other roadways." (FHWA, Office of Operations, http://ops.fhwa.dot.gov/access_mgmt/what_is_accsmgmt.htm)

Example of access management in Downtown Darien: First County Bank driveway.

Existing commercial drives in the corridor were reviewed to identify locations where improved access management is needed. A brief description of existing driveway characteristics and general access management needs in various segments of the corridor are presented below.

Route 1 in the vicinity of Noroton Avenue features a small commercial and institutional cluster surrounded by residential neighborhoods. In this area, a number of driveways intersect Route 1 on either side of the T-intersection of Noroton Avenue and Route 1. Route 1 features two lanes in either direction, further complicating left turns exiting and entering the flow of traffic. Sharing driveways between parcels and closing redundant driveways in this area will minimize the number of curb cuts and reduce conflict points.

From the Noroton Avenue area to Hecker Avenue, Route 1 is characterized by residential neighborhoods with a few driveways to service businesses and office buildings. This length of roadway features low-volume driveways and adequate sight distances.

Route 1 from Hecker Avenue to Leroy Avenue features numerous driveways serving single businesses lining the corridor. Some businesses along this segment have redundant driveways or driveways that are wider than necessary. The vicinity of Thorndal Circle features a number of closely-spaced driveways that have been the site of a number of collisions. Route 1 features two lanes in either direction in this area, further complicating left-turns exiting and entering the flow of traffic. Also, a few locations on this segment feature pull-in parking directly accessible from Route 1. This type of parking requires backing into the flow of traffic in order to exit, contributing to the likelihood of collisions at these locations.

Route 1 from Leroy Avenue to Brookside Road is largely developed along its length and features many businesses in narrow lots with minimal setbacks. Access to most of these businesses is provided via side streets and driveways to shared parking lots. A few locations feature pull-in parking directly accessible from Route 1. This type of parking requires backing into the flow of traffic in order to exit, contributing to the likelihood of collisions at these locations.

From Brookside Road to Old Kings Highway North, Route 1 is characterized by businesses with their own driveways. Some businesses along this segment have redundant driveways or driveways that are wider than necessary. Also, a few locations feature pull-in parking directly accessible from Route 1. This type of parking requires backing into the flow of traffic in order to exit, contributing to the likelihood of collisions at these locations. Closing redundant driveways and narrowing excessively wide driveways in this area will minimize the number of curb cuts and reduce conflict points.

2.A.5 Pedestrian Accommodations

Pedestrian accommodations that were assessed for this study included sidewalks, pedestrian crossings, and ADA (Americans with Disabilities Act) measures. This section includes a general discussion and assessment of the pedestrian accommodations in the Route 1 study corridor; Appendix 2.1 (page A2-1) provides a detailed summary of the pedestrian accommodations located along each segment of Route 1 and at each intersection in the study corridor.

Sidewalks

Nearwater Lane to Ledge Road. The sidewalk network on the west side of Route 1 is continuous throughout this section. The sidewalk network on the east side of Route 1 is not continuous and has several significant gaps that inhibit safe pedestrian movements. These gaps are located:

- Between Fitch Road and Renshaw Road.
- Just south of Quaker Lane.
- Just north of Cross Street (commercial parking lot).
- Near Chuck's Steak House.
- Between Exit 11 northbound on and southbound off ramps.

Most of these gaps require pedestrians to: cross to the west side of Route 1 in order to continue along the sidewalk; walk in the roadway with traffic; or traverse grassed or brushy areas within these gaps. In general, these gaps in the sidewalk network create safety issues for pedestrians as there are generally no marked or signed crossings at the sidewalk termini and no defined shoulders on Route 1 to accommodate pedestrians.

Other areas of concern include:

- Sidewalk obstructions in the area of one business located on the east side of Route 1, just north of Thorndal Circle, created by moveable planters being placed within the sidewalk and restricting the sidewalk width.
- Sidewalk/crosswalk obstruction in the area of a car dealership located on the east side of Route 1, opposite Hecker Avenue, created by the dealership parking a vehicle in a driveway at this location and effectively blocking movements along the sidewalk and from the crosswalk.

Sidewalk widths and treatments vary throughout the corridor and include brick paver buffer strips, grass buffer strips, and no buffer strips.

Ledge Road to Sedgwick Avenue (Central Business District). Sidewalk on the west side of Route 1 is continuous throughout this section. Sidewalk on the east of Route 1 is generally continuous north of the Exit 11 southbound off ramp with the exception of several gaps that occur at commercial driveways and perpendicular parking areas along the frontages of several businesses on Route 1.

Other areas of concern include:

- Several locations where utility poles and fire hydrants on the east side of Route 1 are located in the sidewalk and restrict the sidewalk width to less than 3 ft, the minimum width required to meet current ADA accessibility guidelines.
- Sidewalk, with no curb, located immediately adjacent to Route 1 just south of Corbin Drive. This is the same area where perpendicular parking spaces front several businesses and vehicular access occurs uncontrolled across a long section of this sidewalk.

Sedgwick Avenue to Old Kings Highway North. Sidewalk on the west side of Route 1 is continuous throughout this section. Sidewalk on the east side of Route 1 is generally continuous with the exception of a gap that occurs at a perpendicular parking area along the frontage of a business just north of Sedgwick Avenue and a gap just south of Brookside Road at the crossing of the Goodwives River.

Pedestrian Crossings

At Signalized Intersections. In general, pedestrian movements at signalized intersections in the Route 1 study corridor are concurrent with traffic. That is, pedestrians move across Route 1 when traffic from an intersecting road is provided a green signal; pedestrians move across an intersecting road when traffic on Route 1 is provided a green signal. Pedestrian push buttons are located at all signalized intersections, and at a minimum, serve at least one of the Route 1 approaches to the intersection. Some intersections also have push buttons that serve the intersecting road approaches. Each push button is accompanied by a small sign that instructs pedestrians to "Push for Green Light," in order to cross concurrently with the green traffic signal. These buttons and signs do not include any indication as to which approach and crossing the button applies to, which can be particularly confusing when there is a single button serving two approaches – one Route 1 approach and one intersecting road approach.

One of two pedestrian signals in the study area with exclusive crossing phases (that is, where no traffic moves concurrently with pedestrians) is located near the Hindley Elementary School at Nearwater Lane and Route 1.

Most signalized intersections have a painted crosswalk on one or both of the Route 1 approaches to the intersection and on the intersecting road approaches. Although crosswalk markings help enhance pedestrian visibility at these approaches, there are a number of approaches that lack crosswalks to the detriment of pedestrian visibility and safety. Many of these unmarked approaches are being crossed by significant numbers of pedestrians during the day (see Appendix 2.4, page A2-23, for peak hour pedestrian crossing volumes).

Signalized intersection approaches that lack crosswalks include:

- Route 1 northbound approach at Nearwater Lane intersection
- Route 1 northbound approach at Noroton Avenue intersection
- Route 1 northbound approach at Rings End Road intersection
- Route 1 northbound approach and Old Kings Highway South approach at Old Kings Highway South intersection (sidewalk on east side of Route 1 terminates just south of intersection).
- Route 1 northbound approach and Hecker Avenue approach at Hecker Avenue intersection
- Route 1 northbound approach and Exit 11 northbound off ramp approaches at Exit 11 northbound ramps intersection (sidewalk on east side of Route 1 terminates just south of intersection)
- Route 1 northbound approach at Corbin Drive intersection

Signalized intersection approaches that lack crosswalks include (continued):

- Route 1 southbound approach at Center Street intersection
- Route 1 northbound and southbound approaches at Tokeneke Road intersection
- Route 1 northbound approach at West Avenue intersection (more than 30 people cross here during the afternoon peak hour)
- Route 1 northbound approach at Brookside Road
- Route 1 northbound approach at Old Kings Highway North intersection

At Unsignalized Intersections and Mid-block Locations. Stop-controlled intersecting road approaches to Route 1 that have adjacent sidewalks but lack crosswalks include Garden City Road, Dickinson Road, Fitch Avenue, Renshaw Road, Cross Street, Thorndal Circle, Brook Street, and Darien railroad station Driveways.

Additionally, there are several locations in the Route 1 study corridor where there are crosswalks across Route 1 that are unaccompanied by a traffic signal or other vehicular stop control. There are also several locations where mid-block crossings are either implied (as a result of a sidewalk terminus on the east side of Route 1), or possibly needed based on the number of pedestrians crossing at specific locations. Because these crossing locations are not always expected or recognized by motorists, it is particularly important that these locations are adequately marked and signed to warn motorists to the presence of pedestrians, and provide sufficient sight lines between pedestrians at these crossings and approaching motorists. The mid-block and unsignalized crossing locations in the study corridor include:

- **Between Nearwater Lane and Noroton Avenue.** This mid-block crossing is marked with a crosswalk; however, there are no pedestrian warning signs on the northbound approach to the crossing and warning signs on southbound approach do not meet current standards. There are no apparent sight line obstructions at this location.
- **At Dickinson Road.** This crossing is marked with a crosswalk; however, there are no pedestrian warning signs on either approach to the crossing. There are no apparent sight line obstructions at this location.
- **At Renshaw Road.** There is no marked crossing at this location; however, a crossing here is implied due to the sidewalk terminus located on the east side of Route 1. There are no apparent sight line obstructions at this location.
- **At Quaker Lane.** There is no marked crossing at this location; however, a crossing here is implied due to the sidewalk terminus located on the east side of Route 1. There are no apparent sight line obstructions at this location.
- **At Cross Street.** This crossing is marked with a crosswalk; however, there are no pedestrian warning signs on either approach to the crossing. There are no apparent sight line obstruction at this location.
- **Between Brook Street and Day Street.** There are no marked crossings in this area; however, pedestrian counts show that approximately 50 people crossed Route 1 at Brook Street or Day Street during the midday peak hour when counts were conducted in October 2009. On-street parking on both sides of Route 1 between Brook Street and Day Street can make it difficult for pedestrians and motorists to perceive each other in this area.

Pedestrian counts show that a significant number of people cross Route 1 at the unsignalized intersections of Brook Street and Day Street during the midday peak hour.

- **At Academy Street.** This crossing is marked with a crosswalk; however, pedestrian warning signs on both approaches do not meet current standards. There are no apparent sight line obstructions at this location.

ADA Measures

The Americans with Disabilities Act (ADA) requires access to the public right-of-way be provided for people with disabilities and visual impairments. This includes providing accessible sidewalks, street crossings, and pedestrian push buttons at signals. ADA accessibility is a requirement for any project that receives federal funding. Specific ADA accessibility guidelines include:

- Minimum continuous sidewalk widths of 4 ft, with 5 ft of space provided at 200 ft intervals for passing.
- Minimum sidewalk widths maintained without obstruction.
- Curb ramps to transition from sidewalk elevation to street level at crossing locations.
- Detectable warning surfaces on all curb ramps.
- Accessible pedestrian signals that provide non-visual (audible and vibrotactile) queues.
- Accessible pedestrian push buttons.


Inaccessible pedestrian push button at Noroton Avenue intersection.

Sidewalk widths vary in the Route 1 study corridor, but generally meet the minimum requirements. There are several locations (noted above under "Sidewalks") where utility poles, hydrants, and other obstructions reduce the sidewalk width to less than the minimum width.

Most pedestrian crossing locations provide curb ramps, though few curb ramps are provided with detectable warning surfaces. No audible or vibrotactile pedestrian signals are provided in the study corridor. There are several pedestrian push buttons in the corridor that are not accessible to people in wheelchairs.

Other Pedestrian Issues

Driveways, particularly higher volume commercial driveways and bank drive-thrus, and perpendicular parking areas along the frontages of several businesses on Route 1, are safety concerns for pedestrians due to the higher potential for pedestrian and vehicular conflicts in these areas. Pull-in parking areas are located on the east side of Route 1 just north of Cross Street, just south of Corbin Drive, and just north of Sedgwick Avenue. In these areas, there is a paved area for pedestrians to walk on, though the paved area is typically a continuation of the adjacent parking lot or driveway and not a defined sidewalk. This unclear designation of a pedestrian facility reduces the visibility of the facility to motorists and can result in failure of motorists to recognize the area as potentially being used by pedestrians. In addition, motorists backing out of these parking areas are likely more focused on backing safely into traffic than watching for potential pedestrian activity. These pedestrian pathways would be more prominent and visible to motorists if they were slightly raised, a different surface material, or a contrasting color to the adjacent parking areas.

The lack of crosswalks across Route 1 in the CBD is also a safety concern for pedestrians and inhibits pedestrian mobility and connectivity, particularly because pedestrian activity is greatest in this area and because there is a general need and desire to cross between municipal and commuter parking lots and destinations on either side of Route 1. Of particular concern is that the crosswalk at Corbin Drive is the only crosswalk across Route 1 for ¼ mile between Leroy Road and Center Street in the core of the CBD.

Community Concerns

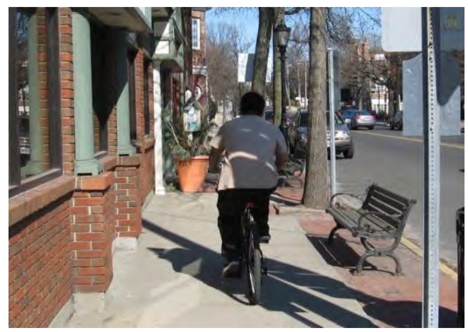
In addition to the pedestrian issues and deficiencies relative to sidewalks, crossings, and ADA measures described above, several common pedestrian-related issues were noted by community stakeholders and participants during the early public outreach phases of this study. These include:

- Need for improved pedestrian crossings including more crossing opportunities, better pedestrian signals, and better crosswalks.
- Need for continuous sidewalks in Downtown, including better accommodations through the Exit 11 interchange area to the Darien Library.
- Need for safer pedestrian accommodations on Old Kings Highway South.
- Concerns about safety and walkability in the area of several intersections including the Exit 11 northbound ramps, Corbin Drive, Center Street, and West Avenue.

2.A.6 Bicycle Accommodations

There are no striped shoulders or bike lanes that provide a defined space for bicyclists along Route 1 in the study area. Between Nearwater Lane and Ledge Road, there are two travel lanes in each direction with some areas where the right travel lane is significantly wider than the left travel lane, thus providing adequate space for a bicyclist to share the lane with motor vehicles. In other areas, such as near Old Kings Highway South, all travel lanes are 11 ft wide or less and do not provide any additional space for bicyclists to share the lane with motor vehicles.

In the Central Business District between Ledge Road and Sedgwick Avenue, there is one travel lane in each direction with adjacent parking lanes or turn lanes adjacent to the curb throughout the section. This area poses significant challenges for bicyclists, as the curb-side of the roadway changes functions frequently. Driveways and side roads pose additional safety issues for bicyclists because motorists entering Route 1 from these driveways and side roads often have reduced visibility to potential bicyclists because of on-street parking.



In lieu of a defined shoulder/bike lane on Route 1 or designated alternative bike route, bicyclists in the study corridor must use sidewalks or share travel lanes with vehicles.

North of Sedgwick Avenue, there is generally one wide travel lane with no striped shoulder in each direction. This section of the corridor provides adequate space for bicyclists to share the road safely with vehicles, particularly if a defined shoulder or bike lane is provided.

There are no signs in the study corridor that encourage bicyclists and motorists to share the roadway safely.

West Avenue in the study area is a signed bike route.

CTDOT's current Statewide Bicycle Map classifies the portion of Route 1 south of I-95 as generally less suitable for bicycling; the section of Route 1 north of I-95 is variably classified as suitable or more suitable.[3] These classifications are based on existing shoulder widths and overall traffic volumes.

In addition, the future East Coast Greenway, a proposed off and on-street bicycle route from Maine to Florida, suggests a route through Darien along Route 1 to Old Kings Highway South.

Other bicycle accommodations and facilities in the study area include bike racks at the Darien library and rail station.

[3] Connecticut Statewide Bicycle Map Website, http://www.ctbikemap.org/bikemap.html, 2012

2.A.7 Public Transit Services

Bus Service

The Stamford division of Connecticut Transit (CTTRANSIT), a CTDOT-owned bus service, operates 15 local bus routes in the Greater Stamford area including two routes that provide local bus service in the Route 1 study area:

Route 41/41A – Norwalk and Norwalk via NCC. This route provides service along the Route 1 corridor between Stamford and Norwalk and includes a timed stop at Center Street near the Darien railroad station.

CTTRANSIT operates local bus service in the Route 1 study area

Hours of operation are Monday through Friday from 5 a.m. to 12:30 a.m.; Saturday from 5:30 a.m. to 10:30 p.m.; and Sunday from 8 a.m. to 7:30 p.m.

Service headways on weekdays are approximately 20 minutes during peak commuter periods; 30 minutes during midday; and 60 minutes during evening hours.

Bus stops along the route are spaced approximately every two blocks, sometimes every block in busy areas, amounting to spacing between 0.1 and 0.25 miles. Locations of bus stops in the study area are shown in Appendix 2.5 (page A2-25). There are no bus pull offs at these stops, consequently buses pull to the side of the roadway to pick-up/drop-off passengers.

Service amenities at stops in the study area are typically limited to bus stop signs denoting the system name, logo, and phone number at every stop. There is currently one bus shelter located on Route 1 near Ledge Road, which was installed as part of the new Whole Foods Market project in 2010. Additionally, simple benches are located at several stop locations in the corridor.

The on, off, and ridership data for Route 41/41A was obtained from CTTRANSIT for several years including the period of 2006 to 2008 and 2012. Table 2-4 summarizes the daily and peak period ridership data for the Route 1/Center Street stop near the Darien railroad station. This stop is the most utilized stop in the study area. As shown in the table, daily and peak period ridership on Route 41 was fairly level between 2006 and 2012, with highest overall ridership occurring in 2008.

Table 2-4. CTTRANSIT Route 41 Inbound & Outbound Ridership Data for Route 1/Center Street Stop, 2006 – 2008 & 2012

Service Direction		2006	2007	2008	2012[2]
Daily Data					
Inbound (into Stamford)	On	35	40	44	50
	Off	34	33	22	26
	Ridership	865	819	949	899
Outbound (from Stamford)	On	17	20	20	23
	Off	31	31	25	40
	Ridership	864	825	1024	854
Peak Period Data					
PM Inbound (into Stamford)[1]	On	15	17	17	16
	Off	8	7	5	6
	Ridership	258	288	295	252
AM Outbound (from Stamford)[1]	On	4	0	3	4
	Off	20	16	13	12
	Ridership	302	272	354	234

Notes: (1) indicates peak service direction.
(2) 2012 data includes the period of September 2011 to September 2012.

Source: CTDOT/CTTRANSIT
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, June 2010; updated October 2012

Route 42 – Stamford/Darien. This route provides service between downtown Stamford and connections to Metro-North railroad stations in Glenbrook, Noroton Heights, and Darien. The route operates along West Avenue in the study area and includes a stop at the Darien railroad station parking lot.

Hours of operation are Monday through Friday from 6:00 a.m. to 8:00 p.m.; and Saturday from 7:00 a.m. to 7:30 p.m. No Sunday service is provided. Service headways on weekdays are approximately 30 minutes; and on Saturday are 60 minutes.

There are currently no bus shelters or service amenities on this route.

The on, off, and ridership data for Route 42 was obtained from CTTRANSIT for t the three year period from 2006 to 2008. Table 2-5 summarizes the daily and peak period ridership data for the Darien railroad station stop. As shown in the table, daily and peak period ridership on Route 42 has generally decreased for the inbound direction and increased for the outbound direction between 2006 and 2008.

Table 2-5. CTTRANSIT Route 42 Inbound & Outbound Ridership Data for Darien Railroad Station Stop, 2006 – 2008

Service Direction		2006	2007	2008
Daily Data				
Inbound (into Stamford)	On	37	24	30
	Off	0	0	0
	Ridership	38	25	30
Outbound (from Stamford)	On	0	0	0
	Off	6	5	25
	Ridership[2]	-	-	-
Peak Period Data				
PM Inbound (into Stamford)[1]	On	18	12	13
	Off	0	0	0
	Ridership	18	12	13
AM Outbound (from Stamford)[1]	On	0	0	0
	Off	6	3	11
	Ridership[2]	-	-	-

Notes: (1) indicates peak service direction.
(2) Darien railroad station is the last stop on the Route 42 service.
Source: CTDOT
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, June 2010

Train Service

Train service to and from Darien is provided by the Metropolitan Transit Authority (MTA), which operates Metro-North commuter train service on the New Haven Line through Darien. This service is operated by MTA under contract to CTDOT. Regular stops in the study area are located at stations in Noroton Heights and Darien (Downtown).

The Metropolitan Transit Authority operates Metro-North commuter train service in the Route 1 study area with stops at stations in Darien and Noroton Heights.

Services are provided at the Darien and Noroton Heights stations between 5:30 a.m. and 12:00 a.m. weekdays, with less frequent service offered on the weekends and holidays. Westbound service is provided to employment hubs in Stamford, CT and New York City, NY. Eastbound service is provided to Bridgeport, New Haven, and Waterbury, CT. The frequency of trains varies throughout the day, but generally there are trains departing every 20-30 minutes in both directions in the morning peak (6:00-9:00 a.m.) and in the afternoon peak (4:00-7:00 p.m.). Off-peak hour service generally operates every hour in both directions.

Connecting Services. CTTRANSIT bus routes 41 and 41A eastbound service from Stamford to Norwalk connects with Metro-North service at the Darien railroad station within every 20-30 minutes in the peak direction (towards Grand Central Terminal). The westbound service connects with Metro-North every 20-30 minutes between 7:00-10:00 a.m. Route 42 service has 30 minute headways at the Darien railroad station between 6:00-9:00 a.m. which provides opportunity to connect with Metro-North service (peak direction towards Grand Central Terminal) with a maximum wait time of approximately 15 minutes. The return Metro-North peak service from Grand Central Terminal to Darien railroad station arrives every 20-30 minutes between 4:00-9:00 p.m. Routes 41, 41A, and 42 connect with Metro-North service within 20-30 minutes of its arrival. Opportunities exist to expand and modify the transit and rail service frequencies to reduce wait times at the Darien railroad station.

Ridership. Table 2-6 shows on and off passenger information obtained from CTDOT for the Darien and Noroton Heights stations. As shown in the table, there was a slight decrease in the peak direction activity at the Darien station over the six year period from 2001 to 2007 – that is, fewer people have been commuting from the Darien station to Grand Central Terminal in the morning, and to the Darien station from Grand Central Terminal in the evening. At the same time, more people have been commuting from the Noroton Heights station in the morning and to the Noroton Heights station in the evening. The decrease in peak direction activity at the Darien station and associated increase in peak direction activity at the Noroton Heights station over the same time period could be a function of parking availability at the two stations (see "Parking and Access", this page). Table 2-6 also shows that more people have been commuting by train into Darien from the east (north) in the morning via the Darien and Noroton Heights stations.

Table 2-6. Metro-North Weekday Ridership Data at Darien Stations, 2001 and 2007

Station and Service Direction		2001	2007	% Change
Darien Station				
Inbound (to Grand Central Terminal)	On	1404	1337	-5%
	Off	98	140	+43%
Outbound (from Grand Central Terminal)	On	105	138	+31%
	Off	1307	1289	-1%
Noroton Heights Station				
Inbound (to Grand Central Terminal)	On	1166	1244	+7%
	Off	36	51	+42%
Outbound (from Grand Central Terminal)	On	33	83	+152%
	Off	1050	1115	+6%

Source: CTDOT
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, June 2010

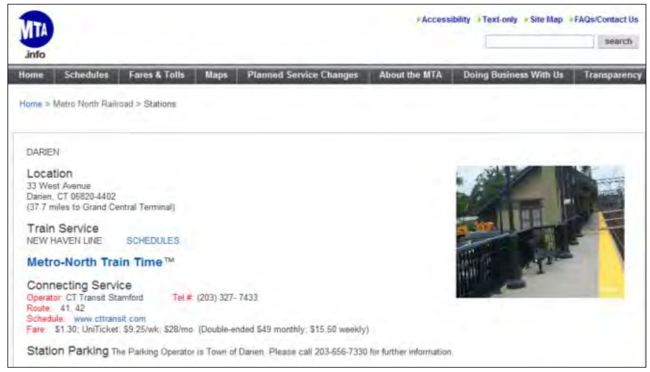
Parking and Access. Ridership from a railroad station is largely a function of the availability and convenience of commuter parking for that station. Commuter parking for the Darien station is provided in seven public (State and Town-owned) lots and one private lot (see Appendix 2.9, page A2-39 for a parking map of Downtown Darien). The total number of spaces in the seven public lots that are dedicated to long term parking for the Darien station is 694, inclusive of spaces for voucher, permit, and handicapped parkers. Commuter parking for the Noroton Heights station is provided in three public lots that are State-owned and Town-operated and maintained. The total number of spaces that are dedicated to long term parking for the Noroton Heights station is 779.[4]

The number of annual permits sold by the Town (at a cost of $345 annually for regular permit spaces, $200 annually for incentive permit spaces) for each station exceeds the number of parking spaces available to permit holders by a ratio of approximately 2 to 1. While the potential demand for commuter parking at both railroad stations effectively exceeds the available parking supply, overall parking utilization at the stations is approximately 87%, based on counts conducted by SWRPA in 2011. Insufficient parking supply, as well as lack of control over parking permits and the condition of the Noroton Heights station, were identified by the Town as the most pressing parking-related issues at stations in Darien.[5]

[4] *South Western Region Rail Station Parking Study Update*, SWRPA, 2012.

[5] *South Western Region Rail Station Parking Study*, SWRPA, May 2009.

A review of commuter parking and railroad station access information that is provided by MTA and the Town of Darien on their respective web sites reveals several inconsistent, incomplete, or otherwise misleading pieces of information that are potential issues for users of the Darien railroad station. Specific issues include the following:



MTA's web page for the Darien station was recently updated to include several changes recommended by this study.

- MTA's webpage[6] for the Darien railroad station indicates that the Town of Darien is the parking operator for the station, but no hyperlink is provided to the Town's station parking webpage[7].
- MTA's webpage for the Darien railroad station does not provide a hyperlink to the South Western Region Rail Station Parking web site, which utilizes Google Maps© to interactively display the location and information for railroad station parking in the region, including parking for the Darien station.[8]
- Directions to the Darien railroad station provided on the MTA webpage direct patrons from northbound Route 1 to turn left on West Avenue, north of the railroad underpass, to access the station. This left turn is restricted between 10:00 a.m. and 6:00 p.m. Furthermore, these directions contradict the railroad station guide signs on Route 1 that indicate the station is located opposite Center Street, south of the railroad underpass.
- Town's webpage provides a phone number for parking voucher information that is no longer in service.
- Town's webpage specifies that parking vouchers can be used at the Leroy Avenue West, Darien station, and Squab Lane parking lots, though there are three other parking lots in Downtown where voucher parking is provided.

In addition to these issues, there is a need for better guide signing in Downtown to direct both commuters and casual train users to the various lots where long term parking spaces are provided. It is important to note that providing consistency between potential signing improvements and information provided on the MTA and Town web pages is essential for improvements of this nature to be effective.

Paratransit Services

Paratransit services are special public transit services provided to senior citizens and persons with disabilities who are unable to ride the regular fixed-route bus system. Paratransit services in the study area include:

- **Easy Access.** CTDOT contracts with the Norwalk Transit District to provide *Easy Access* door-to-door paratransit service within CTTRANSIT's greater Stamford service area, including the Darien study area. Both the service eligibility requirements and the service design are in compliance with the Americans with Disabilities Act of 1990. *Easy Access* is available for eligible residents within ¾-mile radius of an operating CTTRANSIT bus route within Darien. Operating hours are generally Monday through Saturday, 6:00 a.m. to 7:30 p.m. with limited service provided along certain corridors from 7:00 p.m. to 11:00 p.m., Monday through Saturday and 8:00 a.m. to 7:00 p.m. on Sundays and Holidays.[9]
- **Gallivant.** The Town of Darien Senior Activities Center operates door-to-door Gallivant Transportation Services. Gallivant, a not-for-profit organization, uses an accessible 12-passenger van to provide transportation for Darien senior citizens and physically disabled residents of all ages. Services operate Monday through Wednesday, 9:00 a.m. to 4:00 p.m., and Thursday and Friday, 9:00 a.m. to 3:00 p.m.[10] Annual ridership, based on data provided by Town of Darien Social Services Department, is approximately 1,600 trips.

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[6] MTA Website, http://as0.mta.info/mnr/stations/station_detail.cfm?key=230, 2010

[7] Town of Darien Website, http://www.darienct.gov/content/104/114/4428/4432/default.aspx, 2010

[8] SWRPA Website, http://www.swrpa.org/default.aspx?Transport=287, 2012

[9] Norwalk Transit District Website, http://www.norwalktransit.com/info_services_stamford_ada.htm, 2010

[10] Town of Darien Website, http://www.darienct.gov/filestorage/104/114/177/GALLIVANT.pdf, 2010

Previous Transit Studies

SWRPA completed the *Greenwich/Norwalk Bus Rapid Transit Study* in 2009 that contained specific alternative recommendations for the Darien area, including:

- Two options for Enhanced Bus Service (EBS) through Darien:
    - Serving downtown Darien status quo with bus service. The EBS would bypass downtown Darien, using I-95 between Exits 11 and 13.
    - Serving downtown with both EBS and local bus service along Route 1. This would include a proposed preemption concept which involves the creation of a bus queue jump lane using right turn lanes on Route 1 approaching Center Street and Tokeneke Road northbound and West Avenue southbound. Parking would have to be prohibited in specific locations to accommodate the queue jump lane. If the local traffic improvements could not be implemented, the study recommends that the EBS could bypass downtown Darien.
- Increasing trip frequencies on Route 41 to be coordinated with EBS headways.

In addition, SWRPA completed the *South Western Region Rail Station Parking Study* (2009, updated 2012) that contained recommendations for improving rail station parking in Darien, including:

- Creating a parking division to consolidate roles and responsibilities of those involved in managing parking.
- Eliminating the voucher program in favor of alternative payment methods such as pay stations, smart meters, or pay-by-smart phone technology.
- Converting some voucher (daily) spaces to permit spaces and increasing the price of annual parking permits by 10% annually.
- Increasing the daily rate to $5, comparable to other stations in the South Western Region.
- Maximizing parking capacity through consideration of utilization counts, improved bicycle and pedestrian connectivity, shared parking options, shuttle services, expanded surface parking, and parking decks or garages, where appropriate.
- Updating the Town's parking website to provide current parking location maps and a hyperlink the South Western Region Rail Station Parking web site.

2.A.8 Travel Demand Management

Travel Demand Management (TDM) refers to various strategies and practices that improve transportation system efficiency by reducing or redistributing travel demand in the system through better choice and convenience of alternative travel modes, times, and routes. Examples of TDM include shifting from single-occupancy vehicles to commuter rail service for commuter trips; parking at commuter lots and commuting to work via vanpool service; working flexible schedules to avoid peak commuter traffic periods; telecommuting; and walking or bicycling for short commuter and non-commuter trips.

Connecticut Commuter Services, a network of employer and employee programs that endorse carpooling, vanpooling, riding the bus and train, or telecommuting – was developed by CTDOT to help manage travel demand in Darien and throughout Connecticut. Through its website, www.ctrides.com, Connecticut Commuter Services provides commuters with information about commuter tax benefits, transit schedules, connections, and other information regarding the community benefits of alternative modes of travel.[11]

[11] Connecticut Commuter Services Website, http://www.ctrides.com, 2010.

2.A.9 Accident History

Accident data for the 2.3-mile Route 1 study corridor was obtained from CTDOT's *Traffic Accident Viewing System* (TAVS) for the three-year period beginning January 1, 2006 and ending December 31, 2008 (note – this was the most current data available for the study). A total of 312 collisions were recorded in the study corridor during this period, including 54 of which resulted in injuries.

Other accident trends in the study corridor included:

- 29% of all collisions were rear-end collisions – the most prevalent type of collision. These collisions were most commonly attributed to vehicles following too closely.
- 18% of all collisions were side-swipe collisions between vehicles traveling in the same direction. These collisions were most commonly attributed to improper passing maneuvers or lane changes.
- 11% of all collisions were fixed object collisions. Eighteen of thirty-five fixed object collisions were located at the railroad bridge and were caused by insufficient vertical clearance.
- 11% of all collisions were turning collisions involving vehicles on intersecting paths. These collisions were most commonly attributed to failure to grant right-of-way.
- 9 collisions involved pedestrians. The majority of these collisions were concentrated in the CBD (see Figure 2-5) where pedestrian activity and pedestrian crossing volumes are greatest. These collisions were generally attributed to failure to grant right-of-way or unsafe use of the highway by the pedestrian.

Based on 2006 to 2008 accident data, an average of six collisions per year have occurred between over-height trucks and the railroad bridge in Downtown. New clearance warning signs were installed in the corridor as part of bridge improvements completed in 2011 under CTDOT Project No. 300-099.

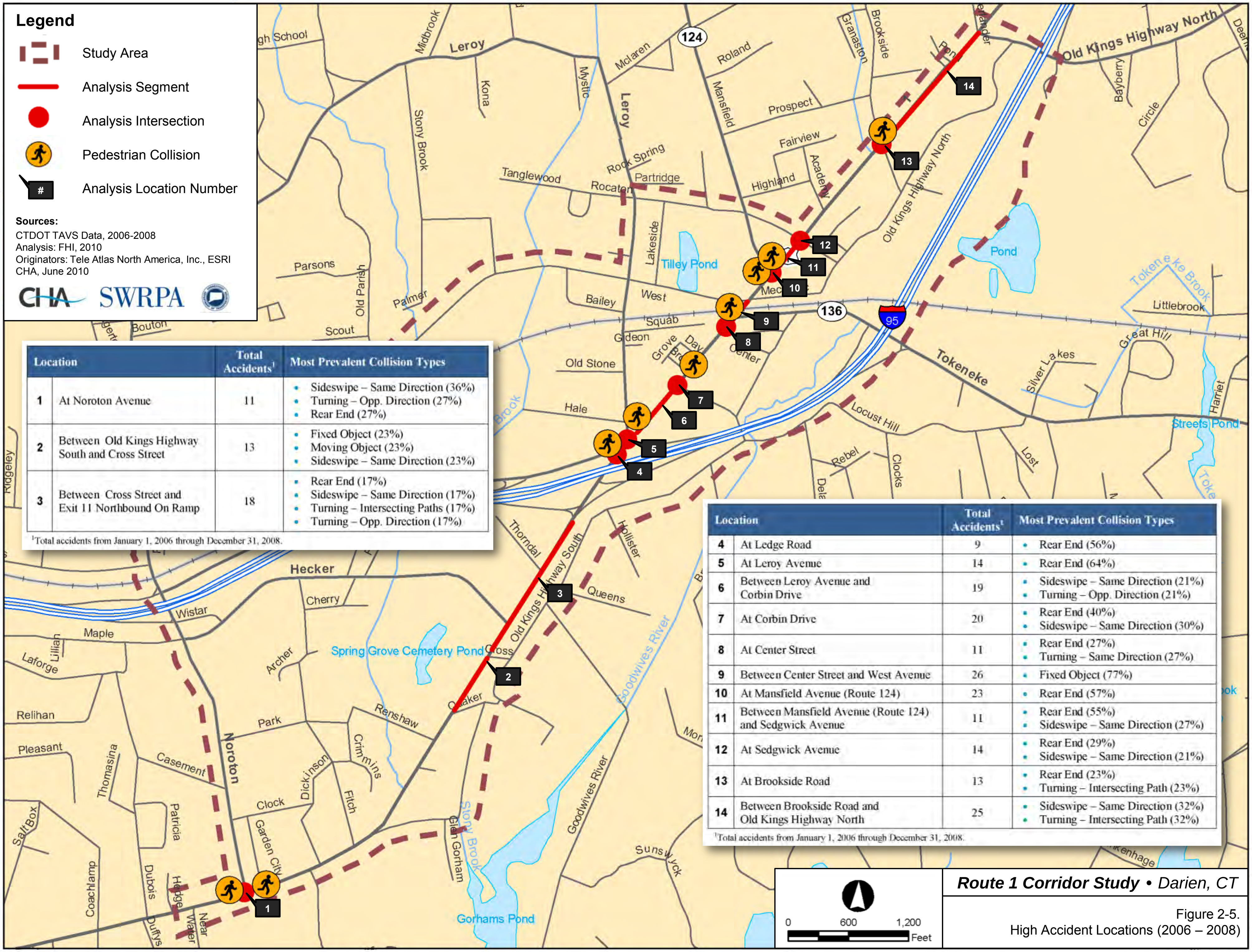
A tabular summary of the accident history is provided in Appendix 2.6 (page A2-27).

Figure 2-5 illustrates 14 high accident locations in the Route 1 study area that experienced relatively high total numbers of accidents over the three-year analysis period or that have historically experienced higher than expected accident rates relative to statewide averages for similar-type locations. The specific accident history for each of these 14 locations is described in detail below.

At Noroton Avenue. A total of 11 collisions occurred at this location during the three-year analysis period. Two of these collisions resulted in injuries. The most prevalent collision type was sideswipe in the same direction (4), typically resulting from drivers making an improper lane change. Three of the four sideswipe collisions occurred between northbound vehicles and two of these incidents involved vehicles stopped for parking.

Opposite-direction turning collision (3) was the second most common collision type at this intersection. This collision type is characterized by a vehicle failing to grant right-of-way to an on-coming vehicle. There were also three rear-end collisions resulting from motorists following too closely. A majority of the turning and rear-end collisions involved northbound vehicles turning left from the left travel lane; there is no exclusive left-turn lane or left turn signal phase at this location.

Between Old Kings Highway South and Cross Street. A total of 13 collisions occurred along this 0.4-mile segment during the three-year analysis period. Two of these collisions resulted in injuries. Fixed object collisions, moving object collisions, and same-direction sideswipes all occurred with equal frequency along this segment with three incidents of each type. Two of the fixed object collisions involved northbound drivers losing control and veering off to the right side of the road. All three moving object collisions involved deer in the roadway between Renshaw Road and Cross Street. No specific pattern was observed among the same-direction sideswipe collisions.



	Location	Total Accidents[1]	Most Prevalent Collision Types
1	At Noroton Avenue	11	• Sideswipe – Same Direction (36%) • Turning – Opp. Direction (27%) • Rear End (27%)
2	Between Old Kings Highway South and Cross Street	13	• Fixed Object (23%) • Moving Object (23%) • Sideswipe – Same Direction (23%)
3	Between Cross Street and Exit 11 Northbound On Ramp	18	• Rear End (17%) • Sideswipe – Same Direction (17%) • Turning – Intersecting Paths (17%) • Turning – Opp. Direction (17%)

[1]Total accidents from January 1, 2006 through December 31, 2008.

	Location	Total Accidents[1]	Most Prevalent Collision Types
4	At Ledge Road	9	• Rear End (56%)
5	At Leroy Avenue	14	• Rear End (64%)
6	Between Leroy Avenue and Corbin Drive	19	• Sideswipe – Same Direction (21%) • Turning – Opp. Direction (21%)
7	At Corbin Drive	20	• Rear End (40%) • Sideswipe – Same Direction (30%)
8	At Center Street	11	• Rear End (27%) • Turning – Same Direction (27%)
9	Between Center Street and West Avenue	26	• Fixed Object (77%)
10	At Mansfield Avenue (Route 124)	23	• Rear End (57%)
11	Between Mansfield Avenue (Route 124) and Sedgwick Avenue	11	• Rear End (55%) • Sideswipe – Same Direction (27%)
12	At Sedgwick Avenue	14	• Rear End (29%) • Sideswipe – Same Direction (21%)
13	At Brookside Road	13	• Rear End (23%) • Turning – Intersecting Path (23%)
14	Between Brookside Road and Old Kings Highway North	25	• Sideswipe – Same Direction (32%) • Turning – Intersecting Path (32%)

[1]Total accidents from January 1, 2006 through December 31, 2008.

Route 1 Corridor Study • *Darien, CT*

Figure 2-5.
High Accident Locations (2006 – 2008)

Between Cross Street and I-95 Northbound On Ramp. A total of 18 collisions occurred along this 0.29-mile segment during the three-year analysis period. Four of these collisions resulted in injuries. Four different types of collisions occurred with equal frequency along this segment, with four incidents of each type: rear-end collisions, sideswipe collisions between vehicles traveling in the same direction, turning collisions between vehicles on intersecting paths and turning collisions between vehicles travelling in the opposite direction. Typical contributing factors include failing to grant right-of-way, improper lane change or following too closely. Three of the collisions occurred at the intersection of Route 1 and Thorndal Circle.

At Ledge Road. A total of nine collisions occurred at this location during the three-year analysis period. One of these collisions resulted in injuries. The most prevalent collision type was rear-end collision (5), typically resulting from drivers following too closely. Most of the rear-end collisions at this location involved northbound vehicles, signifying the slowing of speeds and increase in congestion when traveling northbound along Route 1.

At Leroy Avenue. A total of 14 collisions occurred at this location during the three-year analysis period. Two of these collisions resulted in injuries. The most prevalent collision type was rear-end collision (9), typically resulting from drivers following too closely. Most of the rear-end collisions at this location involved northbound vehicles. This pattern of collisions is evidence of the slowing of speeds and increase in congestion when traveling northbound along Route 1.

Between Leroy Avenue and Corbin Drive. A total of 19 collisions occurred along this 0.11-mile segment during the three-year analysis period. One of these collisions resulted in injuries. The most prevalent collision type was sideswipe in the same direction (4), typically resulting from drivers making an improper lane change. Northbound vehicles were more likely to be involved in sideswipe collisions of this kind, possibly caused by motorists abruptly trying to change lanes to the left to avoid the right turn only lane at Corbin Drive.

Opposite-direction turning collision (4) was also a common collision type at this segment. This collision type is characterized by a motorist failing to grant right-of-way. No specific pattern of turning collisions from any individual driveway or side street was observed. There were also three backing collisions resulting from unsafe operations by a motorist departing a parking space.

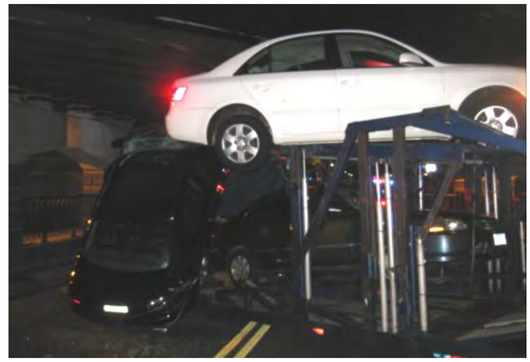
At Corbin Drive. A total of 20 collisions occurred at this location during the three-year analysis period. One of these collisions resulted in injuries. The most prevalent collision type was rear-end collision (8), typically resulting from drivers following too closely in congested conditions. In most cases, vehicles that were struck from the rear were stopped at the traffic signal, indicating a combination of following too closely and inattention on the part of approaching motorists.

Sideswiping with vehicles traveling in the same direction (6) was the second most common collision type at this intersection/segment. This collision type is characterized by an improper lane change or passing maneuver. Northbound vehicles were more likely to be involved in sideswipe collisions of this kind, possibly caused by vehicles changing lanes to the left to avoid vehicles that were stopped to back into on-street parking.

At Center Street. A total of 11 collisions occurred at this location during the three-year analysis period. None of these collisions resulted in injuries. The most prevalent collision types were rear-end collisions (3) and turning collisions between vehicles traveling the same direction. With all three rear-end collisions the vehicles that were struck from the rear were stopped at the traffic signal, indicating a combination of following too closely and inattention on the part of approaching motorists.

Two of the same-direction turning collisions involved northbound vehicles passing a right-turning vehicle on the right. Each of these cases may have involved a vehicle exiting from the on-street parking on the east side of Route 1. The third collision of this type involved a northbound vehicle turning left from the improper lane.

Between Center Street and West Avenue. A total of 26 collisions occurred along this 0.04-mile segment during the three-year analysis period. One of these collisions resulted in injuries. The most prevalent collision type was fixed object collision (20), typically resulting from insufficient vertical clearance under the railroad bridge (see Appendix 2.7, page A2-29, for detailed TAVS data for bridge collisions). This type of collision occurred more frequently with vehicles traveling northbound, indicating a lack of awareness of the height restrictions on the part of motorists coming from the south via Route 1 or Tokeneke Road.



A recent bridge collision on August 18, 2012 involved a car carrier and closed Route 1 for two hours while the accident was cleared.

As of late-2011, new low vertical clearance warning signs were installed in the Route 1 corridor as part of railroad bridge improvements completed under CTDOT Project No. 300-099. New warning signs were installed on the Tokeneke Road, West Avenue, and Mansfield Avenue approaches to Route 1 to supplement warning signs on Route 1 that direct truck operators to use I-95 to bypass the railroad bridge. See Appendix 2.8, page A2-37, for a map of existing low vertical clearance warning signs in the study area.

During the 11-month period between late-2011 – when the bridge improvements were completed – and September 2012, there were five collisions between over-height trucks and the railroad bridge that were reported by MTA police. The annualized frequency of collisions (approximately five per year) since the signing improvements were implemented is fairly consistent with the annual frequency of collisions reflected in CTDOT's TAVs data for 2006 to 2008 (six per year), and consistent with MTA's reporting of bridge collisions for 2009, 2010, and 2011 (approximately 5 per year).[12]

At Mansfield Avenue (Route 124). A total of 23 collisions occurred at this location during the three-year analysis period. Ten of these collisions resulted in injuries. The most prevalent collisions type was rear-end collision (13), typically resulting from drivers following too closely for their speed. Most of the rear-end collisions involved vehicles traveling southbound. This pattern is consistent with traffic queuing issues along Route 1 in the southbound direction and a lack of driver expectation of congestion.

Sideswiping between vehicles traveling in the same direction (3) was the second most common collision type at this location. This collision type is characterized by an improper lane change or passing maneuver. No specific pattern of sideswipe collisions was observed.

Between Mansfield Avenue (Route 124) and Sedgwick Avenue. A total of 11 collisions occurred along this 0.06-mile segment during the three-year analysis period. One of these collisions resulted in injuries. The most prevalent collisions type was rear-end collision (6), typically resulting from drivers following too closely. Most of the rear-end collisions involved vehicles traveling southbound. This pattern is consistent with traffic queuing issues along Route 1 in the southbound direction and a lack of driver expectation of congestion.

Sideswiping between vehicles traveling in the same direction (3) was the second most common collision type at this segment. This collision type is characterized by an improper lane change or passing maneuver. No specific pattern of sideswipe collisions was observed.

At Sedgwick Avenue. A total of 14 collisions occurred at this location during the three-year analysis period. Two of these collisions resulted in injuries. The most prevalent collision type was rear-end collision (4), typically resulting from motorists following too closely. In most cases, vehicles that were struck from the rear were stopped at the traffic signal, indicating a combination of high speeds and inattention on the part of approaching motorists.

Sideswiping between vehicles traveling in the same direction (3) was the second most common collision type at this segment. This collision type is characterized by an improper lane change or passing maneuver. No specific pattern of sideswipe collisions was observed.

At Brookside Road. A total of 13 collisions occurred at this location during the three-year analysis period. None of the accidents resulted in injuries. The most prevalent collision type was intersecting-path turning collisions (3), typically resulting from failure to grant right-of-way. There were also three rear-end collisions resulting from motorists following too closely. Although there was no specific pattern of collisions observed, this intersection is located at a transition point in Route 1 while heading southbound, changing to a roadway which features more congestion, slower speeds and increased frequency of driveways and on-street parking. In addition, the awkward angle of Brookside Road combined with a vertical crest on Route 1 to the north of the intersection may also contribute to the complexity of operations there, resulting in collisions.

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[12] *Commercial Vehicle Hits on MTA Rail Bridges, 2006-2011*, SWRPA, February 2012.

Between Brookside Road and Old Kings Highway North. A total of 25 collisions occurred along this 0.26-mile segment during the three-year analysis period. Four of the accidents resulted in injuries. Sideswiping collisions with vehicles traveling in the same direction were prevalent (8), typically resulting from drivers making an improper lane change. This type of collision was more frequent between vehicles traveling northbound, possibly caused by motorists abruptly trying to change lanes to the left to avoid the right turn only lane leading to the intersection at Old Kings Highway North.

Intersecting-path turning collisions (8) were also common, typically caused by failure to grant right-of-way. There were six turning collisions between vehicles traveling in the opposite direction. This collision type is also characterized by a vehicle failing to grant right-of-way. The higher frequency of turning-related accidents could be a consequence of higher commercial access density in this section of roadway.

2.B Land Use and Development

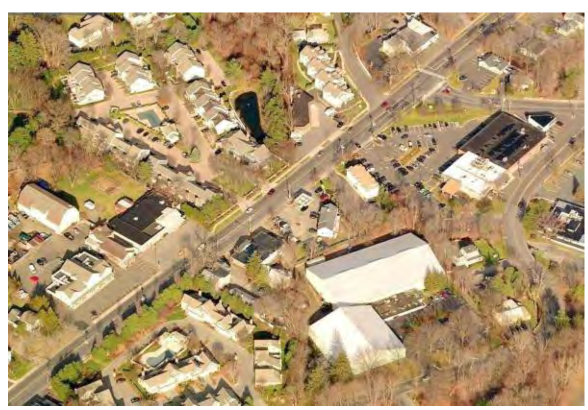
This section presents land use in the Route 1 study area relative to the visual context of the corridor; existing zoning provisions for access management, parking, and site design; existing community facilities served by the corridor; municipal parking facilities; zoning constraints; and Downtown development in terms of density, recent development trends, and development opportunities.

2.B.1 Context Zones

Existing land uses in the study area, shown in Figure 2-6, were assessed based on field review, mapping, aerial photographs, and GIS data provided by the Town. For purposes of this study, land uses along the Route 1 study corridor were categorized into several context zones. A context zone is defined as an area of the corridor that has a set of land uses and a visual character that is distinct from other areas of the corridor. Land uses include manmade improvements such as buildings and infrastructure that are classified into broad categories such as residential dwellings, retail stores, offices and other occupied commercial buildings, industrial buildings, warehouses, churches and other institutional buildings, civic buildings, among others. Land uses can also include open space, recreational lands, and undeveloped lands such as wetlands and woodlands. Visual character consists of a combination of landform, vegetative cover, and various elements of the built environment that evoke positive or negative subjective responses on the quality of the landscape or townscape – such as architectural design, historic resources, attractive streetscapes, landscaped parks, expansive parking lots, and unsightly outdoor storage. In other words, a context zone is an assemblage of land uses and key visual resources that define the general character of an area and distinguishes it from other areas or districts.

Based on this definition, the study corridor was categorized into three distinct context zones, as shown in Figure 2-7. These context zones, described in detail below and on the following pages, include:

- Route 1 Commercial – Sedgwick Avenue to Old Kings Highway North.
- Central Business District (CBD) – Ledge Road to Sedgwick Avenue
- Residential, Institutional, and Convenience Commercial – Nearwater Lane to Exit 11/Ledge Road



Aerial photo representative of the "Route 1 Commercial" context zone. Route 1 runs diagonally across photo and Old Kings Highway North is at upper right of photo. (Source: Bing Maps by Microsoft Corp.)

Route 1 Commercial. This context zone includes the area of Route 1 beginning at Sedgwick Avenue and extending north to the study limit at Old Kings Highway North. This area is primarily zoned Design Business 1 or 2 and is comprised of uses that are principally multi-family housing units, business, and occasional one-family housing units interspersed along the corridor. These uses are largely automobile-oriented, and consequently, density is relatively low.

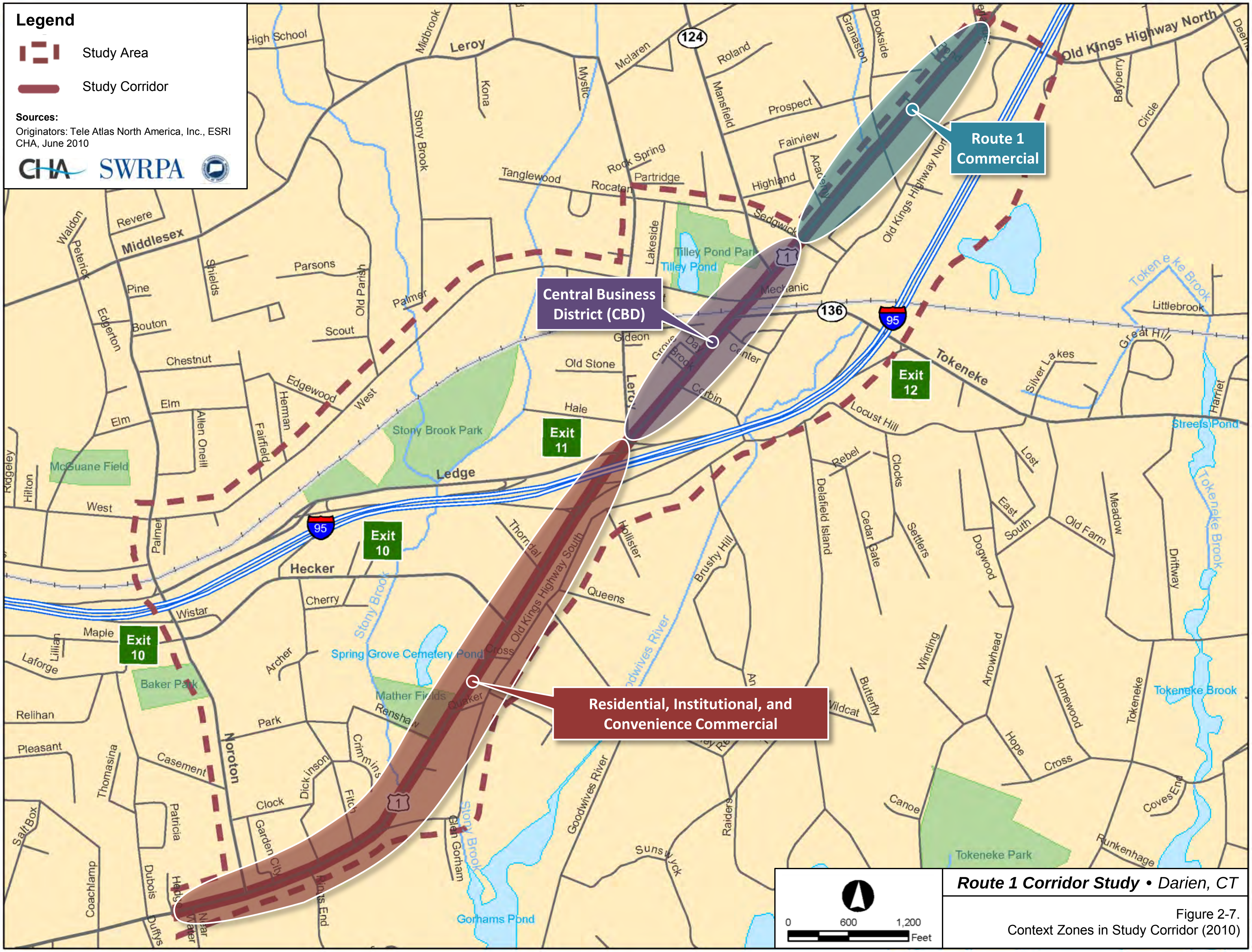


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Figure 2-7.
Context Zones in Study Corridor (2010)

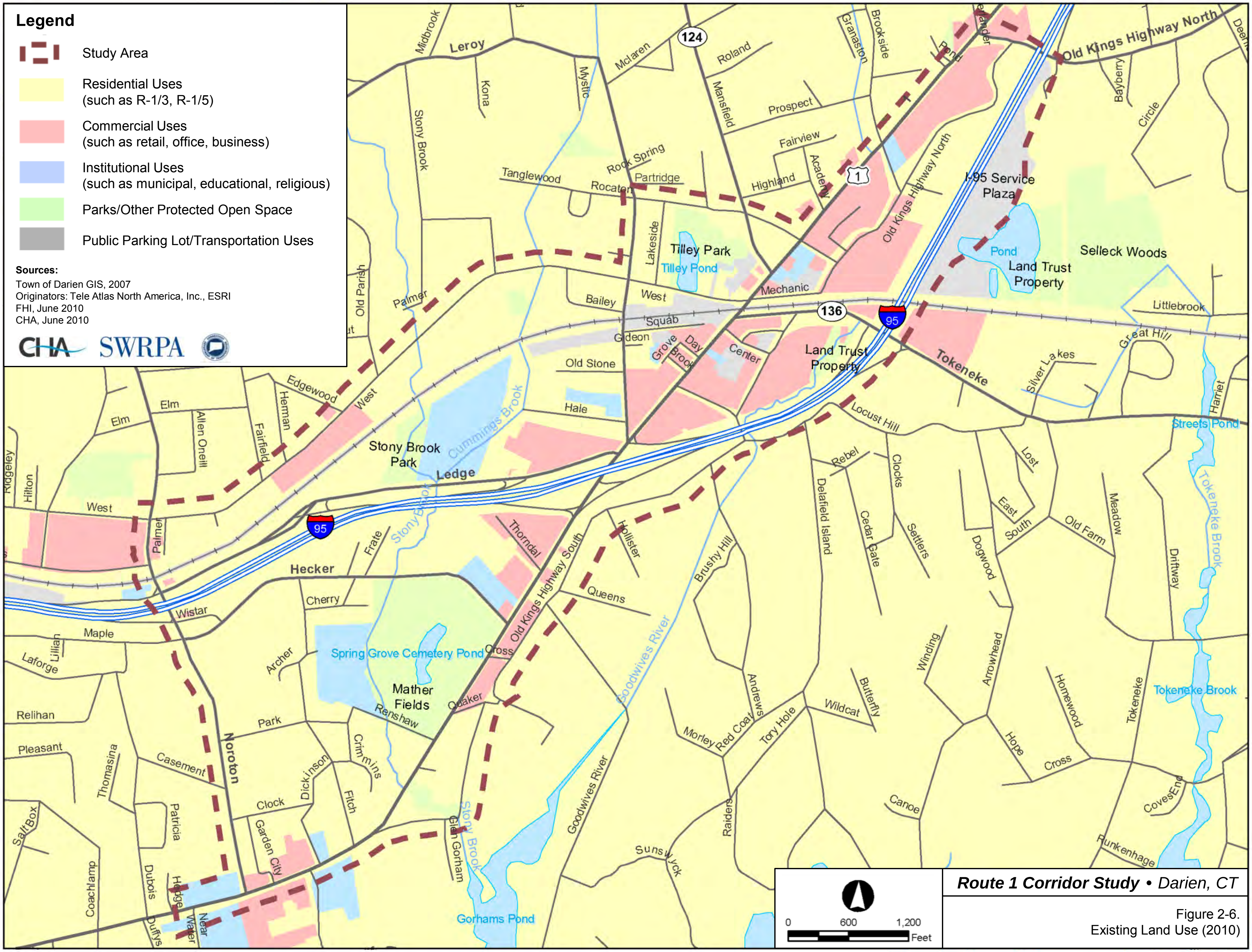

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Figure 2-6.
Existing Land Use (2010)

Central Business District (CBD). This context zone includes the area of Route 1 beginning at Ledge Road and extending north to Sedgwick Avenue. The CBD is the most intensely developed area of Darien and is comprised of mixed-use development including retail stores, restaurants, professional offices, banks, services, and some residential development. The Metro-North railroad bisects the CBD and, due to the limited number of street crossings, effectively divides the CBD into two downtown districts. With a few exceptions, most buildings along Route 1 in the CBD are two or three story, mixed-use commercial buildings. Many were built in the 19th and 20th centuries and typically are of traditional architectural character and have a presence close to the sidewalk. These buildings often have retail uses on their ground levels, attractive entrances, articulated façades and other architectural details that are based on human proportions. These traditional, multi-story buildings reinforce the pedestrian scale or character of Downtown and contribute to a cohesive, understandable townscape.

Peripheral areas of the CBD, in particular, the land along Old Kings Highway South, have uses that are principally office buildings situated in a business park type setting. Just north and east of Downtown, along Old Kings Highway North, there is a tract of land that is developed with a one-story, strip-style shopping center that is anchored by a grocery store and contains multiple satellite stores or banks.

Residential, Institutional, and Convenience Commercial. This context zone includes the area of Route 1 beginning at the southern study limit at Nearwater Lane and extending north to I-95 Exit 11/Ledge Road. Much of the area close to Exit 11 and a few sections of the corridor interspersed along Route 1, are comprised of convenience commercial uses such as restaurants, automobile sales, and home and garden stores. As one progresses southerly along Route 1 away from Downtown, uses become increasingly residential and are generally comprised of low-density, one-family homes on one-fifth to one-half acre lots and several churches. This context zone is distinctly less commercial than the rest of the study area and is more civically oriented since the new town library is located at the intersection of Boston Post Road and Hecker Avenue, and the Town Hall and Police Department are located nearby on Renshaw Road and Hecker Avenue, respectively. Spring Grove Cemetery and public sports fields at the town-owned Mather Fields front Route 1 and lend this section of the corridor a very open and green character.

Aerial photo representative of the "Central Business District" context zone. Route 1 runs diagonally across photo and Corbin Drive is in the lower right of photo. (Source: Bing Maps by Microsoft Corp.)

Aerial photo representative of the northerly reaches of the "Residential, Institutional & Convenience Commercial" context zone. Route 1 runs diagonally across photo and Thorndal Circle is at left of photo. (Source: Bing Maps by Microsoft Corp.)

Aerial photo representative of the southerly reaches of the "Residential, Institutional & Convenience Commercial" context zone. Route 1 runs diagonally across photo and Noroton Avenue is at left of photo. (Source: Bing Maps by Microsoft Corp.)

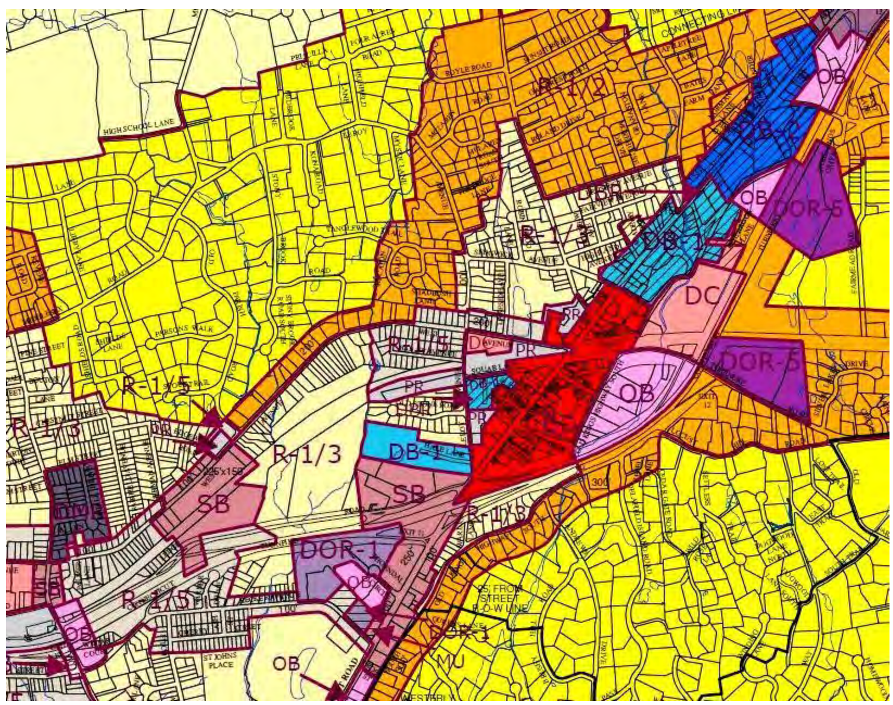
2.B.2 Existing Zoning

Most of downtown Darien is zoned Central Business District (CBD) which allows retail and business office uses. Principal permitted uses in the CBD include commercial sales, business and professional offices (provided such uses are located on upper floors), public uses, transit stations, and dwelling units located on upper floors. Other uses allowed by Special Permit include restaurants, and the sale of prepared food (such as candy or ice cream).[13]

Zoning districts for areas that immediately surround downtown are a mix of commercial zones and multi-family uses including Service Business (SB), Design Business One (DB-1), Design Business and Residential (DBR), Parking, Residential (PR), Design Commercial (DC), and Office Business (OB). These less intensive commercial and multi-family residential uses provide transitions between the CBD and surrounding single family residential districts. The single family residential districts lie within 500 to 1,000 feet of the CBD and include One-Family Residential zones (R zones) with a range of minimum lot sizes including one-fifth acre (R-1/5), one-third acre (R-1/3), and one-half acre (R-1/2). Lower density single family residential districts of one acre minimum lot sizes (R-1) lie just beyond the denser one-fifth to one-half acre residential lots that surround Downtown.

North of Downtown along Route 1, land is generally zoned Design Business 1 (DB-1) or Design Business 2 (DB-2). The DB-1 zone provides for transitional business uses between the CBD and residential lands that lie east and west of the corridor. The DB-2 zone is located north of the DB-1 zone and allows business uses that are more automobile-dependent (that is, business uses that require larger lots for bigger stores, outdoor sales lots, offices, or services and the large parking lots that are associated with suburban-style retail districts).

South of Downtown along Route 1, zoning districts are typically less commercial than districts north of Downtown. An area zoned Service Business (SB) is located around I-95 Exit 11. The SB zone is intended to provide convenience business uses that are more automobile-oriented than uses in the CBD. Further south along Route 1 in the study area, land is generally zoned residential, including R-1/3 to the west and R-1/2 to the east of Route 1. There are two exceptions in this southern segment of the Route 1 corridor: a small area zoned Office Business (OB) on the east side of Route 1 between Cross Street and Quaker Lane, and a small area zoned Neighborhood Business (NB) on either side of Route 1 between Dickinson Road and Noroton Avenue.



Excerpt of Zoning Map of Darien showing existing districts within the Route 1 study area.

[13] Planning and Zoning Commission, Town of Darien, Connecticut. Adopted May, 25, 1999; Last revised effective March 12, 2006. *Town of Darien Zoning Regulations.* Page VI-13.

The following is a summary of the zoning districts and overlay districts that occur in the study area:

- **CBD – Central Business District**. Mixed-use zone with residences permitted on the second floor of a building. This is the Town's primary business area and is intended to be the focal point for retail, business and professional office activities with apartments encouraged on upper floors.
- **DB-1 – Design Business One**. Mixed-use zone with residences allowed on the second floor of a building as a Special Permit. Intended to establish transitional business zones between the CBD and the business and residential zones on the periphery of the CBD.
- **DB-2 – Design Business Two**. Mixed-use zone with residences allowed on the second floor of a building as a Special Permit. Intended to provide a suitable area for business operations which require both internal and external use space and which are intended to primarily serve the needs of the general area. Special measures have been established to assure that traffic generation and circulation are adequately regulated to avoid significant intensification of existing problems or the creation of new ones.
- **DC – Design Commercial**. Mixed-use zone with residences allowed on the second floor of a building as a Special Permit. Intended to provide for secondary level concentrations of retail uses which are deemed to be necessary to provide for the needs of the community. Within this zone, there is less emphasis on pedestrian circulation than in the CBD. Emphasis is on quality of design, compatible land use patterns, and intensity of development which is compatible with surrounding residential districts.
- **DOR-1 and DOR-5 – Design Office & Research**. One and five acre minimum lot sizes respectively. Intended for executive and administrative corporate uses and structures. Given the close proximity of residentially-zoned districts to these zones, it is the intention of this zone to protect and balance the mix of business development and residential character.
- **OB – Office Business**. Intended to provide an area suitable for a combination of executive and administrative offices and business and professional offices.
- **PR – Parking Residential**. Intended to provide parking areas for automobiles and the provision of public transportation facilities in certain, appropriate locations adjacent to residential and business zones. It is also intended that a suitable transition be created with these uses between residential and non-residential districts.
- **R-1/3 – Residential**. Minimum one-third acre lot size. Intended for single-family dwellings and accessory uses located on individual lots.
- **R-1/5 – Residential**. Minimum one-fifth acre lot size. Intended for single-family dwellings and accessory uses located on individual lots.
- **SB – Service Business**. Mixed-use zone with residences permitted on the second floor of a building. Intended to provide for certain types of business uses which serve a community need or convenience and are automobile-oriented or require outdoor sales or storage areas.
- **SB-E – Service Business East.** Mixed-use zone with residences permitted on the second floor of a building. This zone is located on the east and west sides of Route 1 between Birch Road and the Norwalk municipal line and is intended to provide for certain types of business uses which serve a community need or convenience requiring external storage or activity, or are automobile-oriented.
- **Overlay Districts:**
  - **DBR – Design Business and Residential**. Mixed-use zone that is a transitional zone between the CBD and the lower density residential districts on the periphery of the CBD and that allows for residences as an alternative form of development to that which is still permitted in the DB-l and DB-2 Zones. Includes density incentive for senior and moderate-income housing.
  - **MU – Municipal Use (floating zone)**. Intended to provide greater flexibility for municipal uses or for uses generally conducted by or provided by the Town of Darien to serve a public purpose. These uses frequently are a one of a kind use in the Town – such as Town Hall.

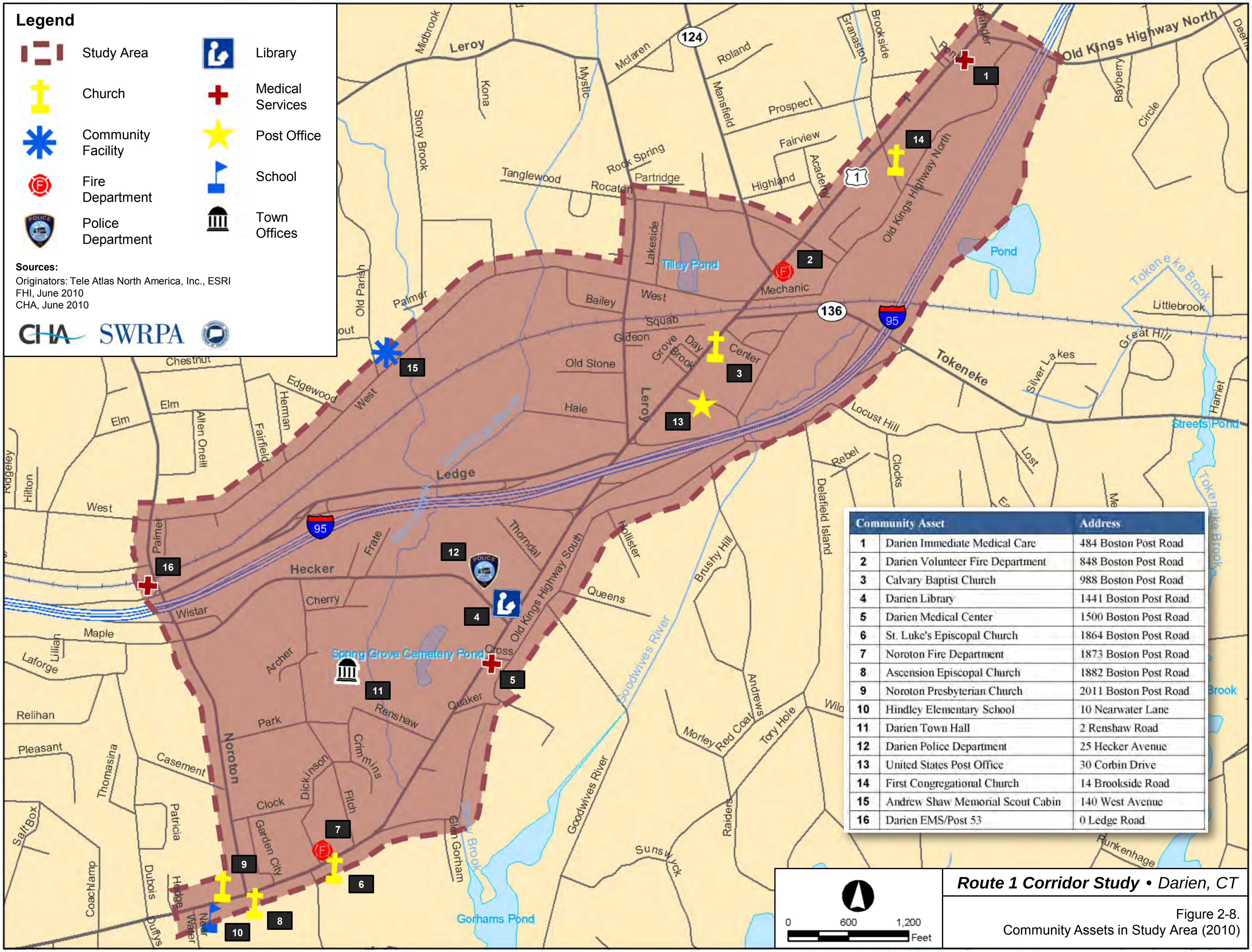
The following is a summary of specific zoning provisions relative to access management, parking, and site design in the study area:

- **Zoning Provisions for Access Management**. The Darien zoning regulations do not contain a specific section dedicated to requirements for driveway design and access management. However, there are requirements related to driveways in some of the subsections on Special Controls in some zones. In the section on the regulation of "other improvements on the lot," there is a requirement for adequate sight lines and visibility at intersections with the intent to prevent structures or objects on a lot from obstructing a driver's view. Driveway-related provisions in other sections of the zoning regulations include:
  - **In the DBR Overlay Zone –** Primary access shall only be to Route 1, Old Kings Highway North or Leroy Avenue, unless it is a corner lot.
  - **In the DOR Zones –** Separate driveways must be at least 150 feet apart.
- **Zoning Provisions for Parking**. The parking section of the Darien zoning regulations has the traditional table with the number of parking spaces required by use. In addition, there are a number of special provisions, including:
  - No parking allowed in front of a building in most business zones except where the building setback is at least 75 feet.
  - No parking is allowed in the front or side yard in any residential zone (not including temporary parking in the driveway).
  - Off-street loading and unloading facilities must be located on the same lot with the use to be served, except when this requirement is waived by the Planning and Zoning Commission (PZC).
  - Joint Parking – Sets standards for when the PZC may approve shared parking for two or more uses.
  - On-Site Location – Prohibits parking to be off-site from a use except where one common facility can be provided for two adjoining lots. The PZC may also allow off-site parking in the same ownership and within 500 feet of the principal use where it determines it is impractical or unnecessary to keep the parking on the same lot.
  - Parking Setbacks – Provides a table with setback standards to separate parking from property lot lines, providing a buffer between parking and adjoining uses.
  - Parking Structures – Prohibits parking structures except for one level underground in lieu of surface parking where this allows space to be used for open space, landscaping, or similar amenities.
  - Dedication of Parking – Required off-street parking which, after development, is dedicated to the Town for public parking shall be considered to continue to satisfy the parking requirements for the use for which they were originally provided.
  - Dedication of Public Parking Areas, Special Uses – Sets conditions for dedication of parking space to the Town in the CBD. Allows floor area to be two times the remaining lot area after dedication of parking area, creating an incentive for property owners to dedicate parking to the Town.
  - Design Business and Residential Zone – Specifically states that parking must be designed in a manner that protects valuable natural features such as water courses.
  - Parking Residential Zone – Creates a transition between parking for residential uses and for transit (train). It allows for parking of cars and public transit facilities adjacent to some residential zones.
  - CBD – Parking requirements may be met by donation of land to the Town for public parking. Also, the PZC may grant a Special Exception that reduces the parking requirements for restaurants where it finds there is sufficient on-site parking space for all the uses on the site.
  - Designed Office and Research Zones – The PZC may permit a portion of the required parking spaces to be reserved as landscaped open space if that space can be used in the future for parking if needed and less spaces will meet the immediate parking demand.

- **Zoning Provisions for Site Design.** Specific requirements relative to site design in the Darien zoning regulations include:
  - Maximum building coverage in most zones is 20% with a maximum of 2½ stories or 30 feet for any structure.
  - Up to 80% maximum developed area within some special business zones.
  - Illustrations and graphics provided as examples of preferred design for signs, typical lot and yard areas, location of structures, building heights, parking lot design and arrangement, and lighting.
  - Landscaping requirements and requirements for buffers and screening.
  - Requirements for building protrusions or appurtenances such as porches and bay windows and regulations on terraces, walls and fences, and swimming pools.
  - Special controls in most non-residential zones which relate to landscaping and general language stating that the architectural style should enhance and contribute to the character of the site and surrounding area.

2.B.3 Existing Community Facilities

As shown in Figure 2-8, there are several municipal facilities in the study area including schools, civic government buildings, a library, police and fire stations, and parks. There are also other governmental or institutional uses in the study area including churches and other religious buildings, a post office, and state operated facilities. There are no schools located directly on the Route 1 study corridor and residents have not expressed concern that traffic intensity or the design of crosswalks poses a problem for schoolchildren on their walking route to school. Nonetheless, the degree to which community facilities represent a frequent destination for the largest segments of the population that do not have ready access to motor vehicles – that is, children and the elderly – means that accessibility of these facilities must be evaluated for pedestrians who may want to walk to them. Two community facilities in the study area that have the greatest level of visitation by residents and visitors are the post office on Corbin Drive and the town library located at the intersection of Hecker Avenue and Route 1. These facilities are also popular destinations for patrons who utilize passenger vehicles and therefore represent important peak hour traffic generators. Accordingly, safety needs of motorists accessing these facilities and the degree to which pedestrian safety features are provided to these facilities require careful consideration.



	Community Asset	Address
1	Darien Immediate Medical Care	484 Boston Post Road
2	Darien Volunteer Fire Department	848 Boston Post Road
3	Calvary Baptist Church	988 Boston Post Road
4	Darien Library	1441 Boston Post Road
5	Darien Medical Center	1500 Boston Post Road
6	St. Luke's Episcopal Church	1864 Boston Post Road
7	Noroton Fire Department	1873 Boston Post Road
8	Ascension Episcopal Church	1882 Boston Post Road
9	Noroton Presbyterian Church	2011 Boston Post Road
10	Hindley Elementary School	10 Nearwater Lane
11	Darien Town Hall	2 Renshaw Road
12	Darien Police Department	25 Hecker Avenue
13	United States Post Office	30 Corbin Drive
14	First Congregational Church	14 Brookside Road
15	Andrew Shaw Memorial Scout Cabin	140 West Avenue
16	Darien EMS/Post 53	0 Ledge Road

Route 1 Corridor Study • *Darien, CT*

Figure 2-8.
Community Assets in Study Area (2010)

2.B.4 Existing Municipal Parking

Off-street Parking

There are six municipal parking lots in Downtown Darien that provide approximately 359 off-street parking spaces intended to be used by Downtown patrons for short term (2 to 3-hour) parking. These lots, which are Town-owned and/or Town-maintained, are shown on a parking map of Downtown Darien in Appendix 2.9 (page A2-39) and include:

The Grove Street Lot is one of six municipal parking lots in Downtown Darien that provide 359 off-street parking spaces for short term parking.

Mechanic Street Lot - 47 spaces for 3-hour parking. Located north of the railroad on the east side of Route 1 behind the Darien Volunteer Fire Department. The lot is proximate to businesses on Route 1 between Mechanic Street and Sedgwick Avenue. Vehicular access to the lot is from Mechanic Street or Route 1. Pedestrian access to Route 1 is via sidewalks along Mechanic Street or via a short sidewalk connecting to Route 1 near the driveway at the intersection with Mansfield Avenue. There are no internal sidewalks. Parking in this lot also includes 72 permit and voucher spaces for Darien railroad station commuters.

Center Street North Lot – 50 spaces for 3-hour parking. Located east of Route 1, between Tokeneke Road and Center Street. The lot is proximate to businesses on Route 1 and Tokeneke Road. Vehicular access to the lot is from Center Street or Old Kings Highway South. Pedestrian access to Route 1 is via sidewalks along Center Street. There are no internal sidewalks. Parking in this lot also includes 24 permit spaces for Darien railroad station commuters.

Center Street South Lot – 101 spaces for 2 and 3-hour parking. Located east of Route 1 and south of Center Street. The lot is proximate to businesses on Route 1. Vehicular access to the lot is from Center Street, Route 1 (via the First County bank drive opposite Day Street), or Old Kings Highway South (via a driveway). Pedestrian access to Route 1 is via sidewalks along Center Street, via the bank driveway, or via a pedestrian alley between buildings on Route 1. A pedestrian crossing to businesses on the west side of Route 1 is only accommodated at the Center Street intersection. There are no internal sidewalks. Parking in this lot also includes 28 permit spaces for Darien railroad station commuters.

Tilley Lot – 95 spaces for 2 and 3-hour parking. Located north of the railroad on the west side of Route 1, between West Avenue and Mansfield Avenue. The lot is proximate to businesses on the west side of Route 1 and West Avenue. Vehicular access to the lot is from Mansfield Avenue. Pedestrian access to Route 1 is via sidewalks along Mansfield Avenue or via a pedestrian alley between buildings on Route 1. There is a sidewalk along the east side of the lot adjacent to businesses that front Route 1.

Grove Street Lot – 34 spaces for 3-hour parking. Located between Squab Lane and Grove Street, west of Route 1. The lot is proximate to businesses on Grove Street and the west side of Route 1. Vehicular access to the lot from Route 1 is via Brook Street and Grove Street, and from Leroy Avenue via Squab Lane. Pedestrian access to Grove Street and Route 1 is via sidewalks along Grove Street, Brook Street, and Day Street. There are no internal sidewalks. Parking in this lot also includes 70 permit spaces for Darien railroad station commuters.

Tokeneke Road – 32 spaces for 2-hour parking. Located along the north side of Tokeneke Road, between Route 1 and Old Kings Highway South. This parking is proximate to businesses on Tokeneke Road. Vehicular access is directly from Tokeneke Road. Pedestrian access to businesses on Tokeneke Road is via sidewalks along the south side of the road, west of Old Kings Highway South; there are no sidewalks along the north side of Tokeneke Road adjacent to the parking spaces, or along either side of Tokeneke Road, east of Old Kings Highway South. Parking on Tokeneke Road also includes 36 voucher and incentive spaces for Darien railroad station commuters.

A 2007 study of parking in Darien included occupancy surveys of several private and public lots in Downtown, including the Center Street North and Center Street South lots. The study showed that short term parking at the Center Street South lot is at capacity during the midday peak on weekdays, and 75% capacity on Saturdays; the Center Street North lot is less than 50% capacity during the midday peak on weekdays and Saturdays. The study also showed that, in general, public and private lots in the CBD are at 60% capacity or more during the midday peak on weekdays.[14]

Discussions with the Town suggest that the Center Street South lot is heavily utilized by area employees for parking, which could be contributing to the high occupancy during weekdays and Saturdays.

On-street Parking

Short term, on-street parking is provided intermittently on Route 1 in the Downtown area between Leroy Avenue and Sedgwick Avenue. Individual parking spaces are generally not marked (with the exception of two spaces located just north of Corbin Drive on the west side of Route 1). Assuming that each space occupies approximately 20 ft of curb, there are approximately 86 on-street parking spaces in Downtown. Because unmarked spaces are not always utilized most efficiently, the actual maximum number of vehicles parking on-street is potentially fewer than 86.

On-street parking is also provided on Route 1 in Noroton between Noroton Avenue and Rings End Road. Individual parking spaces are not marked in this area, and as noted in Section 2.A.1 (page 2-1), the roadway is not wide enough to accommodate on-street parking without encroachment into the outside travel lanes.

2.B.5 Zoning Constraints

The following is a discussion of potential land-use permit or zoning related regulatory constraints that were gleaned through a review of the Zoning Regulations of the Town of Darien. These constraints may inadvertently discourage redevelopment or infill development in Downtown Darien.

Minimum Parking Requirements in the CBD Zone

Zoning regulations and site plan approval procedures established by the Planning and Zoning Commission of the Town of Darien (PZC) encourage developers, where feasible, to utilize shared parking among its neighboring property owners in order to maximize parking efficiency, minimize or consolidate curb-cuts on public streets, and effect safer, coordinated traffic flow through rear parking lots. The PZC also encourages applicants whose properties are adjacent to existing rear municipal parking lots to expand the municipal parking and dedicate those areas of their properties to the Town. Over time, this has resulted in a significant supply of fairly well-situated, free municipal parking.

Lack of parking, at least for Downtown uses, does not appear to be an issue or limiting factor in Darien, as the following discussion suggests. A detailed assessment of existing development areas and available public and private parking spaces was conducted for this study to illustrate how overall parking supply in the CBD, and within various blocks of the CBD, relates to the gross floor space of all land uses in the CBD zone. Figure 2-9 illustrates the assumed demarcation of the Downtown blocks that were used as the basis of the assessment; Table 2-7 summarizes the average parking supply per 1,000 square feet (sf) of gross floor space for each block in the CBD. It is important to note that the number of spaces per 1,000 sf of gross floor space is the same unit used in the Town's Zoning Regulations to define minimum parking requirements for new uses.

[14] *Darien Parking Study*, Fitzgerald & Halliday, Inc., March 2007.

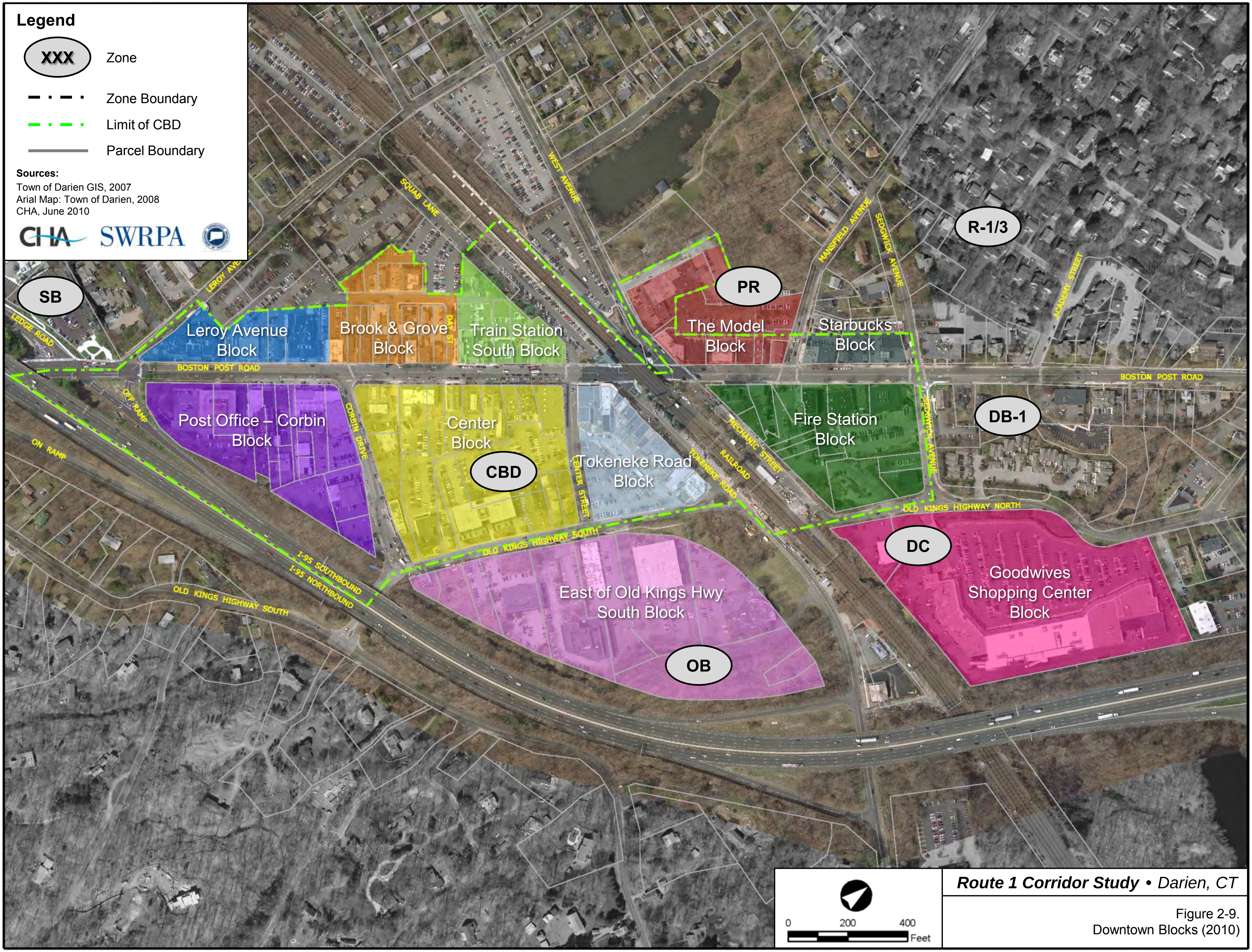


Figure 2-9.
Downtown Blocks (2010)

Table 2-7. Summary of Existing Parking Supply in the CBD (2010)

Block Designation	Gross Floor Area of All Stories (sf)	Number of Municipal & Private Parking Spaces	Parking Supply per 1,000 sf of Gross Floor Area
Leroy Avenue Block	66,000	224	3.4
Brook & Grove Block	66,000	199	3.0
Train Station South Block	43,000	105	2.4
Post Office – Corbin Block	91,000	393	4.3
Center Block	155,000	459	3.0
Tokeneke Block	58,000	140	2.4
Model Block	66,000	172	2.6
Starbucks Block	21,000	59	2.8
Fire Station Block	49,000	182	3.7
Totals	**615,000**	**1,933**	**3.1**

Source: CHA
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, June 2010

As shown in Table 2-7, there are approximately 3.1 parking spaces for each 1,000 sf of retail, office, and service space in the CBD. It is important to note that the number of available parking spaces in the CBD typically increases after 5 p.m. as commuter parking spaces are vacated by train commuters and are made available to the public for use by shoppers and restaurant patrons. Commuter parking that is available after 7 p.m. on weekdays and on weekends would be higher yet.

The parking requirements established in Section 900 of the Town's Zoning Regulations[15] require a minimum of 10 off-street parking spaces for every 1,000 sf of retail, service or personal service business. Similarly, the regulations require 20 parking spaces for every 1,000 sf of restaurant use. These ratios exceed the generic, single-use parking requirements of most locales and do not account for parking efficiencies afforded by compact, mixed-use development centered around transit, nor do they consider the degree to which commuter parking can be utilized by Downtown patrons, particularly near restaurants where typical peak parking demand is after 5 p.m.

Depending on location, population density, and availability of transit service, retailers in other comparable locales require less than three parking spaces per 1,000 sf of leasable space; however, more commonly, a minimum of four parking spaces per 1,000 sf of retail space is used.[16] A study conducted by the Northwest Connecticut Council of Governments and Litchfield Hills Council of Elected Officials found that the majority of parking lots surveyed in Litchfield County have occupancy rates of 47% (24% for "big-box" stores).[17] The authors observed that the reality of excess parking is unfortunate because it contributes to sprawl and is a barrier to building compact, pedestrian-friendly places. The study recommended that parking should be reduced through code alternatives, and creative site planning and management of commercial centers in mixed-use centers, particularly in areas with frequent transit service.[18]

One of the most effective ways that the Town of Darien can optimize development opportunities in Downtown (see discussion on Infill Development Opportunities, page 2-47) in order to create a more vibrant, walkable and sustainable downtown, is to refine its parking regulations to reduce parking requirements for new, mixed-use development and to establish better criteria and standards for estimating spaces needed under a shared parking arrangement, as recommended in the Darien Parking Study prepared for the Town in 2007[19].

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[15] Planning and Zoning Commission, Town of Darien, Connecticut. Adopted May, 25, 1999; Last revised effective March 12, 2006. *Town of Darien Zoning Regulations*. Page IX-2.

[16] Oregon Transportation and Growth Management Program. C. 2001. *Commercial and Mixed-use Development – Code Handbook.*

[17] Fitzgerald and Halliday, Inc. August 2002. *Northwest Connecticut Parking Study.* Northwest Connecticut Council of Governments and Litchfield Hills Council of Elected Officials.

[18] Ibid.

[19] Fitzgerald & Halliday, Inc. *Technical Memorandum: Darien Parking Study – Analysis of Parking Zoning Provisions for Non-residential Zones.* March 22, 2007

Building Heights Limited to Two Stories

The maximum height allowed for buildings within the CBD is two stories, or 28 feet, except that the PZC may permit the height to be increased to not more than three stories and 35 feet provided that certain conditions are met by the applicant.[20] These conditions include requirements of the applicant to develop and maintain an area of open space on the lot to be used as a public plaza; further, a 2.5:1 ratio of gross floor area of the building for each square foot of developed open space shall be utilized to determine maximum permitted building area. .

A three story building 35 ft high would not be outside the range of the architecturally-pleasing ratio of 2:1 that many architects and planners consider ideal for pedestrian-oriented urban streetscapes given that street rights-of-way within the CBD are over 65 feet wide.[21] In its 2006 report entitled, *"Downtown Darien: An Action Plan for the Revitalization of Downtown Darien,"* the Connecticut Main Street Center (CMSC) Resource Team recommended revising the Town's Zoning Regulations to allow or even encourage three-story buildings, especially if the third story is continued on a different plane from the bottom two (that is, stepped-back as in a penthouse design or a third floor that is integrated into the roof using appropriately-scaled dormers).[22]

The CMSC Resource Team also recommended that the requirement for open space or plazas should allow a "fee in-lieu of" open space, whereby an applicant could elect to pay the Town a fee instead of providing the open space.[23] The Town could then use the accumulated "fee in-lieu of" funds to purchase and develop a larger, contiguous, centrally located plaza, square or green that would be much more meaningful (in terms of size, location, quality, and function) than numerous small plazas.

These two strategies, which would allow three-story buildings and would revise the open space or plaza requirement in the CBD, would encourage a more continuous "street wall" and therefore serve to make the CBD more "walkable."[24]

Parking Structure Prohibition

Section 907 of the Town's Zoning Regulations prohibits parking structures anywhere in Town.[25] A key strategy to provide parking in high-density core areas, from an urban design and functional standpoint, is in underground or multi-story parking garages. Parking structures facilitate higher development densities which in turn can improve walkability. Current technologies and design innovations have led to custom parking structures composed of materials and architecture that blend in with surrounding buildings, or are enveloped by retail and housing.[26] The PZC has considered revising this regulation in the past to allow parking structures in the CBD provided that such structures do not detract from Darien's small town character. If the PZC does revise regulations to allow parking structures, it will probably be under the Town's Special Permit process which will ensure that the PZC can consider all impacts (traffic impacts, visual impacts, etc.) specific to the proposed location and can have the latitude to deny the structure if impacts are deemed unacceptable.

[20] Planning and Zoning Commission, Town of Darien, Connecticut. Adopted May, 25, 1999; Last revised effective March 12, 2006. *Town of Darien Zoning Regulations.* Page VI-15.

[21] *Downtown Darien: An Action Plan for the Revitalization of Downtown Darien,* Connecticut Main Street Center Resource Team, May 2006.

[22] Ibid.

[23] Ibid.

[24] Ibid.

[25] Planning and Zoning Commission, Town of Darien, Connecticut. Adopted May, 25, 1999; Last revised effective March 12, 2006. *Town of Darien Zoning Regulations.* Page IX-6.

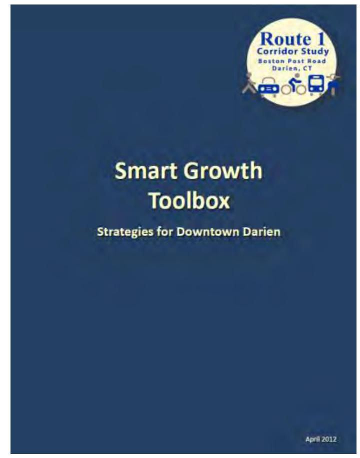
[26] *Downtown Darien: An Action Plan for the Revitalization of Downtown Darien,* Connecticut Main Street Center Resource Team, May 2006.

2.B.6 Smart Growth and Downtown Density

Smart Growth is a planning philosophy that simultaneously provides economic development, strong neighborhoods, and healthy communities.[27] Smart Growth is founded on a set of urban and transportation planning principles that advocate for compact, mixed-use development patterns within established communities that are supported by multimodal transportation systems and choices. Its goals are to expand the range of transportation, employment, and housing choices in a manner that achieves a unique sense of community and place.

The recommendations of this study include a "Smart Growth Toolbox" which outlines six land use and transportation strategies for Downtown Darien that reflect the core principles of the Smart Growth planning philosophy. These strategies are to:

- Increase retail density and diversity of uses.
- Create mixed-use centers from strip plazas.
- Infill along Downtown streets.
- Optimize Downtown parking.
- Implement "Complete Streets" (see Appendix 4.1, page A4-1, for details).
- Make walkable streets a priority.



See Appendix 4.3 for the complete Smart Growth Toolbox developed for this study.

The Smart Growth planning philosophy and the specific strategies for Downtown Darien that are recommended as part of this study recognize and consider the important relationships between land use and transportation that can contribute to a more viable, sustainable, and functional community. For example, development patterns that provide increased density, pedestrian-friendly urban design, and a mix of land use types increase opportunities for residents and workers to use alternative transportation options, like transit or walking. Similarly, traffic-calmed streets that are designed for pedestrians, bicyclists, transit-riders, as well as motorists, contribute to a better urban environment – ecologically, socially and economically – and support land development initiatives.

It is apparent that Darien officials and policy-makers generally understand Smart Growth and how it can be manifested in Downtown Darien; this is demonstrated by the amendment or revision of planning and zoning regulations, ordinances and policies relative to land use and development controls in recent years that have begun to effect Smart Growth. Evidence of this can be seen in the way new infill development along Route 1 has many of the characteristics typically associated with Smart Growth developments (refer to photos and discussion in Section 2.B.7, page 2-47). However, this study suggests that additional strategies can be undertaken to help make Downtown Darien more sustainable and economically viable since many areas of Downtown do not possess the positive characteristics associated with Smart Growth developments.

To help direct the Town to where efforts should be focused to further institute Smart Growth strategies, the areas of Downtown that might benefit most from these strategies must first be identified. For that, this study defines both an indicator ("walkability") and a metric (development density) for identifying these areas. Walkability and development density are further described in the following sections.

Walkability as an Indicator

One of the prime indicators that a district or downtown has successfully integrated land use and transportation to achieve Smart Growth is "walkability." Downtowns that are walkable are the places people prefer to shop in, to visit, to invest in, and to live, work, and play in. Conversely, places that are not walkable have empty streets at most hours of the day and can experience disinvestment. Walkability, therefore, is a very important virtue of downtowns.

[27] "What is Smart Growth?" Smart Growth Fact Sheet, United States Environmental Protection Agency, April 2001.

Based on experience and information acquired during the study of empirical data from economically vibrant and livable downtowns in towns similar in size to Darien, it is suggested that walkable downtown districts typically share the following attributes:

- Streets are lined with buildings that are at least two stories tall and located close to the sidewalk. There are few gaps between buildings including very little street frontage taken up by off-street surface parking lots or parking garages. Downtown streets lined with prominent, occupied buildings are said to have a good "street wall."
- A limited amount of shared and well-managed parking is provided. On-street parking is maximized. Any off-street parking and loading areas are discretely located behind buildings.
- Parking structures or parking garages (located behind occupied buildings) help to increase building density since surface parking lots take up valuable space that could be used by buildings that are more income-producing and that provide more vitality to downtown districts.
- Buildings are designed and built to accommodate a diversity of uses such as residential, small-scale retail, restaurants, and professional services such as doctors, lawyers, finance, and real estate offices.
- Residential uses are integrated throughout downtown districts, typically on upper stories of mixed-use buildings or as townhouses. This allows people to live within a short distance of their workplace or within walking distance of a transit station.
- There is a choice of public transit options and accommodations are provided to allow for seamless connections between various modes of travel.
- Development is organized within a traditional grid of streets with short blocks that encourage walking and promote safety and security.
- Streets have relatively narrow traffic lanes, on-street parking, well-designed crosswalks, wide sidewalks, and, where possible, bicycle lanes or other on-street bicycle accommodations.
- Design standards provide for human-scaled architecture and streetscape improvements such as finely detailed, contextual buildings with traditional proportions, cafés, pedestrian-level lighting, street trees, public art, and custom signage.

The degree to which these attributes parallel the strategies outlined in the "Smart Growth Toolbox" supports the notion that walkability is a prime indicator of a healthy and vibrant downtown.

Development Density as a Metric

Since it is difficult to measure the rather subjective attributes shared by walkable downtown districts (as described above on this page), the development density of Downtown Darien was chosen as a metric for identifying Smart Growth opportunities, because generally speaking, the greater the density of a downtown, the more walkable it is. This is because dense, mixed-use development: a) provides a critical mass of buildings and activity levels; b) encourages "park-once and-walk" behavior; c) results in a continuous street wall that encloses the street and creates more comfortable and intimate public spaces; d) increase sales revenues per square foot of space which allows building owners and retail tenants to invest more in the quality of their building and its publicly-oriented spaces; and, e) results in more „feet-on-the-street' by virtue of more retail space, increased use of transit, and more residential housing units (built in customers) provided within the downtown.

For the purpose of this study, the development density of the various blocks that comprise the CBD was the metric by which the opportunity to improve or enhance each block with respect to Smart Growth was gauged. In order to compare the existing development density of each block to a density that reflects Smart Growth development patterns, however, it was first necessary to define an appropriate density level for Downtown Darien such that a possible increase in density would not negatively affect the character of Downtown and would remain consistent with the preferences and design sensibilities of the community.

Therefore, the findings of the Visual Character Survey (VCS) that was conducted for this study (see Appendix 2.10, page A2-41) were used to approximate an appropriate, or preferred density level for Downtown Darien. To understand residents' preferences for density in Darien, residents responding to the VCS were asked to rate various images of land uses, street scenes and building types relative to their preferences for the character of development, lot coverage, and density. Ratings for various images were related to the density of the land uses in the images; the results indicated that respondents to the survey – and therefore residents of Darien – preferred development densities within the range of 0.5 to 0.9 Floor Area Ratio (FAR).

FAR is a ratio that identifies the relative bulk of a building and represents the ratio of total building floor area to the area of land on which a building is located. It is commonly used by planners to measure or control the size of buildings and to help towns and cities attain a "critical mass" of retail development. The FAR value, when multiplied with the lot area, provides the maximum floor area that can be constructed on a lot.

The higher the FAR value, the greater the allowed floor area will be on the same lot. While traffic generation, adequacy of water supply, possible limits on the ability to treat sanitary wastewater flows, and other carrying capacity issues must be considered in establishing maximum FAR, the public's preference for density within a specific district must also be considered to ensure that development is in harmony with the community in general and with the neighborhoods surrounding the specific district or block that is the subject of study. FAR is a very useful tool to decide the intensity of development in an area to help planners, zoning commissioners and other public-policy officials to determine desirable minimum and maximum thresholds of development.[28]

What is Floor Area Ratio (FAR)?

FAR is the ratio of total building floor area to the area of land on which a building is located. For example, if a lot measures one acre (approximately 40,000 sf) and the permissible FAR for that area or district is 1.0, then a maximum of 40,000 sf of space will be permitted to be constructed in all floors of the building combined.

If constructed in one story, that 40,000 sf would cover the entire site – however, regulations usually allow developers flexibility in constructing the 40,000 sf in multiple stories; for example four stories of 10,000 sf per story. This is subject to satisfying other zoning conditions such as parking, setbacks, access, minimum lot width, open space, etc.

By comparing the existing FAR of various blocks within Downtown Darien with other downtowns or town centers that residents find highly desirable (refer to images and corresponding FARs for various places similar to Downtown Darien in the "Comparison of Downtown Densities" exhibit provided in Appendix 2.11, page A2-50), areas can be identified where higher development density in the CBD could be welcomed.

Figure 2-10 identifies the approximate existing FARs of various blocks within the CBD. This data reveals that the only areas of Downtown where the FAR falls within the range of density preferred by residents is the block on the west side of Route 1adjacent to the Darien railroad station (FAR of 0.58) and the block on the east side of Route 1 and bordered by Tokeneke Road, Old Kings Highway South and Center Street (FAR of 0.5). All other blocks have FARs ranging from 0.23 to 0.48 which indicates that the area of buildings on those blocks would need to double in order to achieve a density within the range of 0.5 to 0.9 FAR, or the preferred range as indicated by respondents to the VCS. That is not to say that the size of Downtown could or should double in floor capacity; there are many other location-specific considerations and potential impacts that need to be identified and evaluated before such a conclusion could be made. However, it is reasonable to presume that there is public acceptability of new infill development in Downtown, provided it is constructed in a manner that is consistent with or complementary to the character of Darien.

[28] Author's Note: This study is not advocating that the Town of Darien use FAR as a regulatory tool to fix or establish minimum or maximum development densities or site coverage. The development of zoning regulations is very complex. Many other factors affect traditional design and the character of our townscapes including building height, roof profiles, building proportions, lot sizes and shapes, parking lot size and setbacks lines. Zoning regulators and other land use agencies must consider all these factors when determining the appropriateness of new development.

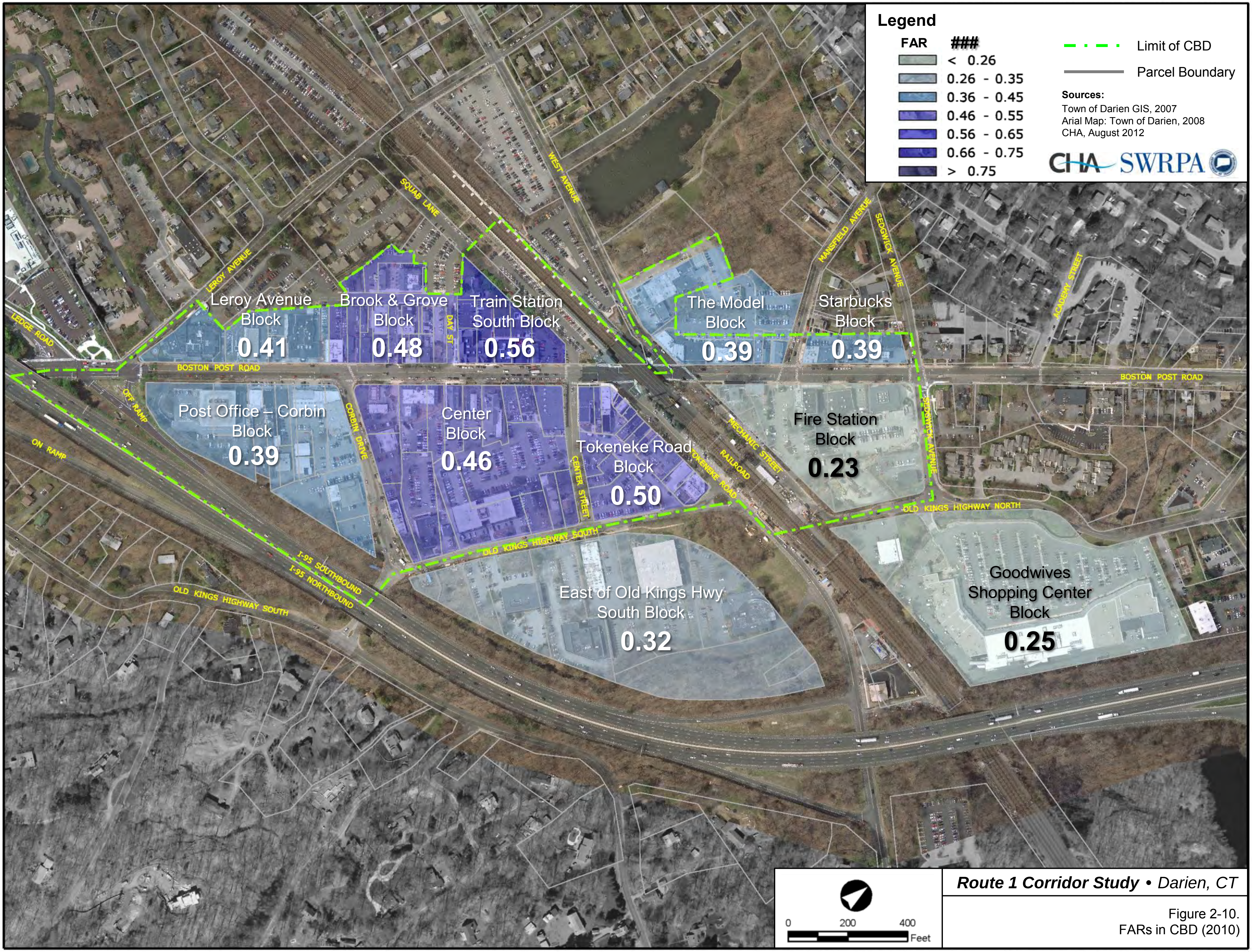


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Figure 2-10.
FARs in CBD (2010)

2.B.7 Infill Development Opportunities

Based on discussion with town planning staff, areas that are largely residential or low-density commercial (that is, both the Route 1 Commercial and the Residential, Institutional and Convenience Commercial context zones) are not expected to experience significant changes in land use within the 20-year planning horizon of this study. However, there are opportunities for infill development within the study area, primarily within the Central Business District. These opportunities may not be apparent from a casual review of Downtown because there are few vacant sites. However, if recent development trends are an indication of the future, then development and redevelopment will occur on sites that market forces determine are underutilized.

Grove Street Plaza

For example, redevelopment of sites that have one story, single use, low-quality buildings into multi-story buildings can greatly increase the development potential of a site and command higher rents per square foot. Quality redevelopment on "opportunity sites" in the form of mixed-use infill development has occurred on several sites in the Downtown within the past ten years, including: the two and three story mixed-use buildings known as Grove Street Plaza on Grove Street developed by PG Properties Ltd.; the two-and-one-half story mixed-use building at 1020 Boston Post Road developed by Baywater Properties; and the two story mixed-use building at 1063 Boston Post Road developed by Pears Partners, LLC (refer to photos, right).

1020 Boston Post Road

1063 Boston Post Road

These attractive and compact mixed-use buildings typically include retail uses on the first floor; office uses, service uses, or residential uses on the second floor; and apartments or residential condominiums on the third floor (in the case of Grove Street Plaza and 1020 Boston Post Road developments). Parking is discretely located in small parking lots to the rear of the building or within existing public parking lots, and on the adjacent streets. The architectural character, mix of uses, massing, human-scaled proportions, and relationship of these new buildings to the street share many of the same qualities as the traditional "Main Street" buildings that exist in the "Model Block" of Downtown Darien (that is, the traditional block of two and three story buildings on the west side of Route 1 between West Avenue and Mansfield Avenue). Many residents and merchants in Darien reportedly value and appreciate the Model Block as a desirable form of development that should be replicated elsewhere Downtown, not only because it contributes to the walkability of the area, but also because its traditional design reinforces Darien's small-town, New England character.

Under suitable market conditions, mixed-use redevelopment of this nature could also occur in areas of Downtown that are currently occupied by surface parking lots. Rethinking the need and value of all municipal parking lots on a site-by-site approach can result in valuable new development sites provided that the Town allows for parking demands to be accommodated in other locations or by other means (such as with structured parking). This infill development approach would also yield higher ratios of lot coverage and higher development densities that would not only improve the vitality and walkability of Downtown (by virtue of increasing the numbers of people on the streets and business patrons), but would also improve property values and expand the Town's tax base.

This potential increase in lot coverages and development densities in Downtown is supported by the results of the Visual Character Survey that was conducted for this study (see Section 2.B.6, page 2-44, for additional discussion).

Figure 2-11 indicates in a relatively broad-brush manner several areas where various infill development opportunities could exist, including:

- Redevelopment of single-story/single-use facilities to be replaced with two or two-and-one-half story facilities that feature a mix of uses;
- Infill development in gaps between existing buildings on Route 1 to strengthen the "street wall" and improve walkability;
- Reconstruction of public parking lots (or construction of parking structures on existing surface lots) to provide greater efficiency in parking, to optimize the sharing of existing parking spaces for multiple businesses in the CBD, and to improve the proximity between public parking areas and the principal retail districts;
- Infill development at the edges of existing surface public parking lots that might have excess supply[29] or that might have spaces where a parking deck or parking structure could be constructed on the periphery of Downtown.
- Redevelopment of large-scale, single-use shopping centers (such as the Goodwives Shopping Center on Old Kings Highway North) into a traditional, pedestrian-oriented, walkable, mixed-use development. This could be achieved by allowing infill development between Old Kings Highway North and the parking lot, and/or by allowing greater development densities and thereby incentivizing property owners to replace single story retail buildings with multi-story, mixed-use buildings.

Subsequent site planning and market study efforts would be needed to confirm the suitability of these locations since design limitations and market conditions might serve as constraints on this type of infill development. Also, such development should only be allowed if it is designed and constructed in accordance with pre-established design standards (that control architectural character, the mix of uses, building location, massing and proportions, etc.) to ensure that new development creates walkability and complements Darien's small-town, New England character.

[29] Author's Note: There is a growing body of evidence that indicates that parking demand in mixed-use, high-density districts is significantly less than similarly sized developments in single-use, low-density districts. This decreased demand is due to a number of qualities unique to mixed-use districts including: the availability of alternative transportation choices (walking, biking, and transit); complementary, cross-utilization of parking by surrounding land uses (e.g. an office building parking lot will be empty when the restaurant next door is packed after 5 P.M., so requiring both to provide for 100 percent of their parking needs is redundant); the availability of off-site parking within ¼ mile walking distance (i.e. municipal parking lots or garages) and, the convenience of on-street parking. Researchers are finding that parking regulations should be adjusted to factor efficiencies gained by using mixed-use and compact development planning principles.

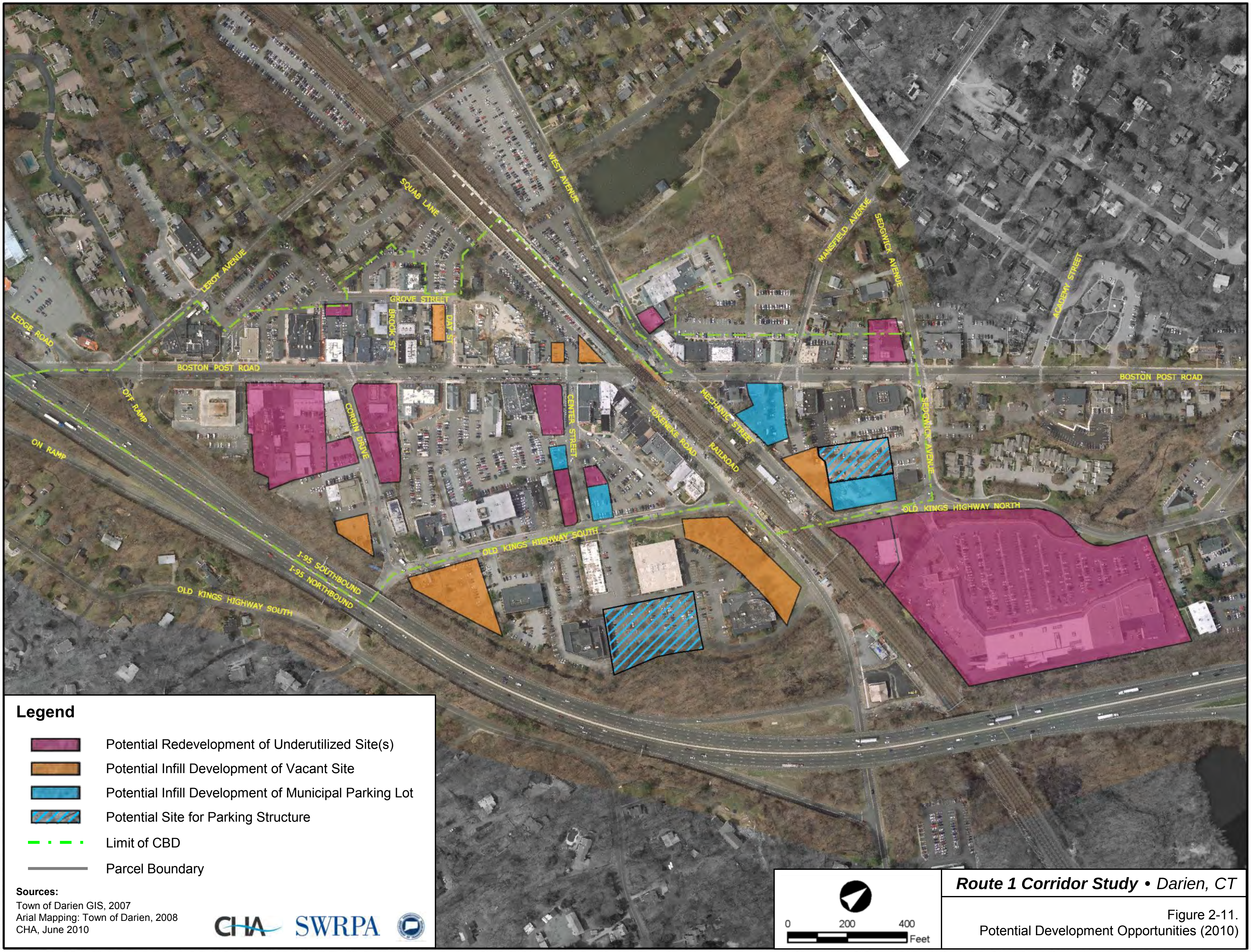

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Figure 2-11.
Potential Development Opportunities (2010)

2.B.8 Recent Development Trends

The evaluation of Downtown development activity (including site plan applications to PZC and the Darien Zoning Board of Appeals, see Appendix 2.12, page A2-58, for details), discussions with Town planning staff, and field review of land use, indicate the following development trends in Darien:

- The study corridor is almost entirely built-out in terms of vacant parcels. That is, few undeveloped parcels are available for new development.
- The Town has experienced on-going and steady interest in private development initiatives, primarily in the redevelopment of previously developed sites. Development proposals have tended to expand or reconfigure an existing development.
- The Town has actively worked with developers in the CBD to achieve redevelopment that is walkable, pedestrian-friendly, and contributes to a sense of place in the community core. Recently redeveloped sites typically include site design elements that:
    - Place buildings close to the back of sidewalks;
    - Place parking to the rear of buildings and provide shared parking with adjacent uses or provide some parking dedicated to municipal use;
    - Are two to three stories in height;
    - Have building façades with architectural variety, widows, and other features that create a village environment;
    - Include sidewalk improvements or other pedestrian accessways that connect the buildings to adjacent parking lots and to public streets.
- Recent development proposals have more frequently included residential units on the second and/or third floor of buildings, creating a more interesting and dense mixed-use environment in the study corridor, while improving the marketability of properties in the CBD.
- The Downtown appearance of the 1940s and 1950s is slowly being replaced with New-Urbanist design[30].

2.C Constraints

Potential constraints imposed by various physical features, environmental resources, and historic resources in the study area were identified and reviewed to understand where theses constraints could affect the design or feasibility of the improvement alternatives presented in Section 4 of this report.

Physical Features

Physical features identified in the study area include:

- **Rights-of-Way (ROW).** ROW boundaries along Route 1 are generally located along the back side of existing sidewalks in the corridor. Where building faces are located at the sidewalk or in close proximity to the sidewalk, as in the CBD, it is typically not possible to alter the roadway beyond the existing ROW without impacting adjacent development. As such, improvement recommendations for Route 1 are generally accommodated within the existing ROW boundaries.
- **Utilities.** Overhead and underground utilities – such as electric, cable, telephone, water, and sewer lines – are located throughout the Route 1 study corridor. Because relocation of utilities can be cost-prohibitive to potential improvement projects in the corridor, potential impacts to these utilities are generally minimized or avoided where possible. Additionally, existing public utility infrastructure, particularly water and sewer capacity, could constrain the intensity of future development that is possible without upgrades.

[30] Author's Note: New Urbanism promotes walkable neighborhoods that contain a range of uses. New Urbanism arose in the United States in the early-1980s and continues to reform many aspects of real estate development and urban planning. It is influenced by principles of Smart Growth and traditional neighborhood design. New Urbanism is usually implemented by individual property owners or multiple developers over a period of time in accordance with an established set of design standards.

- **Railroad.** The railroad bridges over Route 1 and Leroy Avenue are assumed to be fixed features for the purposes of this study; consequently, improvement recommendations in the vicinity of these bridges assume that no major modifications will be made to the structures to accommodate the improvements. Additionally, the railroad line itself is a physical constraint that will not be modified in line or grade to accommodate any improvement recommendations of this study.
- **Parks/Cemeteries.** Mather Fields, Tilley Pond Park, Stony Brook Park, and Spring Grove Cemetery are located in the study area. The improvement recommendations avoid direct impacts these features.

Environmental Resources

Environmental resources (see map in Appendix 2.13, page A2-61) in the study area include:

- **Goodwives River and associated floodplains.** This river generally runs parallel to Route 1 and Old Kings Highway South/North in the study area and crosses Old Kings Highway North in the vicinity of Goodwives Shopping Plaza and Route 1 just south of Brookside Road.
- **Stony Brook and associated floodplains.** This brook crosses Route 1 and Old Kings Highway South between the Old Kings Highway South and Clubhouse Circle intersections with Route 1.

Historic Resources

Historic resources (see map in Appendix 2.13, page A2-62) in the study area include:

- **National Register of Historic Places.** Boston Post Road Historic District is located along Route 1 from Academy Street to north of Brookside Road.
- **Protected Town Landmarks.** Including Little Red Schoolhouse, Tokeneke Road; Thomas Golden House, 70 Old Kings Highway North; Post Road Associates, 1950 Boston Post Road; and Heritage Trees.
- **Structures with Historical and/or Architectural Significance.** Including First Congregational Church, 14 Brookside Road; Bates-Scofield House, 45 Old Kings Highway North; and Darien Movie Theater.
- **Designated Scenic Roads.** Old Kings Highway South and Rings End Road.

In general, the improvement recommendations of this study generally minimize or avoid significant impacts to the physical features and resources described above. More specific environmental evaluations and documentation will be completed in accordance with CEPA and NEPA requirements under subsequent initiatives as study recommendations are advanced to design and implementation.

3

Future Conditions Assessment

The future conditions assessment evaluates the potential effects of vehicular traffic growth in the study area over the mid-term (year 2020) and long-term (year 2030) planning horizons. By understanding the potential effects of traffic growth on operations and mobility in the Route 1 study area, local, regional, and state officials and policy-makers can make informed decisions about the future needs and priorities of the area relative to improving transportation systems and enacting land use policies that will help mitigate traffic growth over time. This section also presents the potential parking needs associated with a Downtown development scenario.

3.A Baseline Traffic Assessment

Two future *baseline* traffic conditions were assessed for this study to determine how traffic demands associated with regional growth and development could affect traffic operations in the Route 1 study corridor by 2020 and 2030. This section of the report provides an analysis of future traffic volume forecasts developed by the Connecticut Department of Transportation (CTDOT) for the study area, and the analysis of traffic operations at the study intersections resulting from traffic growth under the two future baseline conditions.

3.A.1 Traffic Volume Forecasts

CTDOT's traffic forecasting unit developed midday and afternoon (PM) peak hour volumes for the 2020 and 2030 baseline traffic conditions. The forecasts were developed using CTDOT's Statewide travel demand model which estimates regional traffic demands based on anticipated changes in future land use and demographics throughout the region and state; historical traffic volume trends and data (which are presented in Section 2.A.3, page 2-6) are not considered in the forecasts. Traffic volume diagrams for the 2020 and 2030 baseline traffic conditions are provided in Appendix 3.1 (page A3-1). Table 3-1 summarizes the forecasted PM peak hour traffic growth along key segments of the Route 1 study corridor under the 2020 and 2030 baseline traffic conditions.

Table 3-1. PM Peak Hour Traffic Growth – 2020 & 2030 Baseline Traffic Conditions

Location	PM Peak Hour Vol.			Approx. Change		
	2009	2020	2030	2009 to 2020	2020 to 2030	Total
Between Noroton Avenue & Rings End Road	1570	1720	1810	+ 9.6%	+ 5.7%	+ 15.3%
Between Rings End Road & Old Kings Hwy South	1630	1800	1880	+ 10.4%	+ 4.9%	+ 15.3%
Between Old Kings Hwy So. & I-95 Exit 11 NB Ramps	1340	1470	1530	+ 9.7%	+ 4.5%	+ 14.2%
Between I-95 Exit 11 NB Ramps & Ledge Road	1340	1520	1610	+ 13.4%	+ 6.7 %	+ 20.1%
Between Leroy Avenue & Corbin Drive	1380	1580	1720	+ 14.5%	+ 10.1 %	+ 24.6%
Between Corbin Drive & Center Street	1250	1510	1570	+ 20.8%	+ 4.8%	+ 25.6%
Between Center Street & Tokeneke Road (Rte 136)	1540	1810	1900	+ 17.5%	+ 5.8%	+ 23.4%
Between Tokeneke Road (Rte 136) & West Avenue	1800	2030	2150	+ 12.8 %	+ 6.7%	+ 19.4%
Between West Avenue & Mansfield Avenue (Rte 124)	1770	1980	2100	+ 11.9%	+ 6.8%	+ 18.6%
Between Mansfield Ave. (Rte 124) & Sedgwick Ave.	1570	1750	1860	+ 11.5%	+ 7.0%	+ 18.5%
Between Sedgwick Avenue & Brookside Road	1580	1740	1830	+ 10.1%	+ 5.7%	+ 15.8%

Source: CHA, 2011

As shown in Table 3-1, PM peak hour traffic is expected to grow up to 25% or more in Downtown by 2030. Growth is expected to be notably less north and south of Downtown (up to 16% in both areas). Annual average growth rates derived from the table show that the rate of growth between 2009 and 2020 (between 0.8% and 1.7% annually) is notably higher than the rate of growth between 2020 and 2030 (between 0.4% and 0.6% annually) in all areas. Even with higher growth rates in Downtown, particularly between Leroy Avenue and Tokeneke Road, the actual forecasted traffic volumes will generally be comparable to volumes south of Leroy Road and generally lower than volumes north of Tokeneke Road.

Based on the traffic growth forecasts provided by CTDOT, both the midday peak hour growth and ADT growth are comparable in terms of percent change by 2020 and 2030. Figures illustrating the 2020 and 2030 baseline ADT conditions are provided in Appendix 3.2 (page A3-4).

3.A.2 Traffic Operations

The future conditions assessment included evaluation of future traffic operations at 12 intersections in the Route 1 study corridor between Exit 11 and Brookside Avenue under the 2020 and 2030 baseline traffic conditions. Analysis of the 2020 baseline condition was completed for the midday *and* PM peak hours; analysis of the 2030 baseline condition was completed for the PM peak hour. A *level of service* (LOS) was determined for each intersection and for each intersection approach by performing capacity analyses using the forecasted traffic volumes and SimTraffic modeling software. The PM peak hour traffic operations for the two future baseline traffic conditions are summarized in Table 3-2 (alongside existing conditions) and illustrated in Figure 3-1. The midday peak hour traffic operations are summarized in Appendix 3.3 (page A3-7).

About Level of Service (LOS)

LOS for an intersection is a qualitative measure of traffic operations that reflects the delay experienced by vehicles at the intersection. LOS values range from A to F. LOS A represents the best operational conditions with little delay. LOS F represents generally congested conditions with long delays and traffic queues. For the Route 1 study corridor, LOS D or better represents an acceptable degree of congestion; LOS E and F represent unacceptable degrees of congestion.

Table 3-2. PM Peak Hour Traffic Operations – Existing, 2020 Baseline, and 2030 Baseline Conditions

Intersection / Approach	Existing Condition LOS (Sec. Delay)	2020 Baseline LOS (Sec. Delay)	2030 Baseline LOS (Sec. Delay)
Route 1 at Exit 11 NB Off Ramp (Signalized)			
Route 1 Northbound	A (4.3)	C (22.9)	F (96.1)
Route 1 Southbound	A (3.4)	A (4.0)	A (4.5)
Exit 11 Northbound Off Ramp Eastbound	D (47.9)	E (61.7)	F (126.9)
Overall	**B (12.9)**	**C (26.4)**	**F (82.2)**
Route 1 at Ledge Road (Signalized)			
Route 1 Northbound	A (6.1)	C (27.0)	D (37.2)
Route 1 Southbound	A (1.3)	A (6.1)	A (6.4)
Ledge Road Eastbound	E (55.9)	F (89.8)	F (144.1)
Exit 11 Southbound Off Ramp Westbound	N/A	D (43.8)	D (40.9)
Overall	**A (6.7)**	**C (27.2)**	**D (38.7)**
Route 1 at Leroy Avenue (Signalized)			
Route 1 Northbound	A (3.6)	B (18.1)	C (24.5)
Route 1 Southbound	A (6.2)	B (10.3)	B (14.7)
Leroy Avenue Eastbound	B (16.2)	B (12.1)	C (32.0)
Exit 11 Southbound Off Ramp Westbound	C (32.6)	B (15.7)	C (25.1)
Overall	**A (8.5)**	**B (15.1)**	**C (22.3)**

Source: Wilbur Smith Associates, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, May 2011

Table 3-2. PM Peak Hour Traffic Operations (continued)

Intersection / Approach	Existing Condition LOS (Sec. Delay)	2020 Baseline LOS (Sec. Delay)	2030 Baseline LOS (Sec. Delay)
Route 1 at Corbin Drive (Signalized)			
Route 1 Northbound	A (6.0)	C (32.3)	E (57.5)
Route 1 Southbound	B (10.4)	B (15.1)	C (20.2)
Corbin Drive Westbound	C (36.8)	D (40.6)	D (52.1)
Overall	**B (11.9)**	**C (28.4)**	**C (45.9)**
Route 1 at Brook Street/Commercial Drive (Unsignalized)			
Route 1 Northbound	A (2.0)	A (6.4)	A (9.8)
Route 1 Southbound	A (3.6)	A (7.3)	B (11.3)
Commercial Drive (Gas Station) Westbound	A (7.8)	C (24.1)	E (36.3)
Overall	**A (2.7)**	**A (6.8)**	**B (10.4)**
Route 1 at Day Street/Commercial Drive (Unsignalized)			
Route 1 Northbound	A (2.7)	A (8.3)	A (11.7)
Route 1 Southbound	A (1.3)	A (4.6)	B (9.2)
Day Street Eastbound	A (7.2)	C (19.3)	E (44.3)
Commercial Drive (Bank) Westbound	B (10.2)	C (20.9)	F (64.4)
Overall	**A (2.4)**	**A (7.5)**	**B (13.2)**
Route 1 at Center Street/Railroad Station Entrance (Signalized)			
Route 1 Northbound	C (25.3)	D (39.7)	D (45.7)
Route 1 Southbound	A (3.4)	A (4.5)	A (4.7)
Center Street Westbound	D (49.7)	F (546.6)	F (429.9)
Overall	**B (18.2)**	**E (72.0)**	**E (73.0)**
Route 1 at Tokeneke Road/Rail Station Exit (Signalized)			
Route 1 Northbound	A (4.2)	A (5.9)	A (6.1)
Route 1 Southbound	A (9.6)	B (13.0)	B (14.6)
Rail Station Exit Eastbound	D (48.9)	E (60.0)	F (129.6)
Tokeneke Road Westbound	E (59.7)	F (106.0)	F (366.6)
Overall	**C (20.5)**	**C (34.1)**	**F (96.5)**
Route 1 at West Avenue/Mechanic Street (Signalized)			
Route 1 Northbound	A (4.0)	A (5.0)	A (5.0)
Route 1 Southbound	D (49.2)	E (59.4)	E (73.4)
West Avenue Eastbound	E (79.6)	F (137.2)	F (209.9)
Overall	**C (30.1)**	**D (42.1)**	**E (58.6)**
Route 1 at Mansfield Avenue/Municipal Lot Drive (Signalized)			
Route 1 Northbound	B (10.5)	B (11.0)	B (10.8)
Route 1 Southbound	F (106.1)	F (173.8)	F (313.6)
Mansfield Avenue Eastbound	F (154.9)	F (1367.2)	F (1192.0)
Municipal Lot Drive Westbound	F (95.9)	F (192.7)	F (406.1)
Overall	**E (57.0)**	**F (177.1)**	**F (181.4)**

Source: Wilbur Smith Associates, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, May 2011

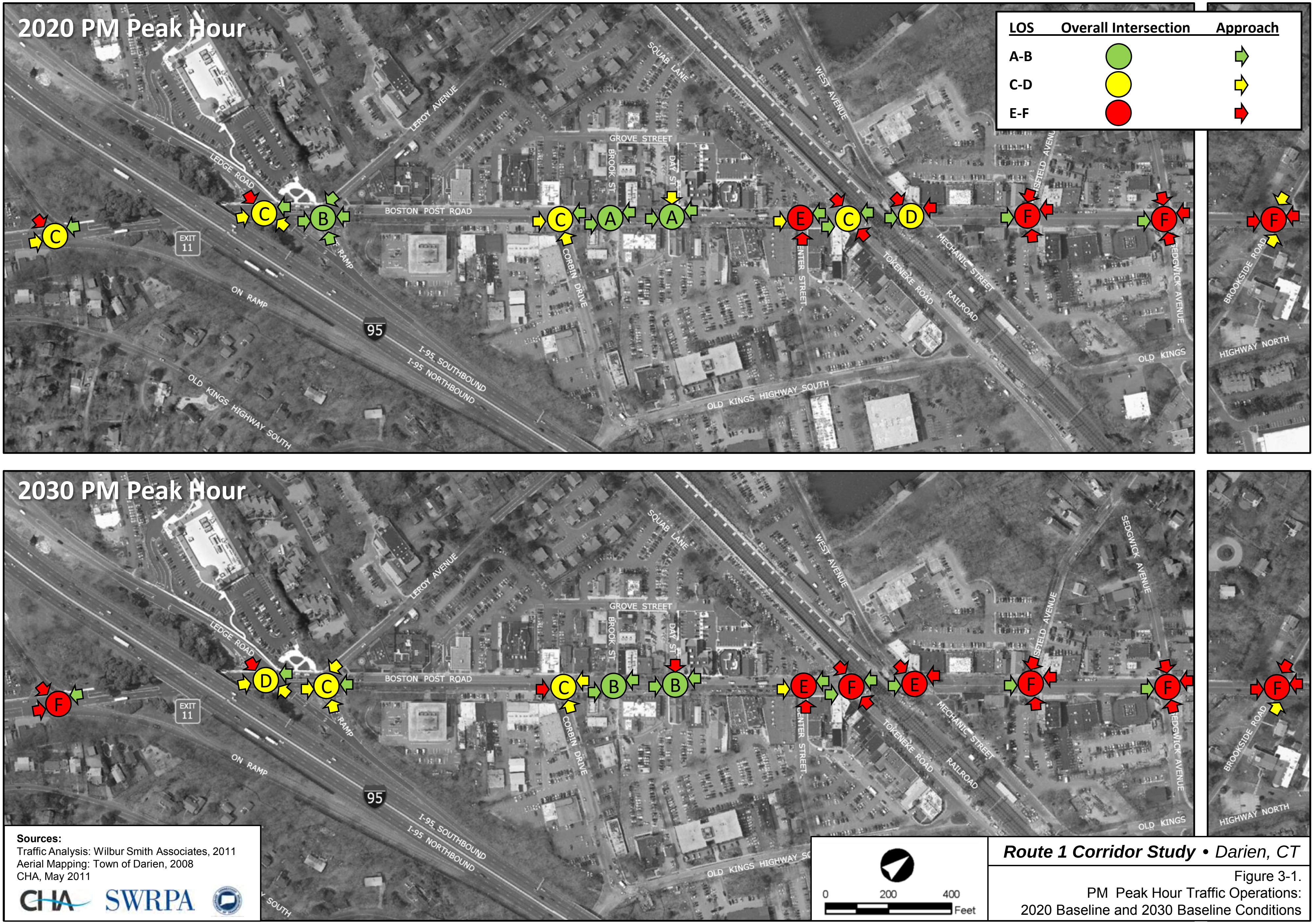
Table 3-2. PM Peak Hour Traffic Operations (continued)

Intersection / Approach	Existing Condition LOS (Sec. Delay)	2020 Baseline LOS (Sec. Delay)	2030 Baseline LOS (Sec. Delay)
Route 1 at Sedgwick Avenue (Signalized)			
Route 1 Northbound	B (18.5)	B (13.6)	B (14.6)
Route 1 Southbound	F (119.6)	F (347.9)	F (437.2)
Sedgwick Avenue Eastbound	D (49.4)	E (62.9)	E (69.3)
Sedgwick Avenue Westbound	E (62.2)	F (115.9)	F (189.2)
Overall	**E (60.5)**	**F (130.2)**	**F (154.4)**
Route 1 at Brookside Road (Signalized)			
Route 1 Northbound	E (56.4)	E (72.0)	E (74.6)
Route 1 Southbound	D (33.5)	F (246.7)	F (695.8)
Brookside Road Eastbound	C (30.4)	D (40.3)	E (71.2)
Brookside Road Westbound	C (21.2)	C (21.6)	D (37.6)
Overall	**D (42.7)**	**F (122.3)**	**F (253.4)**

Source: Wilbur Smith Associates, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, May 2011

As shown in Table 3-2 and Figure 3-1 (see page 3-5), overall operations are expected to deteriorate at all intersections over the planning horizon as traffic volumes are forecasted to grow by as much as 25% in the corridor. By 2020, four intersections will experience unacceptable delays at LOS E or F during the PM peak hour. By 2030, seven intersections will experience unacceptable delays. Notably, the section of Route 1 from Center Street to Brookside Avenue will generally experience the most congestion with overall delays at several of these intersections exceeding two and three minutes. From West Avenue north to Brookside Avenue, delays along southbound Route 1 will be measurably longer than northbound delays. This condition is a result of the existing signal timing plans which assign a majority of the available green time to northbound traffic movements to accommodate the relatively higher volume of traffic traveling northbound during the PM peak.

Traffic analysis and local experience both indicate that traffic delays and traffic queues on Route 1, particularly in the southbound direction, are existing issues during both the midday and PM peak hours between West Avenue and Brookside Road. Traffic queues typically begin at West Avenue and extend north through the Mansfield Avenue and Sedgwick Avenue intersections. If no improvements are made to resolve the signal phasing and timing requirements of the closely-spaced signalized intersections of Center Street, Tokeneke Road, and West Avenue, these issues will be exacerbated in the future as a consequence of forecasted traffic growth.



Route 1 Corridor Study* • *Darien, CT

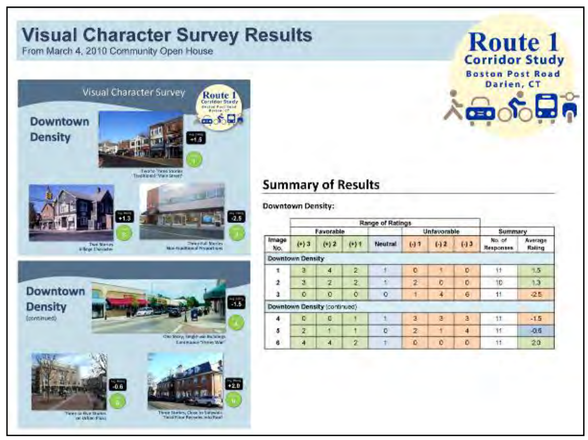
Figure 3-1.
PM Peak Hour Traffic Operations:
2020 Baseline and 2030 Baseline Conditions

3.B Potential Traffic Impacts of Future Downtown Development

A future *baseline-plus-development* traffic condition was assessed for this study to determine the potential traffic growth associated with a hypothetical future development scenario in Downtown Darien. The baseline-plus-development condition provides a relatively conservative assessment of development-related traffic growth by assuming that changes in local land use and development could generate traffic growth on Route 1 in the study area that will compound the regional traffic growth forecasted under the baseline traffic conditions. This section of the report outlines details of a Downtown development scenario and provides a general assessment of the potential traffic generation associated with this development scenario.

3.B.1 Downtown Development Scenario

The Downtown development scenario assumes that development density will increase over time in Downtown Darien as a result of infill development and redevelopment of underutilized sites with quality, mixed-use buildings that will include retail, office, service, and residential uses (see *Existing Conditions Assessment*, Section 2.B.7, page 2-47, for details). For this study, it was assumed that development density in the Central Business District (CBD) will ultimately reach a *target* level in some indeterminate future year that is represented by floor area ratios (FARs; see *Existing Conditions Assessment*, Section 2.B.6, page 2-43, for details) of approximately 0.6 to 0.85. It is envisioned that the highest development density will be realized at the core of Downtown – in the vicinity of Center Street and Day Street – and density will generally decrease as distance from the core of Downtown increases. This pattern of development density is generally consistent with existing patterns of development (see *Existing Conditions Assessment,* Figure 2-10) where the *Train Station South Block* has the highest density, and adjacent blocks – including Center Block, Brook and Grove Block, and Tokeneke Road Block – have the next highest densities. Blocks on the periphery of the CBD, and just outside of the CBD, have relatively lower densities than blocks in the core. For this study, it was assumed that development density in blocks just outside of the CBD (East of Old Kings Highway South Block and Goodwives Shopping Center Block) will ultimately reach a target level of approximately 0.4 to 0.5 FAR. The Downtown development scenario, in terms of target level FARs, is illustrated in Figure 3-2.



The target level FARs used to develop a Downtown development scenario for this study were derived from the results of the Visual Character Survey (pictured) that was conducted during the March and April 2010 community meetings.

In terms of area, increasing development density to the target levels illustrated in Figure 3-2 creates the potential for approximately 520,000 sf (gross floor area) of new development including:

- 372,000 sf in the CBD. This represents a 60% increase over existing development area.
- 39,000 sf in the East of Old Kings Highway South Block. This represents a 27% increase over existing development area.
- 109,000 sf in the Goodwives Shopping Center Block. This represents a 100% increase over existing development area.

By 2020, which is the mid-term planning horizon of this study, it is anticipated that 190,000 sf, or approximately one-third of the new development area illustrated in Figure 3-2, will be realized in Downtown. The new development area accounts for developments which have already been planned and approved by the Town, or which are pending approval, and potential development opportunities which are not yet defined. Overall, the new development area anticipated by 2020 represents approximately 22% more area than currently exists in Downtown.

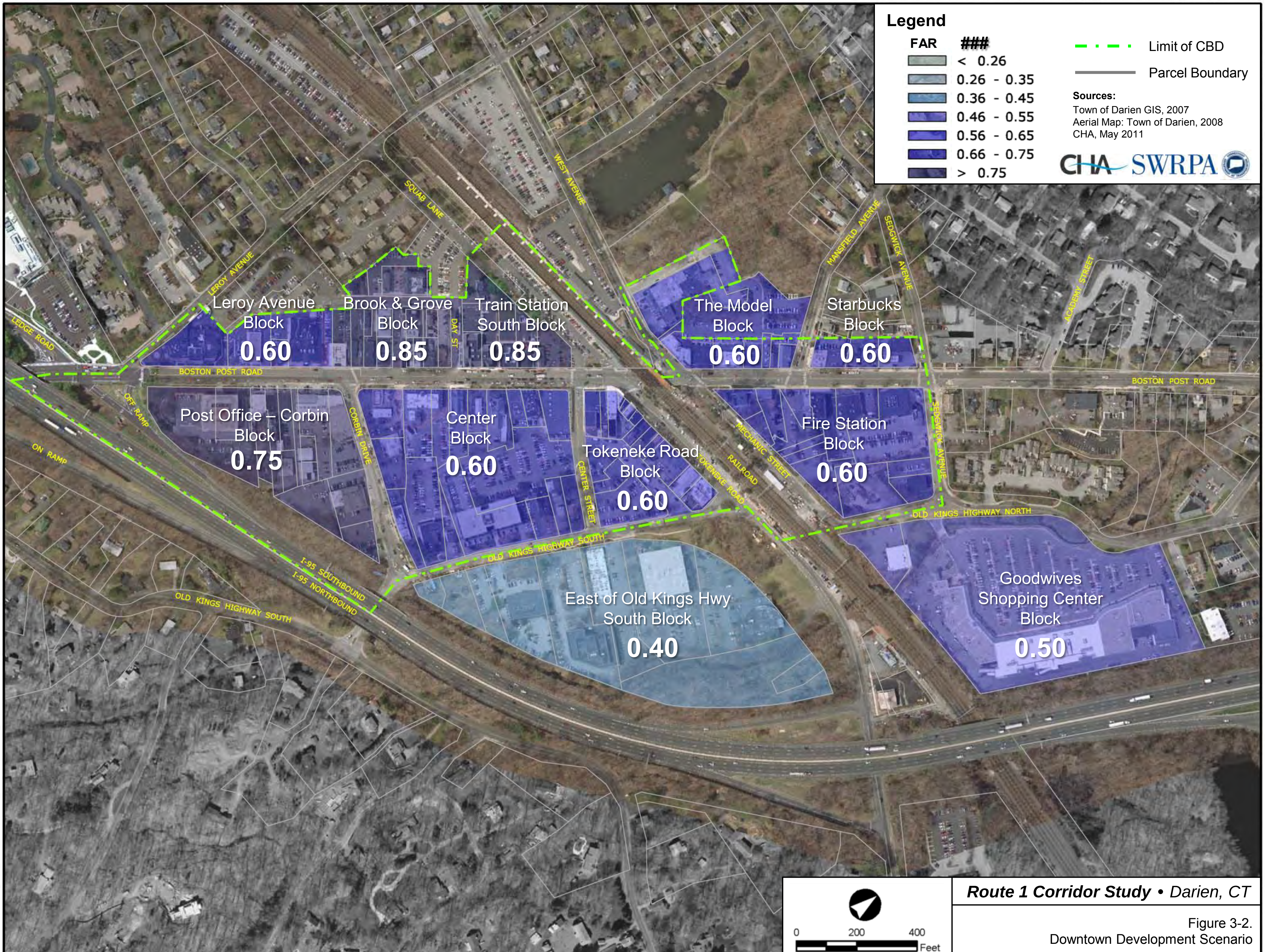


Figure 3-2.
Downtown Development Scenario

It is important to note that any increase in development density in Downtown will occur gradually over time and will be facilitated by private developers. The rate at which development occurs, where it occurs, and to what intensity, are unpredictable and will be a function of many factors including real estate market conditions; changing population and demographics; limitations on utility capacity and infrastructure; regulatory controls (such as zoning regulations); and local and state economic policies (such as tax incentives), among other variables. It is also important to note that the Downtown development scenario depicted in Figure 3-2 is only one potential development scenario and that many other scenarios could be considered reasonable.

3.B.2 Traffic Generation from Future Development

The number of new trips (including vehicular and multimodal trips) that will be generated by future Downtown development is dependent on the various uses that comprise the development. For the purposes of this study, and consistent with recent development trends and the Smart Growth objectives of the Downtown study area, it is assumed that new development will generally consist of a mix of uses that could include specialty retail stores, offices, restaurants, and residential uses. More specifically, it was assumed that new development under the Downtown development scenario would be comprised of the following schedule of uses:

- 35% to 40% specialty retail.
- 30% to 35% offices (25% to 30% general offices; 5% corporate offices).
- 10% to 15% restaurants.
- 15% to 20% residential uses.

Table 3-3 summarizes the number of anticipated PM peak hour trips for the 2020 Downtown development scenario (as described in Section 3.B.1, page 3-6). Approximately 472 new trips could be generated under the Downtown development scenario in 2020. It is important to note that this estimate includes all types of trips – vehicular, pedestrian, bicycle, train – and does not consider additional reductions for trips that are made off the roadway network between adjacent land uses.

Table 3-3. PM Peak Hour Trip Generation for Downtown Development Scenario – 2020

Land Use	Gross Floor Area (sf)	PM Peak Hour Trip Rate[1]	PM Peak Hour Trip Generation
Specialty Retail	71,000	2.7 per 1000 sf	192
General Office	52,000	1.5 per 1000 sf	78
Corporate Office	10,000	1.1 per 1000 sf	11
Restaurants	24,000	7.5 per 1000 sf	180
Residential	33,000	0.5 per DU[2]	11
Totals	**190,000**	**-**	**472**

[1]Trip generation rates are derived from the Institute of Transportation Engineers (ITE) Trip Generation Report, 8th Edition, which is the current industry standard for approximating development-related trip generation.
[2]DU – Dwelling Unit. Assumed area: 1500 sf per DU.
Source: CHA, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, May 2011

Vehicle Trip Adjustments

One of the greatest benefits of providing compact, mixed-use, walkable, and transit-accessible development is the potential to reduce the number of vehicular trips generated by the new development. By providing proximate, complementary uses that are conveniently and safely accessible by foot, bike, and transit, there will be a reduced need for single-occupancy automobile access to these uses and the potential impacts on Route 1 traffic conditions as a result of new development can be minimized.

To better represent the number of actual *vehicle* trips that could impact traffic conditions on Route 1 and adjacent roadways in the study area, the total number of PM peak hour trips presented in Table 3-3 were adjusted for:

- **Multimodal Trips (pedestrian, bicycle, and transit trips). 15% reduction applied to all uses.** This reduction is relatively conservative considering that census data shows approximately 30% of people commuting to and from work in Darien do so via public transit or walking[31].
- **Off-network Trips between Uses. 5% reduction applied to all uses.** This reduction accounts for short trips between adjacent and complementary land uses that do not require someone to access the roadway network with a vehicle to complete the trip. For example, someone who leaves the office in the evening, walks to a nearby store, then returns to the office parking lot to drive his car home completes three trips, only one of which is a vehicle trip on area roadways.
- **Pass-by Trips. 20% reduction applied to retail uses.** This reduction accounts for vehicle trips to new retail uses that are completed by someone who is already driving a vehicle on an adjacent roadway and decides to patronize the new establishment prior to resuming his trip on the roadway. These pass-by trips are not considered new trips generated by the new development.

Table 3-4 summarizes the trip adjustments and resultant vehicular traffic generation that is anticipated for the Downtown development scenario in 2020.

Table 3-4. PM Peak Hour Traffic Generation for Downtown Development Scenario – 2020

Land Use	Total Trips	Trip Adjustments				Total Vehicle Trips
		Pass-by	Multimodal	Off-network	Total	
Specialty Retail	192	-19	-26	-7	-52	140
General Office	78	0	-12	-3	-15	63
Corporate Office	11	0	-2	-1	-3	8
Restaurants	180	0	-27	-7	-34	146
Residential	11	0	-2	-1	-3	8
Totals	**472**	**-19**	**-69**	**-19**	**-107 (22.7%)**	**365**

Source: CHA, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, May 2011

As shown in Table 3-4, approximately 365 new vehicle trips could be generated under the 2020 Downtown development scenario. This number represents a 23% reduction from the total trip generation. Of the 365 vehicle trips generated by new development, approximately 133 will be entering trips (traffic destined for new development) and 232 will be exiting trips (traffic originating from new development). This estimate is based on percentages for entering and exiting trips obtained from the ITE Trip Generation Report for the various uses.

3.B.3 Potential Traffic Impacts on Route 1

Precisely how the new vehicle trips could affect future operations at any one of the Route 1 intersections in the study area will ultimately be a function of where development occurs, where access is provided, and what the origins and destinations of these trips are. Because these variables are unknown, a reasonable methodology for assigning these trips to the Route 1 study area network is to presume that future traffic patterns will be similar to existing patterns, and to distribute the new trips accordingly. Additionally, it is conservative to assume that all new entering and exiting vehicles – regardless of the location of the new development and its primary access – will use Route 1 as part of their respective trip. In actuality, a portion of these vehicles will use routes other than Route 1, thereby reducing the actual number of vehicles affecting Route 1 traffic conditions.

[31] *People and Places of the South Western Region of Connecticut,* South Western Regional Planning Agency, 2011

Table 3-5 summarizes the potential change in PM peak hour traffic volumes at key signalized intersections on Route 1 in Downtown as a result of traffic generated by the Downtown development scenario in 2020. Volumes shown for the 2020 Baseline-plus-Development Condition were determined by applying existing traffic patterns to the 365 vehicle trips (133 entering and 232 exiting) generated by new development in 2020.

Table 3-5. PM Peak Hour Traffic Volume Changes at Key Intersections for Downtown Development Scenario – 2020

	All Traffic Entering Intersection (vph)		Volume Change	
Intersection	2020 Baseline Condition	2020 Baseline + Develop. Condition	Net (vph)	%
Leroy Avenue/SB Off Ramp	1950	2027	+ 77	+ 3.9%
Corbin Drive	2020	2069	+ 49	+ 2.4%
Center Street/Rail Station Drive	1910	1934	+ 24	+ 1.3%
Tokeneke Road (Rte 136)	2300	2324	+ 24	+ 1.0%
West Avenue/Mechanic Street	2510	2557	+ 47	+ 1.9%
Mansfield Avenue (Rte 124)/Municipal Drive	2180	2216	+ 36	+ 1.7%
Sedgwick Avenue	2100	2195	+ 95	+ 4.5%

Source: CHA, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, May 2011

As shown Table 3-5, traffic generated by new development could have the greatest effect on the Leroy Avenue and Sedgwick Avenue intersections where the net change and percent change in traffic volumes are the greatest. It is anticipated, however, that the overall affect on level of service and delays at each of the signalized intersections will be minimal. It is noted that a net change of approximately 95 vehicles in the peak hour translates to approximately one new vehicle entering the intersection every 38 seconds, or approximately three new vehicles being processed each signal cycle.

Although increasing development density in Downtown will have some effect on traffic conditions by 2020, it does not appear from this assessment that the effect will be significant relative to the effect that the baseline traffic growth will have on operations. Beyond 2020, as development density increases toward target levels, the potential effect of new traffic generation on operations in the study area will certainly be greater. The effects can and will continue to be mitigated, however, by implementing measures and policies that reduce auto-dependency and promote walking, bicycling, and transit use to, from, and within Downtown.

3.C Potential Parking Needs for Future Downtown Development

In addition to understanding how future development could affect traffic, it is important to understand how future development could affect parking in Downtown Darien. More specifically, how much additional parking would be required based on current zoning regulations, and how much parking might actually be needed based on reasonable estimates for parking demand in a more compact, mixed-use, downtown environment. This section of the report discusses current parking requirements and presents an estimate for the likely parking demand associated with the Downtown development scenario presented in Section 3.B.1.

3.C.1 Parking Requirements

By 2020, it is anticipated that approximately 190,000 sf of new development – consisting of a mix of specialty retail, office, restaurant, and residential uses – could be realized in Downtown. As shown in Table 3-6, approximately 1161 new parking spaces would have to be provided to satisfy the current parking requirements in the town Zoning Regulations.

Table 3-6. Parking Requirements for Downtown Development Scenario – 2020

Land Use	Gross Floor Area (sf)	Parking Rate[1]	Required Parking Spaces
Specialty Retail	71,000	6.67 per 1000 sf	474
General Office	52,000	4 per 1000 sf	208
Corporate Office	10,000	4 per 1000 sf	40
Restaurants	24,000	16[2] per 1000 sf	384
Residential	33,000	2.5 per DU[3]	55
Totals	**190,000**	**-**	**1161**

[1]Parking rates for each use are based on *Town of Darien Zoning Regulations*, Section 904.
[2]Rate is a hybrid of category h and category I assuming 85% restaurant and 15% patron bar area.
[3]DU – Dwelling Unit. Assumed area: 1500 sf per DU.
Source: CHA, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

As discussed in Section 2.B.5, the town's minimum parking requirements are out of synch with current practices and do not directly factor parking efficiencies afforded by compact, mixed-use development located in a town center that is well-served by transit.

On this latter point, there is increasing awareness that actual parking demands in downtowns or other mixed-use, high-density districts, is significantly lower than similarly sized developments in single-use, low-density districts, such as suburban strip shopping centers. This lower parking demand is attributed to a number of qualities unique to mixed-use districts including:

- The availability of alternative transportation choices such as walking (by virtue of the proximity of residential districts on the fringes of downtown), biking, and bus and train transit.
- A diverse network of streets with attractive retail buildings that create a park once-and-walk atmosphere.
- Complementary, cross-utilization of parking by surrounding land uses. For example, an office building parking lot will be empty when the restaurant next door or in the same block is packed with diners after 5 p.m., so requiring both to provide for 100-percent of their parking needs results in a surplus or redundancy of parking.
- The availability of public or shared off-site parking within a ¼ mile walking distance (such as municipal parking lots or private parking garages)[32].
- The availability and convenience of on-street parking.

Therefore, planners are finding that parking regulations should be adjusted to factor efficiencies gained by adhering to urban planning principles and sustainable development strategies that create compact and walkable downtowns and town centers. In fact, recent studies indicate that the amount of parking mandated by municipal regulation for various small town centers in New England is about two and one-half times peak use[33] and that peak demand in compact, mixed-use districts averaged only 2.0 parking spaces per 1,000 square feet of building area. Darien's Planning and Zoning Commission has recognized this issue and has made it a goal to revise parking regulations to require the construction of fewer parking spaces and to be better aligned with actual parking demand.[34]

[32] U.S. Environmental Protection Agency, Development, Community, and Environment Division. *Parking Spaces/Community Places: Finding Balance through Smart Growth Solution,* January 2006.

[33] Marshall, Wesley E. and Garrick, PhD, Norman W. *Parking at Mixed-Use Centers in Small Cities.* University of Connecticut, Connecticut Transportation Institute, Civil and Environmental Engineering, November 2005.

[34] Town of Darien, Connecticut. *Darien, CT, 2006 Town Plan of Conservation & Development,* Effective June 25, 2006, p. 4-4.

3.C.2 Future Parking Demand

The amount by which current parking rates and requirements should be reduced to account for the lower parking demands in downtown or mixed-use districts is difficult to determine because there are no recognized or proven formulas or reduction factors that can be applied to the parking rates that are typically used to calculate parking requirements for single use buildings or districts. This is because there is great variability of parking demand among mixed-use districts due to a wide variability in the types of uses in a district; the degree to which adjacent uses have complementary or staggered peak times or the degree to which adjacent uses can share parking; the ratio of short-term to long-term parking or the parking turnover rate; the prevalence of residents who use non-motorized transportation; the success of a downtown to create a park once-and-walk atmosphere; and the percentage of trips where transit is used.

For the purpose of this study, an alternative parking demand model for the 2020 Downtown development scenario (as described in Section 3.B.1) was developed to recognize the parking efficiencies of, or reduced parking demand in, mixed-use districts. The model is based on existing floor area and available parking supply (municipal and private parking) within various blocks of the CBD and assumes that the current parking supply – in terms of the number of parking spaces per 1,000 gross square feet of building space – will be indicative of the parking need, or parking demand, for future development. Even though the existing parking supply reflects a parking rate that is significantly less than the Town's parking requirements (per the Zoning Regulations), this appears to be a fair assumption considering that the existing parking supply – which is at 60% capacity or more during the midday peak on weekdays (see Section 2.B.4, page 2-38, for discussion) – generally exceeds the current parking needs in the CBD.

Accordingly, the parking demand model for this study employed the following methodology to estimate the future parking demand associated with the 2020 Downtown scenario:

1. Defining parking demand rates for various development densities. This effort included categorizing Downtown into four *density zones*, each of which is defined by type of use, density (in terms of a range of values for Floor Area Ratio (FAR), see Section 2.B.6, page 2-46 for explanation of FAR), and by an anticipated parking demand rate that is commensurate with the range of FARs. The four density zones are described below and summarized in Table 3-7:

   - **Downtown, Limited.** Higher density mixed-use development limited to 2 to 3 stories; with a parking ratio of approximately 2.5 spaces per 1,000 gross square feet of building space.
   - **General Downtown, Retail.** Medium density mixed-use, predominantly retail with limited residential uses; with a parking ratio of approximately 2.9 spaces per 1,000 gross square feet of building space.
   - **General Downtown, Commercial.** Low density commercial with some residential uses; with a parking ratio of approximately 3.3 spaces per 1,000 gross square feet of building space.
   - **Special District.** The conversion of suburban shopping plaza to mixed-use development; with a parking ratio of approximately 3.0 spaces per 1,000 gross square feet of building space.

Table 3-7. Summary of Downtown Density Zones with Anticipated Parking Demands

Density Zone	FAR Range	Parking Demand Rate
Downtown, Limited (DL)	0.75 to 1.0	2.5 per 1000 sf
General Downtown, Retail (DR)	0.5 to 0.75	3.0 per 1000 sf
General Downtown, Commercial (DC)	0.3 to 0.5	3.5 per 1000 sf
Special District (SD)	0.35 to 0.6	3.0 per 1000 sf

Source: CHA, 2012
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

2. Classifying each Downtown block into one of the four density zones based on the Downtown development scenario and target FAR for each block, as defined in Figure 3-2.
3. Calculating the potential new development area, in terms of gross floor area, for each Downtown block under the 2020 Downtown development scenario.
4. Estimating the anticipated new parking demand on each Downtown block by applying the appropriate parking demand rate to the new development area (determined under step 3) based on the density zone for the block.

The results of the parking demand model are shown in Table 3-8.

Table 3-8. Anticipated Parking Demands for Downtown Development Scenario – 2020

Downtown Block	Density Zone	New Floor Area (sf)	Parking Demand Rate	Anticipated Parking Demand (Total Spaces)
Leroy Avenue Block	DR	10,000	3.0	30
Brook & Grove Block	DL	12,000	2.5	30
Train Station South Block	DL	12,000	2.5	30
Post Office – Corbin Block	DR	63,000	3.0	189
Center Block	DR	20,000	3.0	60
Tokeneke Block	DR	3,000	3.0	9
Model Block	DR	9,000	3.0	27
Starbucks Block	DR	3,000	3.0	9
Fire Station Block	DR	20,000	3.0	60
East of Old Kings Hwy South Block	DC	10,000	3.5	35
Goodwives Shopping Center Block	SD	28,000	3.0	84
Totals		**190,000**	**3.0**	**563**

Source: CHA, 2012
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

As shown in Table 3-8, it is estimated that approximately 563 new parking spaces will satisfy the anticipated parking demands for new development under the 2020 Downtown development scenario. This number is roughly 50% of the number of spaces (1161 spaces, see Section 3.C.1, page 3-10) required by current Zoning Regulations for the same development scenario. While the lower number of spaces is more representative of the actual demand, there is still a need to accommodate the additional spaces within Downtown, where space is at a premium and where large surface parking areas are generally not conducive to a pedestrian-friendly environment. By 2020 and beyond, it is apparent that effective strategies will be needed to balance parking supply with parking needs, while also optimizing development opportunities and creating a more vibrant, walkable, and sustainable Downtown.

4
Recommendations

The recommendations for the Route 1 study area that are presented in this section were developed with input from Town of Darien officials, community stakeholders, the South Western Regional Planning Agency (SWRPA), and the Connecticut Department of Transportation (CTDOT). The recommendations include both transportation and land use initiatives that respond to the needs of the study area that were identified as part of a comprehensive assessment of existing and future conditions. As a whole, the recommendations constitute a comprehensive plan for the study area that will provide for improved mobility, accessibility, and safety for all users; incorporate land uses and development strategies that support the transportation system (and vice versa); and benefit the overall quality-of-life in Darien.

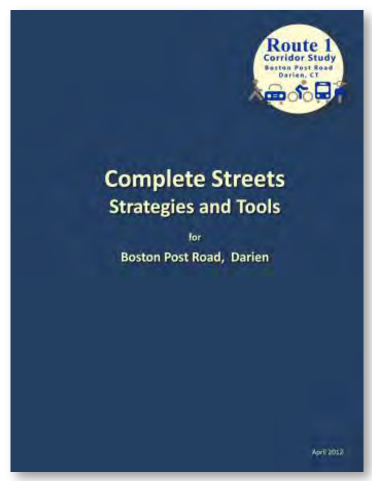
For additional study details, see the following:

- Section 1 – Introduction
- Section 2 – Existing Conditions Assessment
- Section 3 – Future Conditions Assessment
- Section 5 – Implementation Plan

4.A Transportation Improvement Recommendations

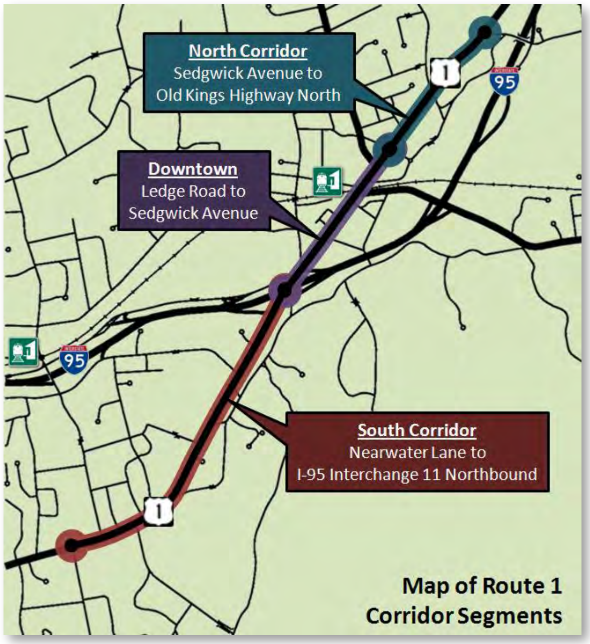
The transportation improvement recommendations of this study include general improvement strategies for the study area, and location-specific improvement recommendations that together promote the concept of ***Complete Streets*** – or streets that are designed to provide safe access for all users including pedestrians, bicyclists, transit riders, and motorists.

The general improvement strategies aim to improve roadway and driving conditions, walkability, bicycling, and transit use in the Boston Post Road (Route 1) study area by applying Complete Streets tools that will:



- Address high accident locations and roadway safety issues.
- Provide better roadway definition.
- Maintain Downtown mobility.
- Provide continuity of accessible pedestrian facilities.
- Improve pedestrian crossings.
- Mitigate pedestrian safety concerns.
- Provide defined space for bicyclists on Route 1.
- Create a system of bike facilities.
- Provide multimodal accessibility.
- Provide better on-line transit service and parking information.

Detailed descriptions and definitions of the improvement strategies and tools that are recommended for the Route 1 study area are provided in the *Complete Streets Strategies and Tools for Boston Post Road, Darien* publication that is provided in Appendix 4.1 (page A4-1) of this document.



Detailed recommendations for how these strategies and tools can be applied on a location-specific basis in the Route 1 study area presented in Sections 4.A.1 through 4.A.3 of this document. These recommendations are summarized for each of three primary corridor segments shown on the map at left – **South Corridor, Downtown, and North Corridor**.

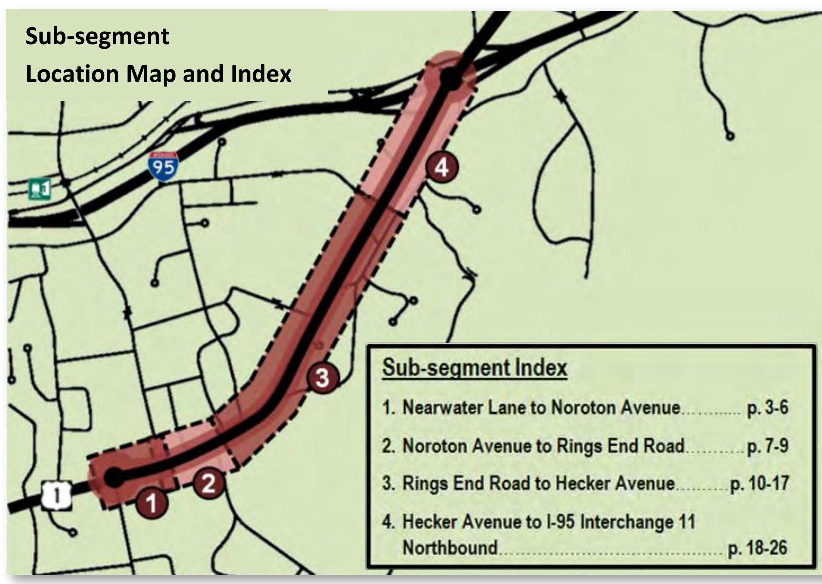
Discussion for each primary segment includes a general description of the transportation recommendations within the segment; and detailed narrative and graphics of the location-specific recommendations for various sub-segments. The detailed narrative for each sub-segment describes the recommendations and presents relevant supporting information (such as identified issues, intersection operations, potential impacts, near-term improvement opportunities, and other considerations).

Location maps for the various sub-segments are provided within the narrative for each primary segment and in the upper left corner of each figure.

4.A.1 South Corridor Recommendations

The **South Corridor** consists of approximately 1.3 miles of the Route 1 study corridor located between Nearwater Lane and the northbound ramps of I-95 Interchange 11.

The base recommendation for this segment of Route 1 is to implement a *road diet* that will reduce the number of vehicular travel lanes from four to two while utilizing the balance of the roadway space for improved bicycle and pedestrian facilities. More specifically, a road diet will provide the following enhancements along this segment:



- A minimum of 4 ft of space adjacent to a single lane of vehicular traffic that is dedicated to safer on-street bicycle travel.
- Short landscaped median islands that provide traffic calming and aesthetic benefits while accommodating pedestrian refuge for mid-block and unsignalized crossings on Route 1 at Noroton Presbyterian Church and Mather Fields/Renshaw Road.
- Sidewalk improvements along the east side of Route 1 that will close gaps in the existing sidewalk and that can be accommodated in most areas without impacts to adjacent properties.
- A continuous two-way left turn lane between Dickinson Road in Noroton and I-95 Interchange 11 that will provide refuge outside of the through travel lanes for motorists who are turning left to area residences and businesses.
- On-street parking in Noroton that does not conflict with through traffic lanes and that is clearly delineated with pavement markings.

What is a *Road Diet*?

A *road diet* is a strategy to reduce the amount of roadway space allocated to motor vehicles by reducing the number of travel lanes or by reducing the width of travel lanes. For more information about road diets and other Complete Streets recommendations for the corridor, see the **Complete Streets Toolbox**, Appendix 4.1.

It is noted that a reduction in the number of travel lanes on Route 1 will reduce traffic capacity and will affect traffic operations, particularly during peak traffic periods or when there is an emergency diversion from I-95 (Route 1 is a designated emergency diversion route when there is a closure on I-95). During a typical weekday commute, motorists will experience longer delays and traffic queues at signalized intersections along this segment of Route 1. However, traffic analyses for the future (year 2030) traffic conditions show that acceptable operations (level of service "D", or better) can be maintained under the road diet conditions as long as that turn lanes are provided at the signalized intersections to maintain the necessary traffic capacity for peak traffic conditions.

During off peak hours and weekends, or more than 80% of the time, the reduced traffic capacity will generally not affect traffic operations. Additionally, the road diet will serve to formalize the two-lane roadway section that effectively exists when vehicles are legally parked in the outside travel lanes of Route 1 in Noroton. The two-lane roadway section south of Downtown will also provide consistency with the two-lane roadway section that currently exists in Downtown where traffic volumes are comparable.

The following sections describe and illustrate the location-specific recommendations for the four sub-segments that comprise the South Corridor.

Sub-segment 1. Nearwater Lane to Noroton Avenue

Recommendations

Recommendations for the Nearwater Lane to Noroton Avenue sub-segment of the South Corridor are illustrated in Figure 4-1 (page 4-6) and include:

A. Road Diet. Reduce the number of travel lanes from four to two north of Nearwater Lane. In the northbound direction, transition to the two-lane section by converting the outside travel lane on the Route 1 approach to Nearwater Lane to an exclusive right turn lane and providing a single travel lane for through traffic. Provide sufficient warning south on Route 1 for through traffic to merge in the inside travel lane. In the southbound direction, provide an exclusive left turn lane and a single travel lane for through traffic on the Route 1 approach to Nearwater Lane. Maintain two southbound travel lanes south of the Nearwater Lane intersection.

B. Narrow Travel Lanes and Striped Shoulders. Delineate 5 ft wide shoulders to encourage safe bicycle use in conjunction with the road diet that provides 11 ft wide travel lanes between Nearwater Lane and Noroton Avenue.

C. Turn Lanes

- Provide separate left and right turn lanes on the Nearwater Lane approach to Route 1.
- Provide exclusive right turn lane and left turn lane on the northbound and southbound Route 1 approaches, respectively, to Nearwater Lane.
- Provide an exclusive left turn lane on the northbound Route 1 approach to Noroton Avenue.

Summary of Identified Issues:

- No defined space on roadway for bicyclists
- Inadequate pedestrian accommodations at signalized intersections of Nearwater Lane and Noroton Avenue with Route 1
- Inadequate signage and long crossing distance for mid-block crossing at Noroton Presbyterian Church
- Lack of guide signage on Route 1 for nearby access to Noroton train station and I-95

Complete Streets

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Road Diet...p. 7
Narrow Travel Lanes..................................p. 7
Pavement Markings & Signs....................p. 8
Striped Shoulders..................................p. 10
Pedestrian Signal Upgrades....................p. 12
Accessible Sidewalk ....p. 12
High-visibility Crossing ....p. 12
Corner Radius Reduction ....p. 13
Pedestrian Refuge Island ....p. 13

Sub-segment 1. Nearwater Lane to Noroton Avenue (continued)

The above rendering – looking north (east) along Route 1 from Nearwater Lane – illustrates the recommendations at this location including: road diet, striped shoulders, corner radius reduction, and pedestrian crossing upgrades.

D. Corner Radius Reduction. Modify the curb line in the northeast corner of the Nearwater Lane intersection in conjunction with the road diet to minimize turning speeds, shorten the pedestrian crossing distance, and prevent vehicles in the exclusive right turn lane on northbound Route 1 from progressing directly through the intersection.

E. Pedestrian Crossing Upgrades. Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility cross-walks at the Nearwater Lane and Noroton Avenue intersections.

F. High-visibility Mid-block Crossing. Install pedestrian warning signs, high-visibility crosswalk, accessible sidewalk ramps, and street lights for the existing mid-block crossing at Noroton Presbyterian Church.

G. Median for Pedestrian Refuge. Provide a landscaped curbed median to provide pedestrian refuge for the mid-block crossing and to provide traffic calming effect for vehicles entering Noroton village.

H. Guide Signing. Provide new signs to guide motorists to the Noroton Train Station and I-95 Exit 10, both of which are accessible via Noroton Avenue.

Intersection Operations

Table 4-1 summarizes the afternoon (PM) peak hour traffic operations at Nearwater Lane and Noroton Avenue in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions. The 50th percentile queues are also shown for the 2030 build condition.

Table 4-1. Summary of Traffic Operations – Nearwater Lane to Noroton Avenue

Intersection/Approach	Existing	2030 No-build	2030 Build			
	LOS (Sec. Delay)	LOS (Sec. Delay)	LOS (Sec. Delay)	50th Queues (ft) L	T	R
Route 1 at Nearwater Lane (Signalized)						
Route 1 Northbound	A (4.9)	A (5.3)	C (29.6)	-	631	13
Route 1 Southbound	A (8.2)	A (9.4)	B (19.8)	126	25	-
Nearwater Lane Westbound	F (89.7)	F (135.0)	D (42.4)	44	-	173
Overall	**B (18.6)**	**C (25.8)**	**C (28.7)**		**-**	
Route 1 at Noroton Avenue (Signalized)						
Route 1 Northbound	A (5.9)	A (8.4)	A (9.8)	36	342	-
Route 1 Southbound	A (7.4)	A (9.0)	A (6.4)	-	102	
Noroton Avenue Eastbound	C (27.9)	C (29.0)	D (52.5)		199	
Overall	**A (9.4)**	**B (11.5)**	**B (15.0)**		**-**	

Source: CDM Smith, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

Sub-segment 1. Nearwater Lane to Noroton Avenue (continued)

As shown in the table, the road diet would marginally increase overall intersection delay during the PM peak hour at both intersections under 2030 traffic conditions, though overall operations would be still be considered acceptable at LOS C and LOS B at Nearwater Lane and Noroton Avenue, respectively. It should be noted that the morning (AM) peak hour condition, which has a directional distribution of traffic that favors the southbound direction, could ultimately control the design length of the southbound left turn lane at this location. Additional traffic analyses for the AM peak hour condition will be required during subsequent preliminary engineering phases to determine the required design length of all turn lane storage bays at these intersections.

Other Considerations

- Implementation of striped shoulders and a median for pedestrian refuge in this area is contingent upon the implementation of the road diet to reduce the number of travel lanes from four to two.
- Additional measures to promote on-street bicycle use and safety should be considered for Route 1 south of the study area. Measures could include sharrows adjacent to the outside travel lane and bicycle warning signs.

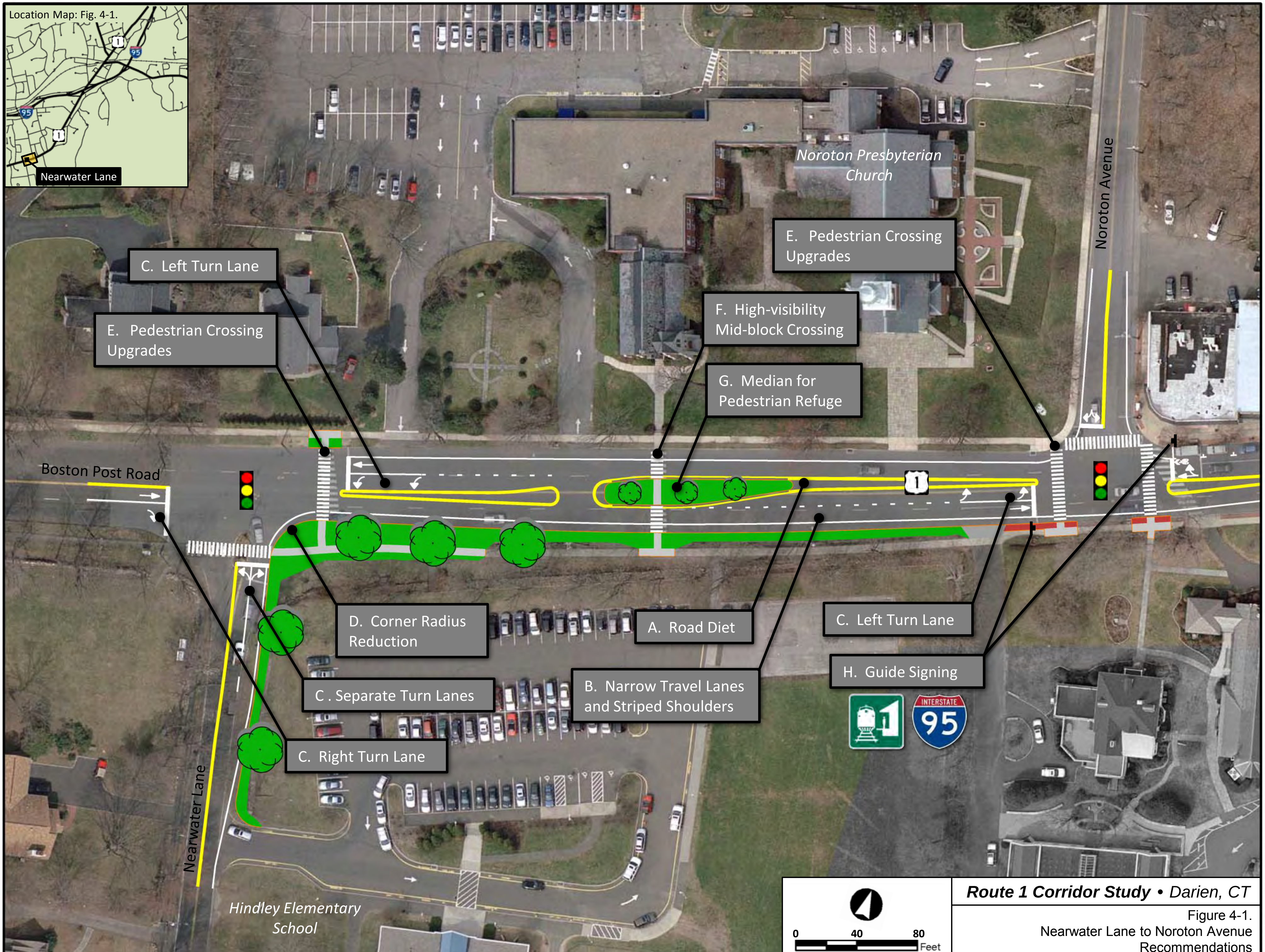
Potential Impacts and Constraints

- One catch basin on the east side of Route 1 will be impacted by modifying the northbound curb line.
- Relocation of a pedestrian signal pole will be required as a result of the recommended corner radius reduction at the southeast corner of the Nearwater Lane intersection.
- Replacement of existing traffic signal infrastructure may be required to meet current CTDOT standards.
- No impacts to existing rights-of-way are anticipated with the recommendations.

Implementation Guidance

The Implementation Plan (Section 5) includes five potential projects that would accomplish the improvement recommendations for the Nearwater Lane to Noroton Avenue segment (as described on pages 4-3 and 4-4):

- Very Near-term Project 3. Pavement Marking and Signing Improvements – by Town of Darien (page 5-3)
- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 5. Phase 2 Program of Pedestrian Safety Improvements, Initiative 2 (page 5-10)
- Near-term Project 6. Trial Road Diet – Nearwater Lane to Rings End Road (page 5-10)
- Mid-term Project 3. Road Diet – Nearwater Lane to Hecker Avenue (page 5-15)



Route 1 Corridor Study • Darien, CT

Figure 4-1.
Nearwater Lane to Noroton Avenue
Recommendations

Sub-segment 2. Noroton Avenue to Rings End Road

Recommendations

Recommendations for the Noroton Avenue to Rings End Road sub-segment of the South Corridor are illustrated in Figure 4-2 (page 4-9) and include:

Summary of identified Issues:

- Insufficient roadway width to accommodate four travel lanes and non-conflicting on-street parking
- No defined space on roadway for bicyclists
- Inadequate pedestrian accommodations at Rings End Road intersection

Complete Streets

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Road Diet…………………………………………p. 7
On-street Parking…………………………………p. 8
Access Management……………………………p. 9
Shared Travel Lane……………………………p. 10
Sharrows………………………………………p. 10
Pedestrian Signal Upgrades…………………p. 12
Accessible Sidewalk …………………………p. 12
High-visibility Crossing………………………p. 12

A. Road Diet. Convert the existing four lane section of Route 1 between Noroton Avenue and Rings End Road to a two lane roadway consisting of one 15 ft wide shared travel lane (11 ft for vehicles and 4 ft for bicyclists) and an on-street parking lane in each direction.

B. Shared Travel Lane with Sharrows. Provide sharrow pavement markings along the right side of the shared travel lane adjacent to the on-street parking to alert motorists to the use of this space by bicyclists. Sharrows should be placed at regular intervals along Route 1 between Noroton Avenue and Rings End Road.

C. On-street Parking. Delineate 8 ft wide parking stalls to clearly define where on-street parking is permitted and to maximize parking efficiency.

D. Turn Lanes.

- Provide an exclusive right turn lane on the northbound Route 1 approach to Rings End Road to provide additional intersection capacity for the road diet condition.
- Provide an exclusive left turn lane on the southbound Route 1 approach to Rings End Road to provide additional intersection capacity for the road diet condition.

E. Pedestrian Crossing Upgrades. Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks, as required, at the intersections of Noroton Avenue and Rings End Road. Modify the location of the sidewalk ramp and crosswalk for the southbound approach leg of the Rings End Road intersection to shorten the pedestrian crossing distance.

F. High-visibility Crosswalk. Install new high-visibility crosswalk on the Garden City Road approach to Route 1.

G. Access Management. Relocate driveway as shown approximately 20 ft north to better align with the traffic signal at Rings End Road; to provide greater separation from the adjacent driveway; and to provide space for a new pedestrian crossing on the northbound approach leg of the Rings End Road intersection.

Intersection Operations

Table 4-2 on the next page summarizes the afternoon (PM) peak hour traffic operations at Rings End Road in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions. The 50th percentile queues are also shown for the 2030 build condition.

Sub-segment 2. Noroton Avenue to Rings End Road (continued)

Table 4-2. Summary of Traffic Operations – Noroton Avenue to Rings End Road

Intersection/Approach	Existing	2030 No-build	2030 Build			
	LOS (Sec. Delay)	LOS (Sec. Delay)	LOS (Sec. Delay)	50th Queues (ft)		
				L	T	R
Route 1 at Rings End Road (Signalized)						
Route 1 Northbound	A (5.5)	A (7.0)	A (8.9)	-	203	4
Route 1 Southbound	A (4.1)	A (8.6)	A (10.0)	13	48	-
Rings End Road Westbound	C (24.3)	C (29.3)	D (53.3)	88		
Overall	**A (6.6)**	**A (9.1)**	**B (12.5)**	**-**		

Source: CDM-Smith, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

As shown in the table, the road diet would marginally increase overall intersection delay during the PM peak hour at Rings End Road under 2030 traffic conditions, though overall operations would be still be considered acceptable at LOS B. It should be noted that the morning (AM) peak hour condition, which has a directional distribution of traffic that favors the southbound direction, could ultimately control the design lengths of the exclusive turn lanes at this location. Additional traffic analyses for the AM peak hour condition will be required during subsequent preliminary engineering phases to determine the required design length of the turn lane storage bays.

Other Considerations

- The delineation of parking stalls in this area is contingent upon the implementation of the road diet to reduce the number of travel lanes from four to two.

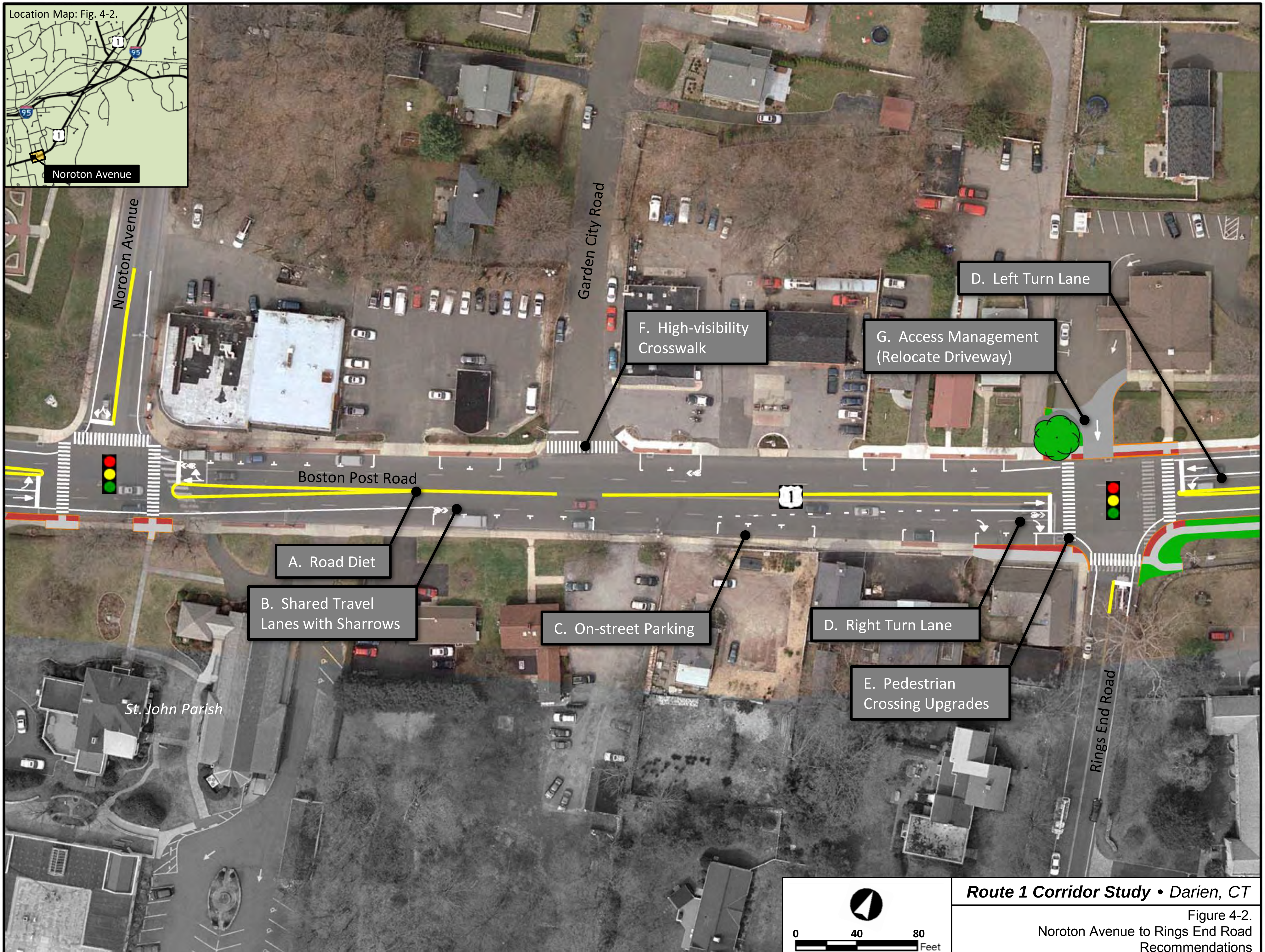
Potential Impacts and Constraints

- No impacts to existing utilities or rights-of-way are anticipated with the recommendations.
- Repaving of Route 1 will be required between Garden City Road and Rings End Road to modify the location of the crown line of the roadway for northbound traffic approaching Rings End Road.

Implementation Guidance

The Implementation Plan (Section 5) includes five potential projects that would accomplish the improvement recommendations for the Noroton Avenue to Rings End Road segment (as described on page 4-7):

- Very Near-term Project 3. Pavement Marking and Signing Improvements – by Town of Darien (page 5-3)
- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 5. Phase 2 Program of Pedestrian Safety Improvements, Initiative 2 (page 5-10)
- Near-term Project 6. Trial Road Diet – Nearwater Lane to Rings End Road (page 5-10)
- Mid-term Project 3. Road Diet – Nearwater Lane to Hecker Avenue (page 5-15)



Route 1 Corridor Study • *Darien, CT*

Figure 4-2.
Noroton Avenue to Rings End Road
Recommendations

Sub-segment 3. Rings End Road to Hecker Avenue

Recommendations

Recommendations for the Rings End Road to Hecker Avenue sub-segment of the South Corridor are illustrated in Figure 4-3 (pages 4-14 through 4-17) and include:

A. Road Diet. Convert the existing four lane section of Route 1 between Rings End Road and Hecker Avenue to three lanes consisting of one 11 ft wide travel lane in each direction and a shared center left turn lane. The center left turn lane will help maintain through traffic mobility while improving safety for left turning vehicles.

B. Narrow Travel Lanes and Striped Shoulders. Delineate 4 ft wide (or greater) shoulders to encourage safe bicycle use in conjunction with the road diet that provides 11 ft wide travel lanes.

C. Turn Lanes. Provide the following exclusive turn lanes on Route 1:

- Right turn lane and left turn lane on the northbound and southbound approaches, respectively, to Old Kings Highway South intersection to provide additional intersection capacity for the road diet condition.
- Left turn lane on the southbound approach to Cross Street intersection to shadow the recommended landscaped median on the northbound approach and to maintain through traffic mobility.
- Left turn lane on the northbound approach to Hecker Avenue to provide additional intersection capacity for the road diet condition.

D. Corner Radius Reduction. Modify the curb line in the southeast corner of the Old Kings Highway South intersection to minimize turning speeds from northbound Route 1 to Old Kings Highway South and to shorten pedestrian crossing distances.

E. New Sidewalks. Install new sidewalk along the east side of Route 1 in the following locations to promote walkability and to provide continuity of accessible pedestrian facilities between residential areas and other community destinations (such as Noroton village, town hall, library, and Mather Fields):

- Between Saint Luke's Episcopal Church and Old Kings Highway South. Sidewalk can be provided with minimal impact to adjacent church property and landscaping by reallocating existing roadway space for the sidewalk as part of the road diet.
- Between Old Kings Highway South and Renshaw Road.
- Between Renshaw Road and Quaker Lane.
- Between Cross Street and Hecker Avenue.

Summary of identified Issues:

- Poor intersection geometry at Old Kings Highway South that promotes high speed turns from northbound Route 1
- No defined space on roadway for bicyclists
- Gaps in sidewalk on west side of Route 1 between Fitch Street and Renshaw Road; south of Quaker Lane; and north of Cross Street.
- Inadequate pedestrian accommodations at signalized intersections of Old Kings Highway South and Hecker Avenue with Route 1
- Inadequate signage and long crossing distance for unsignalized pedestrian crossing at Cross Street

Complete Streets

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Road Diet.. p. 7
Narrow Travel Lanes................................ p. 7
Medians.. p. 7
Dynamic Speed Display Signs.................. p. 9
Street Trees.. p. 9
Access Management................................ p. 9
Striped Shoulders .... p. 10
Pedestrian Signal Upgrades.................... p. 12
Accessible Sidewalk................................ p. 12
High-visibility Crossing........................... p. 12
Pedestrian Refuge Island........................ p. 13
Curb Extension....................................... p. 13
Corner Radius Reduction........................ p. 13

Sub-segment 3. Rings End Road to Hecker Avenue (continued)

F. **Pedestrian Crossing Upgrades.** Eliminate crosswalk on southbound Route 1 approach to Dickinson Road in conjunction with pedestrian crossing upgrades at Rings End Road (see page 4-9). Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the signalized intersections of Old Kings Highway South and Hecker Avenue with Route 1. Provide new crosswalk on northbound approach to Hecker Avenue to replace existing unsignalized crossing at Cross Street.

G. **High-visibility Crosswalk.** Install new high-visibility crosswalks on the following unsignalized side road approaches to Route 1: Dickinson Road, Fitch Avenue, Quaker Lane and Cross Street.

H. **High-visibility Unsignalized Crossing.** Install pedestrian warning signs, high-visibility crosswalk, and accessible sidewalk ramps for the new unsignalized crossing at Renshaw Road.

Top: Looking north (east) along Route 1 from Old Kings Highway South. This rendering illustrates recommendations for a road diet, new sidewalk, and pedestrian crossing upgrades.

Bottom: Looking north (east) along Route 1 from just south of Hecker Avenue. This rendering illustrates recommendations for a road diet, striped shoulders, curbed median, and pedestrian crossing upgrades.

I. **Median for Pedestrian Refuge.** Provide a landscaped curbed median to provide pedestrian refuge for the new unsignalized crossing at Renshaw Road and to provide traffic calming effect for vehicles in the vicinity of Mather Fields where there is a greater potential for pedestrian activity.

J. **Medians.** Provide landscaped curbed medians on Route 1 in the following locations:

- **Cross Street:** Just south of Cross Street, between commercial driveways, where a center left turn is not required. Median will serve to provide a traffic calming effect for vehicles in this area and will reinforce the traffic calming effect of the recommended medians at Renshaw Road and Hecker Avenue.
- **Hecker Avenue:** Southbound approach to the Hecker Avenue intersection to shadow the northbound left turn lane to Hecker Avenue and to provide a traffic calming effect for vehicles in the vicinity of the library where there is a greater potential for pedestrian activity.

K. **Curb Extension.** Install a curb extension in the northwest corner of the Hecker Avenue intersection to shorten the pedestrian crossing distance; to complement the traffic calming effect of the recommended median in this location; and to create a possible pull-out area for buses in front of the library.

L. **Access Management.** Relocate existing commercial driveway located on the east side of Route 1 at the intersection of Hecker Avenue just south to better align with the Hecker Avenue approach to the intersection and to provide a more direct crosswalk on the southbound approach.

Sub-segment 3. Rings End Road to Hecker Avenue

M. Street Trees. Plant new trees along the roadway edges in areas where the roadway is widened or modified to accommodate turn lanes and new sidewalk.

Intersection Operations

Table 4-3 summarizes the afternoon (PM) peak hour traffic operations at Old Kings Highway South, Renshaw Road, and Hecker Avenue in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions. The 50th percentile queues are also shown for the 2030 build condition.

Table 4-3. Summary of Traffic Operations – Rings End Road to Hecker Avenue

Intersection/Approach	Existing	2030 No-build	2030 Build			
	LOS (Sec. Delay)	LOS (Sec. Delay)	LOS (Sec. Delay)	50th Queues (ft)		
				L	T	R
Route 1 at Old Kings Highway South (Signalized)						
Route 1 Northbound	A (6.1)	A (8.4)	A (6.9)	-	358	41
Route 1 Southbound	A (3.5)	A (4.0)	A (4.3)	1	87	-
Old Kings Highway So. Westbound	C (27.5)	C (27.7)	D (50.3)		63	
Overall	**A (6.5)**	**A (8.2)**	**A (8.2)**		**-**	
Route 1 at Renshaw Road (Unsignalized)						
Route 1 Northbound	A (0.3)	A (0.7)	A (8.8)	0		-
Route 1 Southbound	A (0.0)	A (0.0)	A (0.0)	-	0	
Renshaw Road Eastbound	C (22.9)	C (24.0)	F (>50)		N/A	
Route 1 at Hecker Avenue (Signalized)						
Route 1 Northbound	A (1.1)	A (1.3)	A (8.8)	6	203	
Route 1 Southbound	A (2.6)	A (3.0)	A (4.3)	-	68	
Hecker Avenue Eastbound	C (25.7)	C (26.3)	C (26.3)		53	
Overall	**A (3.8)**	**A (4.0)**	**A (8.8)**		**-**	

Source: CDM-Smith, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

As shown in the table, the road diet would have minimal effect on overall intersection delay during the PM peak hour at the Old Kings Highway South and Hecker Avenue intersections under 2030 traffic conditions. The overall level of service at these intersections would be unchanged at LOS A, though the westbound approach delay at Old Kings Highway would significantly increase under the build condition resulting in LOS D.

The road diet would significantly increase the eastbound approach delay at the unsignalized intersection of Renshaw Road under 2030 traffic conditions resulting in LOS F. The increase in delay is a function of reducing the number of adequate gaps in Route 1 traffic by reducing the number of through lanes in each direction from two to one under the road diet condition. This increase in delay at Renshaw Road is indicative of the operations of the other unsignalized side road approaches to Route 1 under the road diet condition. It is noted that the delay at these intersections would be significantly lower during the off-peak traffic periods and that LOS F conditions would likely be limited to peak traffic periods. It is also noted that the Renshaw Road intersection would not meet traffic signal warrants based on anticipated 2030 traffic conditions.

Sub-segment 3. Rings End Road to Hecker Avenue

Other Considerations

- Install two dynamic speed display signs near the southern (western) end of Old Kings Highway South. Install one of these signs approximately 500 ft north of the Route 1 intersection to alert motorists of their speeds, particularly motorists who are maintaining Route 1 travel speeds onto Old Kings Highway South. Install the other sign in another prominent location where speeds are creating safety concerns.

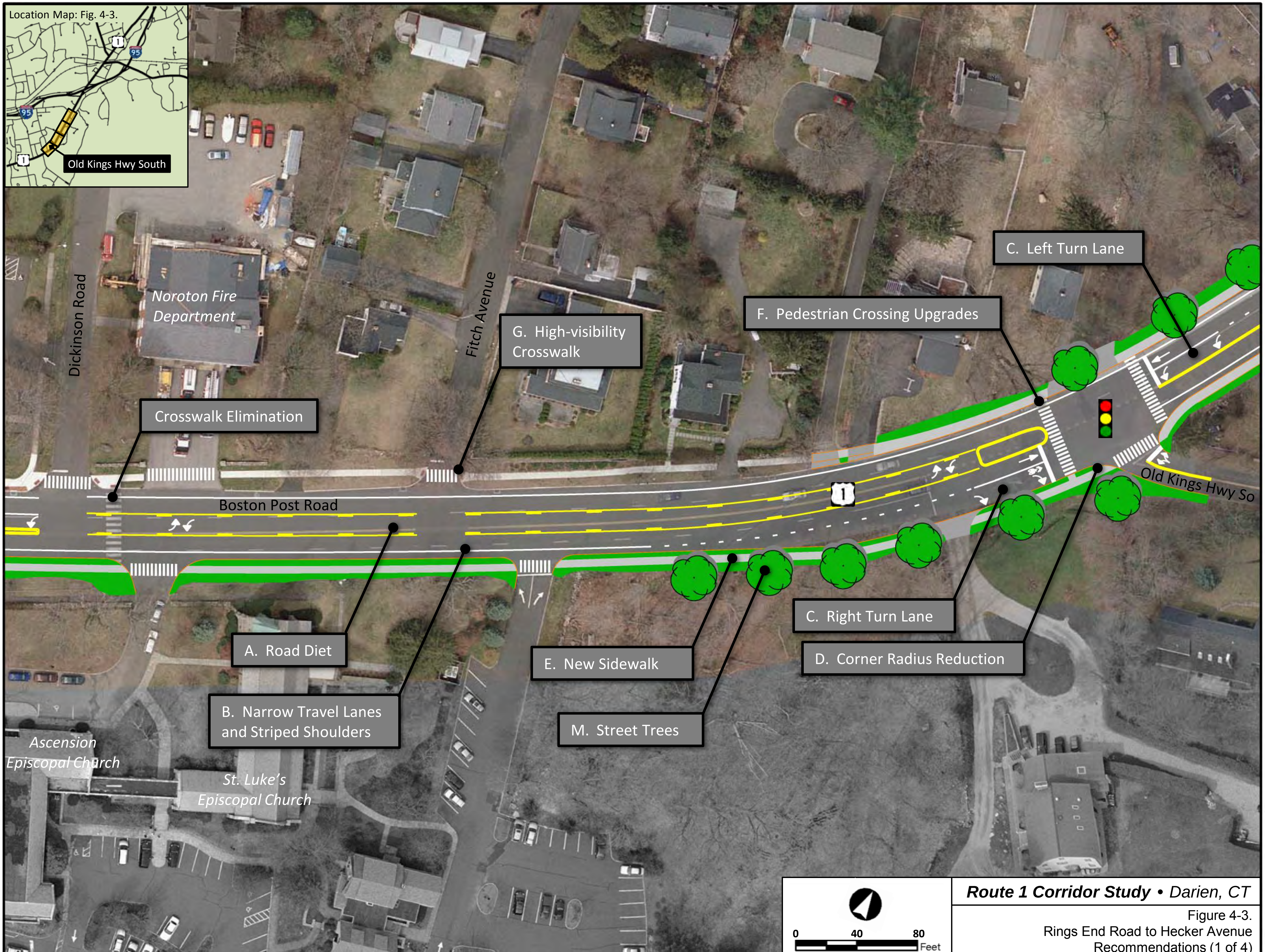
Potential Impacts and Constraints

- Right-of-way strip takings or grading rights could be required from four or more properties along Route 1 due to widening to accommodate new sidewalk near Old Kings Highway South. Whether overall property impacts would be minimized by sharing impacts along both sides of Route 1 or by concentrating impacts along one side would be determined during subsequent design phases.
- Minimize potential property impacts and existing bridge impacts between Old Kings Highway South and the Stony Brook crossing by reducing the typical center left turn lane width from 14 ft to 12 ft.
- Relocation of approximately 13 utility poles and 1500 ft of overhead utility wires will be required to accommodate new sidewalk on the east side of Route 1 between Saint Luke's Episcopal Church and Quaker Lane.
- Relocation of approximately two utility poles and 700 ft of overhead utility wires will be required to accommodate new sidewalk and driveway relocation on the east side of Route 1 near Hecker Avenue.
- Replacement of existing traffic signal infrastructure may be required to meet current CTDOT standards.
- Seven catch basins on the east side of Route 1 will be impacted by modifying the northbound curb line between Rings End Road and Renshaw Road to accommodate new sidewalk.
- Four catch basins on the west side of Route 1 will be impacted by modifying the southbound curb line between Old Kings Highway South and Stony Brook crossing to accommodate new sidewalk
- Two catch basins (one each side of Route 1) will be impacted by modifying the curb lines in the vicinity of Hecker Avenue.

Implementation Guidance

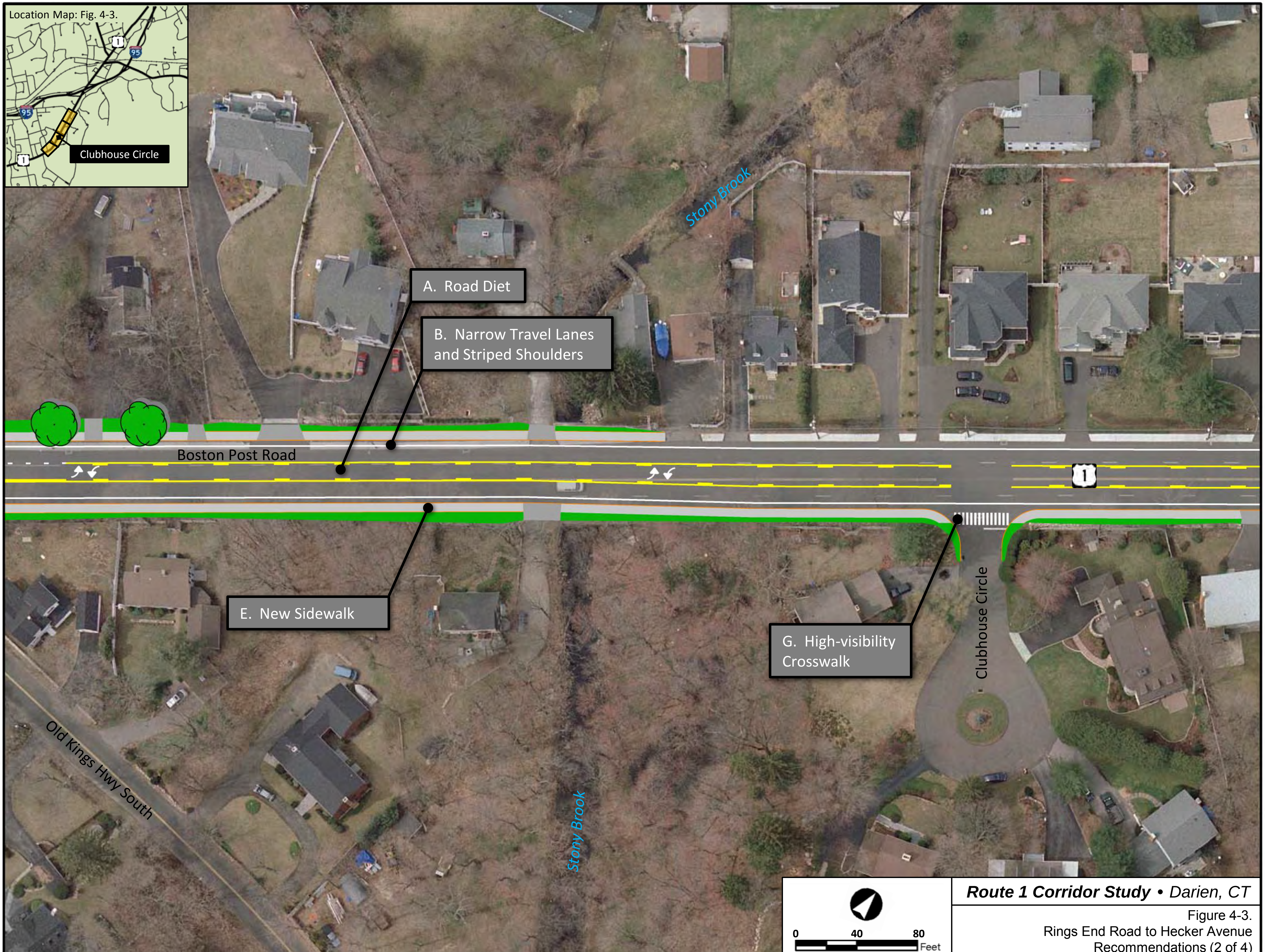
The Implementation Plan (Section 5) includes six potential projects that would accomplish the improvement recommendations for the Rings End Road to Hecker Avenue segment (as described on pages 4-10 and 4-11):

- Very Near-term Project 2. Phase 1 Speed Mitigation for Old Kings Highway South (page 5-3)
- Very Near-term Project 3. Pavement Marking and Signing Improvements – by Town of Darien (page 5-3)
- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 3. Phase 2 Speed Mitigation for Old Kings Highway South (page 5-9)
- Near-term Project 5. Phase 2 Program of Pedestrian Safety Improvements, Initiative 1 (page 5-10)
- Mid-term Project 3. Road Diet – Nearwater Lane to Hecker Avenue (page 5-15)



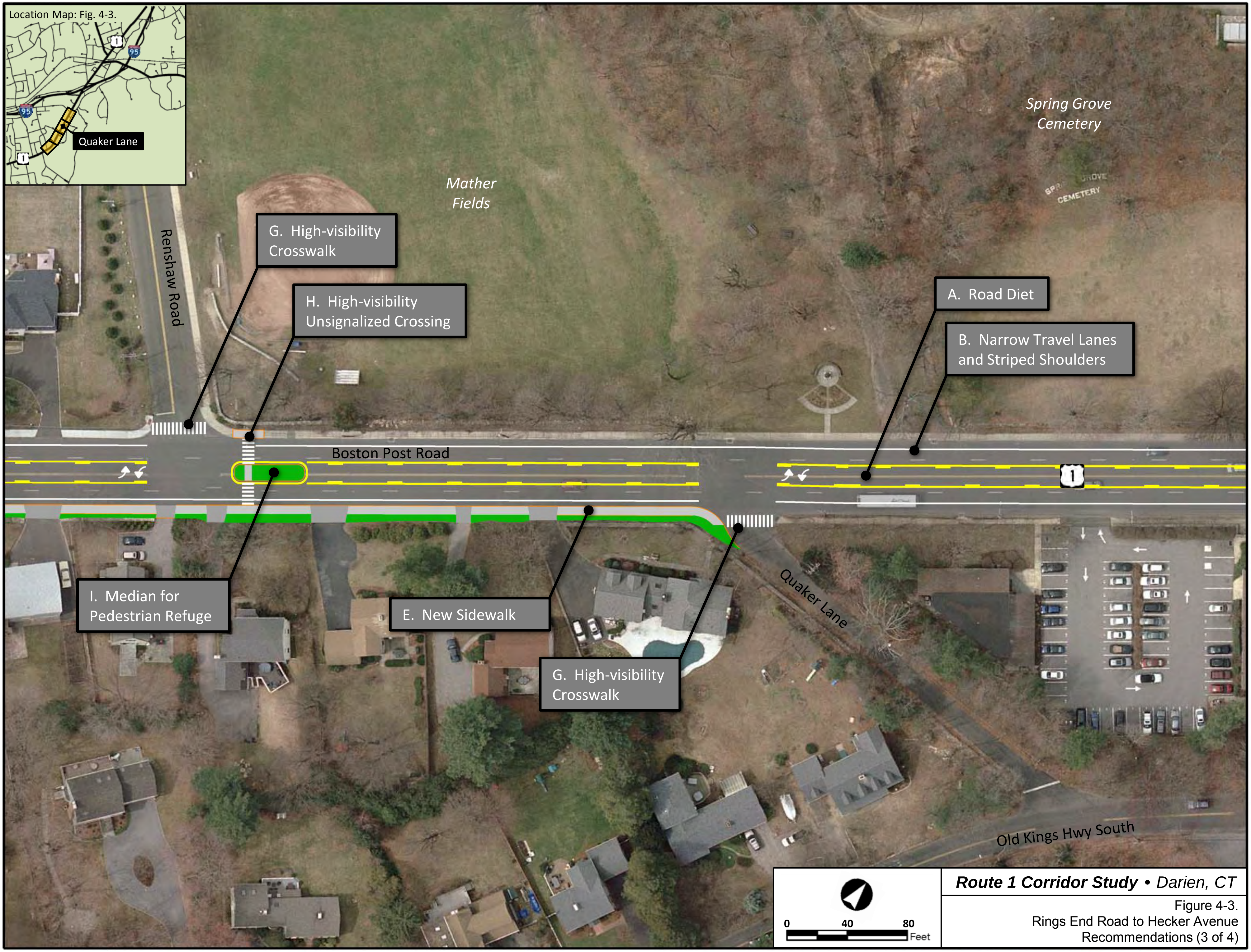
Route 1 Corridor Study • *Darien, CT*

Figure 4-3.
Rings End Road to Hecker Avenue
Recommendations (1 of 4)



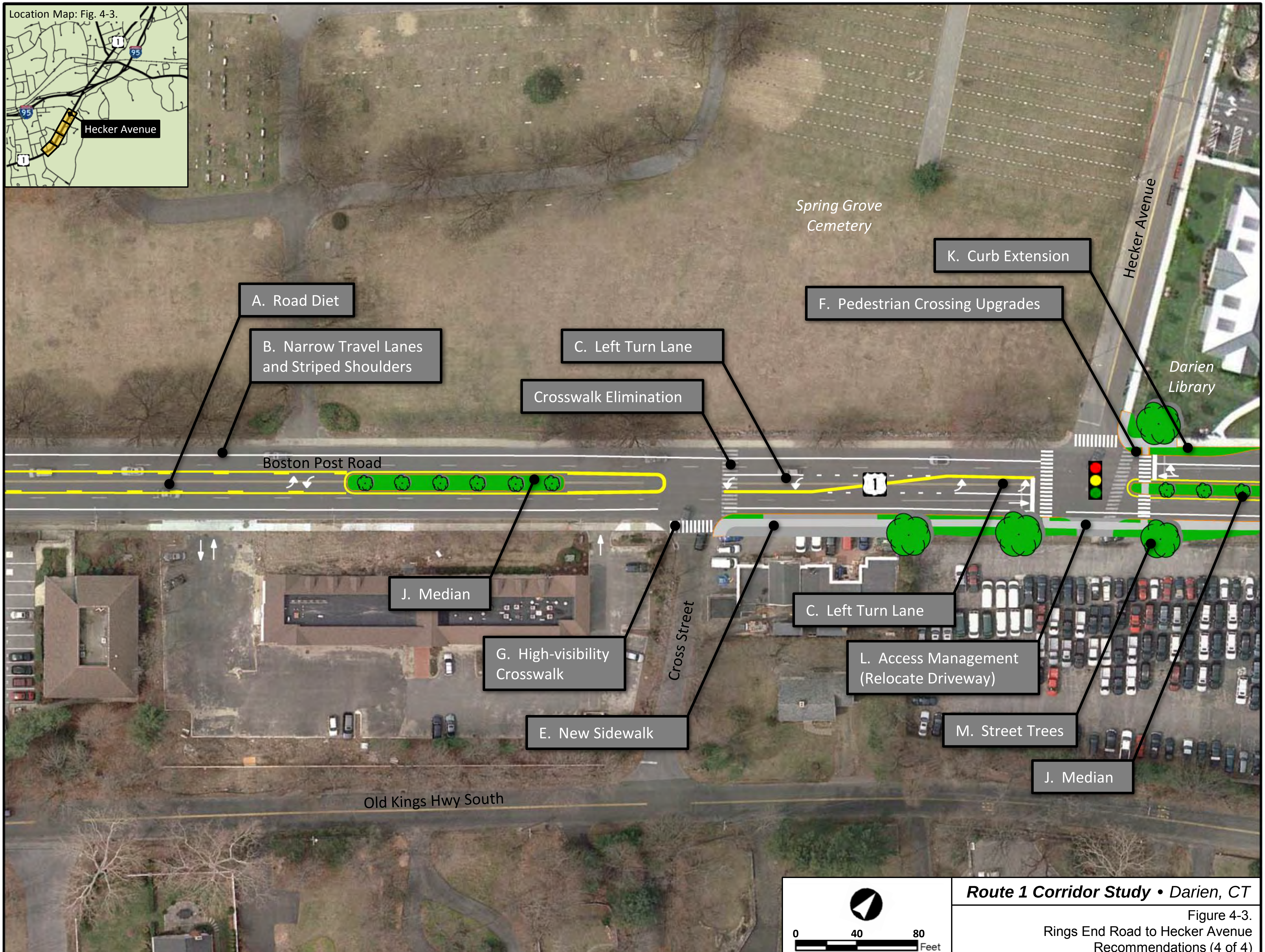
Route 1 Corridor Study • *Darien, CT*

Figure 4-3.
Rings End Road to Hecker Avenue
Recommendations (2 of 4)



Route 1 Corridor Study • *Darien, CT*

Figure 4-3.
Rings End Road to Hecker Avenue
Recommendations (3 of 4)



Route 1 Corridor Study • *Darien, CT*

Figure 4-3.
Rings End Road to Hecker Avenue
Recommendations (4 of 4)

Sub-segment 4. Hecker Avenue to I-95 Interchange 11 Northbound

Two alternative concepts – Concept A and Concept B – were explored for the Hecker Avenue to I-95 Interchange 11 Northbound sub-segment of the South Corridor.

Concept A continues the road diet recommendation from Rings End Road north through Hecker Avenue and Interchange 11. This concept is further described below beginning on this page and is illustrated in Figure 4-4A (pages 4-21 and 4-22).

Concept B ends the road diet recommendation at Hecker Avenue and maintains the existing lane configuration through the interchange. Concept B is further described on page 4-23 and is illustrated in Figure 4-4B (pages 4-25 and 4-26).

Summary of identified Issues:

- Poor intersection geometry at I-95 Interchange 11 northbound on ramp that promotes high speed turns from Route 1
- No defined space on roadway for bicyclists
- Gaps in sidewalk on west side of Route 1 near Chuck's Steak House and within the interchange
- Inadequate pedestrian accommodations at signalized intersection of I-95 Interchange 11 with Route 1
- Undesirable conditions at I-95 underpass and through I-95 Interchange 11 for pedestrians and bicyclists

Concept A Recommendations

In general, Concept A provides one travel lane in each direction with a shared center left turn lane south of the northbound ramps; maintains a four lane section on Route 1 at the I-95 underpass in order to accommodate 4 ft shoulders; and provides exclusive turn lanes at the northbound ramps.

More specifically, the recommendations for **Concept A** include:

A. **Road Diet.** Convert the existing four lane section of Route 1 between Hecker Avenue and Interchange 11 northbound ramps to three lanes consisting of one 11 ft wide travel lane in each direction and a shared center left turn lane. The center left turn lane will help maintain through traffic mobility while improving safety for left turning vehicles. Provide one 11 ft wide through travel lane in each direction within the interchange area.

B. **Narrow Travel Lanes and Striped Shoulders.** Delineate 4 ft wide (or greater) shoulders to encourage safe bicycle use in conjunction with the road diet that provides 11 ft wide travel lanes.

Complete Streets – Concept A

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Road Diet.. p. 7
Narrow Travel Lanes................................ p. 7
Street Trees... p. 9
Striped Shoulders ....p. 10
Pedestrian Signal Upgrades.....................p. 12
Accessible Sidewalk ....p. 12
High-visibility Crossing ....p. 12

C. **Intersection Modification.** Realign the Thorndal Circle approach to Route 1 in conjunction with modifying the southbound curb line for the road diet and northbound off ramp relocation. Realignment will provide better sight lines to approaching southbound traffic and will provide more direct pedestrian access across the intersection.

D. **Consolidated and Realigned Northbound On Ramp.** Combine the two existing northbound on ramp entrances into one, while modifying the curb line in the southeast corner of the northbound on ramp.

E. **Relocated Northbound Off Ramp.** Realign the northbound off ramp opposite the consolidated on ramp to create a single signalized intersection. Recommendations D and E provide a smaller interchange footprint that is more pedestrian-friendly; minimize turning speeds from northbound Route 1 to the on ramp; and increase the northbound left turn lane storage capacity for the Ledge Road intersection.

Sub-segment 4. Hecker Avenue to I-95 Interchange 11 Northbound, Concept A (continued)

F. Turn Lanes. Provide the following exclusive turn lanes:
   - Right turn lane on the northbound Route 1 approach to the relocated northbound on ramp.
   - Left turn lane on the southbound Route 1 approach to the relocated northbound on ramp.

G. New Sidewalk. Install new sidewalk along the east side of Route 1 between Thorndal Circle and the recommended northbound on ramp intersection. The new sidewalk will close existing gaps and will extend the sidewalk terminus further north to a new crossing on the northbound approach to the northbound ramps intersection.

H. Pedestrian Crossing Upgrades. Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the northbound ramps intersection.

I. High-visibility Crosswalk. Install a new high-visibility crosswalk on the Thorndal Circle approach to Route 1.

J. Street Trees. Plant new trees along the roadway edges in areas where the curb line is modified.

Intersection Operations

Table 4-4A summarizes the afternoon (PM) peak hour traffic operations at the I-95 Interchange 11 northbound ramps intersection in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions for Concept A. The 50th percentile queues are also shown for the 2030 build condition.

Table 4-4A. Summary of Traffic Operations – I-95 Interchange 11, Concept A

Intersection/Approach	Existing	2030 No-build	2030 Build			
				50th Queues (ft)		
	LOS (Sec. Delay)	LOS (Sec. Delay)	LOS (Sec. Delay)	L	T	R
Route 1 at Northbound Ramps (Signalized)						
Route 1 Northbound	A (4.3)	F (81.0)	C (31.8)	-	214	123
Route 1 Southbound	A (3.4)	A (3.5)	A (7.6)	31	71	-
Northbound Off Ramp Eastbound	D (47.9)	F (101.7)	C (20.2)	125	-	125
Overall	**B (12.9)**	**E (67.9)**	**C (23.2)**		**-**	

Source: CDM-Smith, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

As shown in the table, realignment of the northbound ramps into a single signalized intersection and reduction in the through traffic capacity under the build condition would reduce the overall intersection delays (relative to the no-build condition) at the northbound ramps intersection resulting in overall intersection LOS C.

Other Considerations

- Provide improved lighting for the I-95 underpass to promote walkability through the interchange area.
- Consider providing murals or other visual interest on the bridge abutments for aesthetic enhancement and to complement potential landscaping improvements within the interchange.
- Landscaping and underpass enhancements beginning at I-95 Interchange 11 will serve to create a gateway from I-95 north into Downtown.

Sub-segment 4. Hecker Avenue to I-95 Interchange 11 Northbound, Concept A (continued)

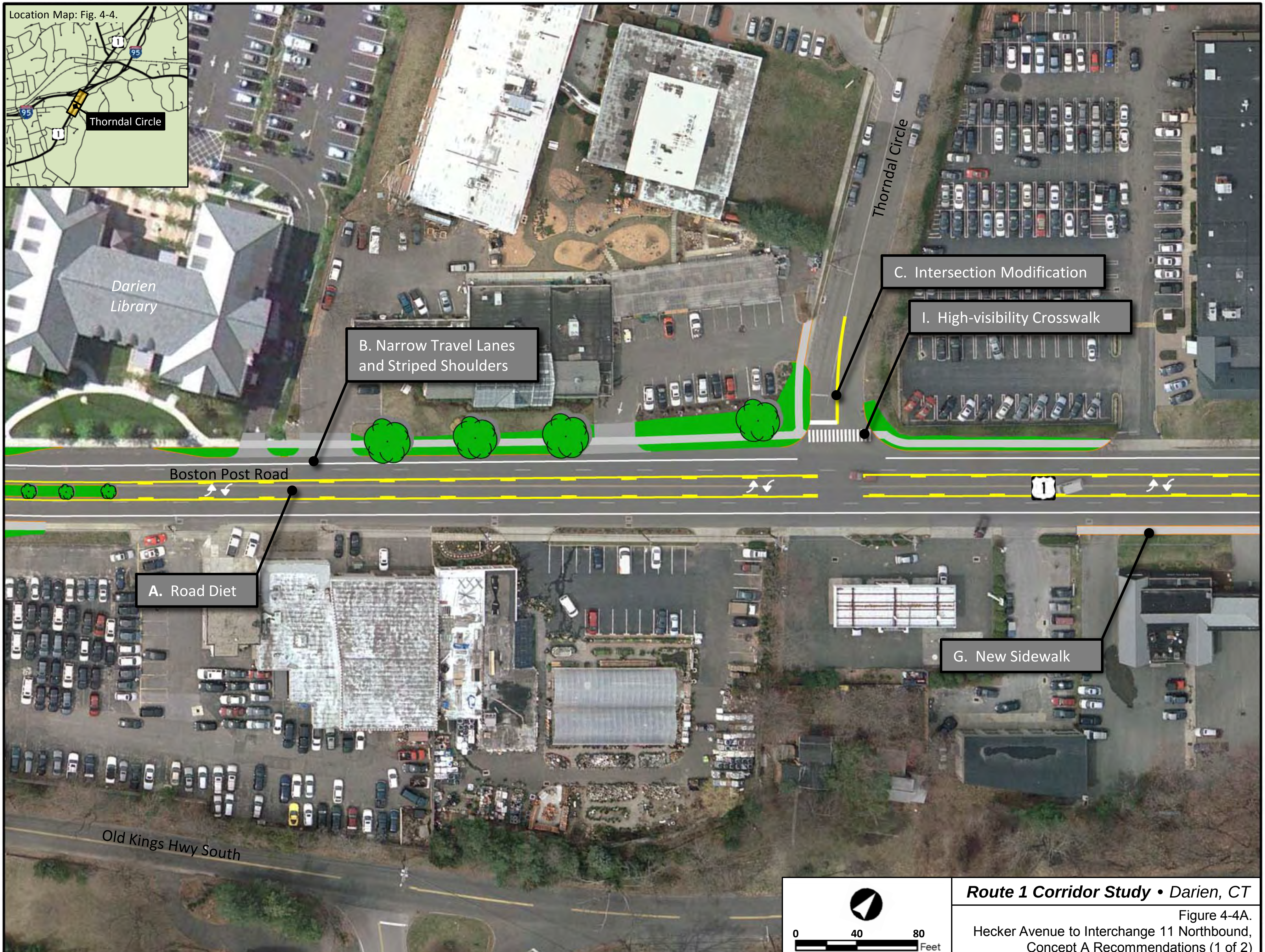
Potential Impacts and Constraints

- Relocation of approximately five utility poles and 1000 ft of overhead utility wires will be required to accommodate new sidewalk on the east side of Route 1 between Thorndal Circle and the recommended northbound on ramp intersection.
- Installation of new traffic signal equipment, including new span poles and controller cabinet will be required as a result of ramp modifications.
- Relocation of I-95 guide sign in the grassed gore between entrances to the existing northbound on ramp will be required as a result of the recommended northbound ramp consolidation.
- Installation of a new culvert may be required to convey runoff beneath the recommended off ramp relocation as a result of impacts to existing drainage patterns associated with the relocation.
- Five catch basins will be impacted by the installation of new sidewalk and curb along the east side of Route 1 between Thorndal Circle and the recommended northbound on ramp intersection.
- Two catch basins will be impacted on the west side of Route 1 as a result of modifications to the curb line.

Implementation Guidance

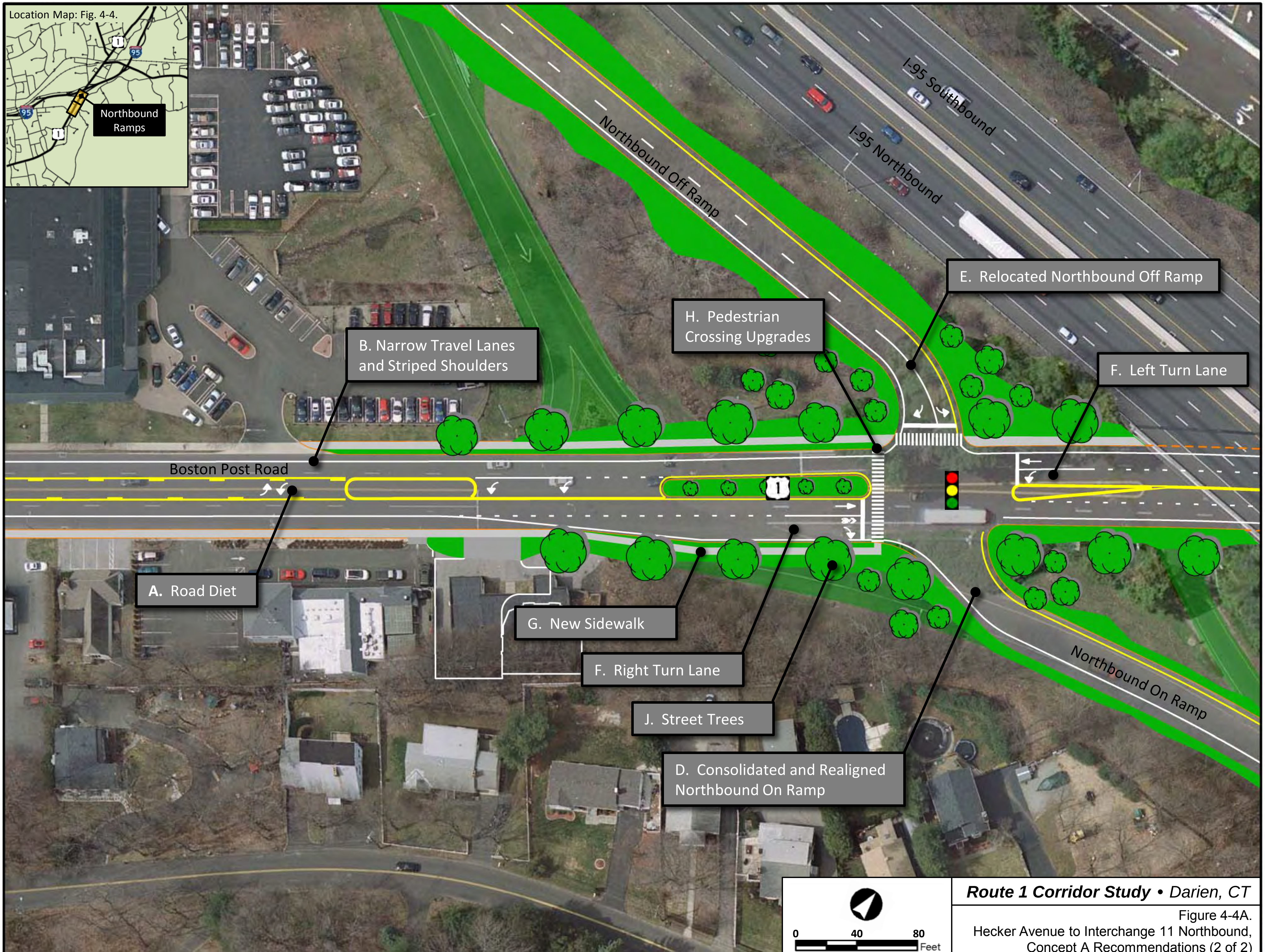
The Implementation Plan (Section 5) includes four potential projects that would accomplish the improvement recommendations for the Hecker Avenue to I-95 Interchange 11 segment (as described on pages 4-18 and 4-19):

- Very Near-term Project 3. Pavement Marking and Signing Improvements – by Town of Darien (page 5-3)
- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 5. Phase 2 Program of Pedestrian Safety Improvements, Initiative 1 (page 5-10)
- Mid-term Project 3. Interchange 11 NB Ramp and Street Improvements – Hecker to Leroy (page 5-15)



Route 1 Corridor Study • *Darien, CT*

Figure 4-4A.
Hecker Avenue to Interchange 11 Northbound,
Concept A Recommendations (1 of 2)



Route 1 Corridor Study • *Darien, CT*

Figure 4-4A.
Hecker Avenue to Interchange 11 Northbound,
Concept A Recommendations (2 of 2)

Sub-segment 4. Hecker Avenue to I-95 Interchange 11 Northbound (continued)

Concept B Recommendations

In general, Concept B ends the road diet recommendation at Hecker Avenue; transitions to the existing four lane roadway north of Hecker Avenue and through Interchange 11; maintains a five lane section on Route 1 at the I-95 underpass. Concept B is illustrated in Figure 4-4B (pages 4-25 and 4-26).

More specifically, the recommendations for **Concept B** include:

A. **Road Diet Transition.** Merge two southbound travel lanes on Route 1 to a single 11 ft wide travel lane between Hecker Avenue and Thorndal Circle. Reestablish two 11 ft wide northbound travel lanes on Route 1 just north of the recommended median at Hecker Avenue.

B. **Narrow Travel Lanes.** Provide 11 ft wide inside travel lanes for northbound and southbound Route 1 north of Thorndal Circle and through I-95 Interchange 11.

C. **Striped Shoulders.** Delineate 4 ft wide (or greater) shoulders to encourage safe bicycle use through the road diet transition area between Hecker Avenue and Thorndal Circle.

D. **Shared Travel Lanes with Sharrows.** Provide sharrow pavement markings at regular intervals along the right side of the outside shared travel lanes for northbound and southbound Route 1 where there is insufficient room to provide a minimum 4 ft wide striped shoulder north of Thorndal Circle. The end of the striped shoulder and beginning of the northbound shared travel lane condition should be reinforced with a share-the-road sign. Modify the existing southbound curb line in the vicinity of the recommended northbound off ramp location to provide sufficient width for the 14 ft wide shared travel lanes.

Complete Streets – Concept B

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Narrow Travel Lanes................................ p. 7
Street Trees... p. 9
Striped Shoulders ....p. 10
Shared Travel Lane................................. p. 10
Sharrows... p. 10
Pedestrian Signal Upgrades....................p. 12
Accessible Sidewalk ....p. 12
High-visibility Crossing ....p. 12

E. **Intersection Modification.** Realign the Thorndal Circle approach to Route 1 in conjunction with modifying the southbound curb line for the road diet transition. Realignment will provide better sight lines to approaching southbound traffic and will provide more direct pedestrian access across the intersection.

F. **Consolidated and Realigned Northbound On Ramp.** Combine the two existing northbound on ramp entrances into one, while modifying the curb line in the southeast corner of the northbound on ramp.

G. **Relocated Northbound Off Ramp.** Realign the northbound off ramp opposite the consolidated on ramp to create a single signalized intersection. Recommendations F and G provide a smaller interchange footprint that is more pedestrian-friendly; minimize turning speeds from northbound Route 1 to the on ramp; and increase the northbound left turn lane storage capacity for the Ledge Road intersection.

H. **Turn Lane.** Provide an exclusive left turn lane on the southbound Route 1 approach to the relocated northbound on ramp.

I. **New Sidewalk.** Install new sidewalk along the east side of Route 1 between Thorndal Circle and the recommended northbound on ramp intersection. The new sidewalk will close existing gaps and will extend the sidewalk terminus further north to a new crossing on the northbound approach to the northbound ramps intersection.

J. **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the northbound ramps intersection.

K. **High-visibility Crosswalk.** Install a new high-visibility crosswalk on the Thorndal Circle approach to Route 1.

L. **Street Trees.** Plant new trees along the roadway edges in areas where the curb line is modified.

Sub-segment 4. Hecker Avenue to I-95 Interchange 11 Northbound, Concept B (continued)

Intersection Operations

Table 4-4B summarizes the afternoon (PM) peak hour traffic operations at the I-95 Interchange 11 northbound ramps intersection in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions for Concept B. The 50th percentile queues are also shown for the 2030 build condition.

Table 4-4B. Summary of Traffic Operations – I-95 Interchange 11, Concept B

Intersection/Approach	Existing	2030 No-build	2030 Build			
	LOS (Sec. Delay)	LOS (Sec. Delay)	LOS (Sec. Delay)	50th Queues (ft)		
				L	T	R
Route 1 at Northbound Ramps (Signalized)						
Route 1 Northbound	A (4.3)	F (81.0)	B (16.9)	-	276	278
Route 1 Southbound	A (3.4)	A (3.5)	A (6.7)	68	72	-
Northbound Off Ramp Eastbound	D (47.9)	F (101.7)	D (44.6)	394	-	195
Overall	**B (12.9)**	**E (67.9)**	**B (19.5)**		**-**	

As shown in the table, realignment of the northbound ramps into a single signalized intersection under the build condition would significantly reduce the overall intersection delays (relative to the no-build condition) at the northbound ramps intersection resulting in overall intersection LOS B.

Other Considerations

- Provide improved lighting for the I-95 underpass to promote walkability through the interchange area.
- Consider providing murals or other visual interest on the bridge abutments for aesthetic enhancement and to complement potential landscaping improvements within the interchange.
- Landscaping and underpass enhancements beginning at I-95 Interchange 11 will serve to create a gateway from I-95 north into Downtown.

Potential Impacts and Constraints

- Relocation of approximately five utility poles and 1000 ft of overhead utility wires will be required to accommodate new sidewalk on the east side of Route 1 between Thorndal Circle and the recommended northbound on ramp intersection.
- Installation of new traffic signal equipment, including new span poles and controller cabinet will be required as a result of ramp modifications.
- Relocation of I-95 guide sign in the grassed gore between entrances to the existing northbound on ramp will be required as a result of the recommended northbound ramp consolidation.
- Installation of a new culvert may be required to convey runoff beneath the recommended off ramp relocation as a result of impacts to existing drainage patterns associated with the relocation.
- Five catch basins will be impacted by the installation of new sidewalk and curb along the east side of Route 1 between Thorndal Circle and the recommended northbound on ramp intersection.
- Two catch basins will be impacted on the west side of Route 1 as a result of modifications to the curb.

Implementation Guidance

The Implementation Plan (Section 5) includes four potential projects that would accomplish the improvement recommendations for the Hecker Avenue to I-95 Interchange 11 segment (as described on page 4-23):

- Very Near-term Project 3. Pavement Marking and Signing Improvements – by Town of Darien (page 5-3)
- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 5. Phase 2 Program of Pedestrian Safety Improvements, Initiative 1 (page 5-10)
- Mid-term Project 3. Interchange 11 NB Ramp and Street Improvements – Hecker to Leroy (page 5-15)

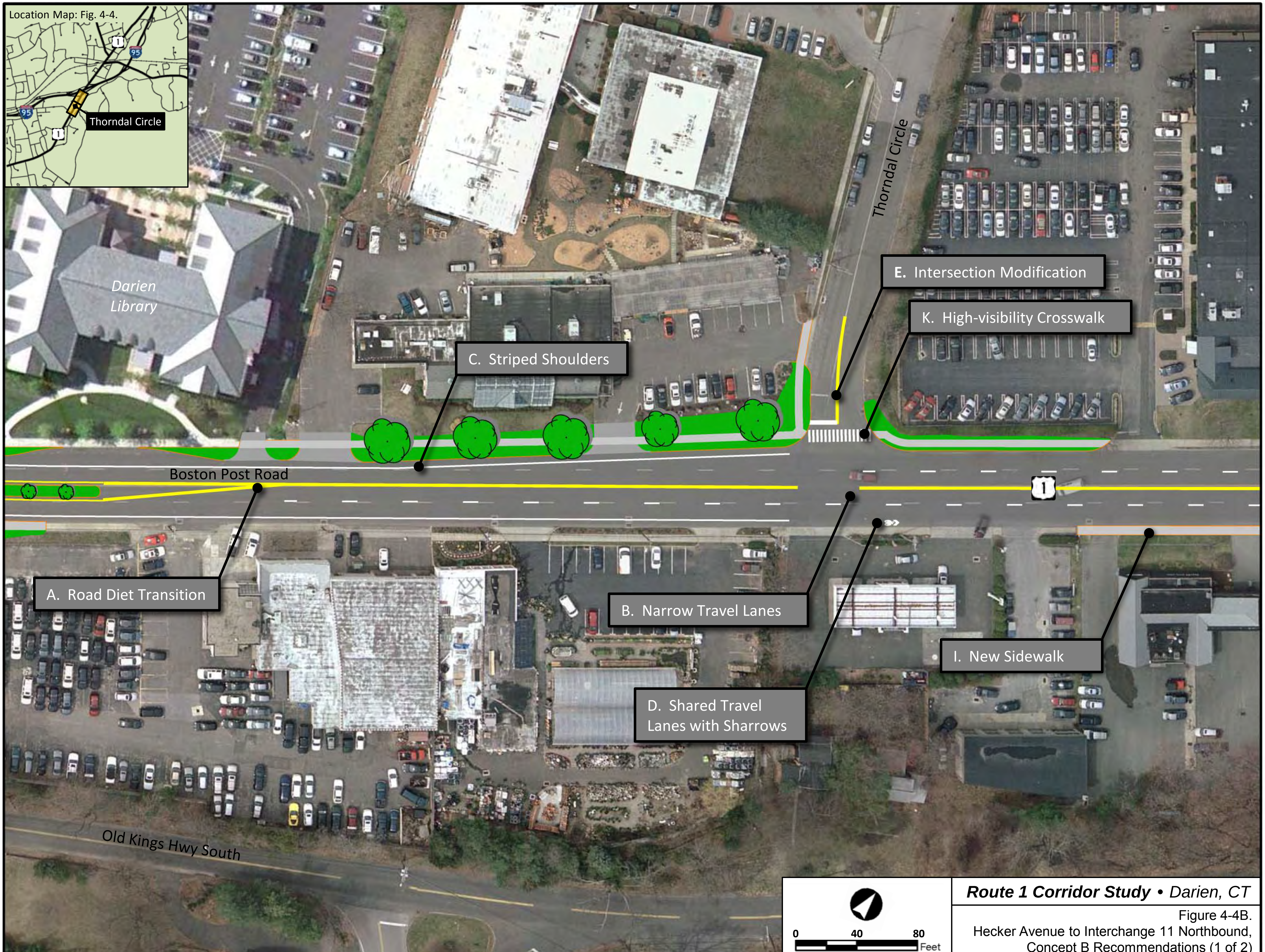


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Figure 4-4B.
Hecker Avenue to Interchange 11 Northbound,
Concept B Recommendations (1 of 2)

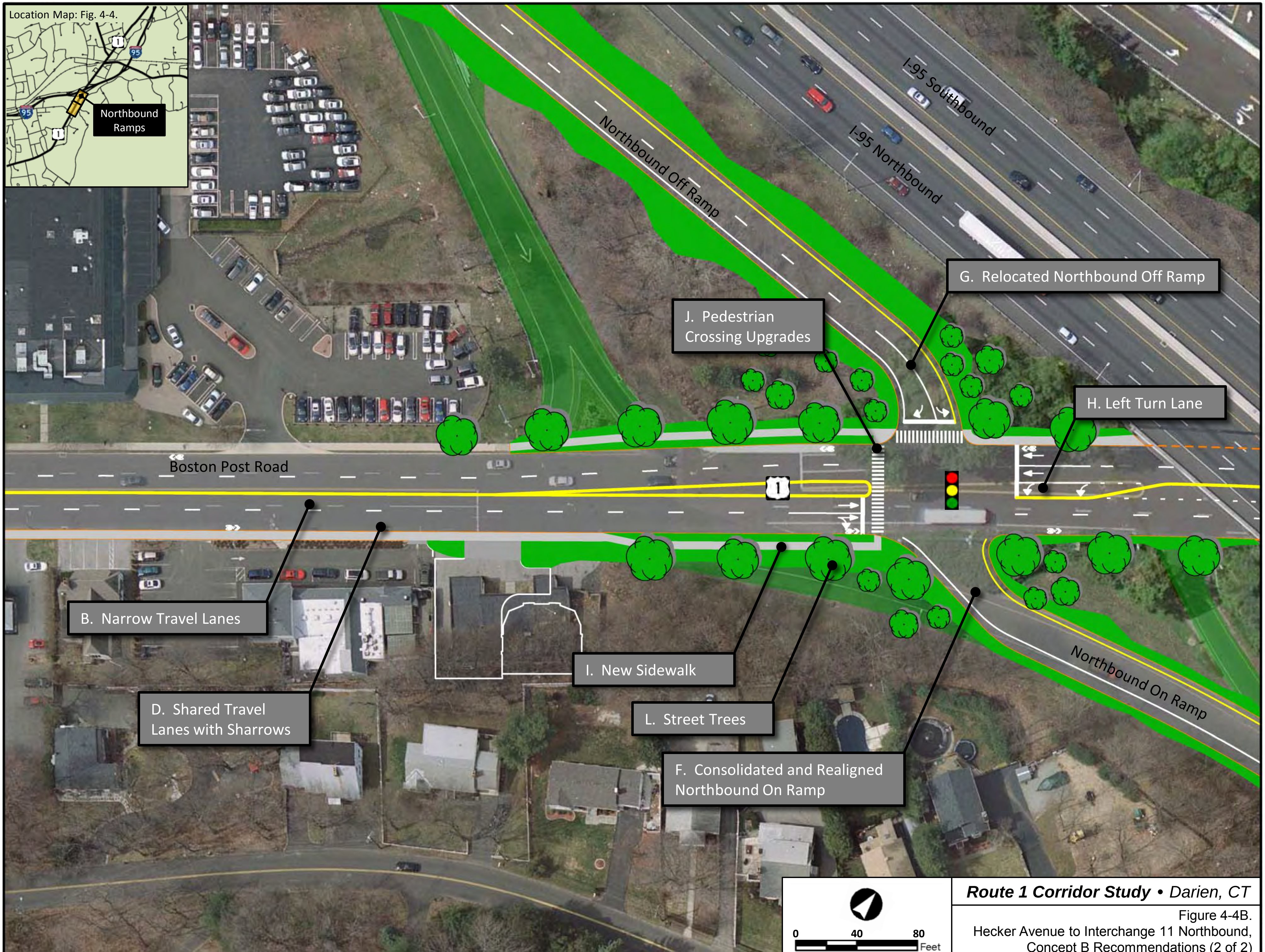

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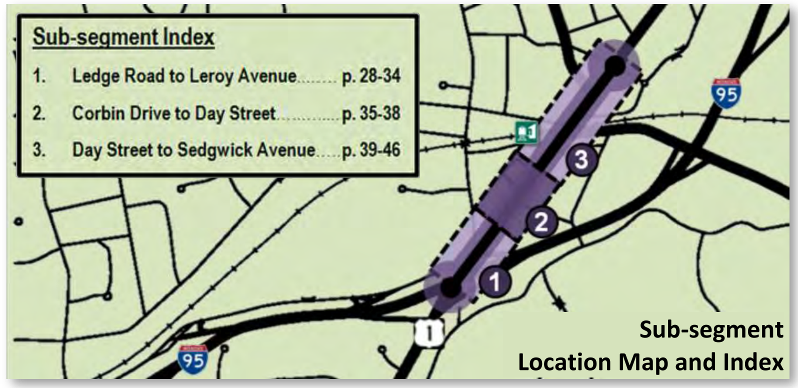
Figure 4-4B.
Hecker Avenue to Interchange 11 Northbound,
Concept B Recommendations (2 of 2)

4.A.2 Downtown Recommendations



Sub-segment Location Map and Index

The **Downtown** segment consists of approximately 0.5 miles of the Route 1 study corridor located between Ledge Road and Sedgwick Avenue in the Central Business District (CBD). In this segment of the corridor, existing Route 1 is characterized by one travel lane in each direction, with on-street parking in several areas, and seven signalized intersections.

In general, the transportation improvement recommendations for the Downtown segment assume that improvements to mobility, access, and safety on Route 1 in the CBD should be provided without significantly impacting existing rights-of-way, businesses, or on-street parking.

More specifically, the recommendations along this segment improve traffic operations, pedestrian facilities, bicycle facilities, and transit accommodations with limited widening of the roadway and some limited impacts to on-street parking. These recommendations include:

- Providing shared travel lanes with sharrow pavement markings that alert motorists to the presence of bicyclists and help define a space for bicyclists in the street.
- Delineating parking stalls to clearly define where on-street parking is permitted in the CBD and to maximize parking efficiency.
- Providing new pedestrian signals, push buttons, and crosswalks at signalized intersections throughout the CBD.
- Installing curb extensions and channelizing islands where possible to improve pedestrian crossing safety.

> **What is a *Sharrow*?**
>
> A *sharrow* is a special pavement marking used along shared travel lanes to help define a space for bicyclists adjacent to vehicular traffic. For more information about sharrows, shared travel lanes, and other Complete Streets recommendations for Route1, see the **Complete Streets Toolbox,** Appendix 4.1.

- Providing new local street and driveway interconnections in conjunction with future redevelopment opportunities that will improve access, circulation, and walkability within the CBD while reducing motorist dependence on Route 1 for Downtown travel.
- Implementing improvements to address low vertical clearance and flooding issues at the railroad underpass.
- Consolidating the one-way train station driveways and locating the new bi-directional driveway opposite Center Street.
- Eliminating the existing traffic signal at Tokeneke Road in conjunction with consolidating the train station driveways to improve traffic operations through the intersections of Center Street, Tokeneke Road, West Avenue, Mansfield Avenue, and Sedgwick Avenue.
- Creating an enhanced intermodal node at the train station that could include a bus drop-off and turnaround, and new transportation center that houses multimodal amenities and accommodates space for retail uses.

The following sections describe and illustrate the location-specific recommendations for the three sub-segments that comprise Downtown.

Sub-segment 1. Ledge Road to Leroy Avenue

Two alternative concepts – Concept A and Concept B – were explored for the Ledge Road to Leroy Avenue sub-segment of Downtown.

Concept A continues the road diet that is recommended under Concept A for the Hecker Avenue to I-95 Interchange 11 Northbound section of the corridor (see page 4-18). Concept A is further described below beginning on this page and is illustrated in Figure 4-5A (page 4-31).

Concept B is continuous with Concept B for the Hecker Avenue to Interchange 11 Northbound section of the corridor (see page 4-23). Concept B is further described on page 4-32 and is illustrated in Figure 4-5B (page 4-34).

Summary of Identified Issues:

- Inadequate pedestrian accommodations at signalized intersection of Leroy Avenue with Route 1
- Narrow, 2-ft wide shoulders through I-95 Interchange 11 that are inadequate for bicyclists
- Generally undesirable conditions through I-95 Interchange 11 for pedestrians and bicyclists

Concept A Recommendations

In general, Concept A provides a single through travel lane in the northbound and southbound directions within the interchange area and north to Leroy Avenue; provides exclusive left and right turn lanes on approaches to Ledge Road and Leroy Avenue as necessary to maintain acceptable traffic operations; and provides new on-street parking north of Leroy Avenue along southbound Route 1.

More specifically, the recommendations for **Concept A** include:

A. **Narrow Travel Lanes and Striped Shoulders.** Provide one 11 ft wide through travel lane in each direction within the interchange area and through the Leroy Avenue intersection. Delineate 4 ft wide shoulders to encourage safe bicycle use. Modify the existing southbound curb line between Ledge Road and Leroy Avenue to provide sufficient width for the required lanes and 4 ft wide shoulders. The single northbound travel lane at this location eliminates the existing issue of through vehicles in the outside travel lane becoming trapped as this lane becomes a right turn lane at Corbin Drive.

B. **Shared Travel Lanes with Sharrows.** Provide sharrow pavement markings along the right sides of the shared travel lanes on Route 1 north of the Leroy Avenue intersection. Modify the existing northbound curb line north of Leroy Avenue to provide sufficient width for the 14 ft wide outside shared travel lanes. The shared travel lane width should be 14 ft adjacent to curb and 15 ft adjacent to on-street parking.

C. **On-street Parking.** Provide approximately 11 new on-street parking spaces along southbound Route 1 just north of Leroy Avenue. These spaces would be accommodated by providing a single, 15 ft wide shared travel lane on the southbound approach to the Leroy Avenue while eliminating the existing second southbound through lane on this approach. Markings will clearly define where on-street parking is permitted and will maximize parking efficiency.

Complete Streets – Concept A

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Narrow Travel Lanes.................................. p. 7
Medians.. p. 7
On-street Parking.. p. 8
“Don’t Block the Box” Regulation............ p. 8
Street Trees.. p. 9
Striped Shoulder .... p. 10
Shared Travel Lane.................................. p. 10
Sharrows.. p. 10
Pedestrian Signal Upgrades..................... p. 12
High-visibility Crossing .... p. 12

Sub-segment 1. Ledge Road to Leroy Avenue, Concept A (continued)

D. Turn Lanes. Provide the following turn lane improvements:

- New exclusive right turn lane (in place of the existing shared through-right turn lane) on the southbound Route 1 approach to Ledge Road to maintain acceptable traffic operations.
- New exclusive left turn lane (in place of the existing shared through-left turn lane) on the northbound Route 1 approach to Leroy Avenue to maintain acceptable traffic operations.
- Longer exclusive left turn lane on the northbound Route 1 approach to Ledge Road to maximize vehicle storage.

E. Pedestrian Crossing Upgrades. Install new pedestrian signal heads (northwest quadrant) and pushbuttons (southwest quadrant), accessible sidewalk ramps (northwest and northeast quadrants), and high-visibility crosswalks at the southbound off ramp/Leroy Avenue intersection.

F. Median. Provide a short, landscaped curbed median on the southbound Route 1 approach to the Leroy Avenue intersection to shadow the northbound left turn lane to Leroy Avenue and to provide a traffic calming effect for vehicles exiting the interchange area and entering the core of the Central Business District where there is a greater potential for pedestrian activity.

G. Street Trees. Plant new trees along the roadway edges in areas where the curb line is modified.

Intersection Operations

Table 4-5A summarizes the afternoon (PM) peak hour traffic operations at the Ledge Road and Leroy Avenue intersections in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions for Concept A. The 50th percentile queues are also shown for the 2030 build condition.

Table 4-5A. Summary of Traffic Operations – Ledge Road to Leroy Avenue, Concept A

Intersection/Approach	Existing	2030 No-build	2030 Build			
	LOS (Sec. Delay)	LOS (Sec. Delay)	LOS (Sec. Delay)	50th Queues (ft)		
				L	T	R
Route 1 at Ledge Road/Southbound Off Ramp (Signalized)						
Route 1 Northbound	A (6.1)	C (26.2)	B (15.9)	25	230	-
Route 1 Southbound	A (1.3)	A (4.5)	A (3.4)	-	28	9
Ledge Road Eastbound	E (55.9)	F (313.9)	D (40.9)	98	-	24
Southbound Off Ramp Westbound	N/A	D (44.1)	D (45.7)	37	34	-
Overall	**A (6.7)**	**D (47.3)**	**B (15.8)**	-		
Route 1 at Leroy Avenue/Southbound Off Ramp (Signalized)						
Route 1 Northbound	A (3.6)	B (18.7)	A (8.8)	56	125	-
Route 1 Southbound	A (6.2)	A (9.4)	B (15.4)	-	197	
Leroy Avenue Eastbound	B (16.2)	D (35.1)	B (17.1)	51		
Southbound Off Ramp Westbound	C (32.6)	C (23.6)	B (16.8)	-	23	27
Overall	**A (8.5)**	**B (17.5)**	**B (12.1)**	-		

Source: CDM-Smith, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

As shown in the table, the recommendations for Concept A, which include a reduction in the through traffic capacity, would reduce the overall intersection delays (relative to the no-build condition) at the Ledge Road and Leroy Avenue intersections resulting in overall intersection LOS B at these locations.

Sub-segment 1. Ledge Road to Leroy Avenue, Concept A (continued)

It is noted that the 50th percentile queue for the northbound through lane at the Leroy Avenue intersection exceeds the available storage space of approximately 100 ft under the build condition. Consequently, some signal cycles will result in spillback of the traffic queue to the Ledge Road intersection. Under the Concept A build condition, it would be necessary to implement and enforce *Don't Block the Box* measures at Ledge Road to minimize the occurrences of through traffic queues blocking the Ledge Road and southbound off ramp movements upon a signal change.

Potential Impacts and Constraints

- Relocation of approximately eight utility poles and 1000 ft of overhead utility wires will be required in conjunction with northbound Route 1 curb line modifications that provide minimum shared lane widths between Leroy Avenue and Brook Street.
- Relocation of a pedestrian signal pole and signal head will be required to accommodate curb line modifications that reduce the crossing distance on the eastbound Ledge Road approach to Route 1.
- One catch basin will be impacted by the curb line modifications that reduce the crossing distance on the eastbound Ledge Road approach to Route 1.
- Four catch basins will be impacted by the northbound Route 1 curb line modifications that provide minimum shared lane widths between Leroy Avenue and Brook Street.

Implementation Guidance

The Implementation Plan (Section 5) includes four potential projects that would accomplish the improvement recommendations for the Ledge Road to Leroy Avenue segment (as described on page 4-28 and 4-29):

- Very Near-term Project 3. Pavement Marking and Signing Improvements – by Town of Darien (page 5-3)
- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 4. Phase 1 Program of Pedestrian Safety Improvements, Initiative 2 (page 5-9)
- Mid-term Project 3. Interchange 11 NB Ramp and Street Improvements – Hecker to Leroy (page 5-15)

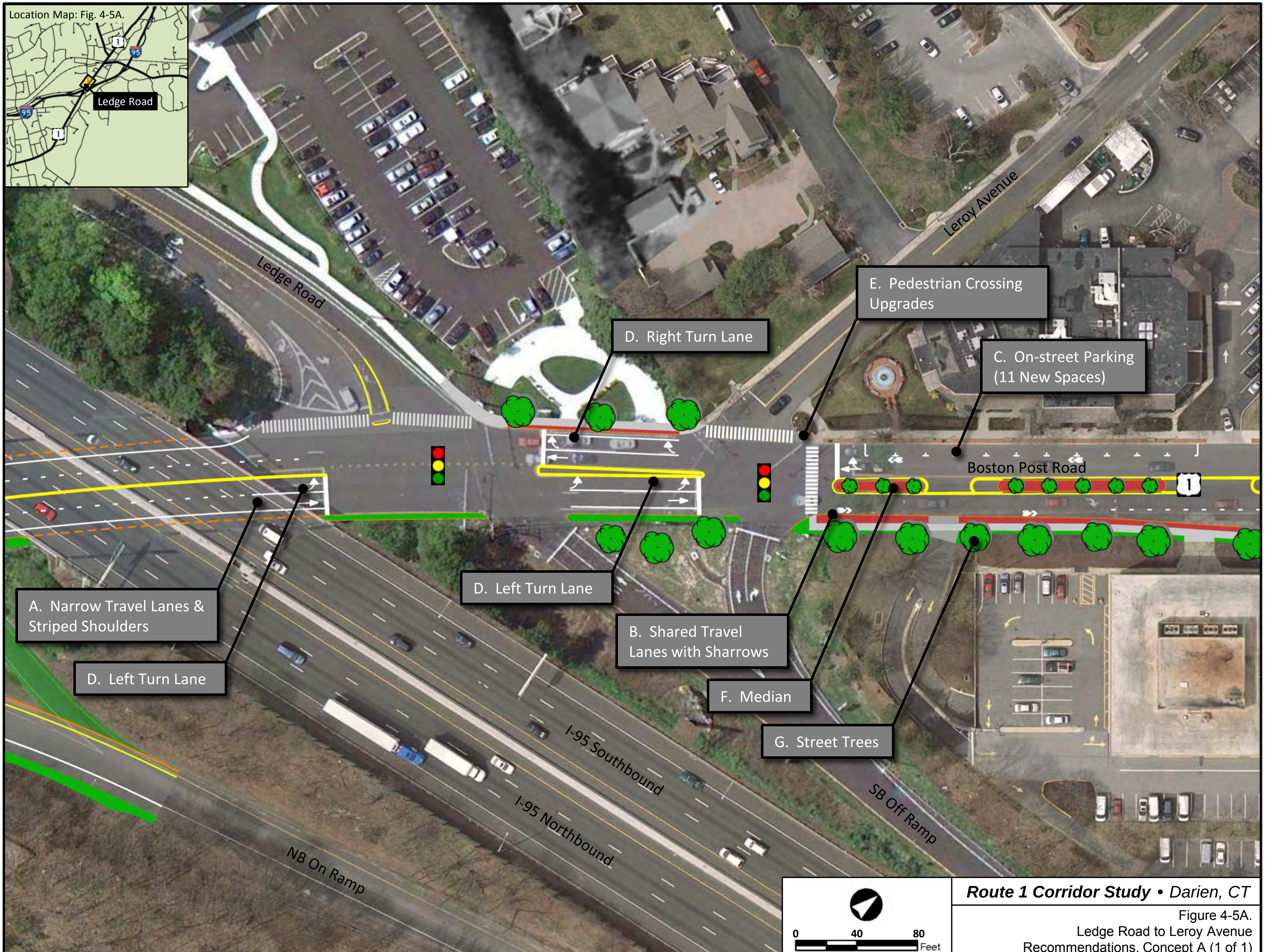


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Figure 4-5A.
Ledge Road to Leroy Avenue
Recommendations, Concept A (1 of 1)

Sub-segment 1. Ledge Road to Leroy Avenue, Concept B

Concept B Recommendations

In general, Concept B maintains a five lane section on Route 1 between the Interchange 11 northbound ramps and Ledge Road; and maintains two through lanes in the northbound and southbound directions between Ledge Road and Leroy Avenue. Concept B is illustrated in Figure 4-5B (page 4-34).

More specifically, the recommendations for **Concept B** include:

Complete Streets – Concept B

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Narrow Travel Lanes.................................p. 7
Street Trees...p. 9
Shared Travel Lane................................ p. 10
Sharrows.. p. 10
Pedestrian Signal Upgrades....................p. 12
High-visibility Crossing ....p. 12

- **A. Narrow Travel Lanes.** Provide 11 ft wide inside travel lanes for northbound and southbound Route 1 within the interchange area and through the Leroy Avenue intersection.
- **B. Shared Travel Lanes with Sharrows.** Provide sharrow pavement markings along the right sides of the 14 ft wide outside shared travel lanes for northbound and southbound Route 1 within the interchange area and through the Leroy Avenue intersection. Modify the existing southbound curb line between Ledge Road and Leroy Avenue and the existing northbound curb line north of Leroy Avenue to provide sufficient width for the 14 ft wide outside shared travel lanes.
- **C. Pedestrian Crossing Upgrades.** Install new pedestrian signal heads (northwest quadrant) and pushbuttons (southwest quadrant), accessible sidewalk ramps (northwest and northeast quadrants), and high-visibility crosswalks at the southbound off ramp/Leroy Avenue intersection.
- **D. Street Trees.** Plant new trees along the roadway edges in areas where the curb line is modified.

Intersection Operations

Table 4-5B summarizes the afternoon (PM) peak hour traffic operations at the Ledge Road and Leroy Avenue intersections in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions for Concept B. The 50^{th} percentile queues are also shown for the 2030 build condition.

Table 4-5B. Summary of Traffic Operations – Ledge Road to Leroy Avenue, Concept B

Intersection/Approach	Existing	2030 No-build	2030 Build			
	LOS (Sec. Delay)	LOS (Sec. Delay)	LOS (Sec. Delay)	50^{th} Queues (ft) L	T	R
Route 1 at Ledge Road/Southbound Off Ramp (Signalized)						
Route 1 Northbound	A (6.1)	C (26.2)	C (28.1)	52	197	-
Route 1 Southbound	A (1.3)	A (4.5)	A (4.7)	-	27	
Ledge Road Eastbound	E (55.9)	F (313.9)	F (85.3)	117	-	24
Southbound Off Ramp Westbound	N/A	D (44.1)	D (39.5)	42	30	-
Overall	**A (6.7)**	**D (47.3)**	**C (26.2)**		**-**	
Route 1 at Leroy Avenue/Southbound Off Ramp (Signalized)						
Route 1 Northbound	A (3.6)	B (18.7)	B (15.4)	100		-
Route 1 Southbound	A (6.2)	A (9.4)	A (9.7)	-	95	
Leroy Avenue Eastbound	B (16.2)	D (35.1)	B (13.3)		33	
Southbound Off Ramp Westbound	C (32.6)	C (23.6)	B (11.4)	-	19	23
Overall	**A (8.5)**	**B (17.5)**	**B (13.1)**		**-**	

Source: CDM-Smith, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

Sub-segment 1. Ledge Road to Leroy Avenue, Concept B (continued)

As shown in the table, the recommendations for Concept B would reduce the overall intersection delays (relative to the no-build condition) at the Ledge Road and Leroy Avenue intersections resulting in overall intersection LOS C and LOS B at these locations, respectively. For comparison purposes, it is noted that the overall delays at these intersections are slightly lower under Concept A resulting in LOS B at both locations.

Potential Impacts and Constraints

- Relocation of approximately eight utility poles and 1000 ft of overhead utility wires will be required in conjunction with northbound Route 1 curb line modifications that provide minimum shared lane widths between Leroy Avenue and Brook Street.
- Relocation of a pedestrian signal pole and signal head will be required to accommodate curb line modifications that reduce the crossing distance on the eastbound Ledge Road approach to Route 1.
- One catch basin will be impacted by the curb line modifications that reduce the crossing distance on the eastbound Ledge Road approach to Route 1.
- Four catch basins will be impacted by the northbound Route 1 curb line modifications that provide minimum shared lane widths between Leroy Avenue and Brook Street.

Implementation Guidance

The Implementation Plan (Section 5) includes four potential projects that would accomplish the improvement recommendations for the Ledge Road to Leroy Avenue segment (as described on page 4-32):

- Very Near-term Project 3. Pavement Marking and Signing Improvements – by Town of Darien (page 5-3)
- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 4. Phase 1 Program of Pedestrian Safety Improvements, Initiative 2 (page 5-9)
- Mid-term Project 3. Interchange 11 NB Ramp and Street Improvements – Hecker to Leroy (page 5-15)

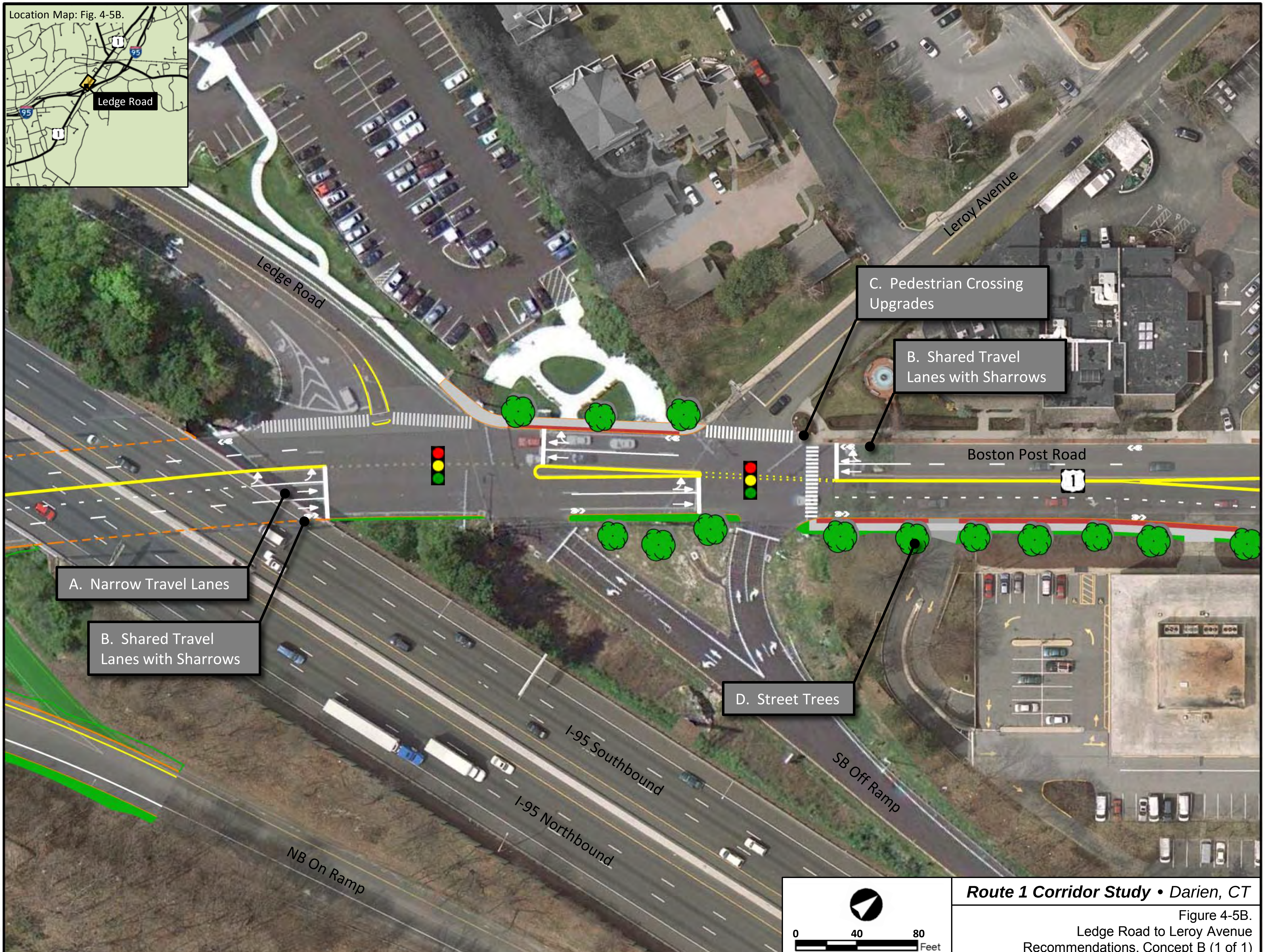

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Figure 4-5B.
Ledge Road to Leroy Avenue
Recommendations, Concept B (1 of 1)

Sub-segment 2. Corbin Drive to Day Street

Recommendations

In the Corbin Drive to Day Street sub-segment of Downtown, existing Route 1 is characterized by one travel lane in each direction, with on-street parking, and a signalized intersection at Corbin Drive. The recommendations for this segment are illustrated in Figure 4-6 (page 4-38) and include:

Summary of Identified Issues:

- Northbound vehicles in the right turn lane at Corbin Drive progressing straight through the intersection
- Inadequate pedestrian accommodations at signalized intersection of Corbin Drive with Route 1
- Lack of unsignalized pedestrian crossing in vicinity of Brook Street and Day Street where pedestrian crossings are frequent
- No defined space on roadway for bicyclists
- Lack of pavement markings for on-street parking stalls
- Pull-in perpendicular parking for businesses on the east side of Route 1 just south of Corbin Drive
- Lack of continuous, parallel and interconnected routes adjacent to Route 1 that would facilitate alternative access to Downtown establishments

A. Shared Travel Lanes with Sharrows. Provide shared travel lanes with sharrows through the CBD, including Route 1 through Corbin Drive and Day Street. Modify the existing northbound curb line between Leroy Avenue and Corbin Drive to provide sufficient width for shared travel lanes, new on-street parking, and medians. The shared travel lane width should be 14 ft adjacent to curb and 15 ft adjacent to on-street parking.

B. On-street Parking. Delineate existing 8 ft wide parking stalls to clearly define where on-street parking is permitted in the CBD and to maximize parking efficiency. Provide new on-street parking to replace existing pull-in parking that fronts businesses along northbound Route 1 just south of Corbin Drive. The replacement of the existing pull-in parking would likely be facilitated by future redevelopment of these businesses.

C. Turn Lanes. Provide the following new exclusive turn lanes:

- Left turn lane on the southbound Route 1 approach to Corbin Drive. Provide this turn lane in conjunction with the recommended raised median on the northbound approach to Corbin Drive. Although the turn lane is not required to maintain acceptable operations of the intersection, it will serve to help minimize southbound traffic queues that have the potential to block turns to and from Brook Street and Day Street.
- Separate left and right turn lanes on the Corbin Drive approach to Route 1.

Complete Streets

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Medians.. p. 7
On-street Parking...................................... p. 8
Street Trees.. p. 9
Access Management................................ p. 9
Shared Travel Lane.................................. p. 10
Sharrows... p. 10
Pedestrian Signal Upgrades.................... p. 12
Exclusive Pedestrian Phasing.................. p. 12
High-visibility Crossing .... p. 12
Curb Extension.. p. 13

D. Curb Extensions. Provide curb extensions in the following locations to improve pedestrian visibility at crossings and to shorten crossing distances:

- **Corbin Drive.** Install a curb extension in the southeast quadrant of the Corbin Drive intersection, adjacent to potential future on-street parking. Install a curb extension on the southbound side of Route 1 opposite Corbin Drive, between on-street parking located on either side of the intersection.
- **Day Street.** Install curb extensions on the southbound Route 1 approach to Day Street in conjunction with a potential new pedestrian crossing in this location.

E. Pedestrian Crossing Upgrades. Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the Corbin Drive intersection. Install new high-visibility crosswalks on the Day Street approach to Route 1.

Sub-segment 2. Corbin Drive to Day Street (continued)

The above rendering – looking south (west) along Route 1 from Corbin Drive – illustrates the recommendations at this location including: curb extensions, landscaped curbed median, pedestrian crossing upgrades, and on-street parking.

F. **High-visibility Unsignalized Crossing.** Install a new pedestrian crossing on Route 1 at Day Street to provide a formalized crossing location, approximately midway between the existing crossings at Corbin Drive and Center Street. This area currently has a relatively high frequency of mid-block crossings at unmarked locations. Install curb extensions, pedestrian warning signs, accessible sidewalk ramps, and a high-visibility crosswalk for the new unsignalized crossing.

G. **Median.** Provide a landscaped curbed median on the northbound Route 1 approach to Corbin Drive to provide a traffic calming effect for vehicles entering the high-pedestrian area of the CBD. The length of the median will be dictated by the location of existing or future driveways in this area as the median is not intended to restrict driveway access. If practical, multiple shorter medians can be provided to avoid conflicts with driveways.

H. **Access Management.** Minimize the number of driveways for the parcel located in the northeast corner of the Corbin Drive intersection. Implementation of this action would likely be contingent upon future redevelopment of the parcel resulting in a change in use from the existing gas station.

I. **Street Trees.** Plant new trees along the roadway edges in areas where the roadway is widened or modified.

J. **Potential Local Street/Driveway Network Improvements.** Improve access, circulation, and walkability within the CBD by creating new interconnections between local streets, commercial driveways, and Route 1. These network improvements will accommodate alternate routes and modes of travel within the CBD thereby reducing motorist dependence on Route 1 for Downtown travel and mitigating traffic delays. Opportunities for new streets or driveways within various areas of Downtown could be realized concurrently with future redevelopment opportunities.

Intersection Operations

Table 4-6 on the next page summarizes the afternoon (PM) peak hour traffic operations at the Corbin Drive intersection in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions. The 50th percentile queues are also shown for the 2030 build condition.

Sub-segment 2. Corbin Drive to Day Street (continued)

Table 4-6. Summary of Traffic Operations – I-95 Interchange 11 to Day Street

Intersection/Approach	Existing	2030 No-build	2030 Build			
	LOS (Sec. Delay)	LOS (Sec. Delay)	LOS (Sec. Delay)	50th Queues (ft)		
				L	T	R
Route 1 at Corbin Drive (Signalized)						
Route 1 Northbound	A (6.0)	D (39.3)	B (10.4)	-	144	58
Route 1 Southbound	B (10.4)	B (12.4)	A (4.9)	56	64	-
Corbin Drive Westbound	C (36.8)	F (176.6)	C (34.1)	102	-	56
Overall	**B (11.9)**	**D (50.7)**	**B (11.8)**		**-**	

Source: CDM-Smith, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

As shown in the table, provisions for separate turn lanes on Corbin Drive and an exclusive southbound left turn lane on Route 1 under the build condition would reduce the overall intersection delays (relative to the no-build condition) resulting in overall intersection LOS B.

Other Considerations

- Exclusive pedestrian phasing could be considered at Corbin Drive given the relatively high pedestrian volumes in this area. However, if provided, it is recommended that exclusive pedestrian phasing be applied on a consistent basis at all signalized intersections in the core of Downtown (from Corbin Drive to Mansfield Avenue) to create a pedestrian and motorist expectation for how pedestrian crossings are accommodated in this section of the corridor. It is noted that exclusive pedestrian phases will affect intersection capacity and increase delays for motorists.

Potential Impacts and Constraints

- Relocation of approximately eight utility poles and 1000 ft of overhead utility wires will be required in conjunction with northbound Route 1 curb line modifications that provide sufficient width for shared travel lanes, new on-street parking, and medians between Leroy Avenue and Brook Street.
- Replacement of existing traffic signal span poles and controller cabinet will be required in conjunction with curb line modifications that provide curb extensions and intersection improvements at Corbin Drive.
- Four catch basins will be impacted by the northbound Route 1 curb line modifications that provide sufficient width for shared travel lanes, new on-street parking, and medians between Leroy Avenue and Brook Street.
- Approximately three on-street parking spaces will be eliminated by providing an exclusive left turn lane on southbound Route 1 at Corbin Drive.
- Approximately four on-street parking spaces will be eliminated by providing curb extensions in conjunction with a new unsignalized pedestrian crossing at Day Street.

Implementation Guidance

The Implementation Plan (Section 5) includes five potential projects that would accomplish the improvement recommendations for the Corbin Drive to Day Street segment (as described on pages 4-35 and 4-36):

- Very Near-term Project 3. Pavement Marking and Signing Improvements – by Town of Darien (page 5-3)
- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 2. Pedestrian Improvements at Day Street (page 5-8)
- Near-term Project 4. Phase 1 Program of Pedestrian Safety Improvements, Initiative 2 (page 5-9)
- Mid-term Project 1. Leroy Avenue to Corbin Drive (page 5-14)

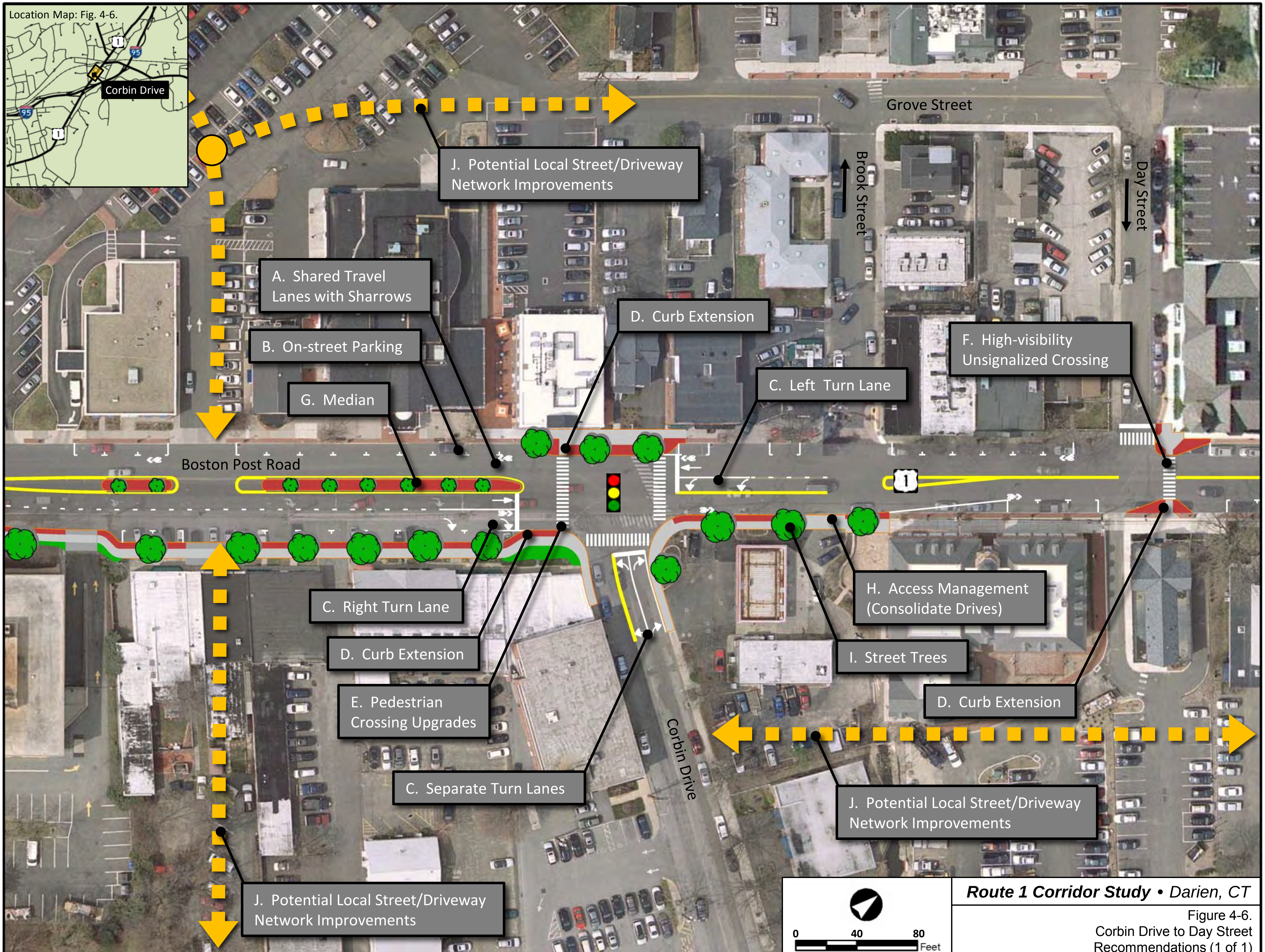

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Figure 4-6.
Corbin Drive to Day Street
Recommendations (1 of 1)

Sub-segment 3. Day Street to Sedgwick Avenue

Recommendations

In the Day Street to Sedgwick Avenue sub-segment of Downtown, existing Route 1 is characterized by one travel lane in each direction, with on-street parking, and signalized intersections at Center Street, Tokeneke Road, West Avenue, Mansfield Avenue, and Sedgwick Avenue. The recommendations for this segment are illustrated in Figure 4-7 (pages 4-44 through 4-46) and include:

A. Shared Travel Lanes with Sharrows. Provide a shared travel lane with sharrows through the CBD, including Route 1 from Day Street to Sedgwick Avenue. The shared travel lane width should be 14 ft adjacent to curb and 15 ft adjacent to on-street parking.

B. On-street Parking. Delineate existing 8 ft wide parking stalls to clearly define where on-street parking is permitted in the CBD and to maximize parking efficiency. Provide new on-street parking spaces in the following locations:

- Along southbound Route 1 approaching West Avenue. Approximately four new spaces will be accommodated by combining the existing right turn lane and through travel lane, and providing an exclusive left turn lane to Mechanic Street.
- Along eastbound Tokeneke Road just east of the Route 1 intersection. Approximately five new spaces can be accommodated in this area.

C. Intersection Modifications. Provide the following intersection modifications to improve traffic operations:

- Consolidate the existing one-way train station driveways (existing egress located at Tokeneke Road and ingress located at Center Street) and locate the new bi-directional driveway opposite Center Street. Significantly lessen the grade of the new driveway to improve ingress and egress and design the driveway intersection to facilitate access by transit buses.
- Eliminate the existing traffic signal at Tokeneke Road and provide new stop sign for Tokeneke Road approach. Prohibit left turns at Tokeneke Road.

D. Turn Lanes. Provide the following new exclusive turn lanes to optimize traffic operations on Route 1:

- Left turn lanes on the northbound and southbound Route 1 approaches to Center Street/train station driveway intersection.
- Left turn lane on the southbound Route 1 approach to West Avenue/Mechanic Street intersection (eliminate exclusive right turn lane).
- Right turn lane on the westbound Sedgwick Avenue approach to Route 1 (eliminate exclusive left turn lane).

Summary of Identified Issues:

- Unacceptable levels of service and long traffic queues under future traffic conditions at the intersections of Center Street, Tokeneke Road, West Avenue, Mansfield Avenue, and Sedgwick Avenue with Route 1
- Flooding issues and low vertical clearance at the railroad underpass
- Limited mobility and circulation within the CBD due to impediments to vehicular, pedestrian, and bicycle traffic imposed by railroad underpasses on Route 1 and Leroy Avenue
- Lack of continuous, parallel and interconnected routes adjacent to Route 1 that would facilitate alternative access to Downtown establishments
- Southbound vehicles in the right turn lane at Sedgwick Avenue progressing straight through the intersection
- Inadequate pedestrian accommodations at signalized intersections of Center Street, West Avenue, and Sedgwick Avenue with Route 1
- No defined space on roadway for bicyclists
- Lack of pavement markings for on-street parking stalls

Complete Streets

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Medians........ p. 7
On-street Parking........ p. 8
Street Trees........ p. 9
Shared Travel Lane........ p. 10
Sharrows........ p. 10
Bus Pullout........ p. 11
Transit Stop Amenities........ p. 11
Enhanced Intermodal Node........ p. 11
Pedestrian Signal Upgrades........ p. 12
Exclusive Pedestrian Phasing........ p. 12
High-visibility Crossing .... p. 12
Curb Extension........ p. 13
Curb Radius Reduction........ p. 13
Channelizing Island........ p. 13

Sub-segment 3. Day Street to Sedgwick Avenue (continued)

E. Curb Extensions. Provide curb extensions in the following locations to improve pedestrian visibility at crossings and to shorten crossing distances:

- **Center Street.** Install curb extensions in the southeast and northeast corners of the Center Street intersection, adjacent to on-street parking.
- **Tokeneke Road.** Install a curb extension on Tokeneke Road at the terminus of the existing diagonal parking to accommodate a potential new pedestrian crossing in this location.
- **West Avenue.** Install a curb extension in the northwest quadrant of the West Avenue intersection to shorten the pedestrian crossing distance.
- **Sedgwick Avenue.** Install a curb extension in the southwest corner of the Sedgwick Avenue intersection. In addition to improving pedestrian visibility and shortening the crossing distance, the curb extension will prevent southbound vehicles from using the exclusive right turn lane on Route 1 to bypass vehicle queues at the intersection and south of the intersection.

F. Corner Radius Reduction. Modify the curb line in the northeast corner of the Sedgwick Avenue intersection to shorten the pedestrian crossing distances at the intersection.

G. Channelizing Islands. Provide channelizing islands in the following locations to better define vehicular movements and to provide pedestrian refuge in this high-pedestrian area near the train station:

- **Tokeneke Road.** Island will help reinforce left turn prohibitions to and from Route 1.
- **West Avenue.** Island will help minimize pedestrian exposure to traffic across this relatively long, skewed crossing.

H. Pedestrian Crossing Upgrades. Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the Center Street, West Avenue, and Sedgwick Avenue intersections. Install new accessible sidewalk ramps and high-visibility crosswalks at the Mansfield Avenue intersection to complement recently-implemented pedestrian signal improvements. Install a new high-visibility crosswalk on the Tokeneke Road approach to Route 1.

I. Low Clearance Signing. Implement the following measures to mitigate the high frequency of over-height vehicle collisions with the Metro-North railroad bridge:

- Monitor and evaluate over a 12-month period the effectiveness of the low vertical clearance warning sign improvements that were implemented by CTDOT in mid-2011 as part of the Metro-North railroad bridge improvements (see Appendix 2.8, page A2-37 for a map of existing vertical clearance warning signs in the area). If necessary, implement appropriate signing modifications to further mitigate the frequency of bridge collisions.
- Additionally, consider enhancing the effectiveness of low vertical clearance warning signage by installing relatively low cost measures such as “Low Bridge Ahead” pavement markings and LED-enhanced warning signs on Route 1; or by providing more sophisticated over-height vehicle detection systems on the Route 1 approaches to the bridge and on the West Avenue and Tokeneke Road approaches to Route 1. These systems would provide additional warning messages via flashing beacons and audible alarms targeted to drivers of over-height vehicles.
- Provide guide signs to I-95 on Tokeneke Road, Old Kings Highway South, Center Street, West Avenue, and Route 1 to help direct diverted over-height vehicles to I-95.

J. Enhanced Intermodal Node. Create an intermodal node adjacent to the train station with access from the newly consolidated train station driveway located opposite Center Street. Features of the intermodal node could include an off-line transit bus drop-off and turnaround; and a new transportation center that houses multimodal amenities such ticket vending, covered benches and waiting areas, long-term bicycle parking, bus and train schedule information, parking permit and voucher information, and Downtown information kiosks. The center could also accommodate retail uses.

Sub-segment 3. Day Street to Sedgwick Avenue (continued)

K. **Bus Pullout.** Provide a bus drop-off and turnaround adjacent to the northbound/eastbound train platform in conjunction with the intersection modifications that consolidate the train station driveways. This pullout would replace the existing bus stop located on southbound Route 1 opposite Center Street.

L. **Secondary Roadway Modifications.**
   - Eliminating the traffic signal at Tokeneke Road (existing Route 136) will result in some traffic diversion from Tokeneke Road to the signalized intersection of Center Street via Old Kings Highway South (see Appendix 4.3, page A4-17, for anticipated peak hour traffic volumes for the 2030 Build Condition). This diversion can be better accommodated by reconfiguring the intersection of Tokeneke Road and Old Kings Highway South and relocating a section of Old Kings Highway South to provide a direct movement from Old Kings Highway South to Tokeneke Road "East". The remaining segment of Tokeneke Road "West" can be realigned to provide a T-intersection with the new Old Kings Highway South-Tokeneke Road East alignment.
   - The new alignment would be helpful in discouraging truck traffic from utilizing Tokeneke Road West and minimizing potential issues with limited vertical clearance between the railroad overpass and Route 1.
   - The new alignment should be designed to accommodate a potential future connection via a new railroad underpass to Old Kings Highway North located on the north side of the railroad.
   - As a consequence of reconfiguring Tokeneke Road and Old Kings Highway South, Center Street to Old Kings Highway South-Tokeneke Road East would likely become the new Route 136 and maintained by the State. Tokeneke Road West would become a local street.
   - The intersection of Center Street and Old Kings Highway South would likely require stop sign controls on all three intersection approaches to accommodate traffic diversion from Tokeneke Road. Additionally, access and circulation for the Center Street North municipal parking lot could be modified to remove the existing point of access located immediately west of this intersection such that parking maneuvers would not conflict with traffic turning right from Old Kings Highway South to Center Street.
   - Approximately 20 new commuter parking spaces could be provided between the new Tokeneke Road East alignment and the railroad.
   - Opportunities for new retail expansion or community space could be provided in the southwest corner of the reconfigured intersection.

M. **Potential Local Street/Driveway Network Improvements.** Eliminating the existing traffic signal at Tokeneke Road and prohibiting left turns to and from Tokeneke Road will require all vehicles approaching Route 1 from Tokeneke Road to turn right and head northbound on Route 1. Motorists desiring to head southbound on Route 1 from Tokeneke Road will be required to circulate around local roadways and/or parking lot driveways (such as Mechanic Street and the Mechanic Street municipal parking lot drive at Mansfield Avenue) in order to change directions. These movements can be better accommodated by creating new interconnections between local streets, commercial driveways, and Route 1 that would improve overall circulation, access, and walkability within the north side of the CBD. These network improvements will accommodate alternate routes and modes of travel within the CBD thereby reducing motorist dependence on Route 1 for Downtown travel and mitigating traffic delays. Opportunities for new streets or driveways within various areas of Downtown could be realized concurrently with future redevelopment opportunities.

Intersection Operations

Table 4-7 on the next page summarizes the afternoon (PM) peak hour traffic operations at the Center Street, Tokeneke Road, and West Avenue intersections in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions. The 50th percentile queues are also shown for the 2030 build condition.

Sub-segment 3. Day Street to Sedgwick Avenue (continued)

Table 4-7. Summary of Traffic Operations – Day Street to Sedgwick Avenue

<table>
<tr><th rowspan="3">Intersection/Approach</th><th>Existing</th><th>2030 No-build</th><th colspan="4">2030 Build</th></tr>
<tr><th rowspan="2">LOS (Sec. Delay)</th><th rowspan="2">LOS (Sec. Delay)</th><th rowspan="2">LOS (Sec. Delay)</th><th colspan="3">50th Queues (ft)</th></tr>
<tr><th>L</th><th>T</th><th>R</th></tr>
<tr><td colspan="7">Route 1 at Center Street/Railroad Station Drive (Signalized)</td></tr>
<tr><td>Route 1 Northbound</td><td>C (25.3)</td><td>D (47.6)</td><td>C (25.9)</td><td>1</td><td colspan="2">282</td></tr>
<tr><td>Route 1 Southbound</td><td>A (3.4)</td><td>A (4.7)</td><td>B (14.3)</td><td>63</td><td colspan="2">116</td></tr>
<tr><td>Center Street Westbound</td><td>D (49.7)</td><td>F (466.9)</td><td>E (64.8)</td><td colspan="2">82</td><td>162</td></tr>
<tr><td>Railroad Station Drive Eastbound</td><td>-</td><td>-</td><td>F (96.0)</td><td colspan="3">116</td></tr>
<tr><td>Overall</td><td>B (18.2)</td><td>E (73.0)</td><td>D (35.0)</td><td colspan="3">-</td></tr>
<tr><td colspan="7">Route 1 at Tokeneke Road (Signalized under Existing; Unsignalized under Build)</td></tr>
<tr><td>Route 1 Northbound</td><td>A (4.2)</td><td>A (6.3)</td><td>A (3.3)</td><td>-</td><td>79</td><td>-</td></tr>
<tr><td>Route 1 Southbound</td><td>A (9.6)</td><td>B (12.7)</td><td>A (6.2)</td><td>-</td><td>71</td><td>-</td></tr>
<tr><td>Tokeneke Road Westbound</td><td>E (59.7)</td><td>F (303.8)</td><td>F (59.1)</td><td>-</td><td>60</td><td>-</td></tr>
<tr><td>Railroad Station Drive Eastbound</td><td>D (48.9)</td><td>E (75.7)</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Overall</td><td>C (20.5)</td><td>E (78.7)</td><td>A (6.7)</td><td colspan="3">-</td></tr>
<tr><td colspan="7">Route 1 at West Avenue/Mechanic Street (Signalized)</td></tr>
<tr><td>Route 1 Northbound</td><td>A (4.0)</td><td>A (5.4)</td><td>C (24.2)</td><td>-</td><td>83</td><td>-</td></tr>
<tr><td>Route 1 Southbound</td><td>D (49.2)</td><td>E (60.7)</td><td>B (12.1)</td><td>2</td><td colspan="2">156</td></tr>
<tr><td>West Avenue Eastbound</td><td>E (79.6)</td><td>F (241.8)</td><td>E (76.2)</td><td colspan="2">180</td><td>71</td></tr>
<tr><td>Overall</td><td>C (30.1)</td><td>E (61.3)</td><td>C (27.3)</td><td colspan="3">-</td></tr>
<tr><td colspan="7">Route 1 at Mansfield Avenue (Signalized)</td></tr>
<tr><td>Route 1 Northbound</td><td>B (10.5)</td><td>B (13.0)</td><td>A (8.4)</td><td>83</td><td colspan="2">129</td></tr>
<tr><td>Route 1 Southbound</td><td>F (106.1)</td><td>F (219.5)</td><td>A (9.9)</td><td colspan="3">139</td></tr>
<tr><td>Mansfield Avenue Eastbound</td><td>F (154.9)</td><td>F (2233.7)</td><td>D (44.1)</td><td colspan="3">84</td></tr>
<tr><td>Municipal Lot Drive Westbound</td><td>F (95.9)</td><td>F (588.6)</td><td>D (41.4)</td><td colspan="3">16</td></tr>
<tr><td>Overall</td><td>E (57.0)</td><td>F (187.8)</td><td>B (11.8)</td><td colspan="3">-</td></tr>
<tr><td colspan="7">Route 1 at Sedgwick Avenue (Signalized)</td></tr>
<tr><td>Route 1 Northbound</td><td>B (18.5)</td><td>C (24.6)</td><td>A (7.5)</td><td></td><td>107</td><td></td></tr>
<tr><td>Route 1 Southbound</td><td>F (119.6)</td><td>F (263.3)</td><td>B (17.6)</td><td colspan="2">190</td><td>27</td></tr>
<tr><td>Sedgwick Avenue Eastbound</td><td>D (49.4)</td><td>F (91.1)</td><td>D (39.7)</td><td colspan="3">114</td></tr>
<tr><td>Sedgwick Avenue Westbound</td><td>E (62.2)</td><td>F (307.8)</td><td>D (41.3)</td><td colspan="2">77</td><td>51</td></tr>
<tr><td>Overall</td><td>E (60.5)</td><td>F (140.4)</td><td>B (17.6)</td><td colspan="3">-</td></tr>
<tr><td colspan="7">Center Street at Old Kings Highway South (Unsignalized)</td></tr>
<tr><td>Old Kings Highway So. Northbound</td><td>A (3.1)</td><td>A (3.3)</td><td>D (26.6)</td><td colspan="2">N/A</td><td>-</td></tr>
<tr><td>Old Kings Highway So. Southbound</td><td>A (0.0)</td><td>A (0.0)</td><td>D (34.0)</td><td>-</td><td colspan="2">N/A</td></tr>
<tr><td>Center Street Eastbound</td><td>C (16.2)</td><td>C (20.9)</td><td>C (20.3)</td><td colspan="3">N/A</td></tr>
</table>

Source: CDM-Smith, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

As shown in the table, consolidation of the railroad station drives at Center Street and elimination of the traffic signal at Tokeneke Road under the build condition would reduce the overall intersection delays (relative to the no-build condition) at the Center Street, Tokeneke Road, West Avenue, Mansfield Avenue, and Sedgwick Avenue intersections resulting in overall intersection LOS D or better at all five locations. Several intersection approaches – including the Center Street and Railroad Station Drive; Tokeneke Road; and West Avenue approaches – would experience unacceptable levels of delay at LOS E or F. However, with the exception of the Railroad Station Drive approach, the time of delay at each of these approaches under the build condition would be significantly reduced (relative to the no-build condition).

Sub-segment 3. Day Street to Sedgwick Avenue (continued)

Other Considerations

- Potential Route 1 Railroad Underpass Improvements:
  - Drainage improvements to resolve flooding issues that routinely close Route 1 to through traffic. Drainage improvements could include a pump station that would maintain positive drainage from this location during heavy rains.
  - Pedestrian improvements such as improved underpass lighting to promote walkability between the south side and north side of the CBD. Consider providing murals or other visual interest on the bridge abutments for aesthetic enhancement.
- The consolidation of the train station driveways at Center Street and the elimination of the existing traffic signal at Tokeneke Road could be implemented independently of the recommendations to provide an enhanced intermodal node at this location.
- Exclusive pedestrian phasing could be considered at Center Street and West Avenue given the relatively high pedestrian volumes in this area. However, if provided, it is recommended that exclusive pedestrian phasing be applied on a consistent basis at all signalized intersections in the core of Downtown (from Corbin Drive to Mansfield Avenue) to create a pedestrian and motorist expectation for how pedestrian crossings are accommodated in this section of the corridor. It is noted that exclusive pedestrian phases will affect intersection capacity and increase delays for motorists.
- As space permits, the existing bus stop between the train station driveways near Center Street could be improved as a very near-term project to provide new amenities including a shelter, benches, landscaping, real-time bus/train arrival information, and a Downtown information kiosk.

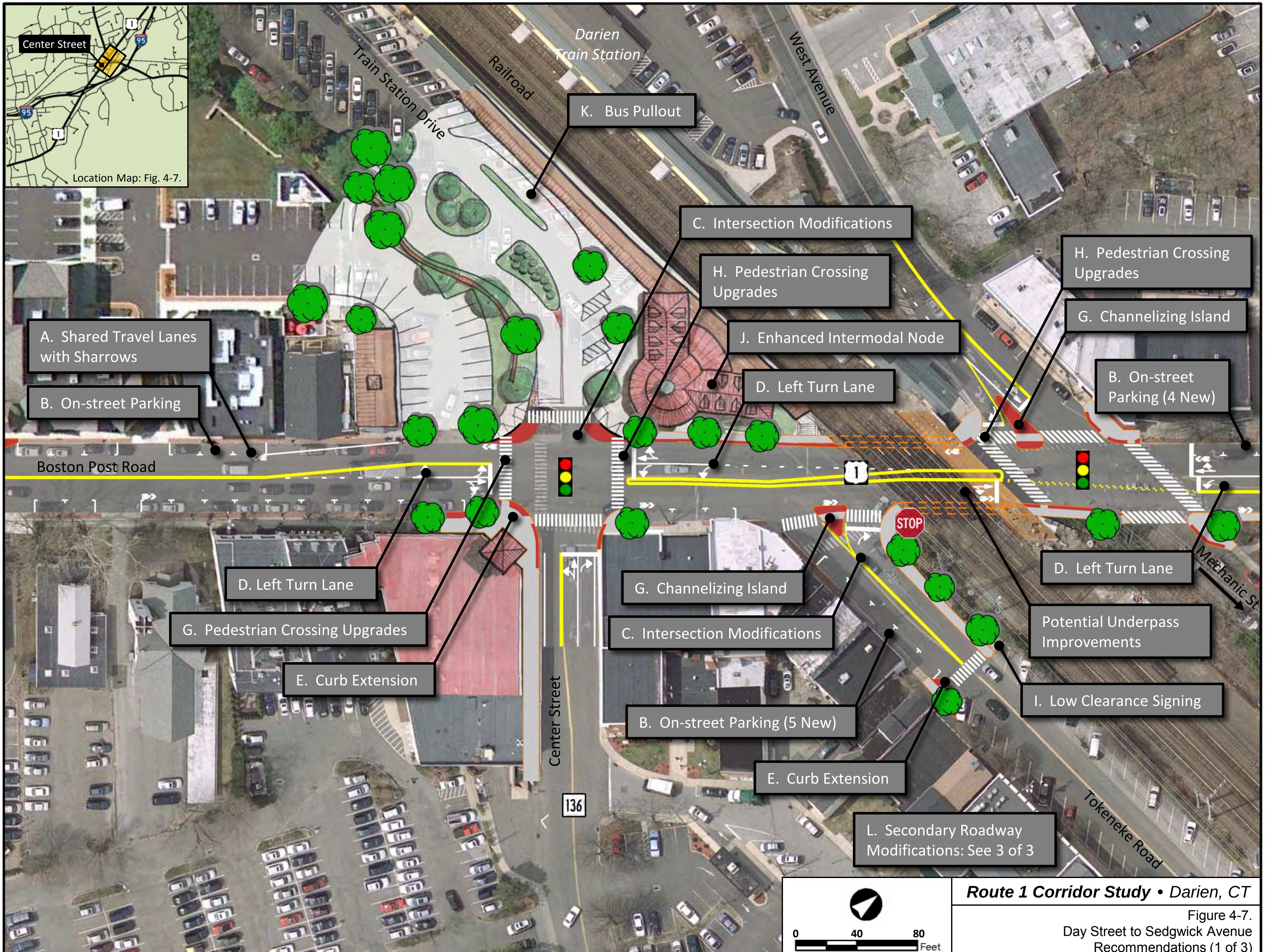
Potential Impacts and Constraints

- Relocation of approximately four utility poles and 600 ft of overhead utility wires will be required in conjunction with reconfiguration of Tokeneke Road and Old Kings Highway South.
- One catch basin will be impacted by the northbound Route 1 curb line modifications that provide pedestrian improvements at the West Avenue intersection. Two catch basins will be impacted by the reconfiguration of Tokeneke Rd and Old Kings Highway South.
- Approximately five on-street parking spaces will be eliminated by providing an exclusive left turn lane on northbound Route 1 at Center Street.
- Approximately 45 commuter parking spaces will be eliminated by consolidating the train station driveways and creating an intermodal node on the south side of the train station. Approximately 20 of these spaces could be recreated by providing a new commuter parking lot adjacent to the reconfigured Tokeneke Road/Old Kings Highway South intersection.
- No right-of-way impacts are anticipated with the reconfiguration of the Tokeneke Road and Old Kings Highway South intersection.

Implementation Guidance

The Implementation Plan (Section 5) includes 10 potential projects that would accomplish the improvement recommendations for the Day Street to Sedgwick Avenue segment of Route 1(as described on pages 4-39 to 4-41):

- Very Near-term Project 1. Vertical Clearance Warning Improvements at Railroad Bridge (page 5-3)
- Very Near-term Project 3. Pavement Marking and Signing Improvements – by Town of Darien (page 5-3)
- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Very Near-term Project 6. Bus Stop Amenity Improvements (page 5-4)
- Near-term Project 1. Feasibility Study for Drainage Improvements at Railroad Underpass (page 5-8)
- Near-term Project 4. Phase 1 Program of Pedestrian Safety Improvements, Initiatives 1 and 3 (page 5-9)
- Long-term Project 1. Drainage Improvements at Railroad Underpass (page 5-16)
- Long-term Project 2. Center Street-Tokeneke Road-West Avenue Improvements (page 5-16)
- Long-term Project 3. Enhanced Intermodal Node at Train Station (page 5-17)
- Long-term Project 4. Tokeneke Road – Old Kings Highway North Connection (page 5-17)



Route 1 Corridor Study • *Darien, CT*

Figure 4-7.
Day Street to Sedgwick Avenue
Recommendations (1 of 3)

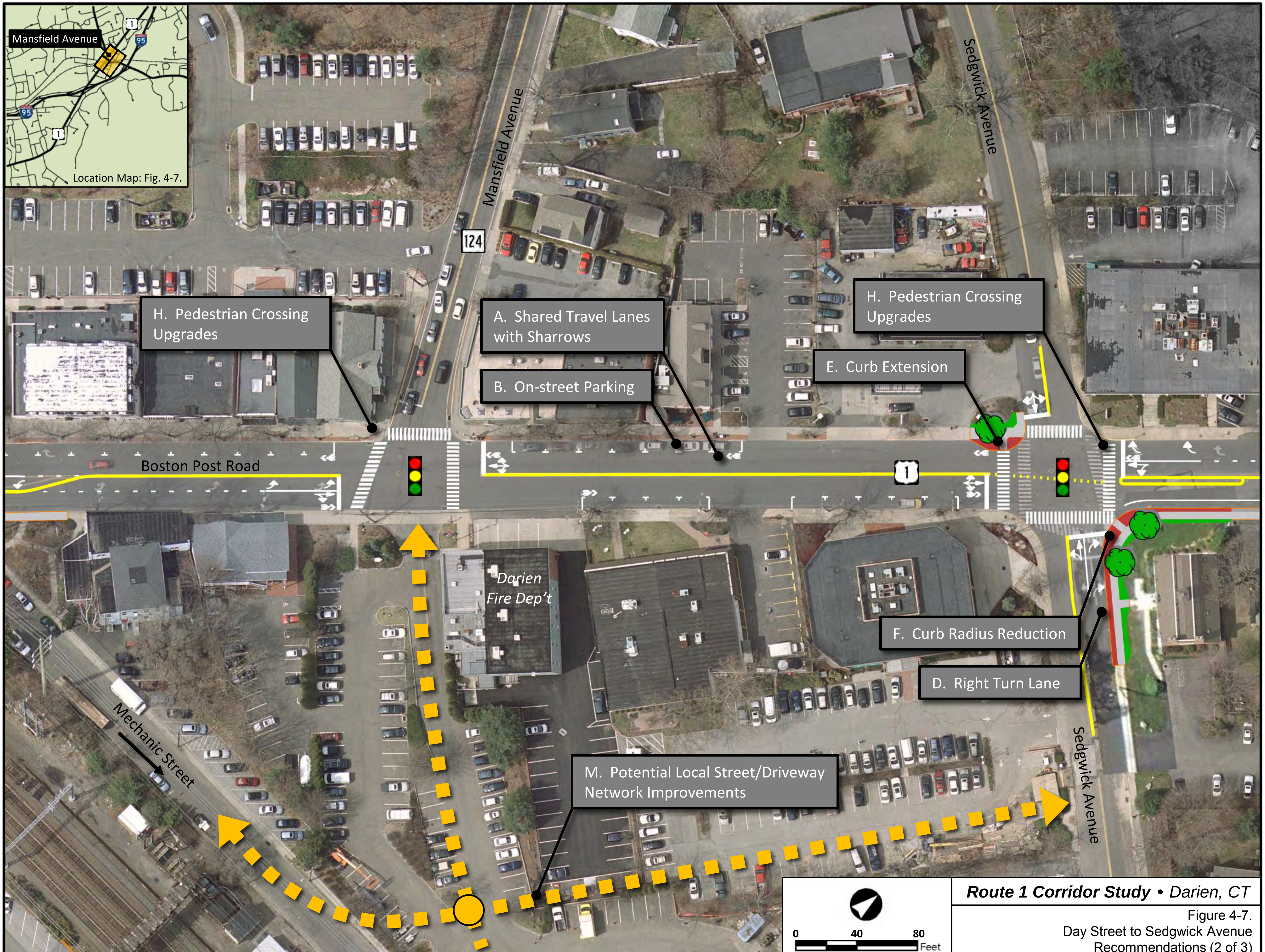


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Figure 4-7.
Day Street to Sedgwick Avenue
Recommendations (2 of 3)

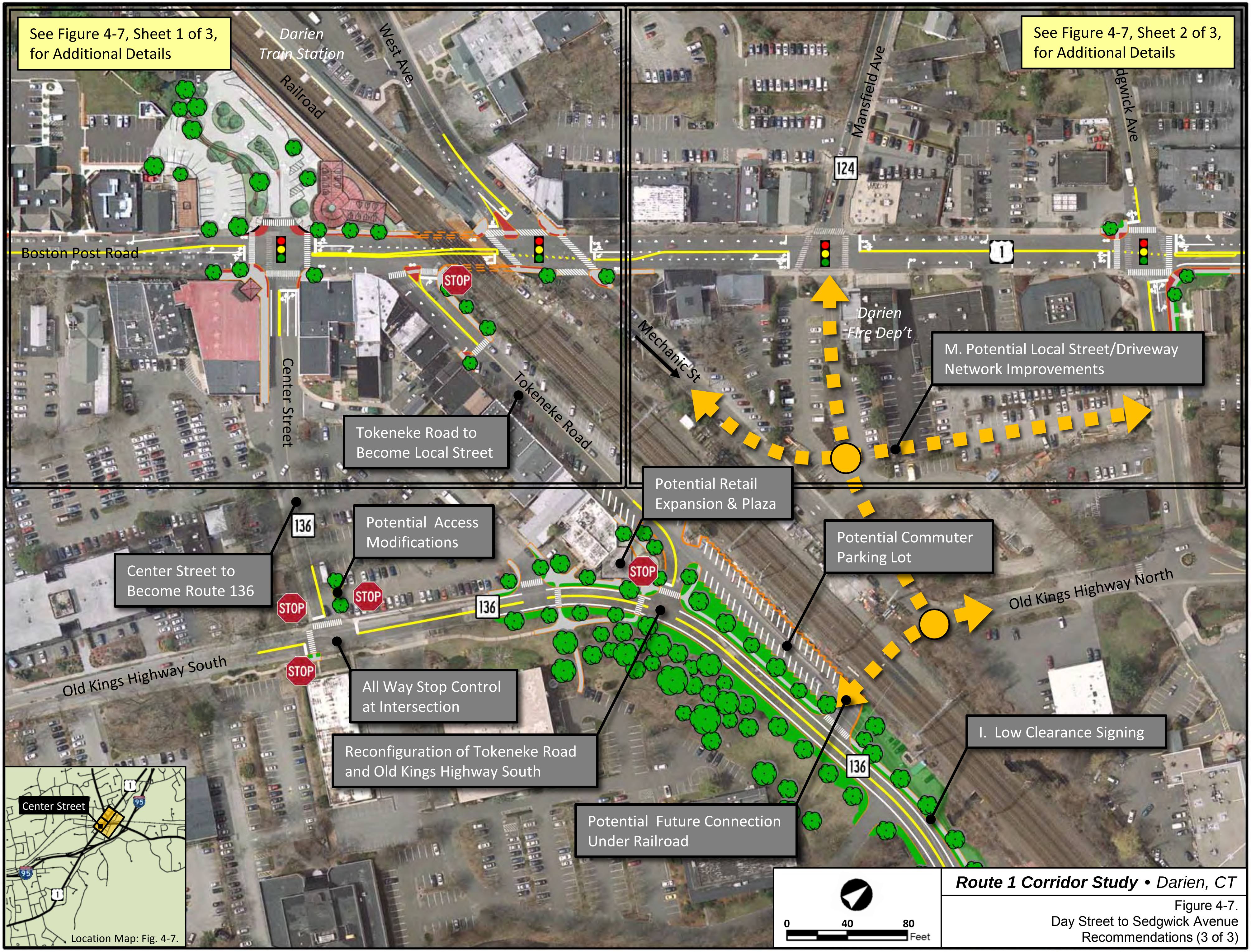

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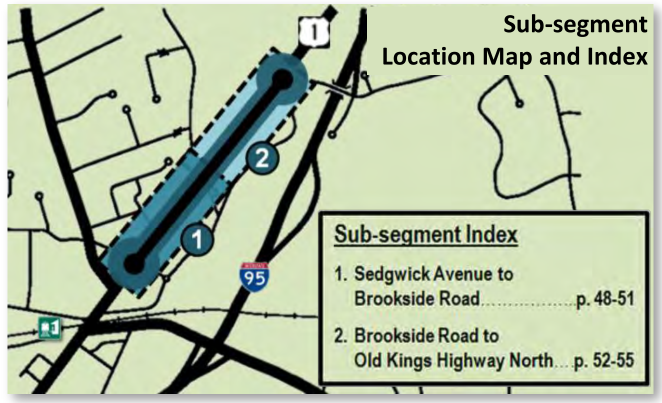
Figure 4-7.
Day Street to Sedgwick Avenue
Recommendations (3 of 3)

4.A.3 North Corridor Recommendations



The **North Corridor** consists of approximately 0.5 miles of the Route 1 study corridor located between Sedgwick Avenue and Old Kings Highway North. In this segment of the corridor, existing Route 1 is characterized by one wide travel lane in each direction, with no delineated shoulders or turn lanes, and two signalized intersections.

The primary transportation improvement recommendations for this segment of Route 1 include implementing a *road diet* and providing better roadway definition to address safety and mobility issues. These recommendations will reduce the amount of roadway surface allocated to motor vehicles; improve bicycle and pedestrian facilities; and minimize vehicular conflicts and driver uncertainty. More specifically, these recommendations include:

- Delineating narrow travel lanes to define single travel lanes in each direction while providing 4 ft wide (or greater) shoulders to accommodate safer on-street bicycle travel.
- Providing a continuous two-way left turn lane between Academy Street and Brookside Road that will provide refuge outside of the through travel lanes for motorists who are turning left to area residences and businesses.
- Providing exclusive left turn lanes at Brookside Road to improve safety and operations at the intersection.
- Providing pedestrian safety improvements such as pedestrian signals, push buttons, and crosswalks at Brookside Road and Old Kings Highway North; and new sidewalks to close existing sidewalk gaps on Route 1.

What is a *Road Diet*?

A *road diet* is a strategy to reduce the amount of roadway space allocated to motor vehicles by reducing the number of travel lanes or by reducing the width of travel lanes. For more information about road diets and other Complete Streets recommendations for the corridor, see the **Complete Streets Toolbox**, Appendix 4.1.

The following sections describe and illustrate the location-specific recommendations for the two sub-segments that comprise the North Corridor.

Sub-segment 1. Sedgwick Avenue to Brookside Road

Recommendations

Recommendations for the Sedgwick Avenue to Brookside Road sub-segment of the North Corridor are illustrated in Figure 4-8 (pages 4-50 and 4-51) and include:

A. Road Diet. Reduce the width of the existing wide travel lanes (one in each direction which currently occupy up to 24 ft each) by using new pavement markings to define narrow travel lanes and to provide turn lanes where required at intersections. Utilize the balance of existing roadway surface to maximize shoulder widths south of Academy Street, and to provide a center left turn lane with 4 ft wide shoulders between Academy Street and Brookside Road.

B. Narrow Travel Lanes and Striped Shoulders. Delineate 4 ft wide (or greater) shoulders to encourage safe bicycle use in conjunction with the road diet that provides 11 ft wide travel lane in each direction on Route 1.

C. Left Turn Lanes. Provide new exclusive left turn lanes at the following locations:

- On the unsignalized northbound Route 1 approach to Academy Street. The turn lane will remove turning vehicles from the through travel lane to maintain through traffic flow.
- On the northbound and southbound Route 1 approaches to Brookside Road. The turn lanes will better define lane usage at this intersection and will accommodate protected left turns where sight lines to the north are limited.

D. Corner Radius Reduction. Modify the curb line in the northwest corner of the Brookside Road intersection in to minimize turning speeds and to shorten pedestrian crossing distances.

E. New Sidewalks. Install new sidewalk along the east side of Route 1 in the following locations to promote walkability and to provide continuity of accessible pedestrian facilities in the corridor:

- Immediately north of Sedgwick Avenue.
- Immediately south of Brookside Road. Implementation of this improvement is contingent upon lengthening the box culvert in this area to accommodate the additional width of the sidewalk.
- Immediately north of Brookside Road.

F. Pedestrian Crossing Upgrades. Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the intersection of Brookside Road. Maintain skewed crosswalk alignments on Route 1 to maximize pedestrian visibility for motorists turning right from Brookside Road.

G. Street Trees. Plant new trees along Route 1 in areas where the roadway is widened or modified.

Summary of Identified Issues:

- Unacceptable level of service and long traffic queues under future traffic conditions at the intersection of Brookside Road with Route 1
- Lack of defined travel lanes and shoulders resulting in frequent use of roadway as four travel lanes
- No defined space on roadway for bicyclists
- Crest in roadway just north of Brookside Road that limits sight lines to and from intersection
- Inadequate pedestrian accommodations at signalized intersection of Brookside Road
- Gaps in sidewalk on east side of Route 1 immediately north and south of Brookside Road
- Inadequate signage for unsignalized crossing at Academy Street

Complete Streets

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Road Diet..p. 7
Narrow Travel Lanes.................................p. 7
Medians.. p. 7
Striped Shoulders................................. p. 10
Pedestrian Signal Upgrades....................p. 12
Accessible Sidewalk ....p. 12
Corner Radius Reduction ....p. 13

Sub-segment 1. Sedgwick Avenue to Brookside Road (continued)

Intersection Operations

Table 4-8 summarizes the afternoon (PM) peak hour traffic operations at the Brookside Road intersection in terms of levels of service (LOS) under the existing (2009), future (2030) *no-build*, and future (2030) *build* traffic conditions. The 50th percentile queues are also shown for the 2030 build condition.

Table 4-8. Summary of Traffic Operations – Sedgwick Avenue to Brookside Road

Intersection/Approach	Existing	2030 No-build	2030 Build			
	LOS (Sec. Delay)	LOS (Sec. Delay)	LOS (Sec. Delay)	50th Queues (ft)		
				L	T	R
Route 1 at Brookside Road (Signalized)						
Route 1 Northbound	E (56.4)	F (101.1)	B (18.6)	51	274	
Route 1 Southbound	D (33.5)	F (219.5)	C (25.1)	23	280	
Brookside Road Eastbound	C (30.4)	E (73.1)	D (54.3)		171	
Brookside Road Westbound	C (21.2)	C (39.4)	C (29.9)		56	
Overall	**D (42.7)**	**F (134.9)**	**C (26.2)**		-	

Source: CDM-Smith, 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, April 2012

As shown in the table, provisions for exclusive left turn lanes on the northbound and southbound Route 1 approaches to the Brookside Road intersection under the build condition would significantly reduce the overall intersection delays (relative to the no-build condition) resulting in overall intersection LOS C.

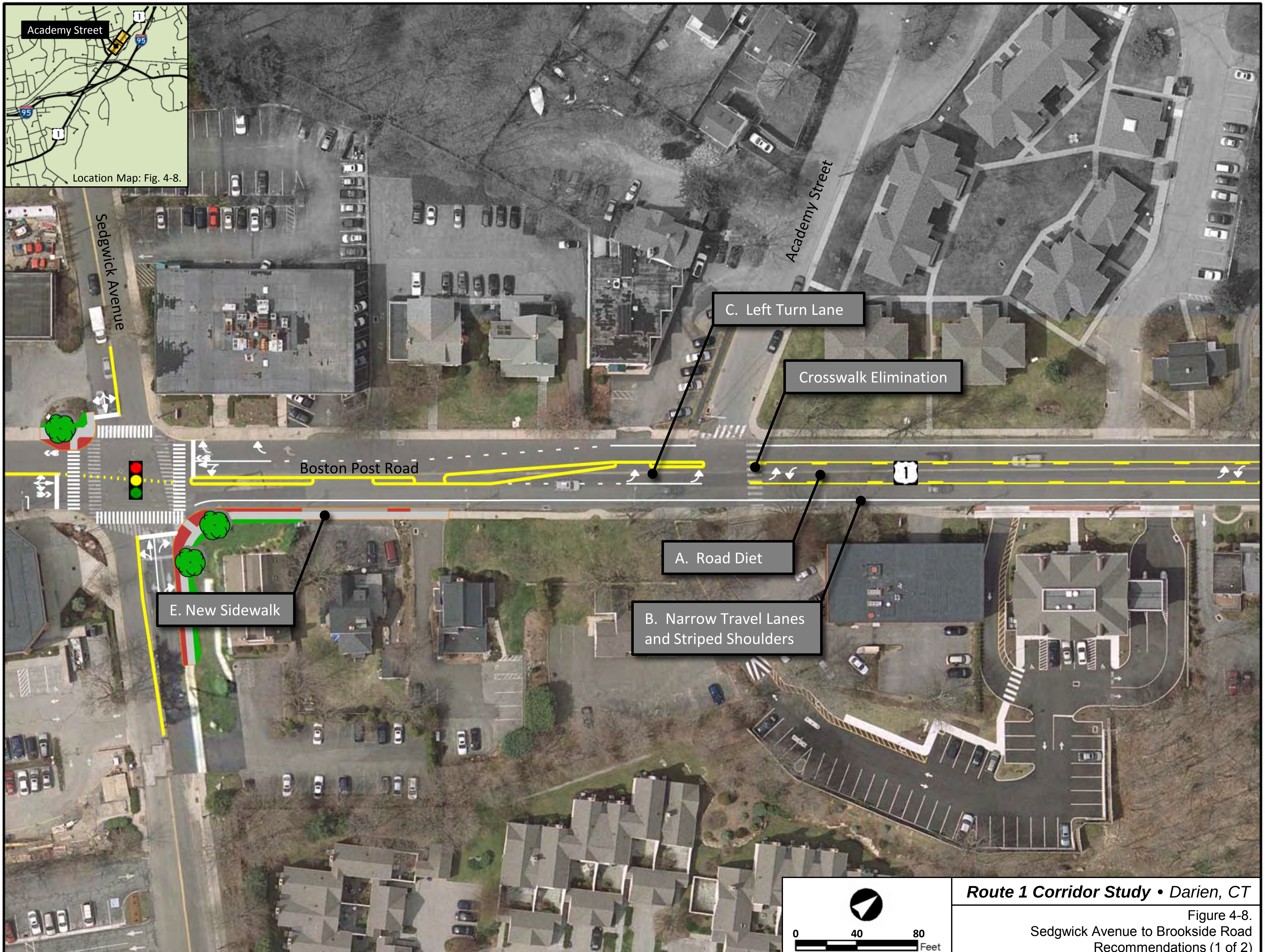
Potential Impacts and Constraints

- Lengthening of the box culvert conveying the Goodwives River under Route 1 will be required to accommodate the installation of new sidewalk along the east side of Route 1. There may be additional environmental impacts associated with improvements in this area.
- Relocation of approximately four utility poles and 800 ft of overhead utility wires will be required to accommodate the installation of new sidewalk along the east side of Route 1.
- Relocation of the existing signal infrastructure including span pole and controller cabinet will be required to accommodate the installation of new sidewalk along the east side of Route 1.

Implementation Guidance

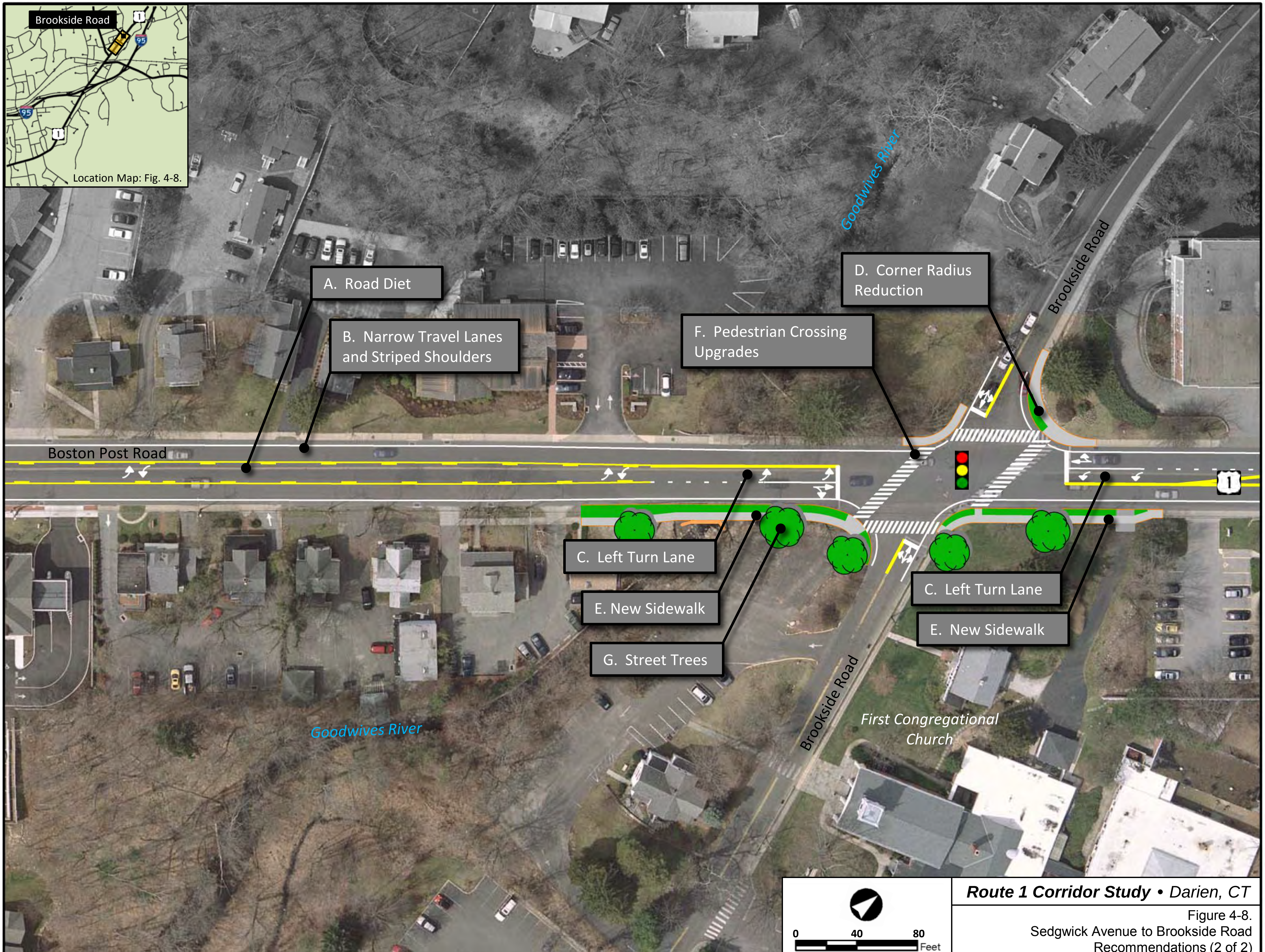
The Implementation Plan (Section 5) includes two potential projects that would accomplish the improvement recommendations for the Sedgwick Avenue to Brookside Road segment of Route 1(as described on page 4-48):

- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 7. Road Diet – Sedgwick Avenue to Old Kings Highway North (page 5-11)



Route 1 Corridor Study • *Darien, CT*

Figure 4-8.
Sedgwick Avenue to Brookside Road
Recommendations (1 of 2)



Route 1 Corridor Study • *Darien, CT*

Figure 4-8.
Sedgwick Avenue to Brookside Road
Recommendations (2 of 2)

Sub-segment 2. Brookside Road to Old Kings Highway North

Recommendations

Recommendations for the Brookside Road to Old Kings Highway North sub-segment of the North Corridor are illustrated in Figure 4-9 (pages 4-54 and 4-55) and include:

Summary of Identified Issues:

- Lack of defined travel lanes and shoulders resulting in frequent use of roadway as four travel lanes
- No defined space on roadway for bicyclists
- Twenty-five collisions over latest three period along segment; two-thirds of these accidents were sideswipe or turning-related collisions
- Inadequate pedestrian accommodations at signalized intersection of Old Kings Highway North
- Gaps in sidewalk on east and west sides of Route 1

Complete Streets

For more information regarding the Complete Streets tools recommended in this segment, see the following pages of the **Complete Streets Toolbox**, Appendix 4.1.

Road Diet..p. 7
Narrow Travel Lanes.................................p. 7
Striped Shoulders................................. p. 10
Pedestrian Signal Upgrades....................p. 12
Accessible Sidewalk ....p. 12
High-visibility Crossing ....p. 12
Corner Radius Reduction ....p. 13

A. **Road Diet.** Reduce the width of the existing travel lanes (which currently occupy up to 24 ft each) by using new pavement markings to define narrow travel lanes and to provide turn lanes where required at intersections. Utilize the balance of existing roadway surface to maximize shoulder widths.

B. **Narrow Travel Lanes and Striped Shoulders.** Delineate 4 ft wide (or greater) shoulders to encourage safe bicycle use in conjunction with the road diet that provides 11 ft wide travel lane in each direction on Route 1.

C. **New Sidewalks.** Install new sidewalk along Route 1 in the following locations to promote walkability and to provide continuity of accessible pedestrian facilities in the corridor:
   - On the west side of Route 1 approximately 400 ft north of Brookside Road.
   - On the east side of Route 1 approximately 300 ft south of Old Kings Highway North.

D. **Access Management.** Implement the following commercial driveway modifications to minimize turning conflicts and improve safety:
   - Reduce the width and increase the spacing of the driveways for the retail plaza on the west side of Route1 in conjunction with installing new sidewalk in this area.
   - Prohibit left turns to and from Route 1 and the parking lot for the retail plaza located in the southeast quadrant of the Old Kings Highway North intersection by providing a channelizing island within the driveway. Provide a new one-way entrance for the plaza from Old Kings Highway North to accommodate traffic from Route 1. Direct traffic destined for southbound Route 1 to the driveway located at the rear of the lot and provide signage to Route 1 via Old Kings Highway North.

E. **Corner Radius Reduction.** Modify the curb line in the southeast corner of the Old Kings Highway North intersection to minimize turning speeds from northbound Route 1 to Old Kings Highway North and to shorten pedestrian crossing distances.

F. **Pedestrian Crossing Upgrades.** Install new pedestrian signals and pushbuttons, accessible sidewalk ramps, and high-visibility crosswalks at the intersection of Old Kings Highway North.

G. **Street Trees.** Plant new trees along the roadway edges in areas where the roadway is widened or modified.

Potential Impacts and Constraints

- Relocation of approximately two utility poles and 450 ft of overhead utility wires will be required to accommodate the installation of new sidewalk along the east side of Route 1.
- Three catch basins will be impacted by installation of new sidewalk on the east side of Route 1.

Sub-segment 2. Brookside Road to Old Kings Highway North (continued)

Implementation Guidance

The Implementation Plan (Section 5) includes two potential projects that would accomplish the improvement recommendations for the Brookside Road to Old Kings Highway North segment of Route 1(as described on page 4-52):

- Very Near-term Project 4. Pavement Marking and Signing Improvements – by CTDOT (page 5-4)
- Near-term Project 7. Road Diet – Sedgwick Avenue to Old Kings Highway North (page 5-11)

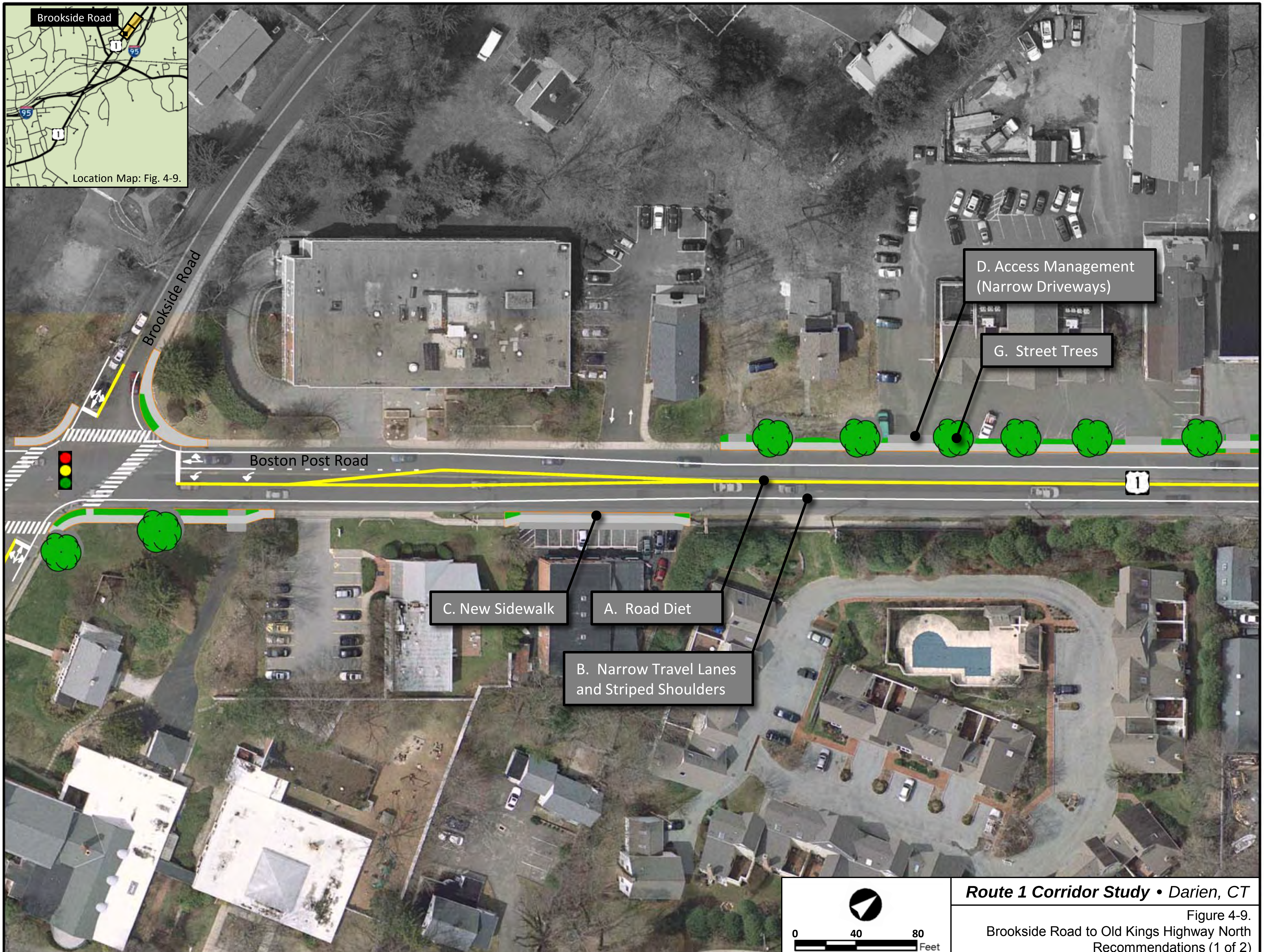


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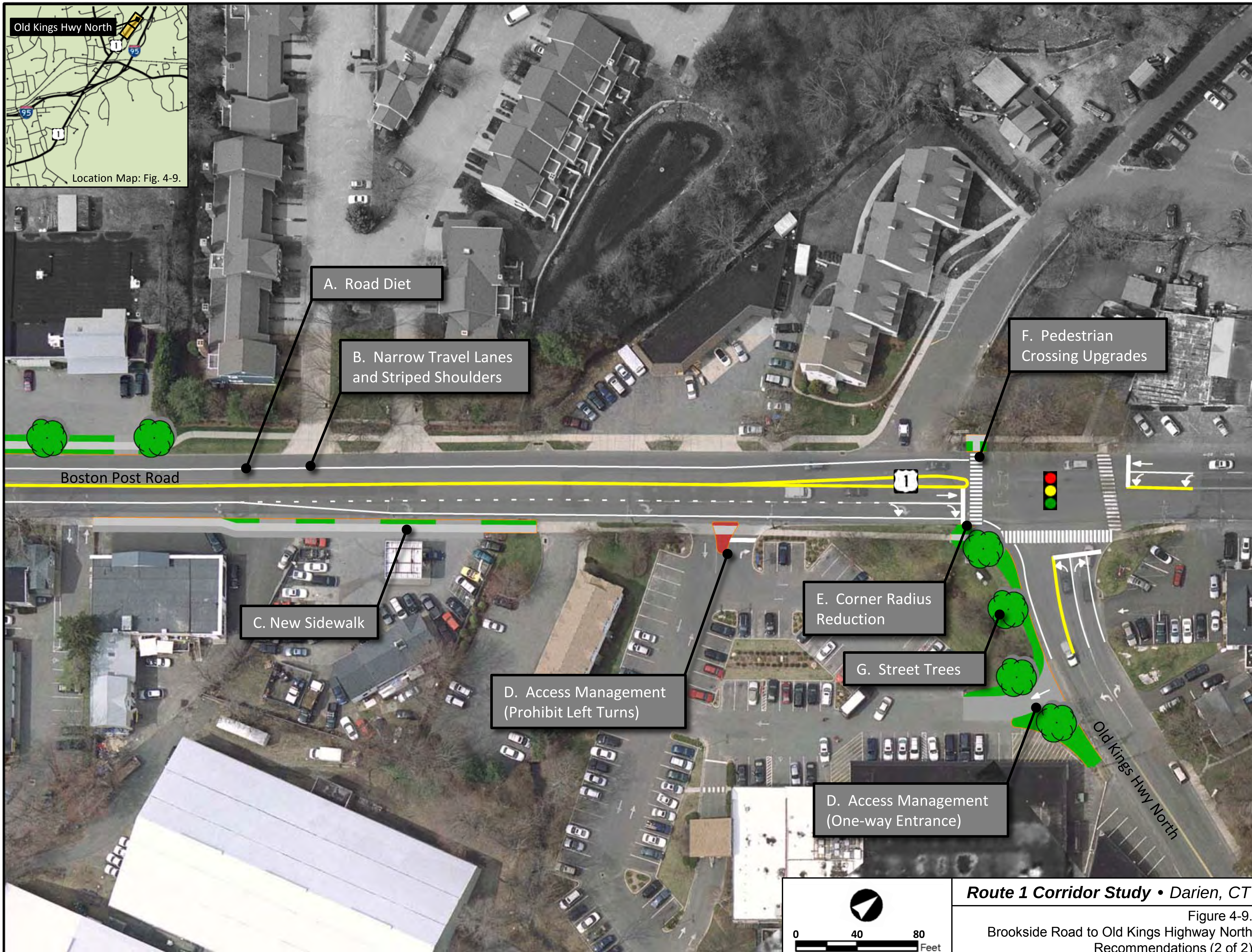
Figure 4-9.
Brookside Road to Old Kings Highway North
Recommendations (1 of 2)



Route 1 Corridor Study • *Darien, CT*

Figure 4-9.
Brookside Road to Old Kings Highway North
Recommendations (2 of 2)

4.B Land Use Recommendations

The land use recommendations of this study suggest ways in which Downtown Darien can continue to grow economically, while addressing issues associated with limited space, and while mitigating the potential traffic growth and potential parking needs associated with increasing development density. These land use recommendations, which are consistent with a *Smart Growth* planning philosophy, are summarized below and are described in detail in the *Smart Growth Toolbox* (see Appendix 4.3, page A4-19):

- **Increase Retail Density and Diversity of Uses.** The Town should continue to encourage development that provides a compact mix of retail, professional service, office, restaurant, and residential uses in Downtown. Residential uses provided in close proximity to stores, offices, and services encourage people to work and shop close to where they live. This promotes walking and bicycling for short trips and helps mitigate traffic growth that would otherwise be associated with new development and greater development density. Additionally, complementary and proximate mixed uses create shared parking opportunities that capitalize on different peak parking times, and reduce parking demand by promoting "park once-and-walk" behavior.

- **Create Mixed-use Centers from Strip Plazas.** New development opportunities can be created where there are currently parking-intensive, suburban-style strip plazas – like Goodwives Shopping Center – by encouraging the redevelopment of these plazas into pedestrian-oriented, walkable, mixed use developments. Larger existing stores can be complemented with new multi-story, mixed-use buildings (consisting of small-scale retail, professional service, office, restaurant, and residential uses) that increase floor areas and real estate values within a fixed amount of space. Two or three story buildings (whether infill development or reconstruction of existing buildings) can be constructed along new streets or drives that are carved out of existing, large-scale parking lots. Parking needs can be met by allowing shared parking for complementary and proximate mixed uses and a reduction in paved surface area will help improve storm water quality and reduce the "heat island effect" that is created by expansive parking lots characteristic of strip plazas.

- **Infill along Downtown Streets.** Where possible, infill gaps between buildings and redevelop existing uses with closely spaced, multistory buildings, located close to sidewalks to create corridors of consistent, unbroken building façades along Downtown streets. Streets that have fewer gaps between buildings for driveways, parking lots, or vacant parcels are generally more walkable, particularly when the streets are complemented with attractive streetscape and relatively wide sidewalks that comfortably accommodate street-level activity.

Downtown Development Scenario

Sections 3.B and 3.C of the *Future Conditions Assessment* present the potential traffic growth and parking needs associated with a 2020 Downtown development scenario.

The development scenario predicts that Downtown development density could increase approximately 20% over existing levels by 2020. In terms of traffic and parking, this increase could result in:

- **Traffic –** 1% to 4.5% additional traffic growth on Route 1 in the Central Business District, depending on precise location.
- **Parking –** Approximately 563 new parking spaces to meet anticipated new parking demand. Or, approximately 1161 new spaces to satisfy current zoning regulations.

Top: Image of parking-intensive Goodwives Shopping Center [source: Bing Maps].

Bottom: Rendering of potential redevelopment of the shopping center to create a pedestrian-friendly mixed use center [source: CHA, 2010].

Locating off-street parking behind buildings and providing internal parking lot connections that are accessible from lower volume streets will facilitate reducing the number of driveways on Boston Post Road, will create additional infilling opportunities, will help maintain traffic flow, and will improve pedestrian safety.

- **Optimize Downtown Parking.** The Town should consider implementing measures and policies to better manage municipal parking supplies and allow structured parking. It will be difficult to sustain long-term economic growth and viability in Downtown without measures to address the need for more parking to support this growth.

  More specifically, the Town should consider:

  - Reducing mandated parking requirements and adopting parking maximums, not minimums, into the Zoning Regulations. Parking demand in mixed use, higher density districts is substantially less than is typically prescribed by minimum parking requirements.
  - Allowing structured parking under its Special Permit process. By concentrating parking in one or more parking structures, more area would be available for new development opportunities and greater development density would be possible. Parking structures located behind "liner buildings" that contain retail, office, and residential space would hide the parking structures from view from the street and would be compatible with traditional Downtown character.
  - Implementing paid parking for short-term parking to increase turnover in desirable locations and encourage multiple patron visits on a single trip ("park-once-and-walk") while generating revenue. Parking payment technology with variable-rate, market-based pricing could be utilized.
  - Implementing programs that provide or encourage reduced-price or free parking for employees in targeted, outlying off-site parking facilities that are within walking distance of Downtown businesses or that could be served by local shuttles.

5
Implementation Plan

Section 4 presented the transportation improvements and policy changes recommended for the Route 1 study area that were developed through the study process (see Section 1.C, page 1-4). Once implemented, these recommendations will provide a safer and more efficient multimodal transportation system that will complement and support development and the long-term economic viability of Downtown Darien. This section outlines how the transportation improvements can be implemented over time through a series of projects and provides guidance on the implementation process.

5.A Transportation Improvement Program

The transportation improvement program consists of 22 potential projects and initiatives that could be implemented over the very near, near, mid, and long-term horizons to accomplish the improvements detailed in Section 4 and to provide various *Complete Streets* initiatives that are outlined in the Complete Streets toolbox (see Appendix 4.1, pg. A4-1). Key elements of these projects and initiatives are detailed in the following sections.

5.A.1 Definitions

Implementation terminology used throughout this plan is defined here for the convenience of the reader.

Complexity

The complexity of a project is a qualitative measure that reflects the level of engineering required to implement the project and the level to which the project will impact rights-of-way (ROW), environmental resources, or utilities. As the complexity of the project increases, the time required to implement the project increases.

Complexity Scale:

- **Low.** Little or no additional planning required. Limited design effort. Typically no utility, environmental, or ROW impacts.
- **Moderate.** Some additional planning required. Detailed design effort. Typically some utility, environmental, or ROW impacts.
- **High.** Significant planning and design efforts could be required. Typically significant utility, environmental, or ROW impacts.

Planning-level Cost

The planning-level cost of each *construction* project is an approximation of the cost of building the project, exclusive of allowances for utility relocations, ROW acquisition, engineering, project administration, and construction inspection. Planning-level costs are reported in 2012-dollars and were estimated using a methodology consistent with CTDOT's latest *Preliminary Cost Estimating Guidelines*.[34] The planning-level cost of each *non-construction* project or initiative was estimated based on approximate costs for comparable projects or similar work.

Planning-level Cost Scale:

- **Low.** Less than $100,000
- **Moderate.** $100,000 to $2 million
- **High.** $2 million to $10 million
- **Very High.** More than $10 million

[34] Author's Note: The methodology outlined in CTDOT's *Preliminary Cost Estimating Guidelines* consists of estimating quantities and prices for major construction items (such as excavation, pavement, curbing, sidewalk, drainage, traffic signals) and applying factors (as a percentage of the sum of major items) to account for minor items (30%), lump sum items (14.5%, including mobilization and traffic control), incidental items (25%-30%), and contingencies (10%).

Implementation Horizon

The implementation horizon for each project describes the approximate timeline required to complete the implementation process from project initiation through construction. The length of the timeline generally depends on the complexity and cost of the project. For this study, projects are categorized into one of the four implementation horizons defined in Table 5-1 – very near, near, mid, or long-term.

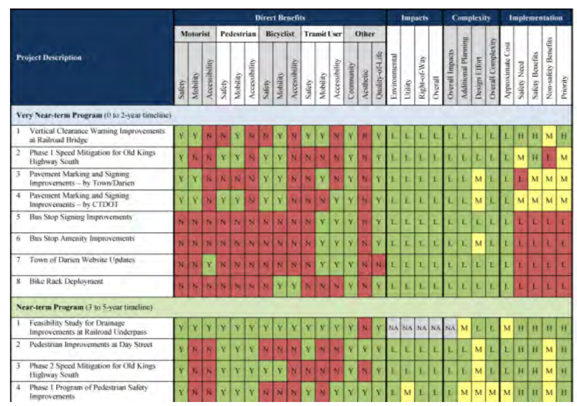
Table 5-1. Implementation Horizon Definitions

Horizon	Timeline	Complexity	Cost
Very Near-term	0 – 2 years	Low	Low: <$100k
Near-term	3 – 5 years	Low – Moderate	Low – Moderate: <$100k to $2 million
Mid-term	6 – 10 years	Moderate	Moderate: $100k to $2 million
Long-term	>10 years	Moderate – High	High – Very High: $2 million to >$10 million

Priority

The priority of each project or initiative is a measure of the urgency with which the project should be initiated and implemented. The measure of priority is determined independently of the implementation horizon assigned to each project and is based on the level of safety, operational, accessibility, and community benefits that each project could provide. Low, medium, and high priority designations referenced in this plan were assigned based on input from the Town and SWRPA. These priority designations are subjective and should be reviewed on an as-needed basis in the future as the implementation of the projects in this plan evolves. This review should be conducted with input from the Town, region, and State.

- **Low Priority.** Reflects a limited urgency to initiate or implement based on limited safety need. Some safety, operational, accessibility, or community benefits could be realized.
- **Medium Priority.** A moderate level of safety benefits could be realized, but an urgent safety issue is generally not addressed. Some operational, accessibility, or community benefits could be realized.
- **High Priority.** Reflects an urgency to initiate due to critical safety need and significant safety benefits. Some moderate to significant operational, accessibility, or community benefits could be realized.



See Section 5.A.6 and Table 5-5 (page 5-20) for a summary of how priorities were assigned to the projects in this plan.

5.A.2 Very Near-term Program Recommendations

Very Near-term Program Summary:

- 8 Projects
- Program Cost: $191,000 (Estimated)
- High Priority Projects:
  1. Vertical Clearance Warning Improvements at Railroad Bridge

The very near-term improvement program includes eight low-complexity projects that could be implemented within a two-year timeline.

This section describes these projects and provides a summary of the planning-level cost, priority rating, and lead agencies[35] for each.

The very near-term program is summarized in Table 5-4 on page 5-18.

[35] Author's Note: The lead agencies are the primary parties responsible for the implementation of the project. The Town of Darien is listed for all projects because the Town will generally be responsible for project identification and initiation of all projects (see Section 5.B for details of the implementation process). SWRPA and CTDOT are also listed as lead agencies for those projects where they will also be significantly involved in the implementation of the project.

Project 1. Vertical Clearance Warning Improvements at Railroad Bridge — Very Near-term

Summary: Two-phase project to address over-height truck collisions with the Route 1 railroad bridge in Downtown.

Lead Agencies:	Town/SWRPA/CTDOT
Cost:	$40,000
Priority:	High

See Section 4.A.2 for details and other recommendations at the railroad bridge.

- **Phase 1 – Evaluation.** Evaluate the effectiveness of recent warning sign improvements implemented by CTDOT in 2011 under State Project 170-1735. This effort consists of comparing post-improvement accident data to pre-improvement accident data to identify a notable change in bridge collision rates potentially attributable to CTDOT signing improvements.
- **Phase 2 – Modification.** Identify and implement enhancements to existing vertical clearance warning signs in the study area, as required, based on Phase 1 findings. Potential enhancements could include sign relocation, sign replacement, supplemental signage, supplemental pavement markings, improved sign visibility, LED-enhanced warning signs, or over-height vehicle detection and warning system implementation.

Project 2. Phase 1 Speed Mitigation for Old Kings Highway South — Very Near-term

Summary: First phase of a two-phase initiative to address the speeding issues on Old Kings Highway South, particularly near the intersection with Route 1.

Lead Agency:	Town
Cost:	$15,0000
Priority:	Medium

See Section 4.A.1 for more details and recommendations at Old Kings Highway South.

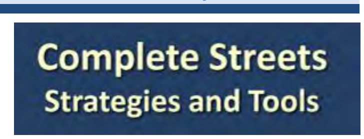
Phase 1 includes:

- Installation of two dynamic speed display signs near the southern (western) end of Old Kings Highway South. Planning-level Cost: $15,000.
- Initiation of engineering for Phase 2 Speed Mitigation improvements. See Near-term Program Recommendations, Project 3 on page 5-9, for Phase 2 details.

Project 3. Pavement Marking and Signing Improvements – by Town of Darien — Very Near-term

Summary: Various pavement marking and signing improvements implemented and maintained by the Town.

Lead Agency:	Town
Cost:	$10,000
Priority:	Medium



See Appendix 4.1 for these *Complete Streets* references:

On-street Parking……….p. 8
"Don't Block the Box"….p. 8
Sharrows……………………p. 10
Bicycle Warning Sign…..p. 10

See Table 5-2 (pages 5-6 & 5-7) for a summary of very near-term pavement marking and signing improvements in the corridor.

This project includes installation of:

- On-street parking stall markings on Route 1 between Leroy Avenue and Sedgwick Avenue.
- Sharrow markings on Route 1 between Nearwater Lane and Sedgwick Avenue.
- Bicycle warning signs on Route 1 in the study corridor, particularly in conjunction with the installation of sharrows.
- Markings and signs for "Don't Block the Box" regulations at Sedgwick Avenue and Mansfield Avenue.

Project 4. Pavement Marking and Signing Improvements – by CTDOT — Very Near-term

Summary: Various pavement marking and signing improvements implemented and maintained by CTDOT.

Lead Agency: Town/CTDOT
Cost: $65,000
Priority: Medium

See Table 5-2 (pages 5-6 & 5-7) for a summary of very near-term pavement marking and signing improvements in the corridor.

This project includes installation of:

- White striping to delineate 11 ft lanes and wide shoulders on Route 1 between Sedgwick Avenue and Old Kings Highway North.
- Lane use markings and signs on Route 1 at Tokeneke Road and Center Street intersections.
- New retroreflective crosswalks and better pedestrian warning signage on Route 1 at unsignalized crossings at Cross Street and Academy Street (until these crossings are eliminated under subsequent projects), and at mid-block crossing at Noroton Presbyterian Church.
- New retroreflective crosswalks at all side-street approaches to Route 1 (where sidewalk is present).
- Guide signs on Route 1 for train stations in Noroton and Darien. The placement of these signs should be consistent with the directions provided for these stations on the Metropolitan Transit Authority (MTA) website.

Project 5. Bus Stop Signing Improvements — Very Near-term

Summary: Provide bus route and schedule information at bus stops in the study corridor.

Lead Agency: Town/CTTransit
Cost: $5,000
Priority: Medium

See Figure A2-4, Appendix 2.5 for bus stops in the corridor.

See Table 5-2 (pages 5-6 & 5-7) for a summary of very near-term pavement marking and signing improvements in the corridor.

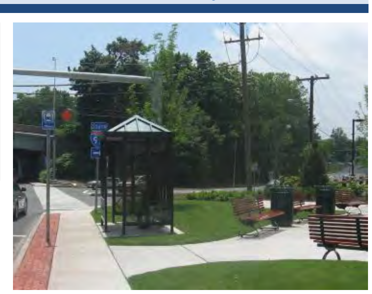
This project includes the installation of:

- Route marker plaques at CTTransit bus stop locations between Nearwater Lane and Old Kings Highway North.
- Bus route and schedule information at the following stops: Ledge Road (at shelter); Center Street; Darien train station; and Noroton train station.

Project 6. Bus Stop Amenity Improvements — Very Near-term

Summary: Provide new amenities at Center Street and Ledge Road bus stops.

Lead Agency: Town/CTTransit
Cost: $40,000
Priority: Low



See Appendix 4.1 for other *Complete Streets* Tools and Strategies to Improve Transit Use (pages 4 and 11).

This project includes the installation of:

- Bus shelter, benches, landscaping, dynamic message sign for real-time arrival information, and information kiosk at the Center Street bus stop located adjacent to the Darien train station (as space permits).
- Information kiosk at Ledge Road adjacent to the existing bus shelter (in front of Whole Foods Market, as property owner permits).

Project 7. Town of Darien Website Updates — Very Near-term

Summary: Provide current and user-friendly parking and transit service information on the Town of Darien's website.

Lead Agency: Town
Cost: $5,000
Priority: Low

See **www.darienct.gov** for Town of Darien's web site.

The Town of Darien website should be updated to provide:

- Downloadable parking map for Downtown that illustrates color-coded locations of long-term permit and voucher parking, incentive parking, and short-term municipal parking. The map should also include approximate walking distances and times from each long-term and voucher parking lot to the Darien train station.
- Comprehensive and accurate descriptions of the parking permit and voucher systems including an updated list of voucher vendors with vendor website links, phone numbers, and business hours.
- Hyperlinks to Darien-specific information on MTA and CTTransit websites.
- Hyperlink to SWRPA's Rail Station Parking portal.

Project 8. Bike Rack Deployment — Very Near-term

Summary: Provide new bike racks at key community and commercial destinations throughout the study area.

Lead Agency: Town
Cost (Total): $11,000
Priority: Low

See Appendix 4.1 for other *Complete Streets* Tools and Strategies to Improve Bicycling, pages 3 and 10.

New bike racks should be provided at the following locations:

- Town Hall, police department, and post office.
- Mather Fields.
- On Route 1 near Corbin Drive and near Center Street.
- Behind the movie theater.
- Adjacent to municipal parking lots including Grove Street, Tokeneke Road, Center Street South, and Tilley lots.

As the need arises, additional bike racks should be considered for the Darien library, Darien train station, and Noroton train station.

The planning-level cost for each rack is assumed to be $1000, installed. Actual costs will vary based on the size and type of rack selected for each site.

Very Near-term Pavement Marking and Signing Improvements Summary

Projects 3, 4, and 5 (pages 5-3 and 5-4) under the Very Near-term Program include recommendations for a variety of pavement marking and signing improvements throughout the Route 1 study corridor. Three separate projects were defined for the purposes of the improvement program based on potential lead agency responsibilities and the possible implementation of the various improvements under separate projects or initiatives by these lead agencies. The full scope of the pavement marking and signing improvements that are recommended along each of the corridor segments or at individual intersections is the sum of the improvements from these three projects. Table 5-2 (pages 5-6 and 5-7) was developed to summarize the improvement recommendations by corridor segment and intersection so that the full scope of the improvements can be more readily defined on a location basis.

Table 5-2. Summary of Very Near-term Pavement Marking and Signing Improvements

Location	Retroreflective Crosswalk Markings	Pedestrian Warning Signs	Don't Block Box Markings	New Lane Use Markings	Lane Edgelines/ Shoulder Markings	On-Street Parking Stall Markings	Train Station Guide Signs	Bus Stop Route Marker Plaques	Bike Warning Signs & Sharrow Markings
South Corridor									
Nearwater Lane to Ledge Road	-	-	-	-	-	-	-	-	X
Nearwater Lane	SB, WB	-	-	-	-	-	-	X	-
Mid-block at Noroton Presbyterian Church	NB/SB	X	-	-	-	-	-	-	-
Noroton Avenue	SB, EB	-	-	-	-	-	X	-	-
Garden City Road	EB	-	-	-	-	-	-	-	-
Rings End Road	SB, WB	-	-	-	-	-	-	X	-
Dickinson Road	SB, EB	X	-	-	-	-	-	-	-
Fitch Avenue	EB	-	-	-	-	-	-	-	-
Old Kings Highway South	NB	-	-	-	-	-	-	-	-
Clubhouse Circle	-	-	-	-	-	-	-	X	-
Renshaw Road	EB	-	-	-	-	-	-	X	-
Quaker Lane	-	-	-	-	-	-	-	-	-
Cross Street	SB	X	-	-	-	-	-	-	-
Hecker Avenue	SB, EB	-	-	-	-	-	-	X	-
Thorndal Circle	EB	-	-	-	-	-	-	X	-
I-95 NB Ramps	EB	-	-	-	-	-	-	-	-

Source: CHA, 2012
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, 2012

Abbreviations Key:
NB – Northbound Approach on Route 1
SB – Southbound Approach on Route 1
EB – Eastbound Approach to Route 1
WB – Westbound Approach to Route 1

Table 5-2. Summary of Very Near-term Pavement Marking and Signing Improvements (continued)

Location	Retroreflective Crosswalk Markings	Pedestrian Warning Signs	Don't Block Box Markings	New Lane Use Markings	Lane Edgelines/ Shoulder Markings	On-Street Parking Stall Markings	Train Station Guide Signs	Bus Stop Route Marker Plaques	Bike Warning Signs & Sharrow Markings
Downtown									
Ledge Road to Sedgwick Avenue	-	-	-	-	-	-	-	-	X
Ledge Road	-	-	-	-	-	-	-	-	-
Leroy Avenue to Sedgwick Avenue	-	-	-	-	-	X	-	-	-
Leroy Avenue / I-95 SB Ramp	SB, EB	-	-	-	-	-	X	X	-
Corbin Drive	SB, WB	-	-	-	-	-	-	X	-
Brook Street	-	-	-	-	-	-	-	X	-
Day Street	EB	-	-	-	-	-	-	-	-
Center Street / Train Driveway	NB, EB, WB	-	-	X	-	-	-	X	X
Tokeneke Road (Route 136) / Train Driveway	EB, WB	-	-	X	-	-	-	X	X
West Avenue / Mechanic Street	SB, EB, WB	-	-	-	-	-	-	X	-
Mansfield Avenue (Route 124)	NB, SB, EB	-	X	-	-	-	-	X	-
North Corridor									
Sedgwick Avenue to Old Kings Highway North		-	-	-	X	-	-	-	X
Sedgwick Avenue	NB, SB, EB, WB	-	X	-	-	-	-	X	-
Academy Street	SB, EB	X	-	-	-	-	-	X	-
Brookside Road	SB, EB	-	-	-	-	-	-	X	-
Old Kings Highway North	SB, WB	-	-	-	-	-	-	X	-

Source: CHA, 2012
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, 2012

Abbreviations Key:
NB – Northbound Approach on Route 1
SB – Southbound Approach on Route 1
EB – Eastbound Approach to Route 1
WB – Westbound Approach to Route 1

5.A.3 Near-term Program Recommendations

Near-term Program Summary:

- 7 Projects
- Program Cost: $4,105,000 (Estimated)
- High Priority Projects:
  1. Feasibility Study for Drainage Improvements at RR
  2. Pedestrian Improvements at Day Street
  3. Phase 2 Speed Mitigation for Old Kings Hwy South
  4. Phase 1 Program of Pedestrian Safety Improvements
  5. Phase 2 Program of Pedestrian Safety Improvements

The near-term improvement program includes seven low to moderate-complexity projects that could be implemented within a three to five-year timeline.

This section describes these projects and provides a summary of the planning-level cost, priority rating, and lead agencies for each.

The near-term program is summarized in Table 5-4 on page 5-18.

Project 1. Feasibility Study for Drainage Improvements at Railroad Underpass — Near-term

Summary. Evaluate the feasibility of near and long-term solutions to persistent flooding issues at the railroad underpass.

Lead Agency:	Town/CTDOT
Cost:	$250,000
Priority:	High

See Section 4.A.2 for details and other recommendations at the railroad bridge.

Work under this project could include:

- Preliminary engineering for near and long-term drainage improvements.
- Development of a Scope of Work and planning-level cost estimates for drainage improvements to be designed and implemented under a separate project (see Long-term Program Recommendations, Project 1 on page 5-14 for details).

Project 2. Pedestrian Improvements at Day Street — Near-term

Summary. Install safety measures to provide a high-visibility, unsignalized pedestrian crossing on Route 1 at Day Street.

Lead Agency:	Town
Cost (Total):	$40,000
Priority:	High

See Section 4.A.2 for details and other recommendations near Day Street.

See Table 5-3 (pages 5-12 & 5-13) for a summary of near-term pedestrian crossing improvements.

This project includes the installation of:

- Curb extensions on both sides of the southbound Route 1 approach to Day Street.
- New retroreflective crosswalk and pedestrian warning signs to provide a high-visibility unsignalized pedestrian crossing installation at the curb extensions.

Project 3. Phase 2 Speed Mitigation for Old Kings Highway South — Near-term

Summary. Second phase of a two-phase initiative to address the speeding issues on Old Kings Highway South, particularly near the intersection with Route 1.

Lead Agencies:	Town/CTDOT
Cost:	$65,000
Priority:	High

See Appendix 5.1 for details of interim improvements.

See Section 4.A.1 for other recommendations at Old Kings Highway South.

See Table 5-3 (pages 5-12 & 5-13) for a summary of near-term pedestrian crossing improvements.

Phase 2 includes the design and implementation of interim improvements at the Route 1/Old Kings Highway South intersection that would ultimately be integrated into the recommended road diet improvements between Nearwater Lane and Hecker Avenue (see Mid-term Program Recommendations, Project 2 on page 5-15 for details).

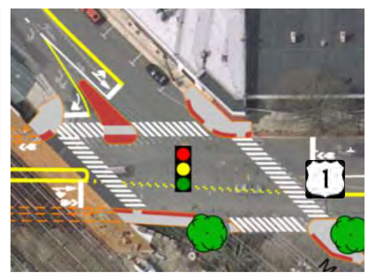
Specific elements of the interim improvements include installation of:

- Corner radius reduction in the southeast quadrant.
- ADAAG-compliant ramps with minor sidewalk improvements connecting Old Kings Highway South to existing pedestrian crossing location.
- New retroreflective crosswalk on Route 1 at existing pedestrian signal.

Project 4. Phase 1 Program of Pedestrian Safety Improvements — Near-term

Summary: First phase of a two-phase program to provide new facilities that enhance pedestrian safety and create a more walkable corridor.

Lead Agencies:	Town/CTDOT
Cost (Total):	$1,350,000
Priority:	High



See Section 4.A.2 for details and other recommendations between Center St and Sedgwick Avenue.

See Section 4.A.2 for details and other recommendations between Leroy Avenue and Brook Street.

See Table 5-3 (pages 5-12 & 5-13) for a summary of near-term pedestrian crossing improvements.

The Phase 1 program focuses on the highest priority pedestrian improvements in the Central Business District. The program is divided into three initiatives for the purposes of this implementation plan. The three initiatives are listed below in order of descending priority.

Initiative 1 – Center Street, Tokeneke Road, West Avenue, and Mansfield Avenue. Planning-level Cost: $800,000. This initiative includes installation of:

- Pedestrian crossing upgrades at Center St, Tokeneke Rd, and West Ave.
- ADAAG-compliant sidewalk ramps at Mansfield Avenue.
- Curb extensions (southeast and northeast quadrants) at Center Street.
- Curb extension (northwest quadrant) and channelizing island (eastbound approach) at West Avenue.

Initiative 2 – Leroy Avenue, Corbin Drive and Brook Street. Planning-level Cost: $300,000. This initiative includes installation of:

- Interim pedestrian crossing upgrades at Corbin Drive.
- ADAAG-compliant sidewalk ramps at Leroy Avenue and Brook Street.

Initiative 3 – Sedgwick Avenue. Planning-level Cost: $250,000. This initiative includes installation of:

- Pedestrian crossing upgrades.
- Curb extension (southwest quadrant) and corner radius reduction (northeast quadrant).

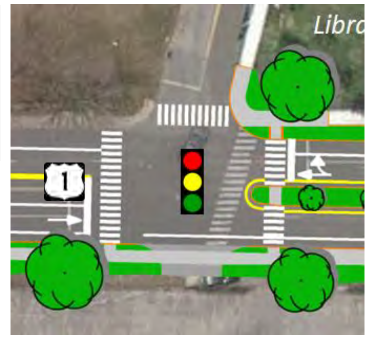
Note: Planning-level costs include an estimated $250,000 per intersection where pedestrian crossing upgrades are recommended. This cost includes new traffic signal infrastructure; modern, ADAAG-compliant pedestrian signals; and ADAAG-compliant sidewalk ramps.

Implementation Consideration:

These initiatives can be combined or further subdivided to create projects that align with future funding opportunities and evolving transportation priorities.

Project 5. Phase 2 Program of Pedestrian Safety Improvements — Near-term

Summary: Second phase of a two-phase program to provide new facilities that enhance pedestrian safety and create a more walkable corridor.	**Lead Agencies:**	Town/CTDOT
	Cost (Total):	$1,150,000
	Priority:	High



See Section 4.A.1 for other recommendations between Hecker Avenue and Interchange 11.

See Table 5-3 (pages 5-12 & 5-13) for a summary of near-term pedestrian crossing improvements.

The Phase 2 program focuses on high-priority pedestrian improvements outside of the Central Business District. The program is divided into two initiatives for the purposes of this implementation plan. The two initiatives are listed in order of descending priority.

Initiative 1 – Hecker Avenue to Interchange 11. Planning-level Cost: $400,000. This initiative includes the installation of:

- Interim pedestrian crossing upgrades at Hecker Avenue (eliminate unsignalized pedestrian crossing at Cross Street in conjunction with this improvement).
- New sidewalk on the northbound side of Route 1 between Hecker Avenue and northbound ramps.
- Lighting improvements at the I-95 underpass.

Initiative 2 – Nearwater Lane to Rings End Road. Planning-level Cost: $750,000. This initiative includes the installation of:

- Interim pedestrian crossing upgrades at Nearwater Lane and Rings End Road.
- Pedestrian crossing upgrades at Noroton Avenue.

Note: Planning-level costs include an estimated $250,000 per intersection where pedestrian crossing upgrades are recommended. This cost includes new traffic signal infrastructure; modern, ADAAG-compliant pedestrian signals; and ADAAG-compliant sidewalk ramps.

Implementation Consideration:

Provide new traffic signal infrastructure at Nearwater Lane, Noroton Avenue, and Rings End Road that is designed to accommodate modifications for a trial road diet. See **Project 6** this page.

Project 6. Trial Road Diet – Nearwater Lane to Rings End Road — Near-term

Summary: Provide pavement markings and traffic signal modifications to implement a temporary road diet condition in Noroton.	**Lead Agencies:**	Town/CTDOT
	Cost:	$200,000
	Priority:	Medium

See Section 4.A.1 for other recommendations between Nearwater Lane and Rings End Road.

This project includes:

- New pavement markings, lane usage revisions, and traffic signal modifications between Nearwater Lane and Rings End Road.
- Evaluation of before and after traffic operations and accidents to help determine whether a permanent road diet is beneficial in this area.

Notes: The trial road diet would not include modifications to the Route 1 curb line nor the installation of a median for pedestrian refuge at the mid-block pedestrian crossing at Noroton Presbyterian Church. Planning-level cost assumes new traffic signal infrastructure installed under Near-term Program, Project 5.

Project 7. Road Diet – Sedgwick Avenue to Old Kings Highway North — Near-term

Summary: Provide pavement markings and traffic signal upgrades for a road diet with associated intersection, pedestrian and bicycle improvements.

Lead Agencies:	Town/CTDOT
Cost:	$1,050,000
Priority:	Medium

See Section 4.A.3 for details.

This project includes the installation of:

- New traffic signal infrastructure with modern, ADAAG-compliant pedestrian signals and ramps at Brookside Road and Old Kings Highway North.
- Shared center left turn lane between Academy Street and Brookside Road.
- Left turn lanes at Brookside Road.
- White striping to delineate 11 ft lanes and wide shoulders on Route 1 between Sedgwick Avenue and Old Kings Highway North.
- Corner radii reductions at Brookside Road (northwest quadrant) and Old Kings Highway North (southeast quadrant).
- New segments of sidewalk to close several gaps on the northbound side of Route 1 between Brookside Road and Old Kings Highway North.

Near-term Pedestrian Crossing Improvements

Projects 2, 3, 4, and 5 (pages 5-8 through 5-10) under the Near-term Program include recommendations for a variety of pedestrian crossing improvements at locations throughout the Route 1 study corridor. Four separate projects were defined for the purposes of the improvement program to provide projects with independent utility that could be implemented at relatively low to moderate cost (less than $2 million). Table 5-3 (pages 5-12 and 5-13) was developed to summarize the improvement recommendations by location so that the full scope of the pedestrian crossing improvements contained within these four projects can be readily understood.

Table 5-3. Summary of Near-term Pedestrian Crossing Improvements

Location	Signalization (Ped and Traffic)	New Crossing Location	ADAAG-compliant Ramps	Curb Extension	Retroreflective Crosswalk Markings	Pedestrian Warning Signs	Channelizing Island	Corner Radius Reduction
South Corridor								
Nearwater Lane	X	NB	NE, NW, SE, SW	-	NB, SB, WB	-	-	-
Mid-block at Noroton Presbyterian Church	-	-	-	-	-	-	-	-
Noroton Avenue	X	NB	NE, NW, SE, SW	-	NB, SB, EB	-	-	-
Garden City Road	-	-	-	-	EB	-	-	-
Rings End Road	X	-	NW, NE, SE	-	NB, SB, WB	-	-	-
Dickinson Road	-	-	-	-	SB, WB	-	-	-
Fitch Avenue	-	-	-	-	EB	-	-	-
Old Kings Highway South	-	NB	SE, SW	-	NB	-	-	SE
Clubhouse Circle	-	-	-	-	-	-	-	-
Renshaw Road	-	-	-	-	EB	-	-	-
Quaker Lane	-	-	-	-	-	-	-	-
Cross Street	-	-	-	-	-	-	-	-
Hecker Avenue	X	NB	NW, NE, SE, SW	-	NB, SB, EB	-	-	-
Thorndal Circle	-	-	-	-	-	-	-	-
I-95 NB Ramps	X	NB	NW, SE, SW	-	NB, EB	-	-	SE

Source: CHA, 2012
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, 2012

Abbreviations Key:
NB – Northbound Approach on Route 1
SB – Southbound Approach on Route 1
EB – Eastbound Approach to Route 1
WB – Westbound Approach to Route 1

NE – Northeast Quadrant of Intersection
NW – Northwest Quadrant of Intersection
SE – Southeast Quadrant of Intersection
SW – Southwest Quadrant of Intersection

Table 5-3. Summary of Near-term Pedestrian Crossing Improvements (continued)

Location	Signalization (Ped and Traffic)	New Crossing Location	ADAAG-compliant Ramps	Curb Extension	Retroreflective Crosswalk Markings	Pedestrian Warning Signs	Channelizing Island	Corner Radius Reduction
Downtown								
Ledge Road	-	-	-	-	-	-	-	-
Leroy Avenue / I-95 SB Ramp	NW (Ped Signal Head Only)	-	NE, NW	-	SB, EB	-	-	-
Corbin Drive	X	NB	NE, NW, SE, SW	-	NB, SB, WB	-	-	-
Brook Street	-	-	NW, SW	-	-	-	-	-
Day Street	-	SB	NE, NW	NE, NW	SB	X	-	-
Center Street / Train Driveway	X	SB	NE, NW, SE, SW	SE, NE	NB, SB, EB, WB	-	-	
Tokeneke Road (Route 136) / Train Driveway	X	-	NE, SE	-	WB	-	-	-
West Avenue / Mechanic Street	X	NB	NE, NW, SE, SW	NW	NB, SB, EB, WB	-	EB	-
Mansfield Avenue (Route 124)	-	-	NE, NW, SE, SW	-	NB, SB, EB	-	-	-
North Corridor								
Sedgwick Avenue	X	-	NE, NW, SE, SW	SW	NB, SB, EB, WB	-	-	NE
Academy Street	-	-	NW, SW	-	EB	-	-	-
Brookside Road	X	NB, EB	NE, NW, SE, SW	-	NB, SB, EB, WB	-	-	NW
Old Kings Highway North	X	NB	NE, SE	-	NB, SB, WB	-	-	SE

Source: CHA, 2012
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, 2012

Abbreviations Key:
NB – Northbound Approach on Route 1
SB – Southbound Approach on Route 1
EB – Eastbound Approach to Route 1
WB – Westbound Approach to Route 1

NE – Northeast Quadrant of Intersection
NW – Northwest Quadrant of Intersection
SE – Southeast Quadrant of Intersection
SW – Southwest Quadrant of Intersection

5.A.4 Mid-term Program Recommendations

Mid-term Program Summary:
- 3 Projects
- Program Cost: $4,300,000 (Estimated)
- High Priority Projects: None

The mid-term improvement program includes three moderate-complexity projects that could be implemented within a six to 10-year timeline.

This section describes these projects and provides a summary of the planning-level cost, priority rating, and lead agencies for each.

The mid-term program is summarized in Table 5-4 on page 5-19.

Project 1. Street and Intersection Improvements – Leroy Avenue to Corbin Drive Mid-term

Summary: Modify Route 1 between Leroy Avenue and Corbin Drive to address safety and mobility issues.

Lead Agencies: Town/CTDOT
Cost: $600,000
Priority: Medium

See Section 4.A.2 for details.

This project includes:
- New turn lanes for southbound Route 1 and Corbin Drive approaches to the Corbin Drive intersection.
- Replacement of pull-in parking with on-street parking for businesses located along northbound Route 1 and just south of Corbin Drive.
- Curb extensions to shorten pedestrian crossing distances and landscaped medians to mitigate traffic speeds.
- Minor widening of northbound Route 1 north of Leroy Avenue to accommodate the necessary width for shared travel lanes in both directions.

Note: Planning-level cost assumes new traffic signal infrastructure at Corbin Drive installed under Near-term Program, Project 4 on page 5-9.

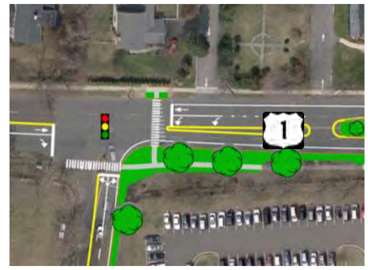
Implementation Consideration:

The Corbin Block could be redeveloped within the mid-term time frame. The Town should work with the developer to integrate elements of this project into the redevelopment plans for this block.

Project 2. Road Diet – Nearwater Lane to Hecker Avenue Mid-term

Summary: Provide a permanent road diet by reducing the number of travel lanes from four to two.

Lead Agencies:	Town/CTDOT
Cost:	$1,800,000
Priority:	Medium



See Section 4.A.1 for details.

This project includes:

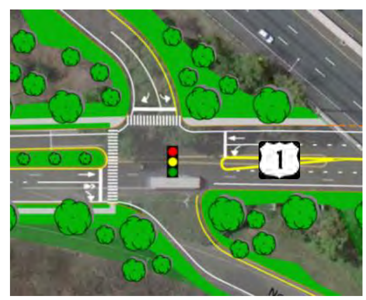
- New medians for pedestrian refuge at Noroton Presbyterian Church and Renshaw Road.
- On-street parking lane between Noroton Avenue and Rings End Road to eliminate conflicts with the through travel lane.
- Shared center left turn lane between Rings End Road and Cross Street to maintain mobility while improving safety for left turning vehicles.
- Striped shoulders or shared travel lanes with sharrows throughout to promote safer on-street bicycling.
- New segments of sidewalk to close several gaps on the northbound side of Route 1 between Rings End Road and Hecker Avenue.

Note: Planning-level cost assumes new traffic signal infrastructure at Nearwater Lane, Noroton Avenue, Rings End Road, and Hecker Avenue installed under Near-term Program, Projects 4 and 5 on pages 5-9 and 5-10, respectively.

Project 3. Interchange 11 NB Ramp and Street Improvements – Hecker to Leroy Mid-term

Summary: Consolidate the northbound ramps intersections and improve Route 1 (Option A or B) between Hecker Avenue and Leroy Avenue.

Lead Agencies:	Town/CTDOT
Cost:	$1,900,000
Priority:	Medium



See Section 4.A.1 for details of both Options A and B.

There are two possible improvement options for the Hecker Avenue to Leroy Avenue segment of the Route 1 corridor:

- Option A. Continue the road diet north from Hecker Avenue (see Project 2, this page).
- Option B. Maintain the existing four lane roadway section between Hecker Avenue and Leroy Avenue.

Both options include:

- Consolidation of the northbound ramps into a single signalized intersection to provide a smaller interchange footprint while improving traffic operations and improving walkability and pedestrian safety through the interchange area.

Note: The planning-level costs for the two options are of the same order-of-magnitude.

5.A.5 Long-term Program Recommendations

Long-term Program Summary:

- 4 Projects
- Program Cost: More than $14 million
- High Priority Projects:
  1. Drainage Improvements at Railroad Underpass

The long-term improvement program includes four moderate to high-complexity projects that could take 10 years or longer to implement.

This section describes these projects and provides a summary of the planning-level cost, priority rating, and lead agencies for each.

The long-term program is summarized in Table 5-4 on page 5-19.

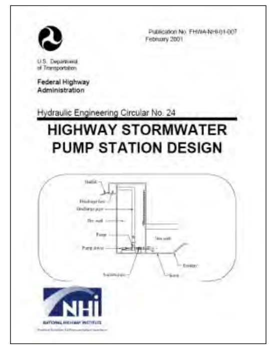
Project 1. Drainage Improvements at Railroad Underpass — Long-term

Summary: Provide drainage system improvements to resolve persistent flooding issues at the railroad underpass.

Lead Agencies:	Town/CTDOT
Cost:	To be Determined
Priority:	High

A scope of work and planning-level cost estimate for this project will be developed during the feasibility study and preliminary engineering phase, included in this plan as Near-term Program, Project 1 on page 5-8).

For planning purposes, it should be assumed that a pump station will be required in the vicinity of the project to resolve the drainage issues.



See Section 4.A.2 for details and other recommendations at the railroad bridge.

Project 2. Center Street-Tokeneke Road-West Avenue Improvements — Long-term

Summary: Modify the intersections of Center Street, Tokeneke Road, and West Avenue to improve traffic operations in the Central Business District.

Lead Agencies:	Town/CTDOT
Cost:	$2,100,000
Priority:	Medium

See Section 4.A.2 for details.

This project includes:

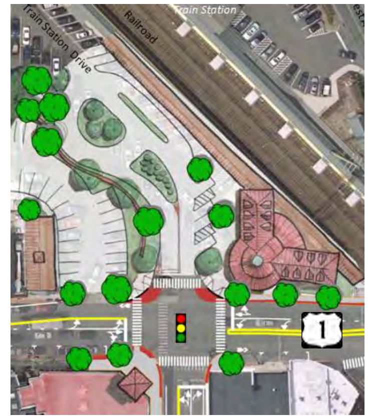
- Removal of the traffic signal and prohibition of left turns at Tokeneke Road.
- Consolidation of the train station drives into a single driveway located opposite Center Street.
- Reconfiguration of Old Kings Highway South and Tokeneke Road intersection and designation of Center Street as Route 136.
- Construction of new commuter parking lot located between Route 136 and railroad.

Note: Planning-level cost assumes new traffic signal infrastructure at Center Street and West Avenue installed under Near-term Program, Project 4 on page 5-9.

Project 3. Enhanced Intermodal Node at Train Station Long-term

Summary: Expand the scope of Long-term Program Project 2 (see page 5-16) to incorporate elements of an intermodal node located adjacent to the Darien train station.

Lead Agencies:	Town/CTDOT
Cost:	$2,000,000
Priority:	Low



See Section 4.A.2 for details.

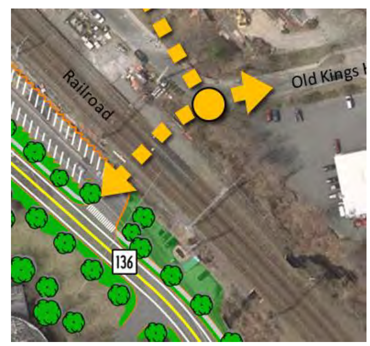
This project could include:

- A transit bus drop-off and turnaround off of Route 1 at the train station with access from the consolidated train station drives.
- New small-scale transportation center that houses multimodal amenities such as ticket vending, covered waiting areas, and bus and train schedule information.
- Long-term bicycle parking shelter.
- Downtown information kiosks.

Project 4. Tokeneke Road – Old Kings Highway North Connection Long-term

Summary: Provide a new local roadway connection between Tokeneke Road and Old Kings Highway North via a new bridge passage under the existing railroad.

Lead Agencies:	Town/CTDOT
Cost:	$10,000,000
Priority:	Low



See Section 4.A.2 for details.

This project would facilitate better connectivity and circulation within the Central Business District for motorists, bicyclists, and pedestrians and would reduce the traffic demand on the existing Route 1 passage.

5.A.6 Program Summary

Table 5-4 (pages 5-18 and 5-19) provides a project-by-project summary of the very near, near, mid, and long-term transportation improvement programs described in this plan. As shown in the table, the planning-level cost for the complete program is approximately $22.7 million in defined costs, plus an additional cost to-be-determined for the drainage improvements at the railroad underpass. Approximately $2.9 million of high-priority projects are included in the overall transportation improvement program.

Table 5-5 (page 5-20) provides a summary of the evaluation that was completed to qualitatively determine the implementation horizon and priority of each project contained in the transportation improvement program. The projects are grouped top to bottom in ascending order of implementation horizon (from top: very near, near, mid, and long-term). Projects at the top of the table are relatively low complexity (in terms of overall impacts and the level of additional planning and engineering design required for the project) and relatively low cost and are therefore defined as very near-term projects that could be implemented over an implementation horizon of two years or less. Projects at the bottom of the table are relatively moderate to high in terms of complexity and cost and are generally defined as long-term projects that could require 10 years or more to implement. Within each group of projects, individual projects are listed in descending order of priority (from top: high, medium, and low priority). In general, the projects with a high level of safety need, a high level of safety benefits, and a high or moderate level of non-safety benefits were ranked as high-priority projects. Whether each project is expected to provide various safety and non-safety (mobility, accessibility, community, aesthetic, and quality-of-life) benefits is also shown in Table 5-5.

Table 5-4. Summary of Transportation Improvement Program

Project Description	Lead Agencies	Overall Complexity	Planning-level Cost	Priority
Very Near-term Program (0 to 2-year timeline)				
1. Vertical Clearance Warning Improvements at Railroad Bridge	Town/SWRPA/CTDOT	Low	$40,000	High
2. Phase 1 Speed Mitigation for Old Kings Highway South	Town	Low	$15,000	Medium
3. Pavement Marking and Signing Improvements – by Town of Darien	Town/CTDOT	Low	$10,000	Medium
4. Pavement Marking and Signing Improvements – by CTDOT	Town/CTDOT	Low	$65,000	Medium
5. Bus Stop Signing Improvements	Town/CTTransit	Low	$5,000	Low
6. Bus Stop Amenity Improvements	Town/CTTransit	Low	$40,000	Low
7. Website Updates – Town of Darien	Town	Low	$5,000	Low
8. Bike Rack Deployment	Town	Low	$11,000	Low
		Very Near-term Program Subtotal Cost:	**$191,000**	
Near-term Program (3 to 5-year timeline)				
1. Feasibility Study for Drainage Improvements at Railroad Underpass	Town/CTDOT	Low	$250,000	High
2. Pedestrian Improvements at Day Street	Town/CTDOT	Low	$40,000	High
3. Phase 2 Speed Mitigation for Old Kings Highway South	Town/CTDOT	Moderate	$65,000	High
4. Phase 1 Program of Pedestrian Safety Improvements				
Initiative 1 – Center Street, Tokeneke Road, West Ave., and Mansfield Ave.	Town/CTDOT	Moderate	$800,000	High
Initiative 2 – Leroy Avenue, Corbin Drive, and Brook Street	Town/CTDOT	Moderate	$300,000	High
Initiative 3 – Sedgwick Avenue.	Town/CTDOT	Moderate	$250,000	High
5. Phase 2 Program of Pedestrian Safety Improvements				
Initiative 1 – Hecker Avenue to Interchange 11	Town/CTDOT	Moderate	$400,000	High
Initiative 2 – Nearwater Lane to Rings End Road	Town/CTDOT	Moderate	$750,000	High
6. Trial Road Diet – Nearwater Lane to Rings End Road	Town/CTDOT	Moderate	$200,000	Medium
7. Road Diet – Sedgwick Avenue to Old Kings Highway North	Town/CTDOT	Moderate	$1,050,000	Medium
		Near-term Program Subtotal Cost:	**$4,105,000**	

Table 5-4. Summary of Transportation Improvement Program

Project Description	Lead Agencies	Overall Complexity	Planning-level Cost	Priority
Mid-term Program (6 to 10-year timeline)				
1. Street and Intersection Improvements – Leroy Ave to Corbin Dr	Town/CTDOT	Moderate	$600,000	Medium
2. Road Diet – Nearwater Lane to Hecker Avenue	Town/CTDOT	Moderate	$1,800,000	Medium
3. Interchange 11 NB Ramps & Street Improvements – Hecker Ave to Leroy Ave	Town/CTDOT	Moderate	$1,900,000	Medium
		Mid-term Program Subtotal Cost:	**$4,300,000**	
Long-term Program (Greater than 10-year timeline)				
1. Drainage Improvements at Railroad Underpass	Town/CTDOT	High	TBD	High
2. Center Street-Tokeneke Road-West Avenue Improvements	Town/CTDOT	High	$2,100,000	Medium
3. Enhanced Intermodal Node at Train Station	Town/CTDOT	Moderate	$2,000,000	Low
4. Tokeneke Road – Old Kings Highway North Connection	Town/CTDOT	High	$10,000,000	Low
		Long-term Program Subtotal Cost:	**$14,100,000 + TBD**	

Table 5-5. Evaluation of Implementation Horizon and Priority for Projects in Transportation Improvement Program

Project Description	Direct Benefits															Impacts				Complexity				Implementation				
	Motorist			Pedestrian			Bicyclist			Transit User			Other															
	Safety	Mobility	Accessibility	Safety	Mobility	Accessibility	Safety	Mobility	Accessibility	Safety	Mobility	Accessibility	Community	Aesthetic	Quality-of-Life	Environmental	Utility	Right-of-Way	Overall	Overall Impacts	Additional Planning	Design Effort	Overall Complexity	Approximate Cost	Safety Need	Safety Benefits	Non-safety Benefits	Priority
Very Near-term Program (0 to 2-year timeline)																												
1 Vertical Clearance Warning Improvements at Railroad Bridge	Y	Y	N	N	Y	N	N	Y	N	Y	Y	N	Y	N	Y	L	L	L	L	L	L	L	L	L	H	H	M	H
2 Phase 1 Speed Mitigation for Old Kings Highway South	Y	N	N	Y	Y	N	Y	Y	N	N	N	N	Y	N	Y	L	L	L	L	L	L	L	L	L	M	H	L	M
3 Pavement Marking and Signing Improvements – by Town/Darien	Y	Y	N	N	N	N	Y	Y	N	N	Y	N	Y	N	Y	L	L	L	L	L	L	M	L	L	L	M	M	M
4 Pavement Marking and Signing Improvements – by CTDOT	Y	Y	N	Y	Y	N	Y	Y	N	N	N	Y	Y	N	Y	L	L	L	L	L	L	M	L	L	M	M	M	M
5 Bus Stop Signing Improvements	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	Y	L	L	L	L	L	L	L	L	L	L	L	L	L
6 Bus Stop Amenity Improvements	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	Y	L	L	L	L	L	L	M	L	L	L	L	L	L
7 Town of Darien Website Updates	N	N	Y	N	N	N	N	N	N	N	Y	Y	Y	N	N	L	L	L	L	L	L	L	L	L	L	L	L	L
8 Bike Rack Deployment	N	N	N	N	N	N	N	Y	Y	N	N	N	Y	N	Y	L	L	L	L	L	L	L	L	L	L	L	L	L
Near-term Program (3 to 5-year timeline)																												
1 Feasibility Study for Drainage Improvements at Railroad Underpass	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	NA	NA	NA	NA	NA	M	L	L	M	H	H	H	H
2 Pedestrian Improvements at Day Street	Y	N	N	Y	Y	Y	N	N	N	Y	N	N	Y	Y	Y	L	L	L	L	L	L	M	L	L	H	H	M	H
3 Phase 2 Speed Mitigation for Old Kings Highway South	Y	N	N	Y	Y	Y	Y	Y	N	N	N	N	Y	N	Y	L	L	L	L	L	L	M	L	L	H	H	M	H
4 Phase 1 Program of Pedestrian Safety Improvements	Y	N	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	Y	L	M	L	L	L	M	M	M	M	H	H	M	H
5 Phase 2 Program of Pedestrian Safety Improvements	Y	N	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y	Y	L	M	L	L	L	M	M	M	M	H	H	M	H
6 Trial Road Diet – Nearwater Lane to Rings End Road	Y	N	N	Y	N	N	Y	Y	Y	Y	N	N	Y	N	Y	L	M	L	L	L	M	M	M	M	M	M	L	M
7 Road Diet – Sedgwick Avenue to Old Kings Highway North	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	L	M	L	L	L	L	M	L	M	M	M	H	M
Mid-term Program (6 to 10-year timeline)																												
1 Street and Intersection Improvements – Leroy Ave to Corbin Dr	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	M	M	M	M	M	H	M	M	M	M	H	M
2 Road Diet – Nearwater Lane to Hecker Avenue	Y	N	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	L	M	M	M	M	M	H	M	M	M	M	H	M
3 Interchange 11 Northbound Ramps and Street Improvements – Hecker to Leroy	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	M	M	L	M	M	M	H	M	M	M	M	H	M
Long-term Program (Greater than 10-year timeline)																												
1 Drainage Improvements at Railroad Underpass	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	H	H	H	H	H	L	H	H	H	H	H	H	H
2 Center Street-Tokeneke Road-West Avenue Improvements	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	M	M	M	M	H	H	H	H	M	M	H	M
3 Enhanced Intermodal Node at Train Station	N	N	N	N	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	L	M	M	M	M	M	M	M	H	L	L	H	L
4 Tokeneke Road – Old Kings Highway North Connection	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	Y	N	Y	M	H	H	H	H	M	H	M	VH	L	L	H	L

Source: CHA, 2012
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA, 2012

Ratings Key

Benefits provided by the projects are rated as Yes (Y) or No (N).
Impacts and Complexity are rated as Low (L), Moderate (M), High (H), or Not Applicable (NA).
Approximate Costs are rated as Low (L), Moderate (M), High (H), or Very High (VH).
Safety Need, Safety Benefits, and Non-safety Benefits of projects are rated as High (H), Moderate (M), or Low (L).
Priority is rated at High (H), Medium (M), or Low (L).

5.A.7 On-going Transportation Improvement Initiatives

There are several transportation improvement initiatives that could occur progressively over time and are not tied to any specific improvement project outlined in the very near, near, mid, and long-term programs of this plan. These initiatives include:

> **Site-specific Improvements:**
> There are several locations where access management improvements have been integrated into the corridor improvement plan. These are illustrated in:
> - **Figure 4-2.** Located opposite Rings End Road.
> - **Figure 4-3.** Located opposite Hecker Avenue.
> - **Figure 4-6.** Northeast quadrant of Corbin Drive intersection.
> - **Figure 4-9.** Southbound Side Route 1 North of Brookside Rd.
> - **Figure 4-9.** Southeast quadrant of Old Kings Highway North intersection.

- **Access Management Improvements.** In general, access management improvements – such as driveway closure, driveway consolidation, rear driveway access – will be implemented in the corridor in conjunction with new development or redevelopment of existing parcels and uses in the corridor. The access management measures that are ultimately implemented will be defined by the access needs and location of the proposed site and will approved by the Town through the site plan approval process of the Planning and Zoning Commission.
- **Local Street/Driveway Network Improvements.** Figures 4-6 and 4-7 illustrate potential opportunities for new interconnections between local streets, commercial driveways, and Route 1 that would serve to improve access, circulation, and walkability within the Central Business District. Because the implementation of these network improvements would require the assemblage of rights-of-way across numerous parcels, it is anticipated that the improvements, whether in whole or in part, could be implemented or accommodated in conjunction with future redevelopment plans for the parcels on which these new network connections would be provided. The Town can incentivize private developers to finance and implement these improvements as a contingency of the site plan approval process (see Section 5.B.2, page 5-24 for details).
- **Transportation Demand Management (TDM) Strategies**. Several TDM strategies that aim to reduce the daily traffic impact of single occupancy vehicle use on the roadway network are implemented through policy initiatives, rather than physical transportation improvements. These policy initiatives can be endorsed by the Town and region, but will generally be implemented by private employers and utilized by individuals. Examples of these policy initiatives include staggered work schedules, telecommuting, incentivized transit use, and incentivized carpooling. Employers of any size can participate, but some initiatives – particularly incentive-based programs – are more suitable to larger employers in Darien (such as Whole Foods Market).

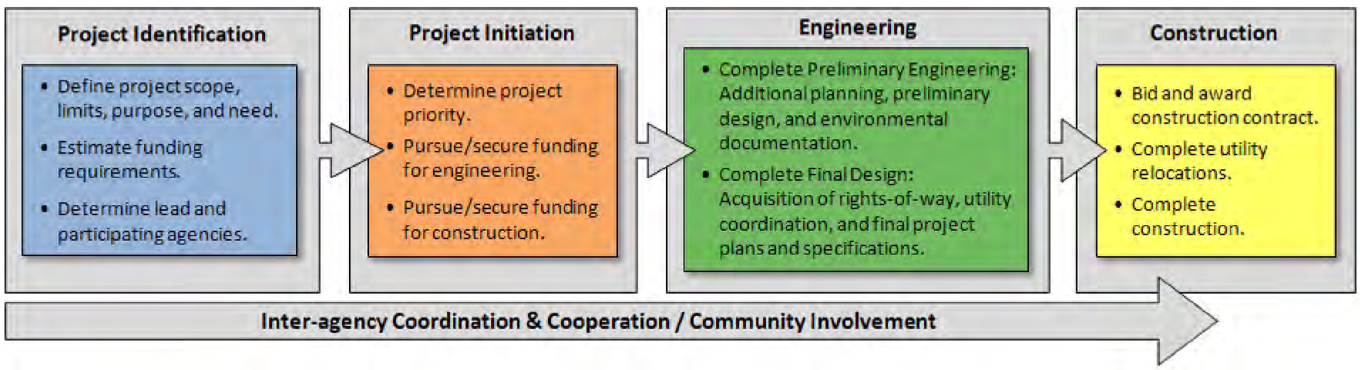
5.B Implementation Process

The implementation of the transportation improvement recommendations and projects presented in Sections 4 and 5A will generally follow a traditional implementation process that is initiated and led by a public entity (typically Town of Darien) and carried through implementation by traditional funding mechanisms and design-bid-build processes. Some projects could be initiated and implemented by private entities or private developers through a variety of other, non-traditional mechanisms. Details of both the traditional implementation process and other non-traditional implementation mechanisms are discussed in this section.

5.B.1 Traditional Implementation Process

The traditional process by which many of the transportation improvement recommendations and projects will be implemented is illustrated in Figure 5-1.

Figure 5-1. Traditional Implementation Process.



As shown in Figure 5-1, the traditional implementation process is generalized into five steps: project identification, project initiation, engineering, construction, and on-going inter-agency coordination and cooperation and community involvement. Not all projects outlined in the plan will involve all steps to all degrees, particularly low-complexity, *non-construction* projects (such as website updates), but most projects will require scoping, prioritization, funding, and some level of cooperation among various involved agencies and the community in order to be successfully implemented.

Project Identification

The first step in the process requires the identification of discrete projects or initiatives that can be advanced independently to address the specific needs of the study area. In general, this step includes the following activities:

- Defining the scope, limits, purpose, and need for the project.
- Estimating the construction cost of the project to help determine what the funding requirements and funding mechanisms could be.
- Determining the lead agency and participating agencies or responsible parties who will be involved in the implementation process. For most projects, the Town of Darien, working with SWRPA and CTDOT (as necessary), will be responsible for identifying and promoting the projects the Town wants to move to the next step of the process. Whether the project becomes a locally funded or a State/Federally funded project (see Project Initiation) will determine which agency maintains the lead through implementation.

The transportation improvement program outlined in Section 5A, with the associated planning-level construction costs and prioritization ratings for each project, was developed as a guide to identifying projects for implementation. This guide should be used by the Town, SWRPA, and CTDOT as a starting point for the implementation process.

Project Initiation

The second step in the process requires the Town of Darien, working with SWRPA and CTDOT (as necessary), to initiate the process of moving the project forward to design and construction. In general, this step includes the following activities:

- Prioritizing the project within the context of other competing initiatives in the Town, region, and State.
- Pursuing and securing funding for the engineering and construction of the project. Depending on the overall complexity and cost of the project, it might be necessary to secure funding in two phases: first for engineering, second for construction.

The Town can begin initiating projects immediately by working with the Town boards, SWRPA, and CTDOT, as required, to identify appropriate funding opportunities to pursue.

Traditional Funding Programs. It is anticipated that most improvements that follow the traditional implementation process will be publically funded through local and State/Federal funding sources.

State and Federally funded projects can be financed through one of numerous funding programs as long as the project meets the eligibility requirements of that funding program and is approved to receive those funds through a competitive application process. In general, State and Federally funded projects must be incorporated into the regional Transportation Improvement Program (TIP) and Statewide TIP (STIP), which is a four-year financial document that lists all projects expected to be funded in those four years with Federal and State participation.

Current Federal[37] and State funding programs for which projects in the study area could be eligible include:

- Surface Transportation Program (STP).
- National Highway System (NHS) Program.
- Congestion Mitigation and Air Quality (CMAQ) Program.
- Federal Transit Administration (FTA) Programs.
- Special Tax Obligation (STO) Bonds.

It is noted that CTDOT has already committed funds that are available under the current programs to projects through 2016. See CTDOT's *Transportation Infrastructure Capital Plan 2012 – 2016* (hyperlink).

Locally funded projects can be financed from the Town's capital improvement program and will be subject to the Town's annual budget approval process. Many of the Federal funding programs will also require local participation in the funding, which typically equates to 10% to 20% of the construction cost of the project.

Other Funding Opportunities. Given the fiscal constraints of local, State, and Federal funding opportunities, it is recommended that the Town establish a business improvement district (BID) within Downtown through which tax-based contributions from district businesses can be used to finance public infrastructure improvements within the BID.

The Town should also incentivize private developers to finance and implement various recommendations included in this plan as a contingency of the site plan approval process (see Section 5.B.2, page 5-24 for details).

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37 Author's Note: The current Federal transportation funding and policy bill, *Moving Ahead for Progress in the 21st Century Act* (MAP-21), was signed into law in July 2012 and provides over $100 billion for surface transportation programs through fiscal year 2014.

Engineering

Engineering can be initiated once funding has been appropriated to a project. This step in the implementation process is described here in two key phases, including:

- **Preliminary Engineering,** including additional planning (as required), preliminary design efforts, and environmental documentation to satisfy CEPA/NEPA requirements, if applicable. The Preliminary Engineering phase for most large-scale projects would include the selection of a preferred alternative to be advanced to the Final Design phase.
- **Final Design,** including the acquisition of rights-of-way, utility coordination, and the preparation of final design plans and specifications.

Most low-complexity projects in this plan will take less than one year to design (if required); moderate-complexity projects less than three years; and high-complexity projects three years or more.

Construction

The final step in the implementation of a project is construction. Construction activities include bidding and awarding the project; relocating public and private utility infrastructure; and physical implementation of the improvements.

Most low-complexity projects in this plan will take less than one year to construct; moderate-complexity projects less than two years; and high-complexity projects two years or more.

Inter-agency Coordination and Cooperation / Community Involvement

Coordination and cooperation among the Town of Darien officials, SWRPA, and CTDOT should be on-going throughout the project implementation process to ensure that priority projects, once identified, are progressed in a timely manner through the process. Successful implementation of the projects outlined in this implementation plan – particularly the more complex mid and long-term projects – will be contingent upon the early coordination efforts required to secure funding through State and Federal funding programs. This part of the process, which includes inclusion of the project into the regional TIP and STIP, can be a lengthy process as individual projects must compete for limited funding resources against other priority projects in the region and State.

The involvement of local residents, business owners, Town officials, and other stakeholders in the project implementation process should also be on-going. The community's collective desire to champion and facilitate the initiation of various projects is one of the most critical elements to successfully implementing the projects outlined in this plan. Without strong community support, many of the projects in this plan may never be initiated.

5.B.2 Non-traditional Implementation Mechanisms

It is possible that some projects or recommendations could be implemented by private developers using primarily private funding sources. Mechanisms by which these projects or project elements could be implemented include:

- **Office of the State Traffic Administration (OSTA) Certification Process.** Any development proposal that will be a major traffic generator must apply for an OSTA certificate. Certification could require the private developer to mitigate potential traffic impacts of the development by improving affected traffic signals or affected sections of Route 1. Where practical, these improvements should be consistent with the recommendations of this plan.
- **Town Site Plan Approval Process.** As discussed under *Other Funding Opportunities*, page 5-23, where appropriate, the Town should incentivize private developers to finance and implement various recommendations included in this plan as a contingency of the site plan approval process. Potential mechanisms include density bonus incentives (which would help achieve target densities in the CBD), or reduced parking requirements.
- **Sponsorship Programs.** Sponsorship programs have been implemented in some communities to provide benches, bike racks, and other amenities that are paid for and donated by local businesses and organizations.

5.B.3 Implementation Plan Monitoring

The South Western Regional Planning Agency (SWRPA) will work with the Town of Darien, CTDOT, and other stakeholders to monitor the implementation plan. This will be a dynamic effort initiated by SWRPA on an annual or as-needed basis to review and update the plan relative to:

- **Project Status.** Projects moving through the implementation process will be tracked in terms of which stage of the process each project has reached (such as initiation/funding, preliminary engineering, final design, construction). Next steps, timelines, and roles/responsibilities of various entities involved in the process will be updated for each project.
- **Project Priorities.** The need and urgency for various projects can change over time as community priorities shift, critical needs are reevaluated, and funding opportunities arise. The priority level of projects in the plan will be regularly reviewed and updated relative to other projects in the town and region so that the highest priority projects are identified and advanced in a timely manner.
- **Funding and Implementation Opportunities.** Both traditional and innovative public and private-sector mechanisms for funding and implementation will be identified for each project. SWRPA will help determine the eligibility of various projects for State and Federal funding programs (see *Traditional Funding Programs* under Project Initiation on page 5-23).

Appendix I.i

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Appendix I.ii

Glossary of Technical Terms and Acronyms

Glossary of Technical Terms and Acronyms

AASHTO: American Association of State Highway and Transportation Officials.

Access Density: Number of access points – including residential drives, commercial drives, and intersecting roadways – within a defined section of roadway; typically measured in number-of-access-points-per-mile.

Access Management: Proactive management of vehicular access points to land parcels adjacent to all manner of roadways. Good access management promotes safe and efficient use of the transportation network and encompasses a set of techniques that state and local governments can use to control access to highways, major arterials, and other roadways (*FHWA definition*).

ADA: Americans with Disabilities Act (ADA), requires access to the public right-of-way be provided for people with disabilities and visual impairments. This includes providing accessible sidewalks, street crossings, and pedestrian push buttons at traffic signals. ADA accessibility is a requirement for any project that receives federal funding.

ADAAG: Americans with Disabilities Act Accessibility Guidelines, provide guidance and standards for providing accessible facilities including sidewalks and sidewalk ramps, street crossings, and pedestrian push buttons at traffic signals.

ADT: Average Daily Traffic, measured in vehicles per day (vpd), is the total volume of two-way traffic passing through a defined segment of roadway in a 24-hour period.

BID: Business Improvement District.

CBD: Central Business District.

CEPA: Connecticut Environmental Policy Act.

CMAQ: Congestion Mitigation and Air Quality.

Collision Types (Vehicular):

- Rear-end Collision: Collision involving impact to rear of one vehicle from the front of another vehicle.
- Sideswipe Collision: Collision involving impact between the sides of two vehicles traveling in the same or opposite directions.
- Fixed Object Collision: Collision involving impact of a vehicle with an permanent feature outside the roadway surface.
- Turning Collision – Opposing Direction: Collision involving impact between a turning vehicle and another vehicle traveling in opposite directions on the same roadway.
- Turning Collision – Same Direction: Collision involving impact between a turning vehicle and another vehicle traveling in the same direction on the same roadway.
- Turning Collision – Intersecting Paths: Collision involving impact between a turning vehicle and another vehicle traveling in perpendicular directions on intersecting roadways or driveways.

Complete Streets: Streets designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and public transit users of all ages and abilities are able to safely move along and across a complete street.

CTDOT: Connecticut Department of Transportation.

Glossary of Technical Terms and Acronyms (continued)

CTTRANSIT: Connecticut Transit.

EBS: Enhanced Bus Service.

FAR: Floor Area Ratio. Ratio of total building floor area to the area of land on which a building is located, thereby identifying the relative bulk of the building.

FEMA: Federal Emergency Management Agency.

FHWA: Federal Highway Administration.

FTA: Federal Transit Administration.

Functional Classification: The characterization of a roadway by the type of service it provides relative to mobility and land access. Basic functional classifications for urban roadways include:

- Principal Arterials: Serve major centers of activity of urbanized areas, the highest traffic volume corridors, and carry a high proportion of total area travel despite constituting a relatively low percentage of the total roadway network. Principal arterials carry most of the trips entering or exiting urban areas, as well as most through movements including inter-city and inter-regional travel (*from AASHTO definition*).
- Minor Arterials: Interconnect and augment the primary arterial system, placing more emphasis on land access and less on traffic mobility than principal arterials (*from AASHTO definition*).
- Collectors: Provide both land access and traffic circulation within residential neighborhoods and commercial and industrial areas. Collectors serve to distribute trips from their scattered origins and destinations to the arterial system (*from AASHTO definition*).
- Local Roads: Serve to provide direct access from abutting lands to higher order road systems (*from AASHTO definition*).

GIS: Geographic Information Systems.

LOS: Level of Service. Qualitative measure of traffic operations. For intersections, LOS reflects the average delay experienced by vehicles at the intersection. Values can range from A to F. LOS A represents the best operational conditions with little delay. LOS F represents generally congested conditions with long delays and traffic queues. For this study corridor, LOS D or better represents an acceptable degree of congestion; LOS E and F represent unacceptable degrees of congestion. Table shows LOS criteria for signalized and unsignalized intersections.

LOS	Average Delay (sec/veh)	
	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	> 80	> 50

MTA: Metropolitan Transit Authority.

NEPA: National Environmental Policy Act.

OSTA: Office of the State Traffic Administration.

Paratransit: Special public transit services provided to senior citizens and persons with disabilities who are unable to ride regular fixed-route bus systems.

PZC: Planning and Zoning Commission of the Town of Darien.

Glossary of Technical Terms and Acronyms (continued)

Queue: Line of vehicles that forms on the approach to an intersection due to traffic control delay. The 50^{th} percentile queue is the average queue length.

ROW: Right-of-way, for public streets.

Smart Growth: A set of urban planning and transportation precepts that provides for the concentration of growth in the center of a city to avoid urban sprawl. Its goals are to expand the range of transportation, employment, and housing choices in a manner that achieves a unique sense of community and place. Smart Growth principles advocate compact, transit-supportive land uses comprised mostly of mixed-use development with a range of housing choices.

STIP: Statewide Transportation Improvement Program.

STO: Special Tax Obligation.

STP: Surface Transportation Program.

SWRPA: South Western Regional Planning Agency.

Synchro: A proprietary software application used for traffic analysis.

TAVS: CTDOT's *Traffic Accident and Viewing System.*

TDM: Transportation Demand Management.

TIP: Transportation Improvement Program.

TMSADT: CTDOT's Traffic Count Locator Program.

USDA: United States Department of Agriculture.

VMT: Vehicle Miles Traveled.

VPD: Vehicles per day, unit of measure for average daily traffic (ADT).

ZBA: Zoning Board of Appeals of the Town of Darien.

Appendix 1.1

Public Involvement Summary (2012)

Public Involvement Summary

This report describes the role of public involvement in *Darien Route 1 Corridor Study* process (see Section 1.C, pg. 1-4, for details of the study process). Included are descriptions of the primary outreach mechanisms that were utilized to solicit community and stakeholder input throughout the study and at key milestones in the process. Also included are detailed summaries of the five community open house and stakeholder meetings that were conducted between 2010 and 2012 to present the study progress and to provide a forum for open house discussions on the findings and recommendations of the study.

Role of Public Involvement

The recommendations and implementation plan presented in Sections 4 and 5 of the study report reflect a long-term vision for the corridor that was defined by stakeholders through an iterative and collaborative planning process. This process involved the active participation of study stakeholders, including the citizens of Darien, Town representatives, the South Western Regional Planning Agency (SWRPA), the Connecticut Department of Transportation (CTDOT), and other local and regional entities through a variety of outreach mechanisms. Input provided to the study through this process helped focus the study efforts on priority concerns – such as pedestrian safety and walkability in Downtown – and helped tailor the nature and content of the Implementation Plan (see Section 5) to the needs of the community. Ultimately, it is intended that involving the community in the decision-making process will help build consensus and support for the study and its recommendations, thereby facilitating an easier road to implementation.

Public Involvement Goals and Objectives

Goal: Maintain Open and Direct Dialogue with Stakeholders

Objectives:

- Utilize a variety of outreach mechanisms to solicit input from all interested parties
- Make study information readily available and accessible to stakeholders for review
- Develop study materials that are easily understood by technical and laypeople alike

Goal: Effectively Respond to Stakeholder Input

Objectives:

- Listen to, understand, and respond to comments, concerns, and perspectives
- Adapt plans/strategies to reflect evolving study needs and priorities

Goal: Achieve Consensus for Study Recommendations

Objectives:

- Balance various stakeholder needs and interests
- Incorporate context-sensitive solutions

Outreach Mechanisms

A variety of mechanisms – including meetings, surveys, and media outlets – were utilized during the study to maintain a two-way dialogue and exchange of information with the community and to obtain direct input on the issues, needs, and priorities for the Route 1 corridor relative to the transportation and land use goals and objectives that were established for the study area. These outreach mechanisms are described on the following pages and included:

- Study Committee Meetings with Town, SWRPA, and CTDOT representatives.
- Community Open House and Stakeholder Meetings with a Community Stakeholder Group and other community participants.
- Surveys of visual character preferences, community priorities, and corridor issues.
- Study information outlets that provided study materials and progress updates via a study web site, newsletters, library postings, and local media coverage.

Study Committee Meetings

A Study Committee (SC) comprised of SWRPA staff, CTDOT staff, and Town of Darien officials participated in a kick-off meeting on January 2010 and conducted five additional SC meetings over the course of the study. SC members from the Town included the Director of Planning and Zoning, Director of Public Works, Manager of Community Development Services, and representatives from the executive office and police department. The purpose of the SC meetings and role of the SC included:

- Refining and overseeing the public involvement activities.
- Reviewing technical products of the study.
- Providing input to the development of the recommendations and improvement plan.

Community Open House and Stakeholder Meetings

A Community Stakeholder Group (CSG) comprised of community representatives identified by the Town and SWRPA were invited to participate directly in various components of the study process including community/stakeholder meetings. CSG members included local business owners, residents, transit service providers, and various representatives of local interest groups, civic organizations, and business organizations. CSG members received study communications – such as newsletters, and meeting invitations – directly via email throughout the course of the study. CSG members and other public attendees were invited to participate in five community open house and stakeholder meetings including:

- **March 4 and April 8, 2010, Community Open House Meetings.** The purpose of these meetings was to officially kick-off the study in the community by informing attendees about the purpose and scope of the Route 1 Corridor Study, and soliciting input from attendees relative to their insights and concerns about the walking, driving, biking, commuting, living, and working in the study area.
- **June 10, 2010, Community Open House Meeting.** The purpose of this meeting was to provide an update on study progress; report on community input from the Community Open Houses held in March and April 2010; and present the findings of the Existing Conditions Assessment relative to transportation conditions and issues, and potential Downtown development opportunities.
- **November 4, 2010, Community Open House Meeting.** The purpose of this meeting was to provide an update on study progress; present potential traffic growth associated with Downtown development opportunities; and present preliminary transportation improvement alternatives.
- **March 3, 2011, Stakeholder Meeting.** The purpose of this meeting was to solicit additional input on the preliminary improvement alternatives and strategies (previously presented at the Community Meeting on November 4, 2010) through targeted outreach to stakeholders.
- **June 6, 2012, Community Open House Meeting.** The purpose of this meeting was to present the transportation improvement recommendations and to discuss the implementation plans for very near, near, mid, and long-term improvement programs. Public comments and questions were solicited in preparation for finalizing the study recommendations. This was the last community meeting to be conducted during the development of the study recommendations and final report.

These meetings were promoted in the local media and via the study web site and meeting invitations sent directly to CSG members.

Detailed summaries of these five meetings are provided at the end of this report.

Surveys

Several informal surveys were conducted during the Community Open House meetings in March and April, 2010, including:

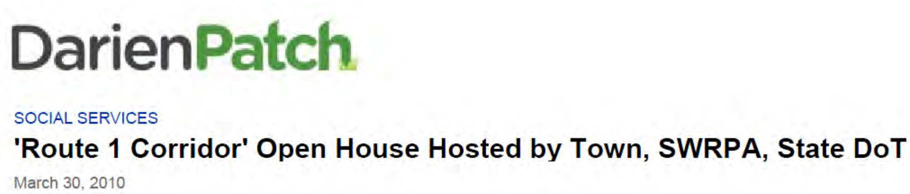
- **Visual Character Survey.** This survey was conducted to gauge citizen attitudes toward development in general along the Route 1 corridor in Downtown Darien and to gain a better understanding of visual preferences related to land use, architecture, and streetscape.
- **Survey of Community Priorities and Corridor Issues.** These surveys were conducted to understand participants' priorities relative to various types of improvements that could be recommendations of this study and to understand what areas of the study corridor are of greatest concern to the community and why. Attendees were provided four colored dots and were asked to place their dots on one or more of seven categories shown on a large board. The seven categories – driving, walking, bicycling, parking, transit, development, and „do-nothing' – represented the various types of improvements that could be recommendations of this study. The number of dots placed in each category represented the relative priority the participant would assign to various types of recommendations. The purpose of the activity was to help illustrate where participants thought study efforts should be focused.

  The results of the activity showed that participants showed interest in all improvement categories, with driving, walking, and development-related improvements being rated the top three priorities of the 51 participants in the activity.

Study Information Outlets

Study information, including progress updates and technical materials, were disseminated to the community and stakeholder groups via a variety of outlets, including:

- **Study Web Site.** SWRPA maintained a study web site at www.darienroute1study.org that was accessible via links from other web sites hosted by SWRPA, Town of Darien, and Darien Library. The web site provided information on the study; alerted the public to opportunities to provide input at community meetings; and served as a repository for study documents and updates available to the public. Study "business" cards were developed to promote the study and the study website. These cards were made available to attendees at community meetings, local businesses, and other public and community venues (such as the Darien Library and Town Hall).
- **Newsletters.** Several study updates were published in the form of newsletters that provided latest information on progress, findings, and next steps.
- **Library Postings.** Study documents were made available for public review at the resource desk of the Darien Library.
- **Local Media Coverage.** Darien's government access television channel, TV79, recorded and rebroadcast several of the community meetings. Additionally, several articles about the study were run in local internet and print media including the *Darien Times, Darien News,* and *Darien Patch.*



Community Open House & Stakeholder Meeting Summaries

Community Open House Meeting

Summary of March 4 and April 8, 2010 Meetings

Route 1
Corridor Study
Boston Post Road
Darien, CT

Overview

Community Open House Meeting Dates and Locations:

- Thursday, March 4, 2010 from 7 p.m. to 9 p.m.
  Darien Town Hall, 2 Renshaw Road, Darien, CT, Room 206
- Thursday, April 8, 2010 from 2:15 p.m. to 4:15 p.m.
  Darien Library, 1441 Post Road, Darien, CT

Purpose: The primary purpose of the community open house meetings was to officially kick-off the study in the community by:

- Informing attendees about the purpose and scope of the Route 1 Corridor Study.
- Soliciting input from attendees relative to their insights and concerns about the walking, driving, biking, commuting, living, and working in the study area.

Format: Both community open house meetings were conducted in an open-house format that provided an opportunity for Darien residents, business owners, commuters, and other local stakeholders to attend the meetings at their convenience and to review informational exhibits, participate in three hands-on activities, and speak one-on-one with members of the study team.

The content of the exhibits and handouts were the same for both meetings. Handouts included small cards displaying the study web site address; a "Study Overview" flyer containing key study information; and mail-back comment forms. The April 8, 2010 meeting included a brief presentation to introduce the attendees to the purpose of the study and to the hands-on activities being conducted at the meeting.

The meetings were held on two separate occasions at different times of the day to make attendance convenient and accessible for the community and to promote the highest level of community participation.

Attendance: Names added to the meeting sign-in sheets reflected a total public attendance of 63 citizens (18 and 45 for the March 4 and April 8 meetings, respectively; exclusive of study team member attendance). All attendees were encouraged to sign-in and join the study stakeholders list.

The majority of attendees were Darien residents and business owners. Study team members in attendance included Sue Prosi and Margaret Mixon from SWRPA; Andrea Aldrich, Jeremy Ginsberg, Lt. Don Anderson, First Selectman David Campbell, and Selectwoman Jayme Stevenson from Town of Darien; David Head, Kate Rattan, and Carla Iezzi from CT DOT; and Jeff Parker, Dave Sousa, and Casey Hardin from Clough Harbour & Associates.

Community Open House Meeting

Summary of March 4 and April 8, 2010 Meetings

Route 1
Corridor Study
Boston Post Road
Darien, CT

Summary of Public Input

Hands-On Activities: Attendees were asked to provide input to the study by participating in three hands-on activities that included:

"Tell Us Your Priorities…" Attendees were provided four colored dots and were asked to place their dots on one or more of seven categories shown on a large board. The seven categories – driving, walking, bicycling, parking, transit, development, and „do-nothing' – represented the various types of improvements that could be recommendations of this study. The number of dots placed in each category represented the relative priority the participant would assign to various types of recommendations. The purpose of the activity was to help illustrate where participants thought study efforts should be focused.

The results of the activity show that participants showed interest in all improvement categories, with driving, walking, and development-related improvements being rated the top three priorities of the 51 participants in the activity. One participant suggested adding "Drainage" to the list of potential improvements; this category was subsequently considered a priority by several participants. All participants agreed that doing nothing in the study area is not a priority.

51 attendees placed 204 dots in the following categories:

1. Driving – 62 (30%)
2. Walking – 42 (21%)
3. Development – 30 (15%)
4. Parking – 25 (12%)
5. Transit – 20 (10%)
6. Bicycling – 18 (9%)
7. Do Nothing – 0 (0%)
8. Drainage – 7 (3%)

"Share Your Local Insights…" Attendees were asked to describe any issues, areas of concern, or local insights that they thought would help inform the study team about the study area. *Post-It* notes documenting public input were placed on an aerial map of the study area in specific areas to help the study team understand what areas are of greatest concern to the community and why.

In addition to the input solicited through this activity, the study team also obtained valuable input through informal one-on-one conversations with attendees, and from written comments submitted to the study team via comment forms at the meetings, or via subsequent emails and other correspondence.

The notes on the following pages are a compilation of all of the comments received through *Post-It* notes at the two Open House meetings, through conversations with meeting attendees, and via written comments submitted to the study team (through April 30, 2010). These comments are categorized relative to concerns about pedestrians and bicyclists, traffic, the railroad bridge, land use and development, parking, transit, aesthetics, and other issues.

The study team notes that all public comments and suggestions will be evaluated and considered for incorporation into the study and its recommendations.

Pedestrian and Bicyclist Concerns:

- Concerns about pedestrian access to the library from Downtown.
- Pedestrian safety issues associated with proximity of the high-speed entrance ramp for northbound I-95 to the end of the sidewalk on the east/south side of Route 1. In general, attendees thought pedestrian facilities should be improved on both sides of Route 1 in this area.
- Concern about the lack of sidewalks and crosswalks on Kings Highway South. It was suggested that recommendations should include pedestrian improvements to this street.
- Need for pedestrian and aesthetic improvements under the I-95 overpass to encourage pedestrian activity and development south of I-95. Additionally, some attendees suggested that these types of improvement should be provided between the new Whole Foods Market/Ledge Road and the Darien Library at Hecker Avenue.
- Suggestion for a mid-block crosswalk at the movie theater, 1077 Boston Post Road.
- Suggestion for a bike lane along Route 1.
- Concerns about pedestrian safety at the Corbin Drive/Route 1 intersection due to the high number of right-on-red turns, both from Route 1 to Corbin Drive and from Corbin Drive to Route 1. It was suggested that an alternate pedestrian crossing could be provided at Brook Street.
- Suggestion for improving pedestrian signals and crosswalks throughout Downtown.
- Suggestion to provide sidewalks on roads within one mile of downtown Darien to encourage and allow for pedestrian access. It was noted that there is a gap in sidewalk on Tokeneke Road between Route 1 and I-95.
- Concerns about sidewalk gaps north of downtown presenting major issues for pedestrians.
- Suggestions by numerous attendees to improve sidewalks throughout the downtown area.
- Concerns about sidewalk discontinuity on Sedgwick Avenue between Mansfield Avenue and Route 1. It was suggested that a sidewalk connection should be provided between Mansfield Avenue and Route 1 along Sedgwick Avenue to improve pedestrian access to Route 1.
- Concerns from numerous attendees about pedestrian accommodations being deficient on Old Kings Highway South, given that "many walkers and joggers use this road" and "many children live on this road."
- Concern about the property adjacent to Cross Road frequently blocking the use of the sidewalk through its parking lot. Several attendees felt that the businesses in this area can be more sensitive to pedestrian uses along Route 1.
- Suggestion to focus on the pedestrian environment in the corridor including improving crosswalks in areas where there is on-street parking.
- Suggestion to provide a more defined path on Old Kings Highway South for pedestrians.
- Suggestion to prohibit businesses from blocking sidewalks or walking areas with parked cars.
- Suggestion to provide better crosswalks and pedestrian signals in Downtown, particularly at Center Street.

Traffic Concerns:

- Interest in the effect that the improvements to the Ledge Road/Route 1 and I-95 SB exit ramp intersection would have on traffic on Route 1. Numerous attendees expressed complaints about the existing intersection with the general consensus being that the improvements would be beneficial.
- Complaints about the signal timings along Route 1. Attendees generally felt that drivers accessing Route 1 from side roads have to wait too long for green lights during off-peak hours.
- Concerns about drivers speeding up to go through yellow lights, particularly at the Corbin Drive, West Avenue, and Leroy Avenue intersections with Route 1.
- Issues with motorists on Route 1 proceeding into intersections when downstream traffic queues prevent the vehicle from clearing the intersection, thereby blocking access from side roads when signals turn red. There was an interest expressed in "Don't Block the Box" signing throughout the corridor that would emphasize regulations prohibiting vehicles from blocking side road access.
- Suggestion for a "Signal Ahead" warning sign on the I-95 Exit 11 northbound off ramp.
- Suggestion for providing information to motorists on I-95 regarding traffic on Route 1 in Darien. This would help discourage the use of Route 1 as an alternate route to I-95 when Route 1 is already congested.
- Suggestion for separate right and left turn lanes at the Ledge Road-Noroton Avenue intersection. This intersection is an important point between Downtown Darien and the Noroton Heights railroad station near I-95 Exit 12.
- Suggestion to direct Whole Foods customers to I-95 North via Exit 12, not Exit 11. It was suggested that rerouting could be accomplished with wayfinding signs, beginning with placement at the Whole Foods.
- Identification of troublesome intersections including Route 1 at Corbin Drive and Sedgwick Avenue.
- Suggestion for making Ledge Road one-way away from Route 1.
- Suggestion for synchronized traffic signals at the Ledge Road and Leroy Avenue intersections to allow northbound vehicles to pass through the Ledge Road intersection and receive the exclusive left-turn phase onto Leroy Avenue.
- Suggestion for closing the Exit 11 northbound off ramp.
- Suggestion for making the Ledge Road and Leroy Avenue intersections and associated traffic signals less confusing to motorists.
- Concerns about vehicles queuing back along Leroy Avenue, north from Route 1, and blocking Hale Lane and Old Stone Road. It was suggested that a flashing traffic light at these locations could solve the problem.
- Suggestion for improving signage on the approach to and directly at the Route 1/Corbin Drive intersection.
- Suggestion for providing channelizing devices (such as flexible bollards) on the northbound Route 1 approach to Corbin Drive to prevent vehicles from proceeding straight through the right-turn-only lane on Route 1.

Traffic Concerns (continued):

- Suggestion for converting Squab Lane to one-way (from Route 1 to Leroy Ave) to eliminate the use of Squab Lane as a cut-through route.
- Concerns about cars parked on the southbound side of Route 1, north of Day Street, blocking sightlines for vehicles attempting to turn right from Day Street to Route 1.
- Concerns about motorists making prohibited left turns from southbound Route 1 to Tokeneke Road.
- Issue with turning into 815 Post Road (Starbucks) due to the high number of vehicles entering and exiting.
- Suggestion to connect Sedgwick Avenue to Tokeneke Road. This connection would require crossings of the Goodwives River and the railroad.
- Concerns about safety at the intersection of Route 1 and Brookside Road. It was noted that turning left from northbound Route 1 to Brookside Road is dangerous, potentially due to a crest in Route 1 just north of the intersection.
- Issues with the purpose of a tapered double yellow line (for a left turn lane from southbound Route 1 to Old Kings Highway North) not being intuitive to drivers.
- Comment about northbound vehicles on Route 1 traveling straight through the right turn lane at Old Kings Highway North.
- Suggestion for separate right and left turn lanes on the Noroton Avenue approach to Route 1.
- Suggestion to provide through travelers with signing to direct them to local bypass routes around downtown Darien.
- Suggestion that video cameras could help enforce the regulation prohibiting vehicles from blocking side road access.
- Note that Leroy Avenue could become more heavily used by locals and people traveling to/from New Canaan and Stamford when the Whole Foods Market opens.
- Suggestion to post *No Thru Traffic* signs on Old Kings Highway South, noting that cars speed and are a danger to area children.
- Suggestion to provide light at Cross Street and Renshaw Road.
- Suggestion to monitor speeds on Old Kings Highway South.
- Suggestion to implement measures to discourage drivers from exiting I-95 and using Route 1 as an alternate route.
- Suggestion to provide traffic cops at each side of railroad bridge during peak hours, as was done in the 1980s.

Railroad Bridge-related Concerns:

- Concerns about flooding and drainage issues at the railroad bridge over Route 1.
- Concerns about drainage issues under the railroad bridges on Route 1 and Leroy Avenue. It was suggested that pump stations could be installed to eliminate flooding and drainage issues.
- Suggestions for an underpass to connect Old Kings Highway South and North under the railroad tracks for vehicular and pedestrian use. It was noted that this connection would foster development by creating better downtown circulation for consumers and would provide some traffic relief to the Route 1 underpass which currently serves as a choke point to get under the railroad.
- Need to finally improve the appearance of the railroad bridge over Route 1 while addressing flooding issues.
- One merchant said that the area under the rail trestle needs to be more appealing for pedestrians to walk through, thereby better connecting Downtown. This could/should include better lighting and sidewalks at a minimum.
- One attendee noted that addressing flooding issues under the railroad bridge is a high priority for the Town.
- One participant expressed concern about conditions at the railroad bridge over Route 1 including drainage, sidewalk, illumination and visibility to trucks, and lack of sufficient advance notification of the vertical clearance restriction (11’-10” upon completion of current bridge improvements).
- One attendee suggested installing better drains under the railroad bridge, with pumps.
- One attendee suggested providing pumps at intersection of Route 1 and Tokeneke Road to address drainage and flooding issues

Land Use and Development Concerns:

- Need to design buildings in downtown to attract pedestrians. It was noted that the Bank of America building (1120 Boston Post Road) is an example of “bad building” design in this respect.
- Suggestion that a parking structure could help facilitate the redevelopment of a parking lot behind Darien Sport Shop as a shopping street. It was also noted that a tree on the Sport Shop property may require maintenance (*note: this tree has since been replaced*).
- Suggestion for rezoning both sides of Old Kings Highway South, between Corbin Drive and Center Street, to encourage retail development.
- Desire expressed by several attendees for area around Nearwater Lane to remain residential.
- Suggestion for when the area near Garden City Road redevelops, it should be residential, church, or non-profit, not “ugly sprawl.”
- Suggestion to keep commercial development to downtown Darien and to stop sprawl from “creeping” out toward Noroton.
- One merchant stressed the importance of new and diverse development and improved walkability to the sustainability of existing businesses in Downtown.

Parking Concerns:

- Suggestion for providing angled on-street parking on Route 1 between Ledge Road and Corbin Drive.
- Suggestions for providing additional signing to the municipal parking available east/south of Route 1, between Corbin Drive and Center Street.
- Suggestion to eliminate all on-street parking on Route 1 between Tokeneke Road and Day Street to provide additional traffic capacity.
- One attendee suggested prohibiting parking on Route 1 between I-95 and Fitch Avenue.
- One attendee suggested eliminating all on-street parking from Brookside Road to Darien Sport Shop.

Transit Concerns:

- Suggestion for better train service between New Haven and NYC (*note: service enhancements are not within the scope of this study*).
- Suggestion to provide queue-jumper lanes for buses at congested intersections throughout the corridor.
- One attendee suggested lobbying for more direct trains without transfers from New Haven to Darien and return trips during peak hours.

Aesthetic Concerns:

- Suggestion for replacing all trees removed during the construction of the Ledge Road/Route 1/Exit 11 southbound off ramp intersection. Several attendees noted that trees here help minimize the visual and noise impacts of I-95.
- Suggestion for a landscaped median at the intersection of West Avenue and Route 1.
- Comment about desire for gateway treatments in both directions on Route 1 for traffic approaching the downtown area.
- One attendee suggested beautifying I-95 overpass with mural or other treatments.

Other Issues and Concerns:

- Need for this study to protect historic buildings in key locations.
- Suggestion to relocate existing overhead utilities underground along Route 1.
- Suggestion for improvements to Tilley Pond Park including provisions for: a fence separating Lakeside Avenue from the park; paths throughout the park; and a playground.
- Suggestion for a better connection between Selleck Woods and downtown.
- Comment about the limits of the Route 1 study including Route 1 north of Old Kings Highway North.
- Concern about a dangerous traffic island that hinders northbound Route 1 traffic attempting to turn left onto Richmond Drive (outside the study area).
- Concern about the volume of traffic on Route 1 south of Nearwater Lane at times when I-95 is congested. It was also noted that the town YMCA wants to move their gymnastics program to the main YMCA campus (2420 Post Road) which could increase traffic at peak times (*note: this location is outside the study area*).
- One resident suggested changing the meeting venue (such as to the library) might attract more participants to meetings.
- A few residents stated a brief presentation on the study would be helpful.

Other Issues and Concerns (continued):

- Some participants expressed an interest in having focus groups during the day to share ideas and experiences about livability and safety in the corridor.
- Study team representatives clarified for attendees who was representing the Town, SWRPA, and CTDOT and clarified the role of each entity in the study.
- A reporter inquired about the cost of the study. CTDOT representatives explained the cost and the source of the funding, including the amount each agency contributes.
- One participant asked if this is a stand-alone study or if it ties into other plans or studies. Study team representatives explained that previous studies of the corridor will serve as resources for this study.
- Study team representatives explained the methodology used to establish the study boundaries.
- One participant mentioned that the usefulness of the Visual Character Survey was limited because it was too broad and that the study needs to focus on specific locations along the corridor to target appropriate development for each location.
- One merchant complained that sign regulations are too strict. (It is noted that sign regulations will not be assessed as part of this study effort.)
- YMCA Darien is doing a study with grant funding to determine how to make the community more active. The Executive Director is interested in pedestrian and bicycle accommodations and „complete streets' goals.
- One resident who lives near Exit 13 is having trouble getting into/out of their street from Route 1. The resident also complained about the recently-approved (not yet constructed) healthy food drive-thru restaurant, which they feel would exacerbate the problem.
- One attendee suggested conducting an open house prior to a Representative Town Meeting (RTM) meeting to encourage participation of RTM members.
- One attendee suggested monitoring traffic from new fast food restaurant at corner of Richmond and Route 1 (outside of study limits).
- One attendee suggested addressing the issue of shift in double yellow lines between Birch Road and Old Kings Highway North, movements are illogical (outside of study limits)

Visual Character Survey. Attendees were asked to rate 30 images representing various types of buildings and uses, development densities, streetscape design elements, parking facilities, and multi-modal design elements that could be recommended for the Route 1 corridor in Darien. Participants rated their reaction to each image on a rating scale of +3 (yes, this is what I would like to see in Darien) to -3 (no, I do not want to see this in Darien). The purpose of the activity was to provide the study team an understanding of which images the community characterizes as most appropriate and least appropriate for the Route 1 corridor in Darien.

The results of the survey (summarized separately in Appendix 2.10, pg. A2-41) demonstrate that the 37 participants generally preferred images of traditional, two to three story buildings close to the sidewalk with apartments/condominiums above retail uses; two-story lifestyle centers; sidewalk cafés with wide tree strips; bus stops with simple benches; and high visibility crosswalks with curb extensions.

Community Open House Meeting

Summary of Meeting on June 10, 2010

Route 1 Corridor Study
Boston Post Road
Darien, CT

Overview

Community Open House Meeting Date and Location:

- Thursday, June 10, 2010 from 2 p.m. to 4 p.m.
  Darien Library, 1441 Post Road, Darien, CT

Purpose: The purpose of the community meeting was to provide an update on study progress; report on community input from the Community Open Houses held in March and April 2010; and present the findings of the Existing Conditions Assessment relative to transportation conditions and issues, and potential Downtown development opportunities.

Format: The meeting featured a formal presentation by SWRPA's consultants followed by a question and answer period with the attendees. The presentation was preceded and followed by an informal open house where attendees reviewed study exhibits and spoke one-on-one with members of the study team.

The meeting time and location were selected based on the success of the well-attended Community Open House Meeting conducted on April 8 at the same time and location.

Attendance: Approximately 25 residents, business owners, and other stakeholders (exclusive of study team members) attended the meeting. All attendees were encouraged to sign-in and join the study stakeholders list.

Study team members in attendance included Sue Prosi and Floyd Lapp from SWRPA; Andrea Aldrich and Jeremy Ginsberg from the Town of Darien; David Head from CTDOT; and Jeff Parker, Dave Sousa, and Casey Hardin from Clough Harbour & Associates.

Meeting Materials: Meeting materials included several handouts (study web site "business card," comment forms, and a study overview flyer) and large-format meeting exhibits. The exhibits included:

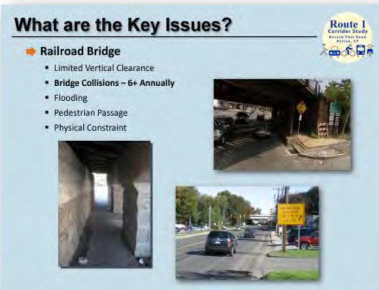
- *Summary of Existing Transportation Conditions* that illustrated key roadway issues, traffic conditions, accident data, and pedestrian and bicycle issues from the Existing Conditions Assessment.
- *Smart Growth Toolbox* that summarized 11 potential strategies that could be used to help Downtown Darien create Smart Growth.
- *Visual Character Survey Results* that summarized community preferences for various images related to buildings and uses, streetscape design, parking facilities, and multimodal design elements.
- *Comparison of Downtown Densities* that presented the development densities and parking ratios of the "Model Block" in Darien, New Canaan Town Center, and Central Business District in Rye, NY.

Community Open House Meeting

Summary of Meeting on June 10, 2010

Presentation: The formal presentation covered the following topics:

- *Study Overview* including definition of the study area; general study scope; and study status relative to the scope and public involvement process.
- *Summary of Community Participation* including an overview of community input and comments received from the Community Open Houses held in March and April 2010.



- *Summary of Key Issues* relative to accidents and safety; roadway characteristics and constraints; railroad bridge; traffic operations (with SimTraffic simulation); traffic mobility, circulation, and access; pedestrian accommodations and safety; bicycle accommodations; and transit services.
- *Land Use and Development* including the relationship between land uses and transportation systems; existing zoning and "blocks" in Downtown; and existing Downtown development density.
- *Desirable Downtown Density* based on the results of the Visual Character Survey obtained at the Community Open Houses and development densities of comparable downtowns.
- *Tools to Improve Downtown* including potential Smart Growth opportunities and zoning modifications.
- *Potential Development Opportunities* such as redevelopment of existing uses to provide mixed uses and to promote walkability; infill development; gateways; and parking structures.
- *Next Steps* including focus areas for preliminary improvement concepts and upcoming community participation milestone dates. Community meetings are planned for Fall 2010 and Spring 2011.

Community Questions and Comments

Attendees offered the following comments and questions during the community meeting:

- Tilley Pond overflows during heavy rains and the runoff travels down West Avenue to the railroad underpass contributing to the drainage and flooding issues at this location.
- An attendee questioned how the previous Darien revitalization studies and projects would influence the current project. The consultant noted that the study team is very familiar with previous efforts in the study area and that this study will maintain consistency with previous efforts as appropriate.
- Attendees suggested that a connection between Old Kings Highway South and Old Kings Highway North underneath the railroad could relieve traffic and congestion on Route 1. As a follow up, attendees questioned the likelihood and feasibility of a connection.

- An attendee questioned which day traffic counts were performed on and stated that they should be done on Friday's because that is the most congested day of the week on Route 1. The consultant stated that common planning practice is to perform weekday counts on Tuesday, Wednesday, or Thursday.
- An attendee noted that no mention had been made of providing affordable housing downtown.
- An attendee noted that traffic on Corbin Drive is too fast.
- An attendee noted that the traffic signal at Hecker Avenue does not seem to be timed correctly for the traffic volumes.
- Attendees noted the drainage problems under the railroad bridge and questioned whether the current bridge improvement project would resolve or improve the drainage issues. The consultant explained that the drainage issues could be reevaluated once the construction is complete and that the long-term solution would probably be to install a pump system to remove water from under the bridge.
- An attendee suggested that the traffic problems on Route 1 are caused by commuter's using Route 1 as a bypass to I-95. The attendee stated that these commuters are unlikely to provide drive-by business in Downtown.
- Several attendees commented that it is difficult to walk around Downtown due to long crossing distances and poor pedestrian signal equipment, which can make it difficult to perceive the proper time to cross intersections.
- An attendee questioned whether the study's existing traffic conditions captured traffic from the recently opened Whole Foods Market. The consultant noted that the traffic counts were done before the opening of the Whole Foods, but that future analysis includes projections from the Whole Foods Market traffic study.
- An attendee questioned if the study team has recommended converting Old Kings Highway South or West Avenue to one-way streets. The consultant said that while that had not been specifically considered, the study team has not ruled out any potential alternatives at this time.
- An attendee noted that the awkward lane configuration on southbound Route 1 immediately north of the intersection with Old Kings Highway North is a dangerous condition that should be addressed.
- An attendee suggested providing a shared use path between Selleck's Woods and Downtown through the existing railroad underpass for I-95.

The attendees responded positively to the presentation and question and answer period with a brief round of applause.

Next Steps

- Next Community Meeting: Scheduled for November 4, 2010, from 2 p.m. to 4 p.m. at the Darien Library. Purpose of meeting will be to review and discuss preliminary improvement alternatives and strategies.
- Final Community Meeting: Spring 2011. Purpose of meeting will be to review and discuss the Draft Implementation Plan.

Community Open House Meeting

Summary of Meeting on November 4, 2010

Overview

Community Meeting Date and Location:

- Thursday, November 4, 2010 from 2 p.m. to 4 p.m.
  Darien Library, 1441 Post Road, Darien, CT

Purpose: The purpose of the community meeting was to provide an update on study progress; present potential traffic growth associated with Downtown development opportunities; and present preliminary transportation improvement alternatives.

Format: The meeting featured a presentation by SWRPA's consultant that included an interactive dialogue with attendees about the specifics of various improvement alternatives and an open question and answer session. The presentation was preceded by an thirty-minute informal open house where attendees reviewed study exhibits and spoke one-on-one with members of the study team.

The meeting time and location were selected based on the success of the previous well-attended Community Meetings conducted on April 8 and June 10, 2010 at the same time and location.

Attendance: Attendance by the general public was poor as only four stakeholders (exclusive of study team members) attended the meeting. All new stakeholders were encouraged to sign-in and join the study stakeholders list.

Study team members in attendance included Sue Prosi and Kristi Knect from SWRPA; Jeremy Ginsberg and Lt. Don Anderson from the Town of Darien; Kate Rattan from CTDOT; and Jeff Parker and Casey Hardin from Clough Harbour & Associates.

Meeting Materials: Meeting materials included several handouts (*Preliminary Improvement Strategies Summary*, updated *Study Overview*, *Study Update No. 1*) and large-format meeting exhibits. The exhibits included:

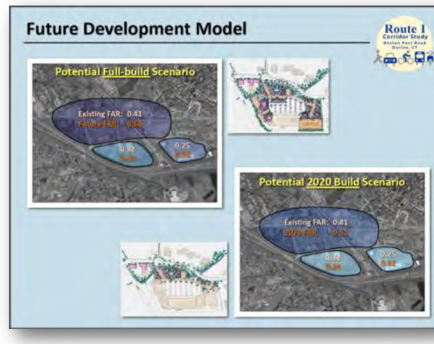
- *Preliminary Improvement Strategies* that outlined proposed strategies to improve roadway and driving conditions; bicycling; walkability; and transit use in the Route 1 study corridor.
- *Preliminary Improvement Opportunities* that illustrated specific improvements developed to address transportation needs and deficiencies in the study corridor.

Community Open House Meeting

Summary of Meeting on November 4, 2010

Presentation: The presentation covered the following topics:

- *Study Overview* including definition of the study area; general study scope; and study status relative to the scope and public involvement process.
- *Key Issues* relative to accidents and safety; roadway characteristics and constraints; railroad bridge; pedestrian accommodations and safety; bicycle accommodations; transit services; traffic mobility, circulation, and access; and traffic operations for the existing and future traffic conditions.
- *Development Potential and Traffic Generation* including potential development opportunities; future development scenario relative to full-build and 2020 density levels; and potential traffic growth from future development scenario.
- *Preliminary Improvement Alternatives* including an overview of general strategies for improving driving, bicycling, walkability, and transit use in the study corridor; and specific improvement alternatives for Downtown, I-95 Interchange 11, Noroton, and north of Downtown.
- *Next Steps* including request for community input; refinement of alternatives; development of implementation plan; and next community meeting date (planned for Spring 2011).



Media Coverage: The presentation and open discussion were recorded by Darien Government Access Television, TV79. The recording was broadcast locally.

Comments, Questions, and Open Discussion Topics

Attendees offered the following comments, questions, and discussion topics during the community meeting:

<u>Center Street-Tokeneke Road Improvements</u>

- An attendee noted that many school children are dropped off at the northbound platform of the Darien train station on weekday mornings which adds to congestion at the train station drives.
- An attendee questioned why there was no crosswalk shown on the northbound Route 1 approach to the West Avenue intersection. Jeff Parker explained that the preliminary recommendation does not include a crosswalk due to site limitations that would make it difficult to provide a crossing that meets ADA requirements. J. Parker noted that the feasibility of providing a crosswalk at this location would be reevaluated.
- Sue Prosi noted that one advantage for the Connecticut Department of Transportation (CTDOT) in removing the traffic signal at Tokeneke Road would be reduced maintenance costs.
- S. Prosi indicated that angled, back-in on-street parking could be considered for Tokeneke Road because of several benefits. J. Parker explained that back-in parking allows departing drivers better sightlines to approaching vehicles and bicyclists, and allows for curb side trunk loading. CTDOT has not approved the use of angled back-in parking on state roads, so its use on Tokeneke Road would be contingent upon Tokeneke Road (between Route 1 and Old Kings Highway South) becoming a local street as part of the improvement alternative.

- An attendee questioned if the study was evaluating a new railroad underpass to connect Old Kings Highway South to Old Kings Highway North. J. Parker said that the study team is evaluating the idea, but that the cost of the bridge and the connection is a concern. It was noted that the connection would improve downtown circulation, providing an alternative to the Route 1 underpass.
- An attendee noted that a significant number of train commuters walk from the train station east along the north side of Tokeneke Road, where there is currently no sidewalk. The attendee questioned whether there are opportunities to provide sidewalk in that area.

Corbin Drive Improvements

- Jeremy Ginsberg asked if on-street parking on Route 1 just south of Corbin Drive was still an alternative. J. Parker replied that provisions for on-street parking at this location remains an alternative. J. Ginsberg agreed with removing the existing back-out parking and noted that on-street parking could provide some additional benefits, including traffic calming. J. Parker added that on-street parking would be provided in conjunction with curb extensions at Corbin Drive to improve pedestrian visibility. S. Prosi noted that her preference is to not provide on-street parking at this location due to concerns about right turning traffic at Corbin Drive and pedestrian crossings.
- An attendee questioned whether exclusive pedestrian signal phases at Corbin Drive and other downtown intersections would have negative impacts on traffic flow, noting that pedestrians oftentimes activate the pedestrian signal button and cross before the signal phase is implemented, thus forcing an all-red vehicular phase when the pedestrian has already crossed. Lt. Anderson noted that planned signal improvements at the Mansfield Avenue (Route 124) intersection include exclusive pedestrian signal phases. S. Prosi noted that the implementation of an exclusive pedestrian phase at this location would be a good test location for how the pedestrian phase could affect traffic and delays.

I-95 Exit 11 Improvements

- S. Prosi questioned whether there are opportunities to consolidate the northbound on-ramps at Exit 11. J. Parker noted that this alternative would be evaluated.

Old Kings Highway South Improvements

- An attendee questioned why no crosswalk was proposed across Old Kings Highway South at the intersection with Route 1. J. Parker said there is no crosswalk because there is currently no sidewalk on the eastern side of Route 1 north of the intersection to connect to. J. Parker added that sidewalk improvements were not initially considered in this area because there is sidewalk along the western side of Route 1 and that there would be potential property impacts associated with providing sidewalks. J. Parker stated that the potential for new sidewalk in this area would be further evaluated.

Other Comments

- An attendee questioned whether 11 ft lanes are required. J. Parker confirmed that CTDOT standards require 11 ft lanes on Route 1 and added that the study team had inquired with CTDOT about providing 10 ft lanes in some constrained areas of the corridor. At this time, CTDOT standards dictate the use of 11 ft lanes with no exceptions.

- S. Prosi stated that Metro-North is currently evaluating train service improvements to Darien and along the New Haven Line. It was noted that recommendations for providing express service from Darien would be included in the study.
- An attendee noted that he is attempting to attract new tenants to a recently constructed office building on Old Kings Highway South. One problem he has heard from prospective tenants is the lack of parking at Metro-North stations in southwestern Connecticut and the concern that it will be difficult for employees to commute to Darien via train.
- An attendee noted that there is currently no sidewalk access along the exit-only train station driveway located opposite Tokeneke Road. Currently, commuters who park in the train station lots located south of the railroad and who are destined for the southbound train platform located north of the railroad, must walk in the driveway adjacent to traffic on their way to Route 1. J. Parker noted that the study team would evaluate the potential for short-term pedestrian improvements at this location.
- Lt. Anderson noted his concern that a reduction in traffic capacity in the southern portion of the corridor to provide the 'road diet' section would contribute to traffic delays on Route 1 during incident management situations on I-95, where traffic is diverted to Route 1.

Next Steps

- Next Community Meeting: Scheduled for March 3, 2011 at the Darien Library. Purpose of the meeting will be to solicit additional input on the preliminary improvement alternatives and strategies through targeted outreach to stakeholders.
- Final Community Meeting: Fall 2011. Purpose of meeting will be to review and discuss the Draft Implementation Plan.

Stakeholder Meeting
Summary of Meeting on March 3, 2011

Route 1 Corridor Study
Boston Post Road
Darien, CT

Overview

Stakeholder Meeting Date and Location:

- Thursday, March 3, 2011 from 6 p.m. to 7:30 p.m.
  Darien Library, 1441 Post Road, Darien, CT

Purpose: The purpose of the meeting was to solicit additional input on the preliminary improvement alternatives and strategies (previously presented at the Community Meeting on November 4, 2010) through targeted outreach to stakeholders.

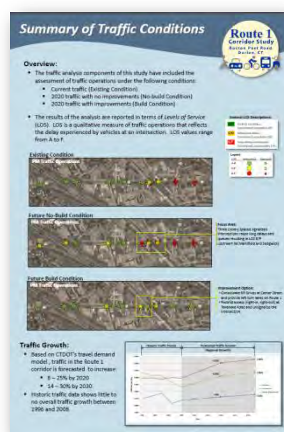
Format: The meeting included a brief presentation by SWRPA's consultant that provided an overview of the meeting exhibits and highlighted the primary objective of the meeting, which was to solicit stakeholder input. The presentation was followed by an interactive dialogue with attendees about the specifics of various improvement alternatives and an open question and answer session.

Attendance: The meeting was advertised to stakeholders by invitation. Approximately 15 stakeholders attended the meeting (exclusive of study team members). Stakeholders were encouraged to sign-in, but several did not.

Study team members in attendance included Sue Prosi, Floyd Lapp, and Kristi Knect from SWRPA; Jeremy Ginsberg and Lt. Don Anderson from the Town of Darien; Kate Rattan from CTDOT; Jeff Parker and Casey Hardin from Clough Harbour & Associates; and Dave Sousa from Wilbur Smith Associates.

Meeting Materials: Meeting materials included a *Complete Streets Strategies and Tools for Boston Post Road* pamphlet; several informational exhibits; and several large-format exhibits illustrating preliminary improvement opportunities. The exhibits included:

- *About Road Diets* that presented the concept of a road diet; its potential application in the Route 1 corridor; and potential benefits and drawbacks of road diets.
- *Assessment of CBD Development* that provided an overview of Downtown development opportunities and details of a potential development scenario including associated traffic growth and parking demands.
- *Summary of Traffic Conditions* that summarized the results of traffic operations analyses completed for the study including future „no-build' and „build' conditions.



- *Preliminary Improvement Strategies* that outlined proposed strategies to improve roadway and driving conditions; bicycling; walkability; and transit use in the Route 1 study corridor.
- *Preliminary Improvement Opportunities* that illustrated specific improvements developed to address transportation needs and deficiencies in the Route 1 study corridor.

Comments, Questions, and Open Discussion Topics

Attendees offered the following comments, questions, and discussion topics during the meeting:

Discussion of Study Timeline

- Jeff Parker stated that the study began in Fall 2009 with the intent of being completed within 18 to 24 months. The study is currently on this schedule. J. Parker stated that the next steps are refining the improvement recommendations based on public input and developing an implementation plan with prioritized recommendations, with the draft plan being presented to the community. Sue Prosi noted that the final community meeting would be scheduled for Fall 2011.

Discussion of Funding for Improvements

- J. Parker stated that there is currently no funding appropriated for the recommendations. Upon completion of the study, it will the responsibility of the Town of Darien to work with SWRPA to champion priority recommendations and have them programmed for future design and construction. J. Parker noted that a study is a required first-step in the process of identifying future projects for implementation.
- Jeremy Ginsberg noted that the availability of funding would depend on the scope of the project. There could be some smaller-scale recommendations – such as updating the Town's web site – that could be readily implemented. Other projects will require funding through state and Federal programs and will take more time to implement.
- Floyd Lapp noted that money is available, but there is a large number of projects competing for funding.

Discussion on Scope of Study

- An attendee questioned whether the study recommendations accommodate traffic diverted from I-95. J. Parker stated that Route 1 in the study area could not be designed to accommodate interstate traffic, though this study will include recommendations for improved signing in the study area to more effectively guide diverted traffic through Downtown.
- An attendee questioned whether this study includes the study of Route 1 in adjacent towns. S. Prosi stated that this study only includes a segment of Route 1 in Darien and that other segments of Route 1 could be studied under future intiatives. Other related SWRPA initiatives include a study of Route 1 in Greenwich and Stamford.
- An attendee questioned whether this study had evaluated closing exits on I-95 in Darien. S. Prosi noted that the notion had been considered under previous initiatives but that closing interchanges was not a focus of this study.

- An attendee questioned whether this study will address the transition of Route 1 between Darien and Norwalk where there is a significant change in roadway and land use characteristics. S. Prosi stated that CTDOT had completed an independent study of I-95 Exit 13 in that area, but reiterated that the limit of this study is Old Kings Highway North in Darien.

Discussion on Decision-making Authority

- Attendees questioned how much authority the Town has in deciding the future of improvements in the study area and whether CTDOT could implement measures that the Town does not support. Jeremy Ginsberg indicated that CTDOT would not force the Town to implement a change that it does not support.
- Kate Rattan stated that CTDOT's priority is safety of the traveling public and noted that CTDOT is making an effort to work with municipalities to find the best solutions to address transportation needs.
- S. Prosi noted that the study team has had discussions with CTDOT representatives and they are receptive to recommendations for improving pedestrian accommodations and addressing traffic delays.

Discussion on Preliminary Recommendations

- An attendee questioned how difficult it is to install a crosswalk. Lt. Anderson stated that crosswalks cannot be indiscriminantly installed and that careful consideration of location is required to ensure safety for pedestrians.
- J. Parker described the preliminary recommendations for the intersection of Corbin Drive and Route 1, which include a new crosswalk and a median just south of the intersection for traffic calming and pedestrian refuge.
- J. Parker noted that a new unsignalized crossing location is recommended at the Day Street intersection to provide a crosswalk midway between crossings at Corbin Drive and Center Street. This crossing would have to be carefully designed for safety of pedestrian and would include curb extensions to improve pedestrian visibility.
- An attendee inquired about the recommended removal of pull-in parking from the block just south of Corbin Drive. J. Parker noted that the concept is long term and would be implemented in conjunction with possible future redevelopment of this block.
- An attendee expressed concern about retention of the exclusive northbound right turn lane from Route 1 to Corbin Drive, noting that the lane is often used to bypass traffic in the adjacent travel lane. J. Parker noted that the recommendation at Corbin Drive eliminates the ability of motorists in the right turn lane to proceed directly through the intersection to bypass adjacent traffic.
- An attendee noted that a similar problem exists at Sedgwick Avenue where motorists use the exclusive southbound right turn lane on Route 1 to bypass traffic before continuing straight through the intersection. J. Parker showed the recommendation for the Sedgwick Avenue intersection includes a curb extension that would prohibit this activity.
- An attendee suggested clarification be provided on what is meant by "long term" in reference to the recommendations, further noting that near term solutions are needed and desired. J. Ginsberg noted that whether a project is near term or long term is generally dictated by the source of funding to implement the project. He further noted that if the Town can help fund the project, the project could be more readily implemented.
- An attendee questioned whether improving signing for the northbound right turn lane at Corbin Drive is a viable near term solution. J. Parker stated that signing improvements are a key component of the near term improvement package.

- J. Parker stated that there is a recommendation for "Don't block the box" signing and pavement marking improvements at intersections, such as Manfield Avenue and Sedgwick Avenue, where traffic queues often block the intersection.
- An attendee and Route 1 business owner noted his discontent that the recommendation for a southbound left turn lane on Route 1 at Corbin Drive eliminates several parking spaces in front of his store. J. Parker noted that the recommendations reflect various trade-offs including parking impacts that result from traffic improvements. J. Parker further noted that as the study recommendations are advanced to becoming projects, the Town and local stakeholders will have to resolve which trade-offs are acceptable or desired.
- An attendee questioned whether a bus could negotiate the bus turn around that is recommended at the train station near Center Street. J. Parker noted that bus movements had been evaluated and that final design would ensure that bus movements are fully accommodated.
- An attendee questioned whether overhead utilities could be relocated underground. J. Ginsberg suggested that utility relocations could be done piece by piece as part of individual projects as the relocation of utilities is costly.

Next Steps

- Solicit final round of public review and comment on the preliminary transportation recommendations via the study web site. Develop Draft Implementation Plan for a refined set of recommendations.
- Next Community Meeting: Spring 2012. Purpose of meeting will be to review and discuss the Draft Implementation Plan.

Community Open House Meeting

Summary of Meeting on June 6, 2012

Route 1
Corridor Study
Boston Post Road
Darien, CT

Overview

Community Open House Meeting Date and Location:

- Wednesday, June 6, 2012 from 1:30 p.m. to 3:30 p.m.
  Darien Library, 1441 Post Road, Darien, CT

Purpose: The purpose of the meeting was to present the transportation improvement recommendations and to discuss the implementation plans for very near, near, mid, and long-term improvement programs. Public comments and questions were solicited in preparation for finalizing the study recommendations. This was the last community meeting to be conducted during the development of the study recommendations and final report.

Format: The meeting featured a formal presentation by SWRPA's consultant followed by a question and answer period with the attendees. The presentation was preceded and followed by an informal open house where attendees reviewed study exhibits and spoke one-on-one with members of the study team.

The meeting time and location were selected based on the success of other well-attended Community Open House Meetings conducted previously for this study.

Attendance: The meeting was advertised via a press release and by invitation to the list of study stakeholders. Approximately 20 residents, business owners, Town representatives, and other stakeholders attended the meeting (exclusive of study team members). Attendees were encouraged to sign-in, but several did not.

Study team members in attendance included Sue Prosi, Floyd Lapp, and Kristi Knect from SWRPA; Jeremy Ginsberg, First Selectman Jayme Stevenson, and Lt. Don Anderson from the Town of Darien; Roxane Fromson from CTDOT; and Jeff Parker and John Montgomery from Clough Harbour & Associates.

Meeting Materials: Meeting materials included a *Complete Streets Strategies and Tools for Boston Post Road* booklet; a *Smart Growth Toolbox, Strategies for Downtown Darien* booklet; a Study Newsletter handout; several informational exhibits; and several large-format exhibits illustrating the transportation improvement recommendations. The exhibits included:

- *Complete Streets for Boston Post Road* that presented an overview of the Complete Streets strategies and tools that were developed for the Route 1 study corridor.
- *Smart Growth for Downtown Darien* that presented an overview of the land use, development, and transportation strategies contained in the Smart Growth toolbox developed for this study.
- *Implementation Plan & Project Priorities* that summarized the 22 projects and project priorities that are outlined in the implementation plan developed for this study.

Community Open House Meeting

Summary of Meeting on June 6, 2012

Route 1
Corridor Study
Boston Post Road
Darien, CT

Comments, Questions, and Discussion Topics

Attendees offered the following comments, questions, and discussion topics during the meeting:

- An attendee questioned whether the approximate planning-level costs cited in the presentation include planning/design and construction. J eff Parker stated that the costs account for construction only.
- An attendee commented that Route 1 is owned by CTDOT and expressed their opinion that CTDOT has not been easy to work with in the past. The attendee also questioned whether CTDOT was aware of the project recommendations and whether CTDOT had reviewed or had input to them. J. Parker explained that CTDOT representatives and technical staff have been actively involved throughout the project and had provided comments on the improvement recommendations.
- An attendee commented that the recommendations are positive, been expressed concern that implementation would be unlikely and that a number of the recommendations could be considered "pie in the sky." The attendee explained that CTDOT has always been perceived as a barrier to improvements on Route 1 and noted that the town could not fund the improvements without funding support from the state.
- Sue Prosi explained that there has been a shift in attitude at CTDOT towards traffic calming, multimodal facilities, and complete streets. S. Prosi noted that CTDOT was involved in project scoping and throughout the planning process. She also urged the attendees to stay optimistic about implementation and to consider selecting low complexity projects for relatively easy implementation in order to help build momentum for the implementation of larger-scale projects.
- An attendee voiced concern over the perceived reduction in traffic capacity due to the road diet recommendation and questioned whether potential impacts to surrounding neighborhood streets were considered during the study, noting that Old Kings Highway South is already used as a cut through route. In response, it was noted that the study includes recommendations for speed mitigation measures on Old Kings Highway South to address traffic speed and safety concerns. It was also noted that although capacity would be reduced, traffic analysis showed that traffic operations and delay would be minimally impacted most times of the day.
- An attendee questioned whether studies or past experience has shown that road diets (that convert a four lane roadway to a two or three lane roadway) help mitigate traffic speeds. J. Parker explained that one of the benefits of the road diet is that speeds and agressive driving behavior (such as shifting lanes to pass slower vehicles) is tempered by the fact that there is not an opportunity to pass slower vehicles.
- An attendee voiced opposition to recommendations for a road diet in the study area unless the potential effects on the traffic network were evaluated in more detail. The attended specificallynoted potential issues with I-95 Interchange 13.
- An attendee suggested that transient traffic has been a perpetual problem in Downtown Darien and questioned whether adjacent corridors had been, or will be, studied and evaluated. S. Prosi explained that there is no funding or available budget to study other areas at this time.
- An attendee voiced an opinion that the worst case traffic scenario should be taken into consideration for the recommended road diet, such as an accident on I-95 that diverts traffic Route 1. J. Parker noted that Route 1 is not, nor could it be, able to accommodate traffic diversion from I-95. S. Prosi noted that Route 1 in the study area is part of a formal diversion route plan for closure of I-95 during major incidents.

- An attendee commented that several years ago SWRPA completed a study that provided recommendations for bus rapid transit (BRT) service in the study area. The attendee questioned whether the BRT study recommendations had been reviewed and incorporated into this project. J. Parker noted that the study had been reviewed but that the recommendations were not included in this study. S. Prosi further noted that this study considered opportunities for accommodating all modes of travel in the corridor and that the BRT recommendations specific to the Darien study area could not be provided within the context of the broader, multimodal recommenations of this study.
- An attendee solicited comment on the likelihood of Darien securing funding in the near future for the recommended improvements given that the State is currently operating with a budget deficit. It was noted that state and federal transportation funds are not funding opportunities that can be sought in the process of implementating various project recommendations.
- An attendee noted that the report does not mention protecting the residential character of the town, which was stressed as being a vital quality to protect. The attendee urged that smart growth initiatives be reconciled with the distinct town character. The significance of the town's residential character was reiterated by another attendee. J. Parker noted that one of the stated goals of the study was to preserve the existing character of Darien, which limited the feasibility of large scale, large impact recommendations.
- An attendee supported the recommendations for landscaped median islands and curb extensions on the approaches to Downtown to create a "gateway" effect and to help mitigate speeds and improve safety.

Next Steps

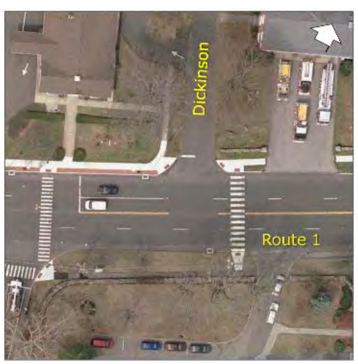
- Finalize the study recommendations, implementation plan, and study report based on input received from the meeting or obtained during the comment period (ended June 20, 2012).
- Study report to be published in Fall 2012.
- Upon completion of the study, SWRPA will assist the Town in implementing projects and will monitor the progress of the overall program.

Appendix 2.1

Summary of Roadway Characteristics/Features and Pedestrian Considerations (2012)

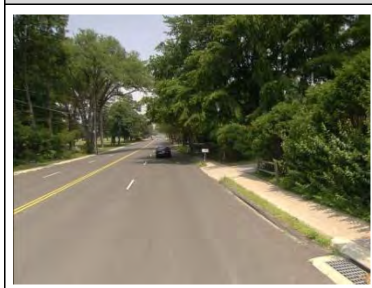
Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Nearwater Lane		
	• Signalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • SB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • WB Approach (Nearwater Lane): One lane – shared left/thru/right lane • No Turn on Red from NB Route 1 to EB Nearwater Lane	• Signal phasing includes a protected walk cycle • Sidewalk along both sides of Route 1 • Painted crosswalk across northern leg • Pedestrian buttons (2) and ramps (no detectable warning surface) for Route 1 crossing • Painted crosswalk across Nearwater Lane approach • Pedestrian ramps (no detectable warning surface) and refuge island for Nearwater Lane crossing • Sidewalk along south side of Nearwater Lane
Between Nearwater Lane and Noroton Avenue		
	• Posted Speed Limit: 30 mph • Overall Roadway Width: Varies 50 ~ 60 ft • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along both sides of Route 1 • Painted mid-block crosswalk across Route 1 approximately 250' from the Nearwater Lane intersection • Pedestrian warning sign and 25 mph advisory speed posted on SB Route 1 approach to the mid-block crosswalk (not MUTCD-compliant) • No pedestrian warning sign on NB Route 1 approach
Noroton Avenue		
	• Signalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • SB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • EB Approach (Noroton Avenue): Two lanes – Exclusive left and right turn lanes • Parking permitted on both sides of Route 1 just north of intersection which restricts the width of outside travel lanes	• Pedestrians cross with signal on green • Sidewalk along both sides of Route 1 • Painted crosswalk across northern leg • Pedestrian buttons (2) and ramps (no detectable warning surface) for Route 1 crossing • Painted crosswalk across Noroton Avenue • Pedestrian ramps (no detectable warning surface) for Noroton Avenue crossing • Sidewalk along both sides of Noroton Avenue

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Between Noroton Avenue and Garden City Road		
	• Posted Speed Limit: 30 mph • Overall Roadway Width: Varies 46 ~ 54 ft, four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • On-street parking permitted both sides of Route 1	• Sidewalk along both sides of Route 1 • No mid-block crossings
Garden City Road		
	• Unsignalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • SB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • EB Approach (Garden City Road): Stop controlled; One lane – shared left/thru/right lane	• No crosswalk across Route 1 • No crosswalk across Garden City Road • Sidewalk ramps for Garden City Road crossing • Detectable warning surface in northeast quadrant
Between Garden City Road and Rings End Road		
	• Posted Speed Limit: 30 mph • Overall Roadway Width: Varies 46 ~ 54 ft, four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • On-street parking permitted both sides of Route 1	• Sidewalk along both sides of Route 1 • No mid-block crossings

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Rings End Road		
	• Signalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • SB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • WB Approach (Rings End Road): One lane – shared left/thru/right lane • Darien International Tiles driveway intersects Route 1 from the west; driveway is within the Route 1 stop bars. • Route 1 intersection with Dickinson Road is approximately 75’ north of Rings End Road • Widened parking lane on NB approach serves as de factor right-turn lane if not occupied by parked cars	• Pedestrians cross with signal on green • Sidewalk along both sides of Route 1 • Painted crosswalk across northern leg • Pedestrian buttons (2) and ramps (with detectable warning surface) for Route 1 crossing • Painted crosswalk across Rings End Road • Pedestrian ramps (with detectable warning surface) for Rings End Road crossing • Sidewalk along south side of Rings End Road • No pedestrian signal heads
Between Rings End Road and Dickinson Road		
	• Posted Speed Limit: 30 mph • Overall Roadway Width: 54 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along both sides of Route 1 • No mid-block crossings
Dickinson Road		
	• Unsignalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • SB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • EB Approach (Dickinson Road): Stop-controlled; One lane – shared left/thru/right lane	• Painted mid-block crosswalk across Route 1 • No pedestrian warning signs on Route 1 approaches to mid-block crossing • Pedestrian ramps (with detectable warning surfaces) for Route 1 crossing • Pedestrian ramps (with detectable warning surface) for Dickinson Road crossing • Sidewalk along south side of Dickinson Road

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Between Dickinson Road and Fitch Avenue		
	• Posted Speed Limit: 30 mph • Overall Roadway Width: 54 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along west side of Route 1 • Sidewalk along east side of Route 1 terminates just south of Fitch Road • No mid-block crossings
Fitch Avenue		
	• Unsignalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • SB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • EB Approach (Fitch Avenue): Stop-controlled; One lane – shared left/thru/right lane	• Sidewalk along west side of Route 1 • No sidewalk along east side of Route 1 • No mid-block crossings • No crosswalk across Fitch Avenue • Pedestrian ramps (with detectable warning surfaces) for Fitch Avenue crossing • No sidewalk along Fitch Avenue
Between Fitch Avenue and Old Kings Highway South		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 48~54 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along west side of Route 1 • No sidewalk along east side of Route 1 • No mid-block crossings

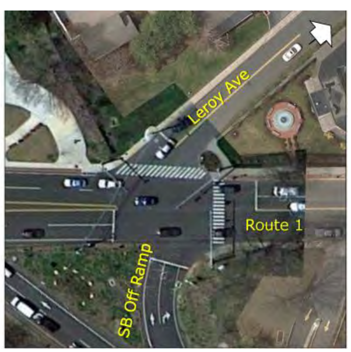
Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Old Kings Highway South		
	• Signalized, three-legged skewed T-intersection • NB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • SB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • WB Approach (Old Kings Highway South): One lane – shared left/thru/right lane • Route 1 on a steep south to north down-grade through the intersection • Intersection skew is approximately 40 degrees allowing for high-speed departure from NB Route 1 to NB Old Kings Highway South	• Pedestrians cross with signal on green • Sidewalk along west side of Route 1 • No sidewalk along east side of Route 1 • No crosswalk across Route 1 • No crosswalk across Old Kings Highway South • No sidewalk along Old Kings Highway South
Between Old Kings Highway South and Clubhouse Circle		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 42~48 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along west side of Route 1 • No sidewalk along east side of Route 1 • No mid-block crossings
Clubhouse Circle		
	• Unsignalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • SB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • WB Approach (Clubhouse Circle): Stop-controlled; One lane – shared left/thru/right lane	• Sidewalk along west side of Route 1 • No sidewalk along east side of Route 1 • No crosswalk across Route 1 • No crosswalk across Clubhouse Circle • No sidewalk along Clubhouse Circle

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Between Clubhouse Circle and Renshaw Road		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 42~48 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along west side of Route 1 • No sidewalk along east side of Route 1 • No mid-block crossings
Renshaw Road		
	• Unsignalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • SB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • EB Approach (Renshaw Road): Stop-controlled; One lane – shared left/thru/right lane	• Sidewalk along west side of Route 1 and along east side of Route 1 north of intersection • No sidewalk along east side of Route 1 south of intersection • No crosswalk across Route 1 • No crosswalk across Renshaw Road • Pedestrian ramps (with detectable warning surface in southwest quadrant) for Renshaw Road crossing
Between Renshaw Road and Quaker Lane		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 48 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along west side of Route 1 • Sidewalk along east side of Route 1 to just south of Quaker Lane • No mid-block crossings

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Quaker Lane		
	• Unsignalized intersection • NB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • SB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • Quaker lane is one-way away from Route 1 at approximately a 40 degree skew angle	• Sidewalk along west side of Route 1 and along east side of Route 1 north of intersection • No sidewalk along east side of Route 1 just south of intersection • No crosswalk across Route 1 • No crosswalk across Quaker Lane Road • No pedestrian ramp in southeast quadrant for Quaker Lane crossing • No sidewalk along Quaker Lane
Between Quaker Lane and Cross Road		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 48 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along both sides of Route 1 • No mid-block crossings
Cross Road		
	• Unsignalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • SB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • WB Approach (Cross Road): Stop-controlled; One lane – shared left/thru/right lane	• Sidewalk along both sides of Route 1 • Painted mid-block crosswalk across Route 1 • No pedestrian ramps for mid-block crossing • No pedestrian warning signs on Route 1 approaches to mid-block crossing • No crosswalk across Cross Road • Sidewalk discontinuity on east side of Route 1 at parking area for building • Pedestrian ramp at southwest quadrant only • No sidewalk along Cross Road

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Between Cross Road and Hecker Avenue		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 48 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along both sides of Route 1 • No mid-block crossings
Hecker Avenue		
	• Signalized, three-legged T-intersection • NB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • SB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • EB Approach (Hecker Avenue): One lane – shared left/thru/right lane • Exit-only driveway from H & L Chevrolet intersects Route 1 from the south and is in the functional area of the intersection	• Pedestrians cross with signal on green • Sidewalk along both sides of Route 1 • Painted crosswalk across northern leg • Pedestrian buttons (2) and ramps (with one detectable warning surface) for Route 1 crossing • No crosswalk across Hecker Avenue • Pedestrian ramps (with one detectable warning surface) for Hecker Avenue crossing • Sidewalk along north side of Hecker Avenue • Dealership drive located at crosswalk terminus and is often blocked with parked vehicle
Between Hecker Avenue and Thorndal Circle		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 50~53 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along both sides of Route 1 • No mid-block crossings • Sidewalk often partially obstructed by planters along east side of Route 1 just south of Thorndal Circle.

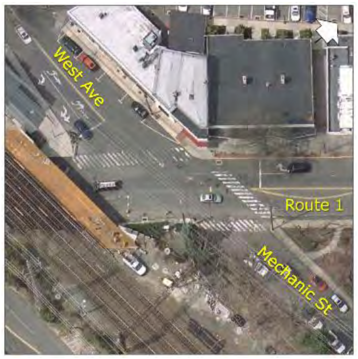
Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Thorndal Circle		
	• Unsignalized, three-legged T- intersection • NB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • SB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • EB Approach (Thorndal Circle): Stop-controlled; One lane – shared left/thru/right lane	• Sidewalk along both sides of Route 1 • No mid-block crosswalk across Route 1 • No crosswalk across Thorndal Circle • No pedestrian ramps or detectable warning surfaces
Between Thorndal Circle and I-95 Exit 11 Northbound Ramps		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 50~53 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along both sides of Route 1 except for discontinuity along Chuck's Steak House frontage • No mid-block crossings
I-95 Exit 11 Northbound Ramps		
	• Signalized, four-legged intersection • NB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • SB Approach (Route 1): Two thru lanes • EB Approach (I-95 NB Off Ramp): Two lanes – Channelized right and left turn lanes • Unsignalized entrance to I-95 NB from SB Route 1 is located approximately 300 feet north of the signalized intersection. • No Turn on Red from NB Route 1 to NB I-95	• Pedestrians cross with signal on green • Sidewalk along west side of Route 1 • Sidewalk along east side of Route 1 terminates just south of the intersection • No crosswalk across Route 1 • Pedestrian button (with no sidewalk/ramp) in southeast quadrant • No crosswalks across I-95 NB on or off ramps • Pedestrian ramps (with no detectable warning surface) for crossing I-95 NB off ramp

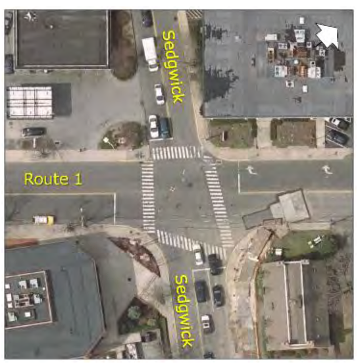
Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Between I-95 Exit 11 Northbound Ramps and Ledge Road		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 46~48 ft; four lanes • NB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • SB: 10.5~11 ft inside travel lane; width of outside travel lane varies; no striped shoulder • No on-street parking	• Sidewalk along west side of Route 1 • No sidewalk along east side of Route 1 • No mid-block crossings
Ledge Road		
	• Signalized, three-legged T-intersection • Intersection improved in 2010 under Whole Foods Market project. • NB Approach (Route 1): Three lanes – One left turn lane, two thru lanes • SB Approach (Route 1): Two lanes – One thru lane, one shared right/thru lane • EB Approach (Ledge Road): Two lanes – Channelized right and left turn lanes • WB Approach (I-95 SB Off Ramp): Two lanes – Left turn lane, thru lane • Leroy Avenue intersection is located approximately 150 ft north	• Painted crosswalk across Ledge Road with extended median island on Ledge to serve pedestrian refuge • No crosswalk across Route 1(No sidewalk east side) • Pedestrian ramps (with detectable warning surfaces) for Ledge Road crossing
Leroy Avenue & I-95 Exit 11 Southbound Off Ramp		
	• Signalized four-legged intersection • Intersection improved in 2010 under Whole Foods Market project. • NB Approach (Route 1): Two lanes – One shared left/thru lane, one thru lane • SB Approach (Route 1): Two lanes – One shared right/thru lane, one thru lane • WB Approach (SB Off Ramp): Two lanes – One thru lane, one right lane • EB Approach (Leroy Avenue): One lane – Shared right/thru/left lane • Ledge Road intersection is located approximately 150 ft south	• Painted crosswalk across Route 1 • Pedestrian buttons to cross Route 1 • Sidewalk along east side of Route 1 resumes north of intersection • Pedestrian ramps (with detectable warning surfaces) for all crosswalks

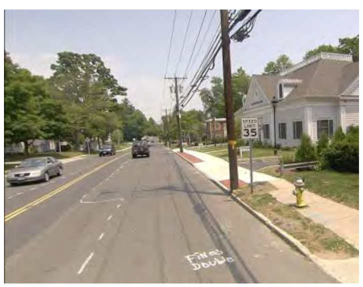
Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Between Leroy Avenue and Corbin Drive		
	• Posted Speed Limit: 25 mph • Overall Roadway Width: 46 ft; Three lanes – One lane southbound, one thru lane/one right turn lane northbound • No on-street parking east side of Route 1 • Limited on-street parking west side of Route 1 south of Corbin Drive intersection	• Sidewalk along west side of Route 1 • No sidewalk along east side of Route 1 • No mid-block crossings
Corbin Drive		
	• Signalized three-legged, T-intersection • NB Approach (Route 1): Two lane approach with an exclusive right-turn lane • SB Approach (Route 1): Shared one lane approach • WB Approach (Corbin Drive): Shared one lane approach • On-street parking on southbound side immediately north of intersection prevents bypass of left turning vehicle.	• Pedestrians cross with signal on green • Painted crosswalk across Route 1 • Painted crosswalk across Corbin Drive • Pedestrian-actuated signals at all crossings • Sidewalk ramps for all crosswalks • No textured warning surfaces at any crosswalks • Crosswalk paint has deteriorated on the Corbin Drive crosswalk
Between Corbin Drive and Brook Street		
	• Posted Speed Limit: 25 mph • Overall Roadway Width: 46 ft; Two lanes • Some on-street parking southbound side of Route 1 • No on-street parking northbound side of Route 1	• Sidewalk along both sides of Route 1 • No mid-block crossings

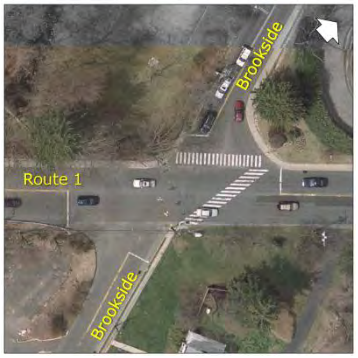
Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Brook Street		
	• Unsignalized, T-intersection • NB Approach (Route 1): Shared one lane approach • SB Approach (Route 1): Shared one lane approach • Brook Street is one-way westbound from Route 1	• No mid-block crosswalk across Route 1 • No crosswalk across Brook Street • Sidewalk ramps for Brook Street crossing • No textured warning surfaces for Brook Street crossing
Between Brook Street and Day Street		
	• Posted Speed Limit: 25 mph • Overall Roadway Width: 46 ft; Two lanes • On-street parking along both sides of Route 1	• Sidewalk along both sides of Route 1 • No mid-block crossings
Day Street		
	• Unsignalized three-legged T-intersection • NB Approach (Route 1): Shared one lane approach • SB Approach (Route 1): Shared one lane approach • EB Approach (Day Street): Single lane, right-turn only • On-street parking permitted in vicinity of intersection	• No mid-block crosswalk across Route 1 • No crosswalk across Day Street • Sidewalk ramps for Day Street crossings • Textured warning surface and bump out in northwest quadrant

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Between Day Street and Center Street		
	• Posted Speed Limit: 25 mph • Overall Roadway Width: 46 ft; Two lanes • On-street parking along both sides of Route 1	• Sidewalk along both sides of Route 1 • No mid-block crossings
Center Street		
	• Signalized, four-legged intersection • NB Approach (Route 1): Shared one lane approach • SB Approach (Route 1): Shared one lane approach • WB Approach (Center Street): Exclusive right-turn lane and shared thru/left-turn lane • EB Approach (Railroad Station Drive Entrance): One-way away from Route 1 • This signal is in close proximity to the traffic signal at Tokeneke Road (Route 136), potentially affecting operations and safety. Signal operates on same controller as Tokeneke Road and West Avenue intersections. • On-street parking permitted along northbound side of Route 1 immediately south of intersection. • Bus stop located along southbound side between railroad station drives.	• Pedestrians cross with signal on green • Painted crosswalk across Route 1 • Painted crosswalk across Center Street • Pedestrian buttons for Route 1 crossing • Sidewalk ramps for all crossings • No textured warning surfaces at any crossing
Tokeneke Road (Route 136)		
	• Signalized, four-legged intersection • NB Approach (Route 1): Shared thru/right lane approach • SB Approach (Route 1): One through lane • WB Approach (Tokeneke Road): Exclusive right and left-turn lanes • EB Approach (Railroad Station Drive Exit): Exclusive left turn lane, and shared thru/right lane • Left turns prohibited from SB Route 1 to Tokeneke Road • Poor sight distance to span mounted signal heads from SB Approach due to railroad bridge structure over Route 1, partially mitigated by pedestal-mounted signal heads.	• Pedestrians cross with signal on green • No crosswalk across Route 1 • Painted crosswalk across Tokeneke Road; does not align with pedestrian ramp in southeast quadrant • No crosswalk across railroad station drive • No pedestrian buttons • Pedestrian ramps for Tokeneke Road crossing and parking drive crossing • No detectable warning surfaces

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Between Tokeneke Road and West Avenue/Mechanic Street		
	• Posted Speed Limit: 25 mph • Bridge currently being improved. Proposed condition is described here. • Overall Roadway Width: 36 ft; Two lanes • Vertical clearance: 11'-10" • No on-street parking permitted. • Persistent flooding issues at underpass during major rain events.	• Elevated sidewalk (4 ft wide) along both sides of Route 1 • No mid-block crossings
West Avenue/Mechanic Street		
	• Signalized, four-legged intersection • NB Approach (Route 1): Shared one lane approach • SB Approach (Route 1): Exclusive right-turn lane and thru lane • WB Approach (Mechanic Street): One lane one-way away from intersection • EB Approach (West Avenue): Exclusive right-turn lane and left/thru lane • Left turn prohibited from NB Route 1 to West Avenue during peak periods • Poor sight distance to span mounted signal heads from NB approach due to railroad bridge structure over Route 1, partially mitigated by pedestal-mounted signal heads	• Pedestrians cross with signal on green • Painted crosswalk across northern leg of Route 1 • Painted crosswalk across Mechanic Street • Painted crosswalk across West Avenue • Pedestrian buttons (2) for Route 1crossing • Pedestrian ramps at all crossing • No detectable warning surfaces
Between West Avenue/Mechanic Street and Mansfield Avenue (Route 124)		
	• Posted Speed Limit: 25 mph • Overall Roadway Width: 44~46 ft; Two lanes • On-street parking permitted along west side of Route 1north of SB right turn lane at West Avenue • No on-street parking permitted along east side of Route 1	• Sidewalk along both sides of Route 1 • No mid-block crossings

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Mansfield Avenue (Route 124)		
	• Signalized, four-legged intersection • NB Approach (Route 1): Exclusive left-turn lane, shared thru/right-turn lane • SB Approach (Route 1): Shared left/thru/right lane • EB Approach (Mansfield Avenue): Shared left/thru/right lane • WB Approach: (Parking Lot Drive): Shared left/thru/right lane	• Pedestrians cross with signal on green • Two painted crosswalks across Route 1 • Painted crosswalk across Mansfield Avenue • Pedestrian buttons (4) for both Route 1 crossings • Pedestrian ramps in all quadrants • No detectable warning surfaces
Between Mansfield Avenue (Route 124) and Sedgwick Avenue		
	• Posted Speed Limit: 25 mph • Overall Roadway Width: 45 ft; Two lanes • On-street parking permitted along east side of Route 1 just south of Sedgwick intersection • On-street parking permitted along west side of Route 1 from Mansfield Avenue north to Starbucks.	• Sidewalk along both sides of Route 1 • No mid-block crossings
Sedgwick Avenue		
	• Signalized, four-legged intersection • NB Approach (Route 1): Shared one lane approach, but parking restriction near corner may create a de facto right-turn lane • SB Approach (Route 1): Exclusive right-turn lane and shared through and left-turn lane • EB Approach (Sedgwick Avenue): Shared one lane approach • WB Approach: (Sedgwick Avenue): Exclusive left-turn lane and shared through and right-turn lane	• Pedestrians cross with signal on green • Two painted crosswalks across Route 1 • Two painted crosswalks across Sedgwick Avenue • Pedestrian buttons (4) for both Route 1 crossings • Sidewalk ramps at all crossing • No detectable warning surfaces

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Between Sedgwick Avenue and Academy Street		
	• Posted Speed Limit: 25 mph • Overall Roadway Width: 46 ft; Two lanes • No on-street parking permitted along either side of Route 1 • No striped shoulder	• Sidewalk along both sides of Route 1 with short gap on east side just north of Sedgwick Avenue due to commercial parking • No mid-block crossings
Academy Street		
	• Unsignalized, three-legged T-intersection • NB Approach (Route 1): Shared one lane approach • SB Approach (Route 1): Shared one lane approach • EB Approach (Academy Street): Shared one lane approach, stop controlled.	• Painted mid-block crosswalk across Route 1 • Pedestrian warning signs are provided in both directions on Route 1, however signs are non-standard • Sidewalk ramps at Academy Street crossing • Route 1 crossing terminates on east side at driveway • No textured warning surfaces
Between Academy Street and Brookside Road		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 43 ft (narrows at Goodwives River crossing); Two lanes • No on-street parking permitted along either side of Route 1 • No striped shoulder	• Sidewalk along both sides of Route 1 with short gap on east side just south of Brookside Road due to Goodwives River crossing • No mid-block crossings

Intersection/Segment	Roadway Characteristics/Features	Pedestrian Considerations
Brookside Road		
	• Signalized, skewed, four-legged intersection • NB Approach (Route 1): Shared one lane approach • SB Approach (Route 1): Shared one lane approach • EB Approach (Brookside Road): Shared one lane approach • WB Approach: (Brookside Road): Shared one lane approach	• Pedestrians cross with signal on green • Painted crosswalk across northern leg of Route 1 • Painted crosswalk across western leg of Brookside Road • Pedestrian buttons (3) at all ramp locations • Sidewalk ramps at all marked crossings • No detectable warning surfaces
Between Brookside Road and Old Kings Highway North		
	• Posted Speed Limit: 35 mph • Overall Roadway Width: 42~48 ft (widens on approach to Old Kings Highway North to provide right turn lane); Two lanes • No on-street parking permitted along either side of Route 1 • No striped shoulder • Crest vertical curve just north of Brookside Road could reduce sight lines on approach to Brookside Road intersection	• Sidewalk along both sides of Route 1 • No mid-block crossings
Old Kings Highway North		
	• Signalized, three-legged intersection • NB Approach (Route 1): Two lanes – One thru lane, one exclusive right turn lane • SB Approach (Route 1): Two lanes – One thru lane, one exclusive left turn lane • EB Approach (Old Kings Highway North): Two lanes – Exclusive left and right turn lanes	• Pedestrians cross with signal on green • Painted crosswalk across northern leg of Route 1 • Painted crosswalk across Old Kings Highway North • Pedestrian buttons (3) at all ramp locations • Sidewalk ramps at all marked crossings • No detectable warning surfaces

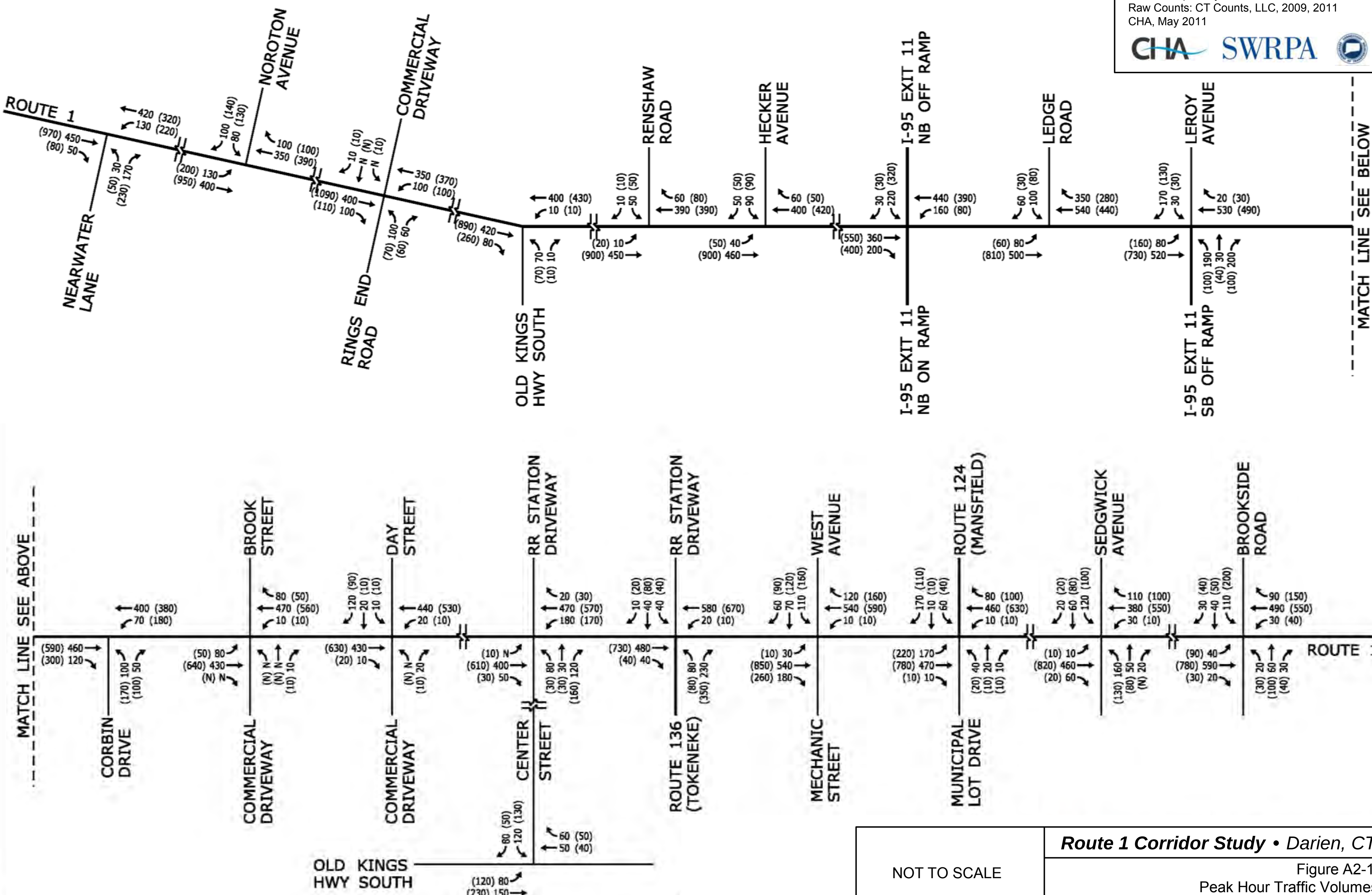
Appendix 2.2

Peak Hour Traffic Volume Diagram: Existing Condition

Legend

###	Midday Peak Volume
(###)	PM Peak Volume

Sources:
CTDOT Trip Analysis Unit
Raw Counts: CT Counts, LLC, 2009, 2011
CHA, May 2011



NOT TO SCALE

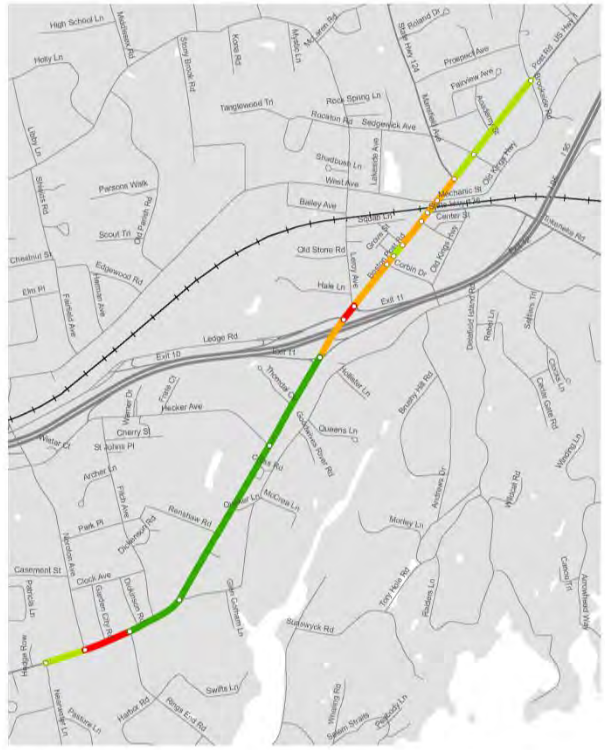
Route 1 Corridor Study • *Darien, CT*

Figure A2-1.
Peak Hour Traffic Volumes
Existing Condition

Appendix 2.3

Observed Travel Times (2009)

Midday North



Evening North

Midday South

Evening South

Legend

Observed Travel Speeds

- 30mph - 40mph
- 20mph - 30mph
- 10mph - 20mph
- < 10 mph

- Expressway
- Highway
- Local Street
- Railroad
- Municipal Boundaries

Disclaimer: This map is intended for general planning purposes only.

Sources: Connecticut Department of Public Safety, Street Centerlines; Connecticut Department of Environmental Protection, Environmental GIS Data for Connecticut. Travel Time, South Western Regional Planning Agency

Prepared on December 10, 2009

SWRPA

South Western Regional Planning Agency

0 0.125 0.25 0.5 Miles

Route 1 Corridor Study **•** *Darien, CT*

Figure A2-2.
Observed Travel Times (2009)

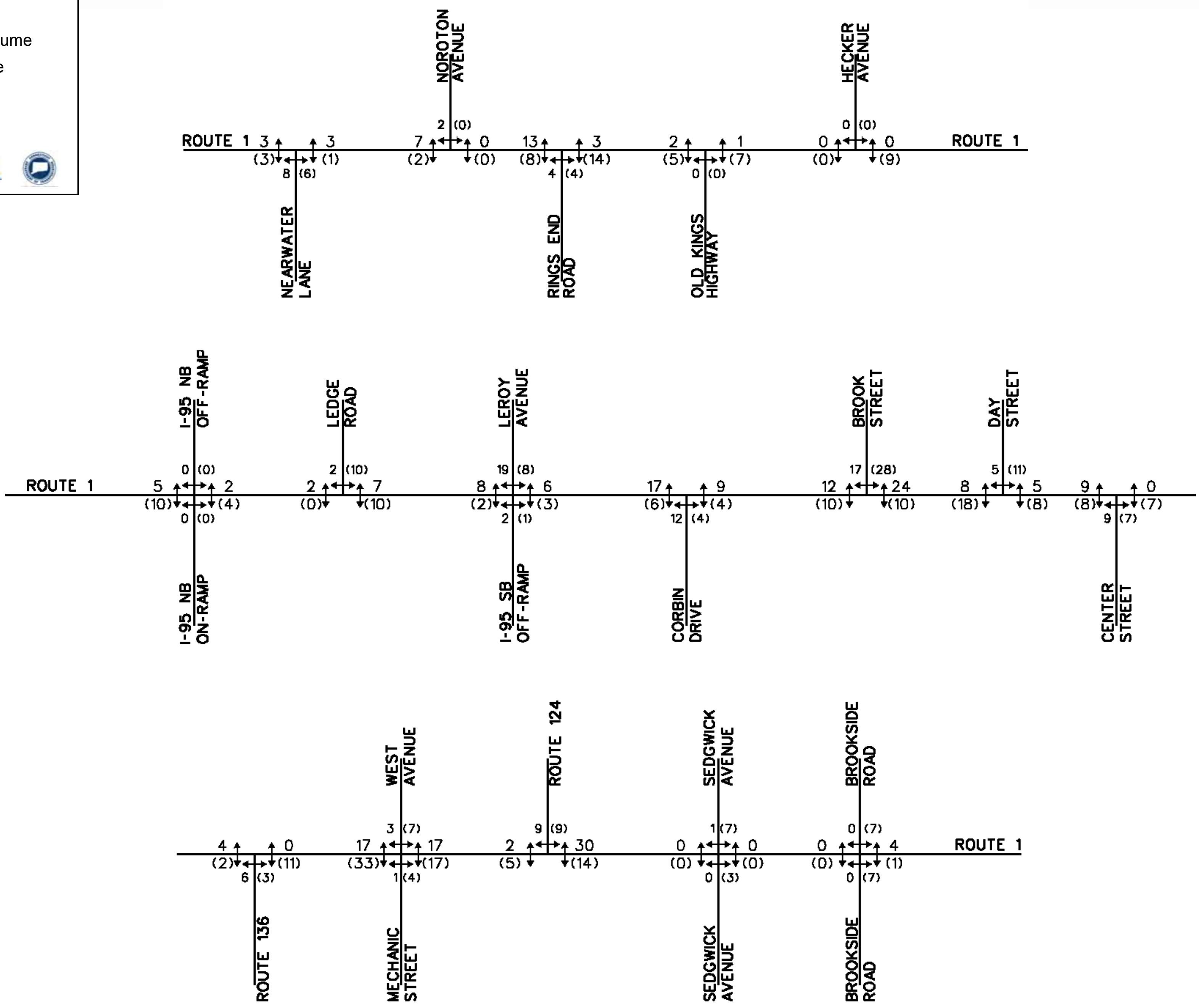
Appendix 2.4

Peak Hour Pedestrian Crossing Volumes (October 2009)

Legend

###	Midday Peak Volume
(###)	PM Peak Volume

Sources:
Counts: CT Counts, LLC, 2009
CHA, June 2010



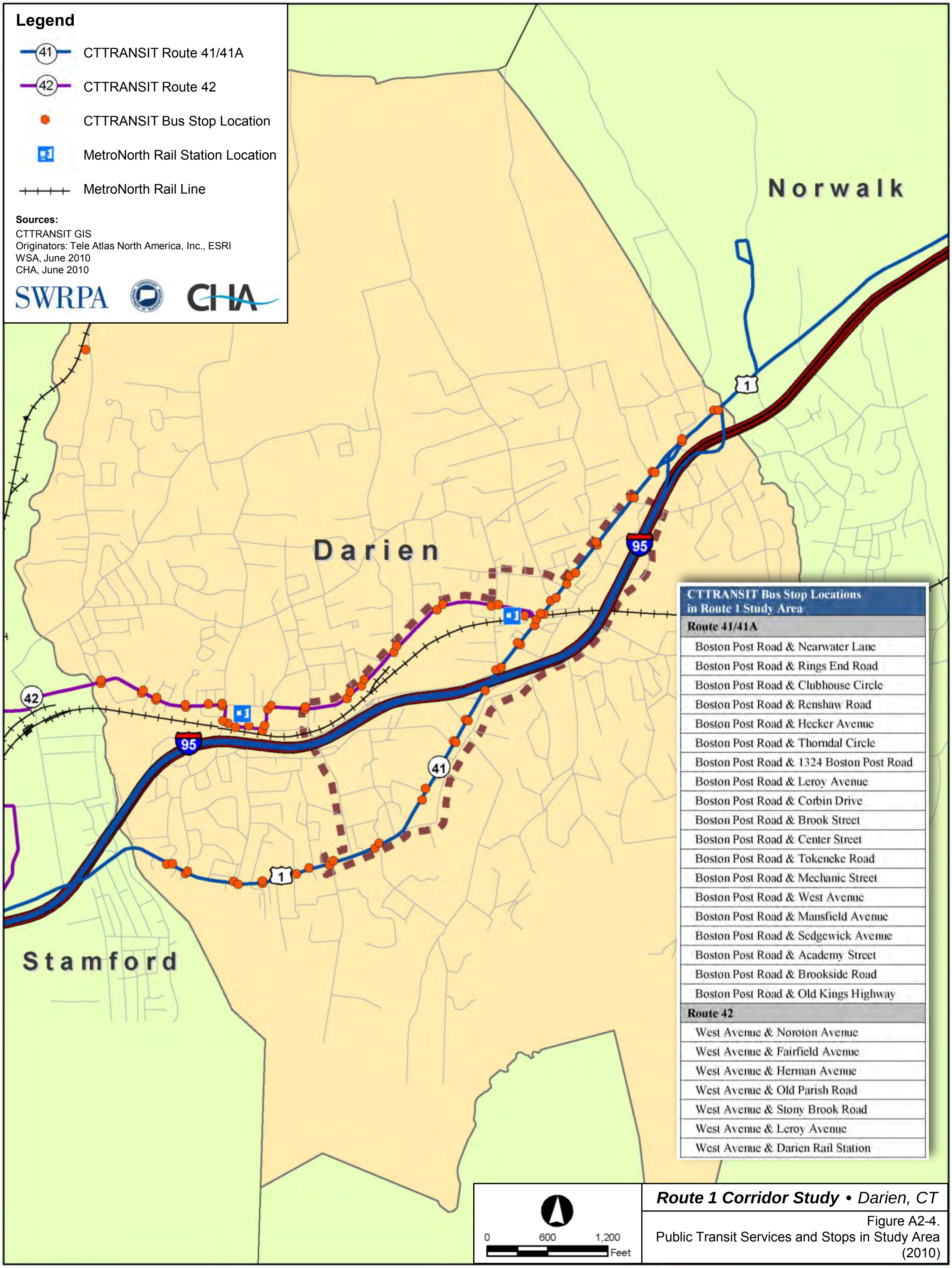
NOT TO SCALE

Route 1 Corridor Study • *Darien, CT*

Figure A2-3.
Peak Hour Pedestrian Crossing Volumes
(October 2009)

Appendix 2.5

Public Transit Services and Stops in the Study Area (2010)



CTTRANSIT Bus Stop Locations in Route 1 Study Area
Route 41/41A
Boston Post Road & Nearwater Lane
Boston Post Road & Rings End Road
Boston Post Road & Clubhouse Circle
Boston Post Road & Renshaw Road
Boston Post Road & Hecker Avenue
Boston Post Road & Thorndal Circle
Boston Post Road & 1324 Boston Post Road
Boston Post Road & Leroy Avenue
Boston Post Road & Corbin Drive
Boston Post Road & Brook Street
Boston Post Road & Center Street
Boston Post Road & Tokeneke Road
Boston Post Road & Mechanic Street
Boston Post Road & West Avenue
Boston Post Road & Mansfield Avenue
Boston Post Road & Sedgewick Avenue
Boston Post Road & Academy Street
Boston Post Road & Brookside Road
Boston Post Road & Old Kings Highway
Route 42
West Avenue & Noroton Avenue
West Avenue & Fairfield Avenue
West Avenue & Herman Avenue
West Avenue & Old Parish Road
West Avenue & Stony Brook Road
West Avenue & Leroy Avenue
West Avenue & Darien Rail Station

***Route 1 Corridor Study** • Darien, CT*

Figure A2-4.
Public Transit Services and Stops in Study Area (2010)

Appendix 2.6

Summary of Accident History (2006 – 2008) in Route 1 Study Corridor

Table A2-1. Summary of Accident History (2006 – 2008) in Route 1 Study Corridor

Intersection/Segment	Accidents resulting in injuries	Collision Type: Angle	Backing	Fixed Object	Moving Object	Parking	Pedestrian	Rear-end	Sideswipe-Opp. Direction	Sideswipe-Same Direction	Turning-Intersecting Paths	Turning-Opp. Direction	Turning-Same Direction	*Grand Total*
At Nearwater Lane	1							4			1		1	*6*
Nearwater Lane to Norton Ave	0										1			*1*
At Norton Ave	2						1	3		4		3		*11*
Noroton Ave to Rings End Rd	2						1	1		2			1	*5*
At Rings End Rd	1			1							1	1		*3*
Rings End Rd to Old Kings Hwy South	1			1				1			1		1	*4*
At Old Kings Hwy South	2	1						3			1			*5*
Old Kings Hwy South to Cross Rd	2		1	3	3			2	1	3				*13*
At Cross Rd	0							2			1	1	1	*5*
Cross Rd to I-95 NB On-Ramp	4		2	2				3	1	3	3	3	1	*18*
At I-95 NB On-Ramp	2							3				1		*4*
I-95 NB On-Ramp to Ledge Rd	0							2		1		1		*4*
At Ledge Rd	1						1	5		2			1	*9*
Ledge Rd to Leroy Ave	0									1				*1*
At Leroy Ave	2							9		1	1	2	1	*14*
Leroy Ave to Corbin Dr	1	1	3	1			1	1		4	2	4	2	*19*
At Corbin Dr	1			1				8		6	2	3		*20*
Corbin Dr to Brook St	1							1			1			*2*
At Brook St	2							2					3	*5*
Brook St to Day St	1					3	1			1				*5*
At Day St	0	1	1			1		2					1	*6*
Day St to CDR to Dunkin Donuts	1					2				1				*3*
At CDR to Dunkin Donuts	0					2		2			2			*6*
At Center St #1	0			2				3		1	2		3	*11*
Center St #1 to West Ave	1	1		20			1	2		2				*26*
At West Ave	1			2				2		1	1		1	*7*
West Ave to Rt 124 (Mansfield Ave)	0									1				*1*
At Route 124 (Mansfield Ave)	10	1	1			1	2	13		3	1	1		*23*
Route 124 to Sedgewick Ave	1					1		6		3			1	*11*
At Sedgewick Ave	2	2		1				4		3	1	1	2	*14*
Sedgewick Ave to Brookside Rd	0		1							3	1	1		*6*
At Brookside Rd	6	1					1	3		2	3	2	1	*13*
Brookside Rd to Old Kings Hwy North #3	4		1	1					1	8	8	6		*25*
At Old Kings Hwy North #3	2							3			1	1	1	*6*
Total	*54*	*8*	*10*	*35*	*3*	*10*	*9*	*90*	*3*	*56*	*35*	*31*	*22*	*312*

Intersection/Segment	Contributing Factor: Animal/Foreign Object in Rd	Defective Equipment	Driver Lost Control	Driverless Vehicle	Driver's View Obstructed	Failed to Grant ROW	Fell Asleep	Following Too Closely	Improper Lane Change	Improper Passing Maneuver	Improper Turning Maneuver	Insufficient Vert Clearance	Speed Too Fast for Conditions	Under the Influence	Unknown	Unsafe Backing	Unsafe Right Turn on Red	Unsafe Use of Highway by Ped	Violated Traffic Control	*Grand Total*
At Nearwater Lane						1		4			1									*6*
Nearwater Lane to Norton Ave						1														*1*
At Norton Ave			1			3		3	2		1				1					*11*
Noroton Ave to Rings End Rd			1			1		1	1									1		*5*
At Rings End Rd						1					1								1	*3*
Rings End Rd to Old Kings Hwy South			1			1		1			1									*4*
At Old Kings Hwy South						1		2	1					1						*5*
Old Kings Hwy South to Cross Rd	3		1					3	3				1	1		1				*13*
At Cross Rd						2		2					1							*5*
Cross Rd to I-95 NB On-Ramp			2			6		2	3		2		1			2				*18*
At I-95 NB On-Ramp								2			1		1							*4*
I-95 NB On-Ramp to Ledge Rd						1		2	1											*4*
At Ledge Rd						1		5	2		1									*9*
Ledge Rd to Leroy Ave									1											*1*
At Leroy Ave						2		7		1	2		1	1						*14*
Leroy Ave to Corbin Dr					1	6		1	4	2	1					2		1	1	*19*
At Corbin Dr						1		8	2	2		1			1				5	*20*
Corbin Dr to Brook St						1		1												*2*
At Brook St		1						1		3										*5*
Brook St to Day St			1			3										1				*5*
At Day St						1		2			1					1			1	*6*
Day St to CDR to Dunkin Donuts			1			1								1						*3*
At CDR to Dunkin Donuts			1			3		2												*6*
At Center St #1						1		3	1	2	2					1	1			*11*
Center St #1 to West Ave			1	1				1		1		18			1			1	2	*26*
At West Ave					1			2		1	2								1	*7*
West Ave to Rt 124 (Mansfield Ave)										1										*1*
At Route 124 (Mansfield Ave)						3	1	12		2						1		1	3	*23*
Route 124 to Sedgewick Ave						1		7	1	2										*11*
At Sedgewick Ave			1			3		4	1	2	1								2	*14*
Sedgewick Ave to Brookside Rd						2			2	1						1				*6*
At Brookside Rd						2		3	1	3							1		3	*13*
Brookside Rd to Old Kings Hwy North #3			2			14			4	3	1				1					*25*
At Old Kings Hwy North #3								2			1		1						2	*6*
Total	*3*	*1*	*13*	*1*	*2*	*63*	*1*	*83*	*30*	*26*	*19*	*19*	*6*	*4*	*4*	*10*	*2*	*4*	*21*	*312*

Source: CTDOT TAVS Data (2006 – 2008)
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: FHI, March 2010

Appendix 2.7

CTDOT TAVS Data (2006 – 2008) for Vertical Clearance-related Collisions at Railroad Bridge

TAVS
Version 2.1

Traffic Accident Tables

for

ROUTE: 1 FROM: 11.53 TO 11.57

TIME PERIOD: BETWEEN 01-01-2006 AND 12-31-2008

TOTAL ACCIDENTS: 26

20 accidents were selected
where COLLISION TYPE was FIXED OBJECT

18 accidents were selected
where CONTRIBUTING FACTOR was INSUFFICIENT VERT CLEARANCE

Time: 11:41:26 AM Date: 6/2/2010

Traffic accident tables for route 1 from mileage 11.53 to 11.57 between 01-01-2006 and 12-31-2008
18 accidents were selected out of 26 original accidents
where the CONTRIBUTING FACTOR was INSUFFICIENT VERT CLEARANCE

TRAFFIC ACCIDENT TOTALS BY MONTH AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
FEBRUARY				1	2			3	16.67%	A0920
APRIL					1	1		2	11.11%	A0920
MAY				1		1		2	11.11%	A0920
JUNE				1	1			2	11.11%	A0920
JULY						1		1	5.56%	A0920
AUGUST					1	1		2	11.11%	A0920
SEPTEMBER					3			3	16.67%	A0920
OCTOBER				1				1	5.56%	A0921
NOVEMBER						1		1	5.56%	A0921
DECEMBER					1			1	5.56%	A0921
TOTAL				4	9	5		18	100.00%	

TRAFFIC ACCIDENT TOTALS BY LIGHT CONDITIONS AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
Daylight				2	4	3		9	50.00%	A5911
Dark-Lit				2	5	2		9	50.00%	A5913
TOTAL				4	9	5		18	100.00%	

TRAFFIC ACCIDENT TOTALS BY WEATHER CONDITIONS AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
No Adverse Condition				3	9	4		16	88.89%	A6011
Rain						1		1	5.56%	A6012
Fog				1				1	5.56%	A6015
TOTAL				4	9	5		18	100.00%	

TRAFFIC ACCIDENT TOTALS BY ROAD SURFACE CONDITION AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
Dry				4	9	4		17	94.44%	A5811
Wet						1		1	5.56%	A5812
TOTAL				4	9	5		18	100.00%	

TRAFFIC ACCIDENT TOTALS BY COLLISION TYPE AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
Fixed Object				4	9	5		18	100.00%	A6521
TOTAL				4	9	5		18	100.00%	

TRAFFIC ACCIDENT TOTALS BY ACCIDENT SEVERITY AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
Property Damage Only				4	9	5		18	100.00%	A9013
TOTAL				4	9	5		18	100.00%	

OCCUPANT INJURIES BY YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE
TOTAL									100.00%

page 1

Traffic accident tables for route 1 from mileage 11.53 to 11.57 between 01-01-2006 and 12-31-2008
18 accidents were selected out of 26 original accidents
where the CONTRIBUTING FACTOR was INSUFFICIENT VERT CLEARANCE

TRAFFIC ACCIDENT TOTALS BY CONTRIBUTING FACTOR AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
Insufficient Vert Clearance				4	9	5		18	100.00%	A6322
TOTAL				4	9	5		18	100.00%	

TRAFFIC ACCIDENT TOTALS BY HOUR AND DAY OF WEEK

	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL	PERCENTAGE	
04:00 AM - 04:59 AM		1						1	5.56%	A1420
05:00 AM - 05:59 AM					1			1	5.56%	A1420
09:00 AM - 09:59 AM		1				1		2	11.11%	A1420
10:00 AM - 10:59 AM		1	1					2	11.11%	A1421
11:00 AM - 11:59 AM		1						1	5.56%	A1421
04:00 PM - 04:59 PM		1			1			2	11.11%	A1421
05:00 PM - 05:59 PM				2			1	3	16.67%	A1421
06:00 PM - 06:59 PM		2						2	11.11%	A1421
08:00 PM - 08:59 PM		1						1	5.56%	A1422
10:00 PM - 10:59 PM					1	1		2	11.11%	A1422
11:00 PM - 11:59 PM							1	1	5.56%	A1422
TOTAL		8	1	2	3	2	2	18	100.00%	

TRAFFIC ACCIDENT TOTALS BY HOUR AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
04:00 AM - 04:59 AM					1			1	5.56%	A1420
05:00 AM - 05:59 AM					1			1	5.56%	A1420
09:00 AM - 09:59 AM						2		2	11.11%	A1420
10:00 AM - 10:59 AM					1	1		2	11.11%	A1421
11:00 AM - 11:59 AM					1			1	5.56%	A1421
04:00 PM - 04:59 PM				2				2	11.11%	A1421
05:00 PM - 05:59 PM					3			3	16.67%	A1421
06:00 PM - 06:59 PM					1	1		2	11.11%	A1421
08:00 PM - 08:59 PM				1				1	5.56%	A1422
10:00 PM - 10:59 PM				1		1		2	11.11%	A1422
11:00 PM - 11:59 PM					1			1	5.56%	A1422
TOTAL				4	9	5		18	100.00%	

TRAFFIC ACCIDENT TOTALS BY OTHER ROADWAY FEATURE AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
Intersec Private Road				1				1	5.56%	A4012
None				3	9	5		17	94.44%	A4010
TOTAL				4	9	5		18	100.00%	

TRAFFIC ACCIDENT TOTALS BY CONSTRUCTION OR MAINTENANCE AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
No				4	9	5		18	100.00%	A7812
TOTAL				4	9	5		18	100.00%	

TRAFFIC ACCIDENT TOTALS BY MEDIAN BARRIER PENETRATION AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
None				1				1	5.56%	A7713
Not Applicable				3	9	5		17	94.44%	A7714
TOTAL				4	9	5		18	100.00%	

Traffic accident tables for route 1 from mileage 11.53 to 11.57 between 01-01-2006 and 12-31-2008
18 accidents were selected out of 26 original accidents
where the CONTRIBUTING FACTOR was INSUFFICIENT VERT CLEARANCE

VEHICLE TOTALS BY VEHICLE TYPE AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
Single Unit Trk/2axle/4tire					1			1	5.56%	V2821
Single Unit Trk/2axle/6tire				3	5	2		10	55.56%	V2821
Truck-Trailer Combination					2			2	11.11%	V2821
Tractor Semi-Trailer				1	1	2		4	22.22%	V2822
Construction/Farm Equip						1		1	5.56%	V2822
TOTAL				4	9	5		18	100.00%	

OBJECT TOTALS BY OBJECT STRUCK AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL		
Bridge Structure				1	1	1		3	16.67%	V3320
Underpass Ceiling				3	8	4		15	83.33%	V3322
TOTAL				4	9	5		18	100.00%	

OFFENDING TRAFFIC UNIT BY OFFENDING TRAFFIC UNIT DIRECTION AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
NB				3	6	3		12	66.67%	V4211
SB				1	3	2		6	33.33%	V4212
TOTAL				4	9	5		18	100.00%	

TRAFFIC UNIT TOTALS BY DIRECTION OF ALL TRAFFIC UNITS AND YEAR

	2003	2004	2005	2006	2007	2008	2009	TOTAL	PERCENTAGE	
NB				3	6	3		12	66.67%	V4211
SB				1	3	2		6	33.33%	V4212
TOTAL				4	9	5		18	100.00%	

```
             Traffic accidents description for route   1 from mileage 11.53 to 11.57 between 01-01-2006 and 12-31-2008
       18 accidents were selected out of 26 original accidents  where the CONTRIBUTING FACTOR was INSUFFICIENT VERT CLEARANCE
PREPARED:  6/2/2010
                                                                                 LIGHT       SURFACE
MILEAGE ALPHA DESCRIPTION OF ACC LOCATION    DATE OF ACCIDENT          CASE # TIME  CONDITION   CONDITION  WEATHER CONDITION
                   INJURY CODES:  K A B C TOT
-----------------------------------------------------------------------------------------------------------------------------

TOWN:    DARIEN
011.57  AT METRO-NORTH UP                 Monday, February 06, 2006     107987 1600 Daylight     Dry       No Adverse Condition           DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
SB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Bridge Structure Over Roadway

011.57  AT UP METRO NORTH                 Friday, May 26, 2006          123270 2200 Dark-Lit     Dry       Fog                            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT UP METRO NORTH                 Monday, June 26, 2006         129433 2042 Dark-Lit     Dry       No Adverse Condition           DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT UP METRO NORTH                 Thursday, October 12, 2006    153259 1622 Daylight     Dry       No Adverse Condition           DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Tractor Semi-Trailer           0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT METRO NORTH UP                 Monday, February 12, 2007     115236 1816 Dark-Lit     Dry       No Adverse Condition           DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT METRO NORTH UP                 Saturday, February 24, 2007   116308 2330 Dark-Lit     Dry       No Adverse Condition           DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Bridge Structure Over Roadway
```

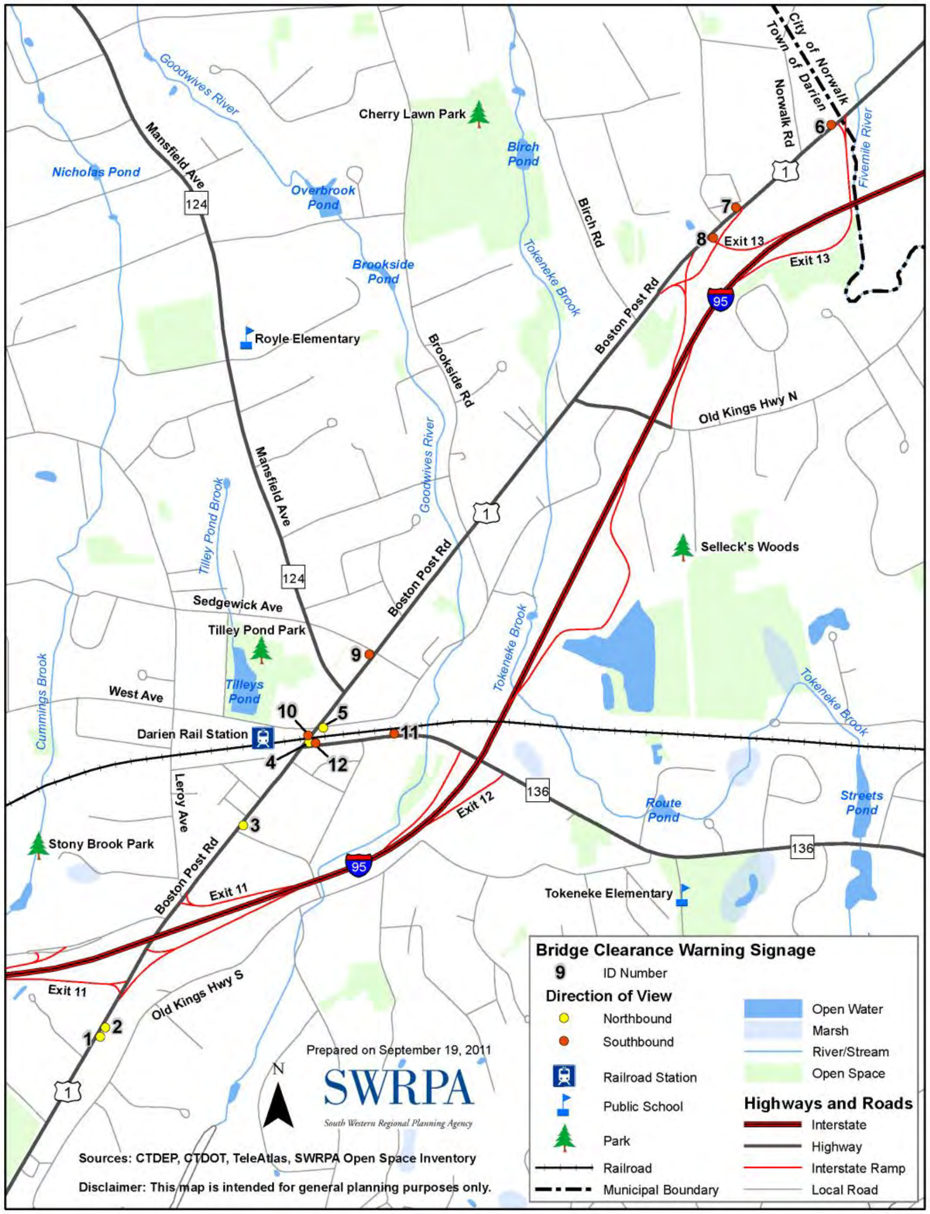
```
               Traffic accidents description for route   1 from mileage 11.53 to 11.57 between 01-01-2006 and 12-31-2008
         18 accidents were selected out of 26 original accidents  where the CONTRIBUTING FACTOR was INSUFFICIENT VERT CLEARANCE
PREPARED:  6/2/2010
                                                                                  LIGHT       SURFACE
MILEAGE ALPHA DESCRIPTION OF ACC LOCATION    DATE OF ACCIDENT           CASE # TIME  CONDITION   CONDITION  WEATHER CONDITION
                   INJURY CODES:  K A B C TOT
-------------------------------------------------------------------------------------------------------------------------------
TOWN:    DARIEN
011.57  AT UP METRO-NORTH                 Monday, April 30, 2007        132229 1116 Daylight     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
SB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT UP METRO NORTH                 Saturday, June 23, 2007       144262 1730 Daylight     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT METRO-NORTH UP                 Monday, August 06, 2007       164154 0400 Dark-Lit     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
SB Tractor Semi-Trailer           0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT METRO-NORTH RR UP              Thursday, September 20, 2007  171734 0550 Daylight     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Truck-Trailer Combination      0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT METRO NORTH UP                 Wednesday, September 26, 2007 174829 1729 Daylight     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Truck-Trailer Combination      0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT UP METRO-NORTH                 Monday, September 17, 2007    175639 1036 Dark-Lit     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway
```

```
              Traffic accidents description for route   1 from mileage 11.53 to 11.57 between 01-01-2006 and 12-31-2008
        18 accidents were selected out of 26 original accidents  where the CONTRIBUTING FACTOR was INSUFFICIENT VERT CLEARANCE
PREPARED:  6/2/2010
                                                                                     LIGHT       SURFACE
MILEAGE ALPHA DESCRIPTION OF ACC LOCATION    DATE OF ACCIDENT           CASE # TIME  CONDITION   CONDITION  WEATHER CONDITION
                   INJURY CODES:  K A B C TOT
-----------------------------------------------------------------------------------------------------------------------------
TOWN:    DARIEN
011.57  AT UP METRO-NORTH                 Wednesday, December 26, 2007  207590 1741 Dark-Lit     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
SB Single Unit Trk/2axle/4tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT UP METRO-NORTH                 Tuesday, April 22, 2008       128525 1047 Daylight     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
SB Tractor Semi-Trailer           0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT UP METRO NORTH                 Friday, May 16, 2008          132938 0930 Dark-Lit     Wet       Rain                            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Bridge Structure Over Roadway

011.57  AT UP METRO-NORTH                 Thursday, July 17, 2008       151031 2215 Dark-Lit     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Construction/Farm Equip        0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT METRO NORTH UP                 Monday, August 04, 2008       157273 1800 Daylight     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
SB Single Unit Trk/2axle/6tire    0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway

011.57  AT UP METRO NORTH                 Monday, November 24, 2008     192157 0936 Daylight     Dry       No Adverse Condition            DAR
Collision Type:  Fixed Object                Contributing Factor: Insufficient Vert Clearance
At-Fault Traffic Unit: #  1
NB Tractor Semi-Trailer           0 Injuries Maneuver: Vehicle Going Straight
Object Struck: Underpass Ceiling Over Roadway
```

Appendix 2.8

Route 1 Rail Bridge Vertical Clearance Warning Signage

Darien Route 1 Rail Bridge Vertical Clearance Warning Signage



NOT TO SCALE

Route 1 Corridor Study **•** *Darien, CT*

Figure A2-5.
Route 1 Rail Bridge Vertical Clearance Warning Signage (2011)

Appendix 2.9

Downtown Parking Map (2011)

Legend

- Permit
- Voucher
- Permit/Voucher
- Voucher/Incentive
- Permit/Voucher/Incentive
- Permit/3-hour
- Voucher/3-hour
- 2-hour
- 3-hour
- 2-hour/3-hour
- Permit/3-hour
- Permit/2-hour/3-hour
- Metro-North Railroad
- Rail Station
- Park

N

Prepared on July 26, 2011

SWRPA

South Western Regional Planning Agency

Disclaimer: This Map is for general planning purposes only.
Source: CTDOT, CTDEP, SWRPA, Town of Darien
Aerial: ArcGIS Online Imagery, 2010

CHA SWRPA

NOT TO SCALE

Route 1 Corridor Study • *Darien, CT*

Figure A2-6.
Downtown Parking Map (2011)

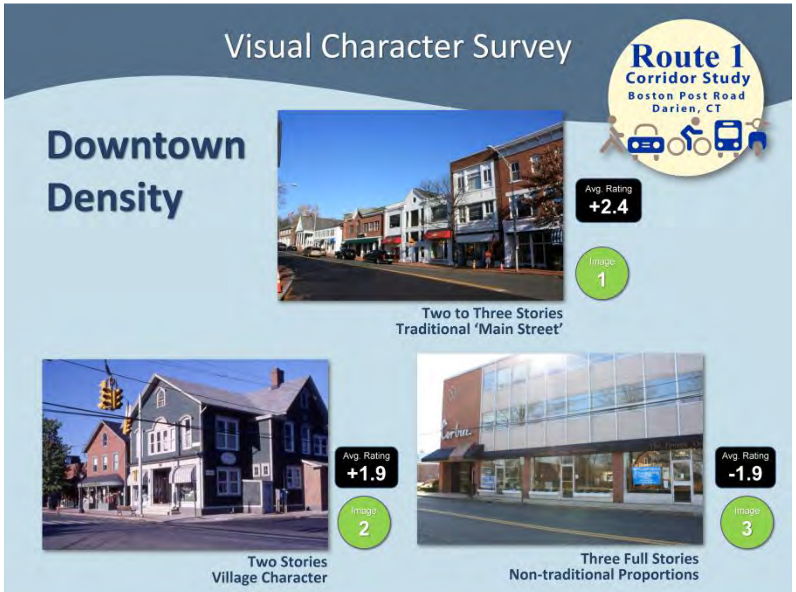
Appendix 2.10

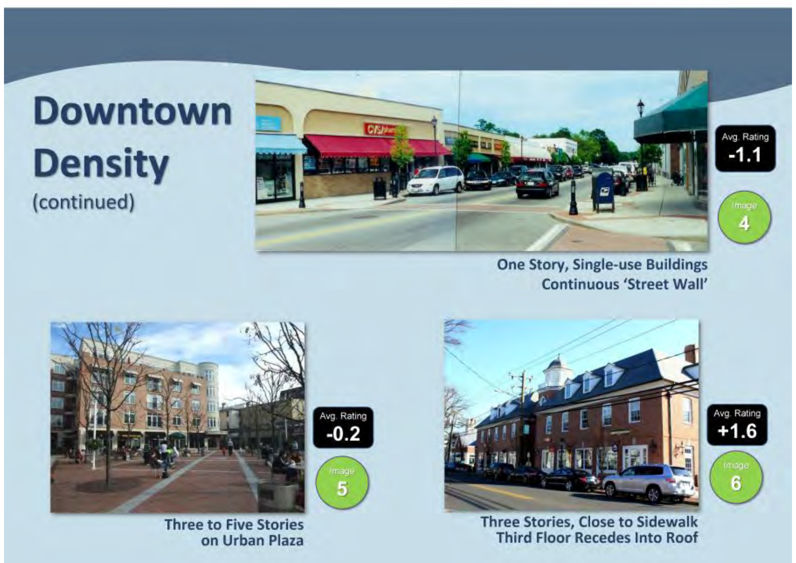
Visual Character Survey Results and Analysis (2010)

Visual Character Survey Results

From March 4 and April 8, 2010 Community Open House Meetings

Route 1
Corridor Study
Boston Post Road
Darien, CT





Summary of Results

Downtown Density:

Image No.	Numerical Range of Ratings: Favorable (+) 3	Favorable (+) 2	Favorable (+) 1	Neutral	Unfavorable (-) 1	Unfavorable (-) 2	Unfavorable (-) 3	Summary: No. of Responses	Summary: Average Rating
Downtown Density									
1	23	10	2	1	0	1	0	37	2.4
2	18	7	6	2	2	0	1	36	1.9
3	1	1	2	2	4	8	18	36	-1.9
Downtown Density (cont.)									
4	2	2	4	2	9	7	11	37	-1.1
5	5	7	3	5	2	7	8	37	-0.2
6	13	11	6	3	1	2	1	37	1.6

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Visual Character Survey Results

From March 4 and April 8, 2010 Community Open House Meetings

Summary of Results

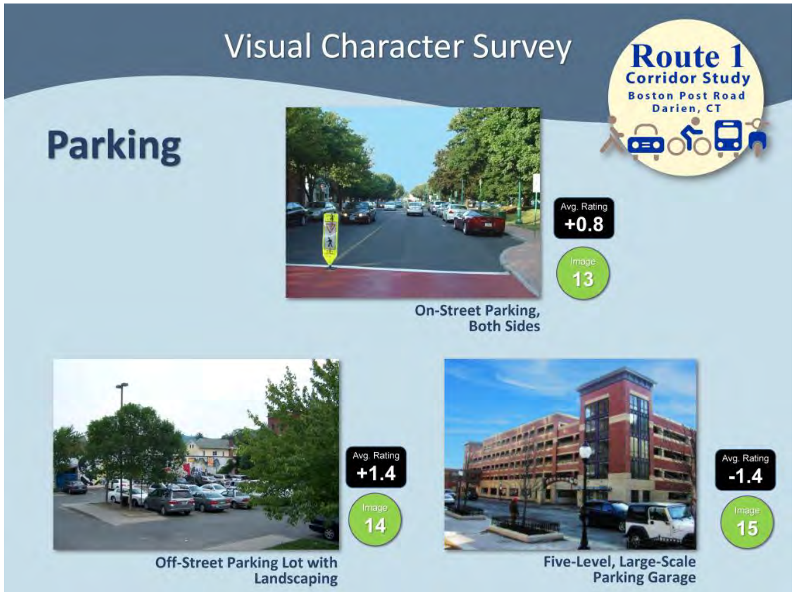
Downtown Residential and Route 1 Commercial:

Image No.	Numerical Range of Ratings							Summary	
	Favorable				Unfavorable				
	(+) 3	(+) 2	(+) 1	Neutral	(-) 1	(-) 2	(-) 3	No. of Responses	Average Rating
Downtown Residential									
7	20	11	3	1	2	0	0	37	2.2
8	6	8	5	8	2	2	5	36	0.5
9	6	7	11	7	1	1	4	37	0.8
Route 1 Commercial									
10	10	14	4	4	4	0	1	37	1.5
11	12	19	3	3	0	0	0	37	2.1
12	7	13	10	3	3	1	0	37	1.4

SWRPA CHA

Visual Character Survey Results

From March 4 and April 8, 2010 Community Open House Meetings



Summary of Results

Parking and Parking Structures:

Image No.	Numerical Range of Ratings: Favorable (+) 3	Favorable (+) 2	Favorable (+) 1	Neutral	Unfavorable (-) 1	Unfavorable (-) 2	Unfavorable (-) 3	Summary: No. of Responses	Summary: Average Rating
Parking									
13	7	7	8	6	5	1	2	36	0.8
14	10	10	9	4	2	1	1	37	1.4
15	3	4	1	1	4	3	19	35	-1.4
Parking Structures									
16	8	5	9	4	1	3	5	35	0.6
17	5	12	8	3	5	1	2	36	0.9
18	1	4	6	2	4	5	14	36	-1.1

Visual Character Survey Results

From March 4 and April 8, 2010 Community Open House Meetings

Route 1 Corridor Study
Boston Post Road
Darien, CT

Summary of Results

Streetscape/Sidewalks and Access Management:

Image No.	Numerical Range of Ratings: Favorable (+) 3	Favorable (+) 2	Favorable (+) 1	Neutral	Unfavorable (-) 1	Unfavorable (-) 2	Unfavorable (-) 3	Summary: No. of Responses	Summary: Average Rating
Streetscape/Sidewalks									
19	18	10	4	3	0	0	1	36	2.1
20	24	11	0	1	0	0	1	37	2.5
21	6	11	10	2	5	1	1	36	1.1
Access Management									
22	9	5	9	5	2	2	3	35	0.9
23	7	10	7	5	2	3	0	34	1.2
24	6	10	10	3	5	1	0	35	1.2

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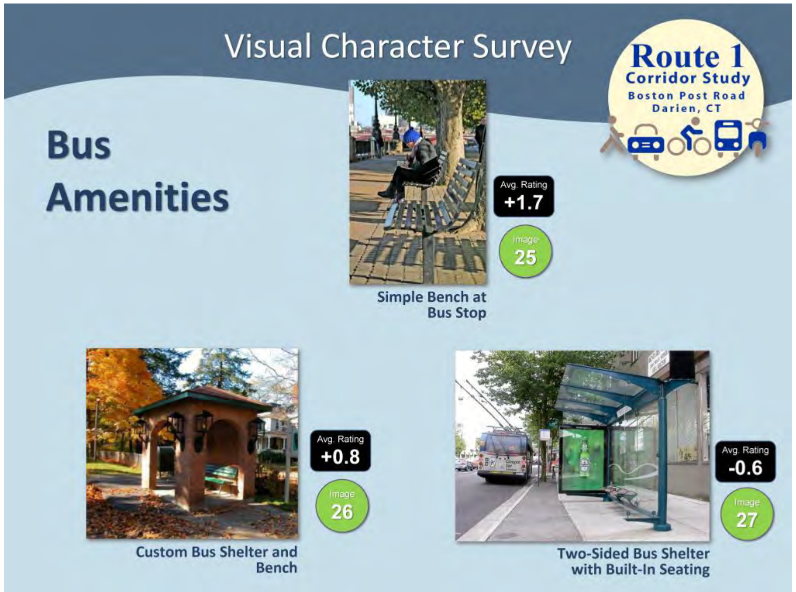
Visual Character Survey Results

From March 4 and April 8, 2010 Community Open House Meetings



Summary of Results

Bus Amenities and Pedestrian Safety:

	Numerical Range of Ratings							Summary	
	Favorable				Unfavorable				
Image No.	(+) 3	(+) 2	(+) 1	Neutral	(-) 1	(-) 2	(-) 3	No. of Responses	Average Rating
Bus Amenities									
25	10	13	7	3	2	0	0	35	1.7
26	8	8	2	11	3	2	2	36	0.8
27	5	4	3	4	4	5	11	36	-0.6
Pedestrian Safety									
28	20	5	7	3	1	1	0	37	2.0
29	12	10	4	3	3	3	0	35	1.5
30	5	8	5	7	3	3	5	36	0.3

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Summary of Visual Character Survey Analysis

Based on Results from March 4 and April 8, 2010 Community Open House Meetings

Route 1 Corridor Study
Boston Post Road
Darien, CT

The following points summarize community preferences relative to building height, architectural style, parking structures, and other design elements that were derived from the results of the Visual Character Survey (VCS). The possible ratings for the VCS ranged from favorable (+1 to +3), to neutral (-1 to +1), to unfavorable (-3 to -1). The numbers shown in parentheses below refer to the number of images of each type that were presented in the VCS.

Building Height Preferences:

- Image (1) of one story building was rated unfavorably at -1.1.
- All three images of two story buildings were rated favorably. The average rating of two story buildings was +1.9.
- Images (6) of three story buildings were generally rated favorably except Image 3 (Corbin Building, Bauhaus architecture) and Image 9 (apartments or condos surrounding a park). The average rating of three story buildings was +1.1.
- Images (2) of four story or higher buildings were rated in the neutral range. The average rating of four story or higher buildings was +0.1.

Building Architecture Preferences:

- All images (2) of buildings with modern architecture were rated unfavorably. The average rating of modern buildings was -1.5.
- All images (8) of buildings with traditional architecture were rated favorably (6) or in the neutral range (2). The two images that received a neutral rating were Image 8 (three to four story townhouses in Cambridge, MA) and Image 9 (three story apartments or condos surrounding a park). The average rating of traditional buildings was +1.6.
- All images (2) of buildings with contemporary architecture (albeit, many of the contemporary buildings have traditional characteristics such as brick cladding and traditionally proportioned windows, and are arguably sensitive to the historical context of Downtown Darien) were rated favorably (1) or in the neutral range (1). The image that received a neutral rating was Image 5 (five story building on an urban plaza in downtown Princeton, NJ). The image that received a favorable rating was Image 10 (two story "Lifestyle Center"). The average rating of contemporary buildings was +0.6.

Parking Structure Preferences:

- Two images of contextual parking structures disguised as buildings were rated in the neutral range including Image 16 (two level brick structure in Annapolis MD) and Image 17 (four level brick structure on Audubon Court, New Haven, CT). The average rating of contextual parking structures disguised as a building was +0.8.
- Two images of more conventional parking structures that have a combination of brick and concrete façades were rated unfavorably including Image 15 (five level, large scale parking garage) and Image 18 (three level parking garage in New Haven's Ninth Square area). The average rating of conventional parking structures was -1.3.

SWRPA CHA

Summary of Visual Character Survey Analysis

Based on Results from March 4 and April 8, 2010 Community Open House Meetings

Other Categories:

- Non-structured parking:
    - Image 13 of on-street, parallel parking (Branford town center) was rated in the neutral range at +0.8.
    - Image 14 of off-street, landscaped surface parking lots (Center Street in Downtown Darien) was rated favorably at +1.4.
- Streetscape/Sidewalks:

  Images of attractive sidewalks with cafés and landscaping were all rated favorably, including:
    - Image 19 of brick sidewalk in Georgetown, Washington DC was rated at +2.1.
    - Image 20 of concrete sidewalk with café tables in Downtown Keene, NH was rated at +2.5 (the highest rated image of the 30 images presented).
    - Image 21 of brick sidewalk with café tables and custom sign in Philadelphia, PA was rated at +1.1.
    - The average rating of these images was +1.9.
- Access Management:
    - Images of example access management strategies in traditional developments (or in one case, a New Urbanism development) were rated favorably including Image 22 of on-street bicycle lanes; Image 23 of a New Urbanism development; and Image 24 of a continuous street wall in Branford, CT. The average rating of these images was +1.1.
- Bus Amenities:
    - Low-key bus amenities depicted in Image 25 of a simple bench was rated favorably at +1.7.
    - Image 26 of a custom bus shelter and Image 27 of a contemporary bus shelter with glass walls and a panel that contained commercial advertisement were both rated in the neutral range at +0.8 and -0.6, respectively.
- Pedestrian Safety:

  Images depicting pedestrian safety improvements were generally rated favorably, including:
    - Image 28 of a high visibility crosswalk with curb extensions on Main Street in Lee, MA was rated very favorably at +2.4
    - Image 29 of an elevated crosswalk with light bollards, signs and imbedded lights on the campus of Keene State College in Keene, NH was rated at +1.5.
    - Image 30 of an elevated crosswalk, pedestrian refuge island and bicycle lane was rated at +0.7.
    - The average rating of these images was +1.3.

Summary of Visual Character Survey Analysis

Based on Results from March 4 and April 8, 2010 Community Open House Meetings

Route 1 Corridor Study
Boston Post Road
Darien, CT

Summary of Numerical Ratings for Images Relating to Building Height, Architecture, and Parking Structures:

Image No.	Building Height/Parking Structures: 1-Story	2 story	3 story	4 story+	Parking Garage	Architectural Character: Modern	Traditional	Contemporary
Downtown Density								
1		2.4					2.4	
2		1.9					1.9	
3			-1.9			-1.9		
Downtown Density (cont.)								
4	-1.1					-1.1		
5				-0.2				-0.2
6			1.6				1.6	
Downtown Residential								
7			2.2				2.2	
8				0.5			0.5	
9			0.8				0.8	
Route 1 Commercial								
10			1.5					1.5
11			2.1				2.1	
12		1.4					1.4	
Parking								
15					-1.4			
Parking Structures								
16					0.6			
17					0.9			
18					-1.1			

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Appendix 2.11

Comparison of Downtown Densities
Precedent Small Town, Downtown Districts (2010)

Comparison of Downtown Densities

Precedent Small Town, Downtown Districts (2010)

Route 1 Corridor Study
Boston Post Road
Darien, CT

Location:

Goodwives Shopping Center

Darien, CT

Floor Area Ratio (F.A.R.):

0.25

Overall Parking Supply:

4.6 spaces per 1,000 g.s.f.

Comparison of Downtown Densities

Precedent Small Town, Downtown Districts (2010)

Route 1
Corridor Study
Boston Post Road
Darien, CT

Location:

Lenox Village

Lenox, MA

Floor Area Ratio (F.A.R.):

0.6

Overall Parking Supply:

1.9 spaces per 1,000 g.s.f.

SWRPA CHA

Comparison of Downtown Densities

Precedent Small Town, Downtown Districts (2010)

Route 1
Corridor Study
Boston Post Road
Darien, CT

Location:

“Model Block” Downtown Darien

Darien, CT

Floor Area Ratio (F.A.R.):

0.67

Overall Parking Supply:

2.3 spaces per 1,000 g.s.f.

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Comparison of Downtown Densities

Precedent Small Town, Downtown Districts (2010)

Route 1
Corridor Study
Boston Post Road
Darien, CT

Location:

New Canaan Town Center

New Canaan, CT

Floor Area Ratio (F.A.R.):

0.6 – 0.9

Overall Parking Supply:

4.0 +/- spaces per 1,000 g.s.f.

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Comparison of Downtown Densities

Precedent Small Town, Downtown Districts (2010)

Route 1
Corridor Study
Boston Post Road
Darien, CT

Location:

Southport Green

Fairfield, CT

Floor Area Ratio (F.A.R.):

0.7

Overall Parking Supply:

X spaces per 1,000 g.s.f.

(Parking count is not available; however, since the majority of uses in this development are residential and since there is limited retail, the parking ratio of this precedent is not relevant to Downtown Darien).

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Comparison of Downtown Densities

Precedent Small Town, Downtown Districts (2010)

Route 1
Corridor Study
Boston Post Road
Darien, CT

Location:

West Hartford Town Center/ Blue Back Square

West Hartford, CT

Floor Area Ratio (F.A.R.):

0.9

Overall Parking Supply:

2.4 spaces per 1,000 g.s.f.

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Comparison of Downtown Densities

Precedent Small Town, Downtown Districts (2010)

Route 1 Corridor Study
Boston Post Road
Darien, CT

Location:

Storrs Downtown

Mansfield, CT

Floor Area Ratio (F.A.R.):

1.0

Overall Parking Supply:

1.6 spaces per 1,000 g.s.f.

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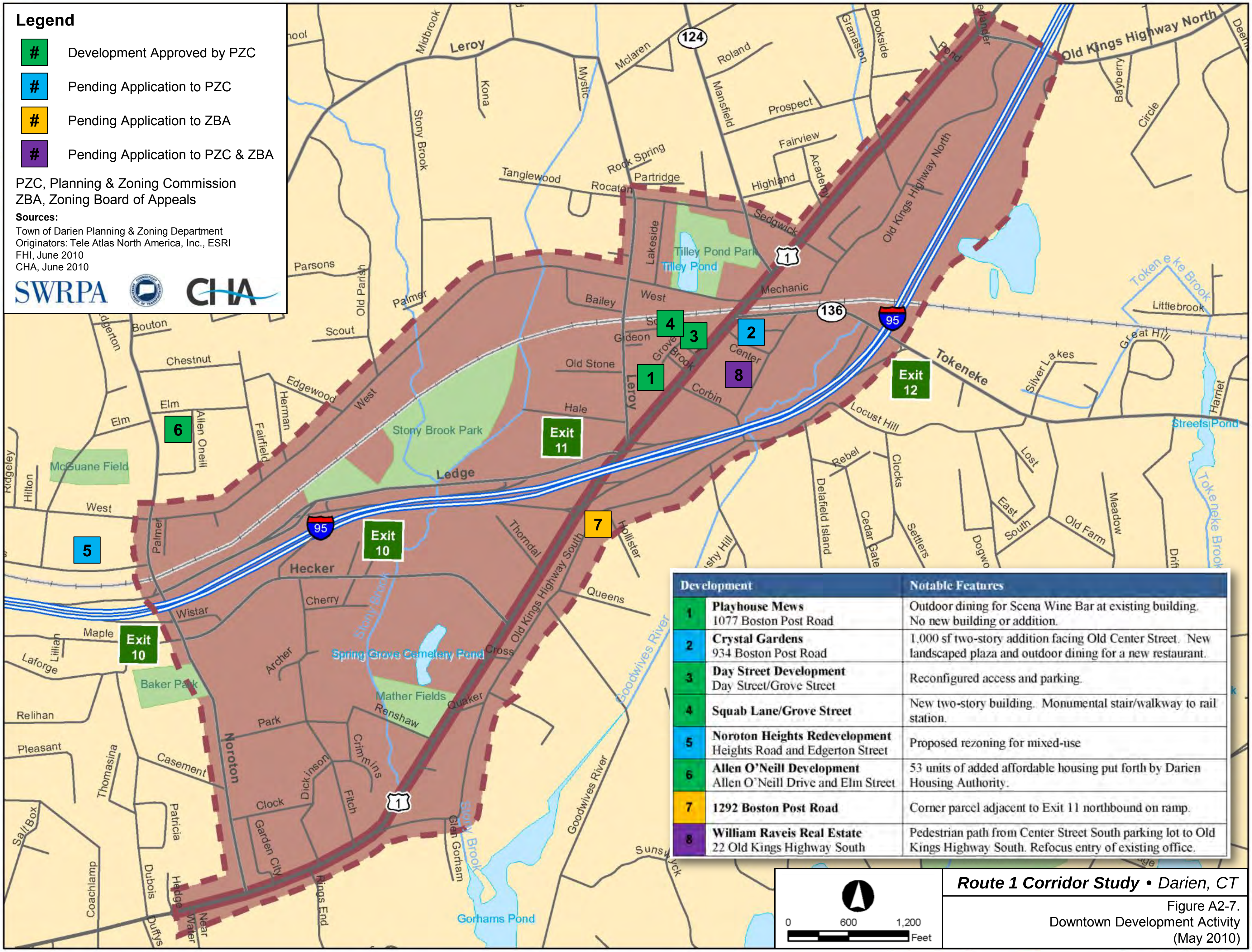
Appendix 2.12

Downtown Development Activity (May 2010)



Development		Notable Features
1	**Playhouse Mews** 1077 Boston Post Road	Outdoor dining for Scena Wine Bar at existing building. No new building or addition.
2	**Crystal Gardens** 934 Boston Post Road	1,000 sf two-story addition facing Old Center Street. New landscaped plaza and outdoor dining for a new restaurant.
3	**Day Street Development** Day Street/Grove Street	Reconfigured access and parking.
4	**Squab Lane/Grove Street**	New two-story building. Monumental stair/walkway to rail station.
5	**Noroton Heights Redevelopment** Heights Road and Edgerton Street	Proposed rezoning for mixed-use
6	**Allen O'Neill Development** Allen O'Neill Drive and Elm Street	53 units of added affordable housing put forth by Darien Housing Authority.
7	**1292 Boston Post Road**	Corner parcel adjacent to Exit 11 northbound on ramp.
8	**William Raveis Real Estate** 22 Old Kings Highway South	Pedestrian path from Center Street South parking lot to Old Kings Highway South. Refocus entry of existing office.

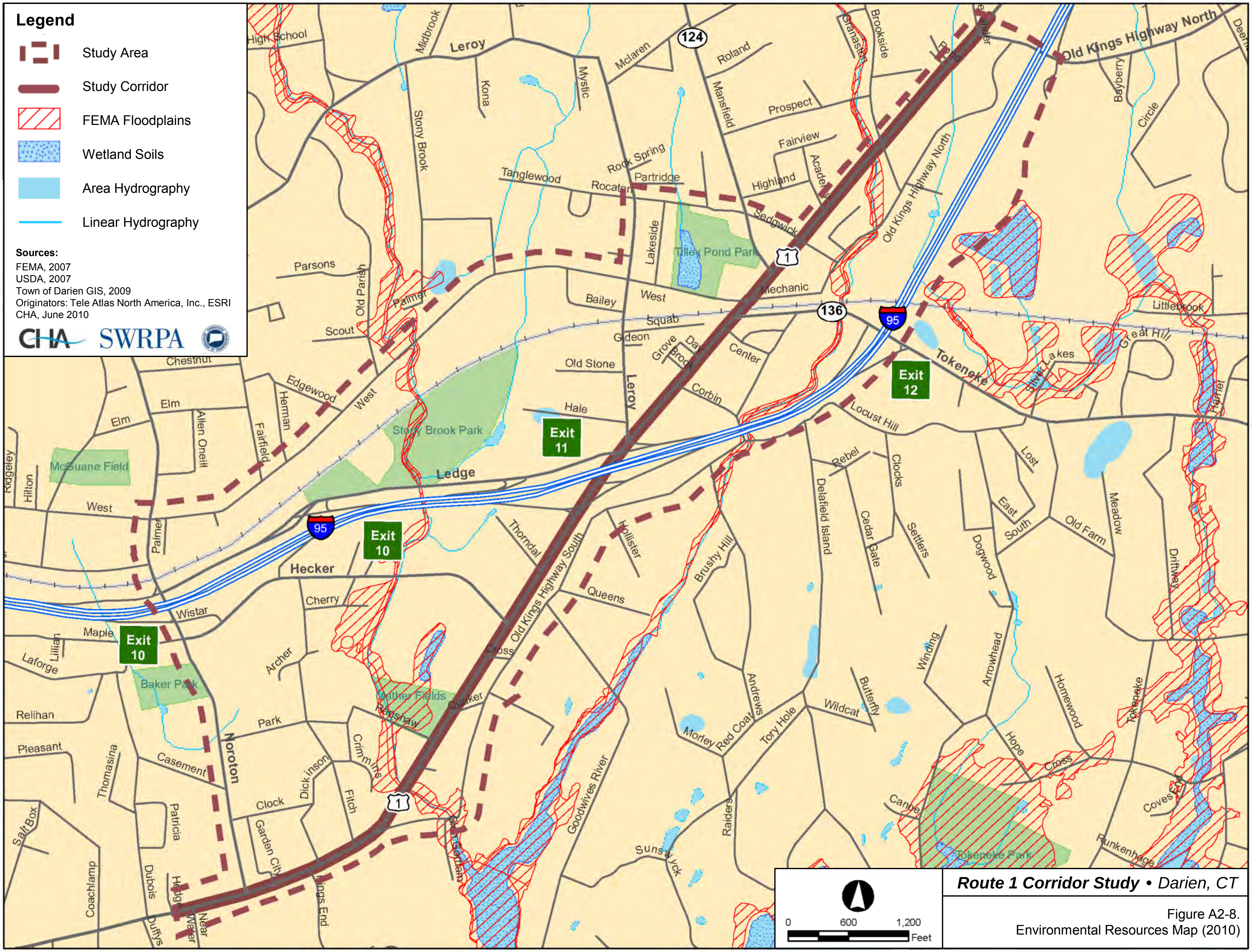
0 600 1,200 Feet

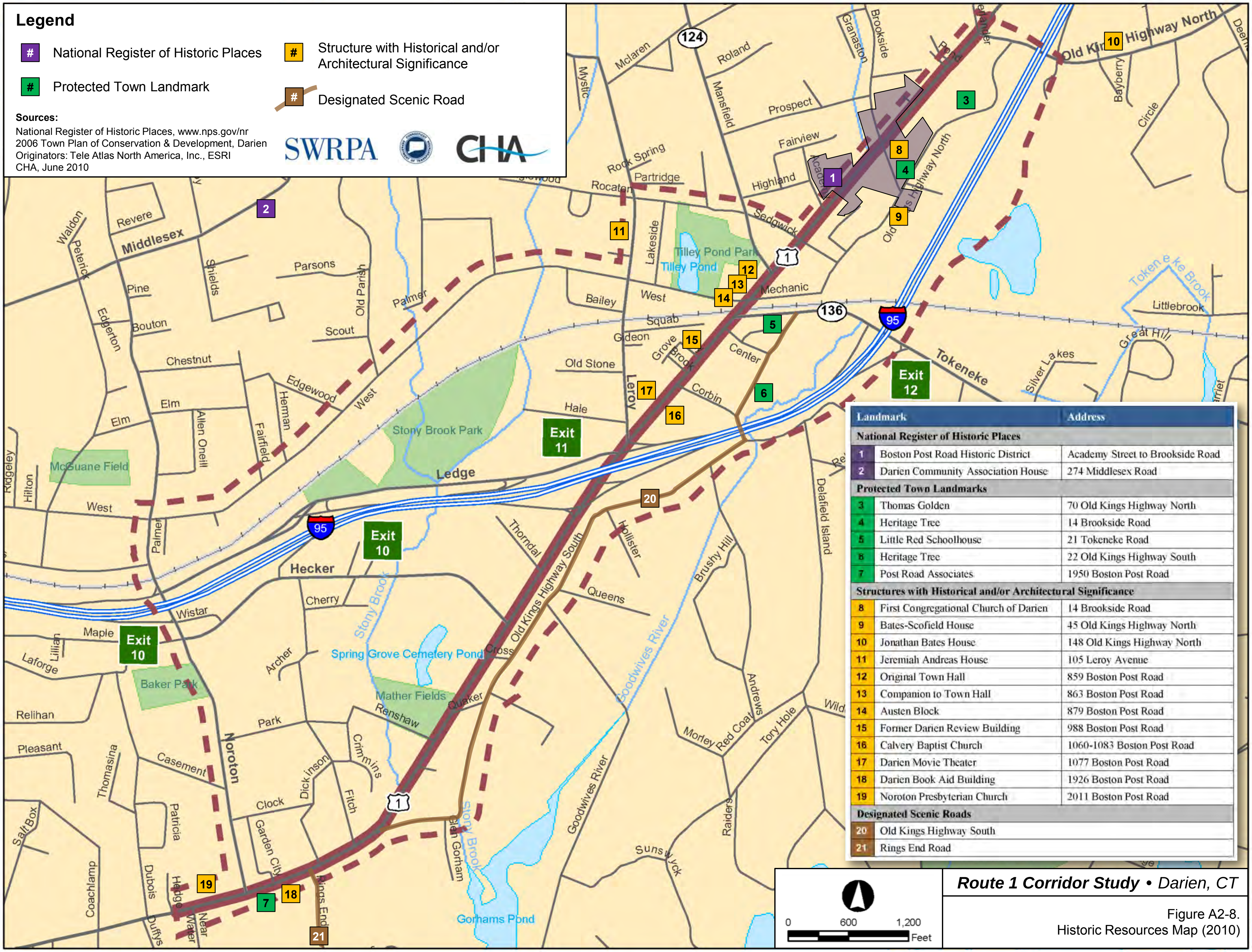
Route 1 Corridor Study • *Darien, CT*

Figure A2-7.
Downtown Development Activity
(May 2010)

Appendix 2.13

Environmental and Historic Resource Maps (2010)


Legend
Study Area
Study Corridor
FEMA Floodplains
Wetland Soils
Area Hydrography
Linear Hydrography
Sources:
FEMA, 2007
USDA, 2007
Town of Darien GIS, 2009
Originators: Tele Atlas North America, Inc., ESRI
CHA, June 2010
CHA
SWRPA
Route 1 Corridor Study • Darien, CT
Figure A2-8.
Environmental Resources Map (2010)
0
600
1,200
Feet
Exit 10
Exit 11
Exit 12
95
1
124
136
Old Kings Highway North
Old Kings Highway South
Tilley Pond Park
Stony Brook Park
McGuane Field
Baker Park
Weather Fields
Tokeneke Park
Leroy
Ledge
Hecker
Noroton
Tokeneke
Locust Hill
Mechanic
West
Squab
Parsons
Scout
Chestnut
Elm
Edgewood
Herman
Fairfield
Allen Oneill
Ridgeley
Hilton
Palmer
Wistar
Maple
Laforge
Lillian
Relihan
Pleasant
Thomasina
Casement
Park
Clock
Dickinson
Fitch
Garden City
Patricia
Coachlamp
Dubois
Duffys
Salt Box
Hedge
Near
Water
Kings End
Crimmins
Renshaw
Quaker
Cross
Archer
Cherry
Thorndal
Hollister
Queens
Brushy Hill
Goodwives River
Morley
Red Coat
Tory Hole
Andrews
Wildcat
Butterfly
Raiders
Sunswyck
Canoe
Delafield Island
Cedar Gate
Clocks
Rebel
Settlers
Dogwood
Winding
Arrowhead
Homewood
Hope
Cross
Coves End
Runkenhage
Driftway
Meadow
Old Farm
East
South
Lost
Harriet
Great Hill
Littlebrook
Silver Lakes
Center
Corbin
Hale
Old Stone
Gideon
Grove
Day
Brook
Bailey
Palmer
Old Parish
Tanglewood
Rocaton
Rock Spring
Partridge
Lakeside
Sedgwick
Highland
Fairview
Academy
Prospect
Mansfield
Roland
Mclaren
Mystic
Kona
Stony Brook
Midbrook
High School
Brookside
Bayberry
Circle
Deerfield



Landmark		Address
National Register of Historic Places		
1	Boston Post Road Historic District	Academy Street to Brookside Road
2	Darien Community Association House	274 Middlesex Road
Protected Town Landmarks		
3	Thomas Golden	70 Old Kings Highway North
4	Heritage Tree	14 Brookside Road
5	Little Red Schoolhouse	21 Tokeneke Road
6	Heritage Tree	22 Old Kings Highway South
7	Post Road Associates	1950 Boston Post Road
Structures with Historical and/or Architectural Significance		
8	First Congregational Church of Darien	14 Brookside Road
9	Bates-Scofield House	45 Old Kings Highway North
10	Jonathan Bates House	148 Old Kings Highway North
11	Jeremiah Andreas House	105 Leroy Avenue
12	Original Town Hall	859 Boston Post Road
13	Companion to Town Hall	863 Boston Post Road
14	Austen Block	879 Boston Post Road
15	Former Darien Review Building	988 Boston Post Road
16	Calvery Baptist Church	1060-1083 Boston Post Road
17	Darien Movie Theater	1077 Boston Post Road
18	Darien Book Aid Building	1926 Boston Post Road
19	Noroton Presbyterian Church	2011 Boston Post Road
Designated Scenic Roads		
20	Old Kings Highway South	
21	Rings End Road	

0 600 1,200 Feet

Route 1 Corridor Study • Darien, CT

Figure A2-8.
Historic Resources Map (2010)

Appendix 3.1

Peak Hour Traffic Volume Diagrams: 2020 and 2030 Baseline Conditions

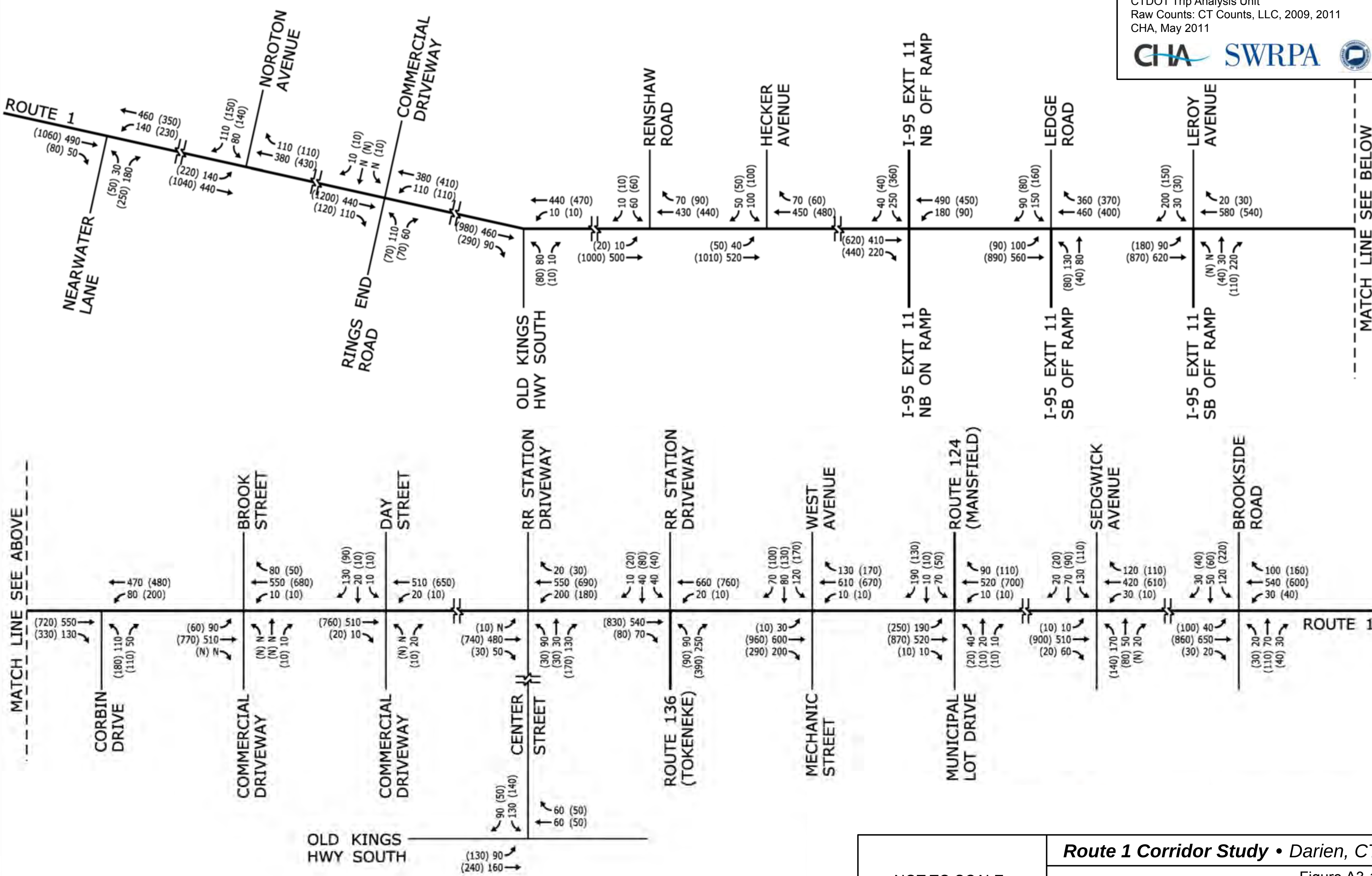
Legend

###	Midday Peak Volume
(###)	PM Peak Volume

Sources:

CTDOT Trip Analysis Unit
Raw Counts: CT Counts, LLC, 2009, 2011
CHA, May 2011

CHA SWRPA



NOT TO SCALE

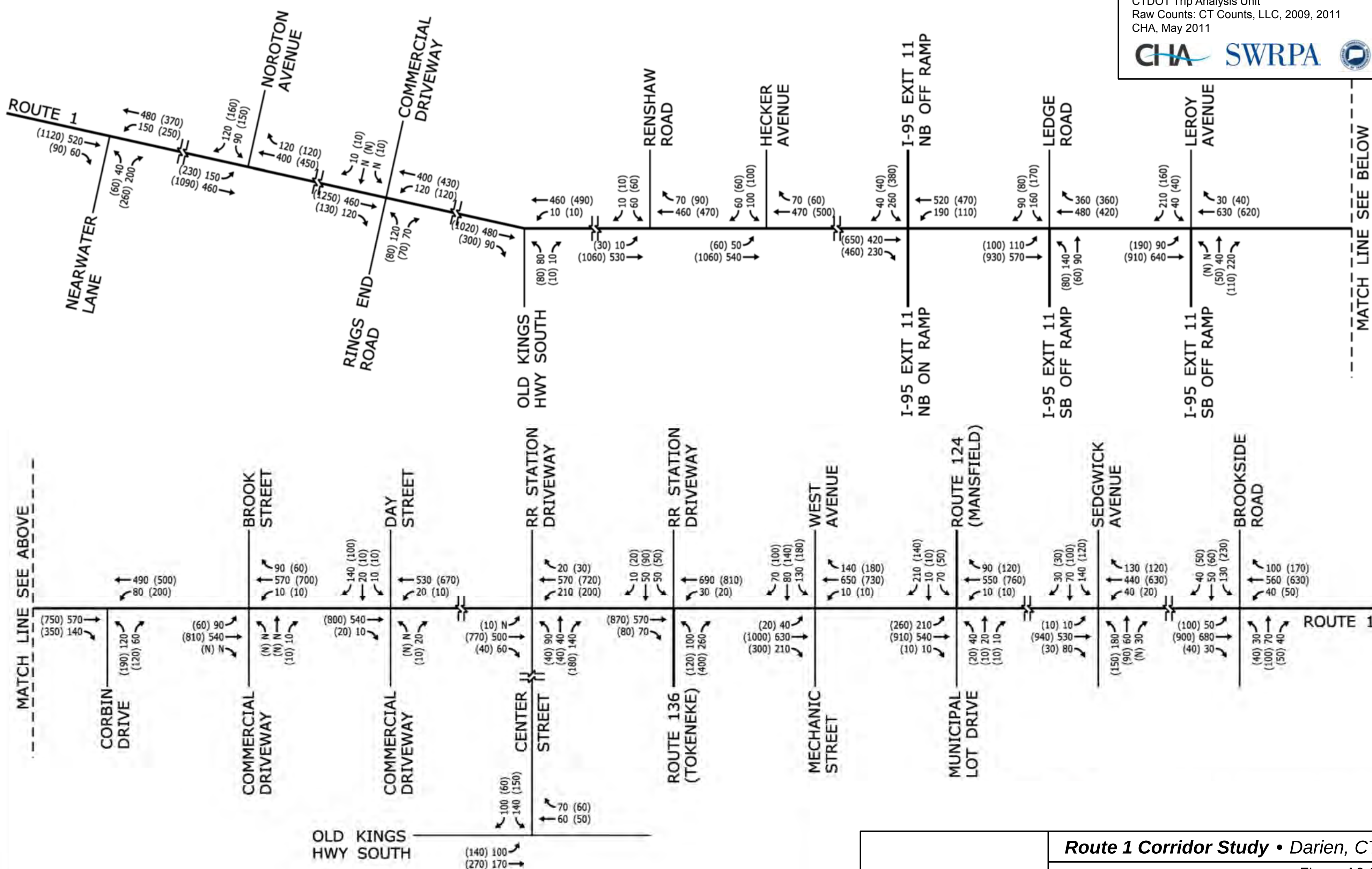
Route 1 Corridor Study *• Darien, CT*

Figure A3-1.
Peak Hour Traffic Volumes
2020 Baseline Condition

Legend

###	Midday Peak Volume
(###)	PM Peak Volume

Sources:
CTDOT Trip Analysis Unit
Raw Counts: CT Counts, LLC, 2009, 2011
CHA, May 2011



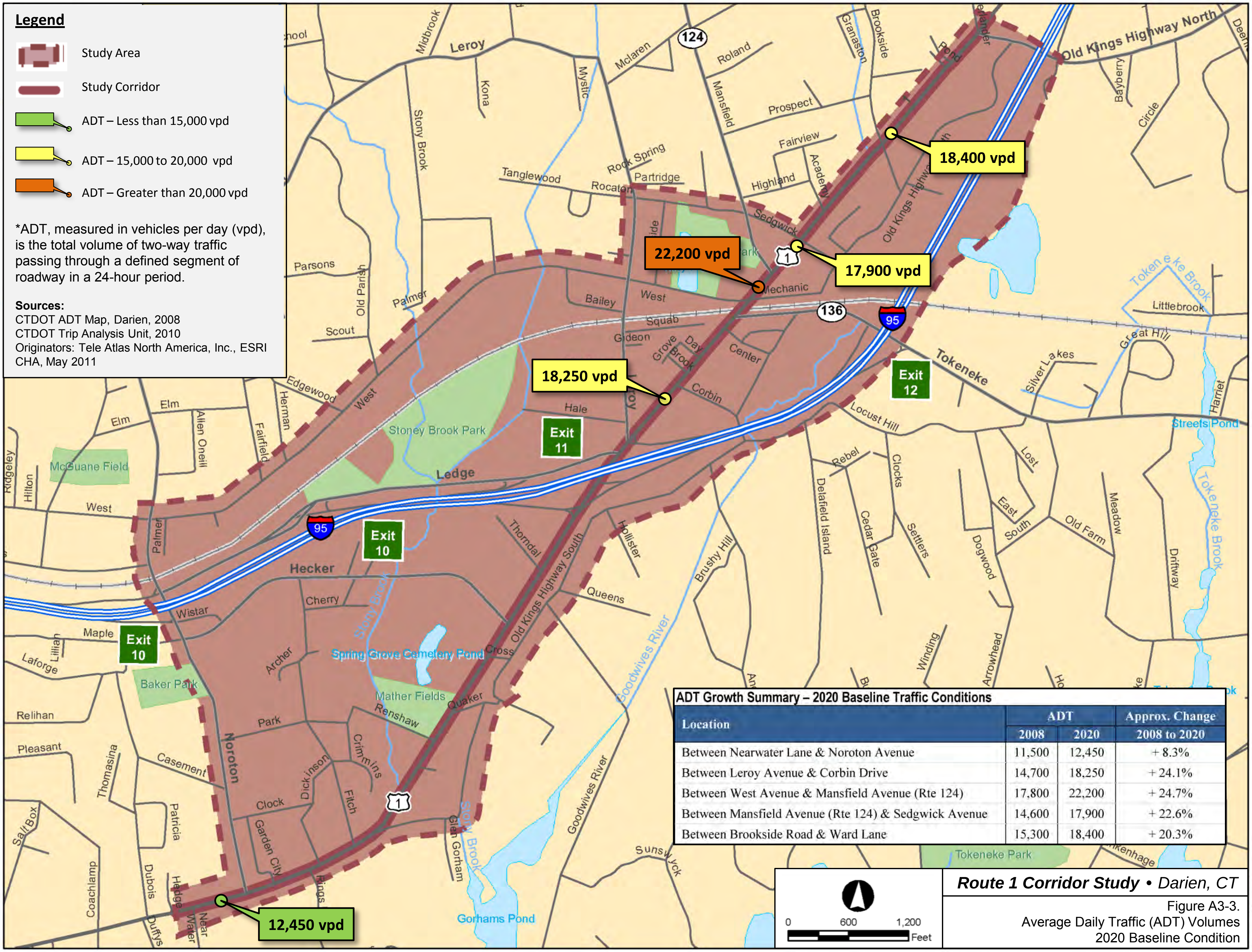
NOT TO SCALE

Route 1 Corridor Study • *Darien, CT*

Figure A3-2.
Peak Hour Traffic Volumes
2030 Baseline Condition

Appendix 3.2

Average Daily Traffic (ADT) Volumes: 2020 and 2030 Baseline Conditions

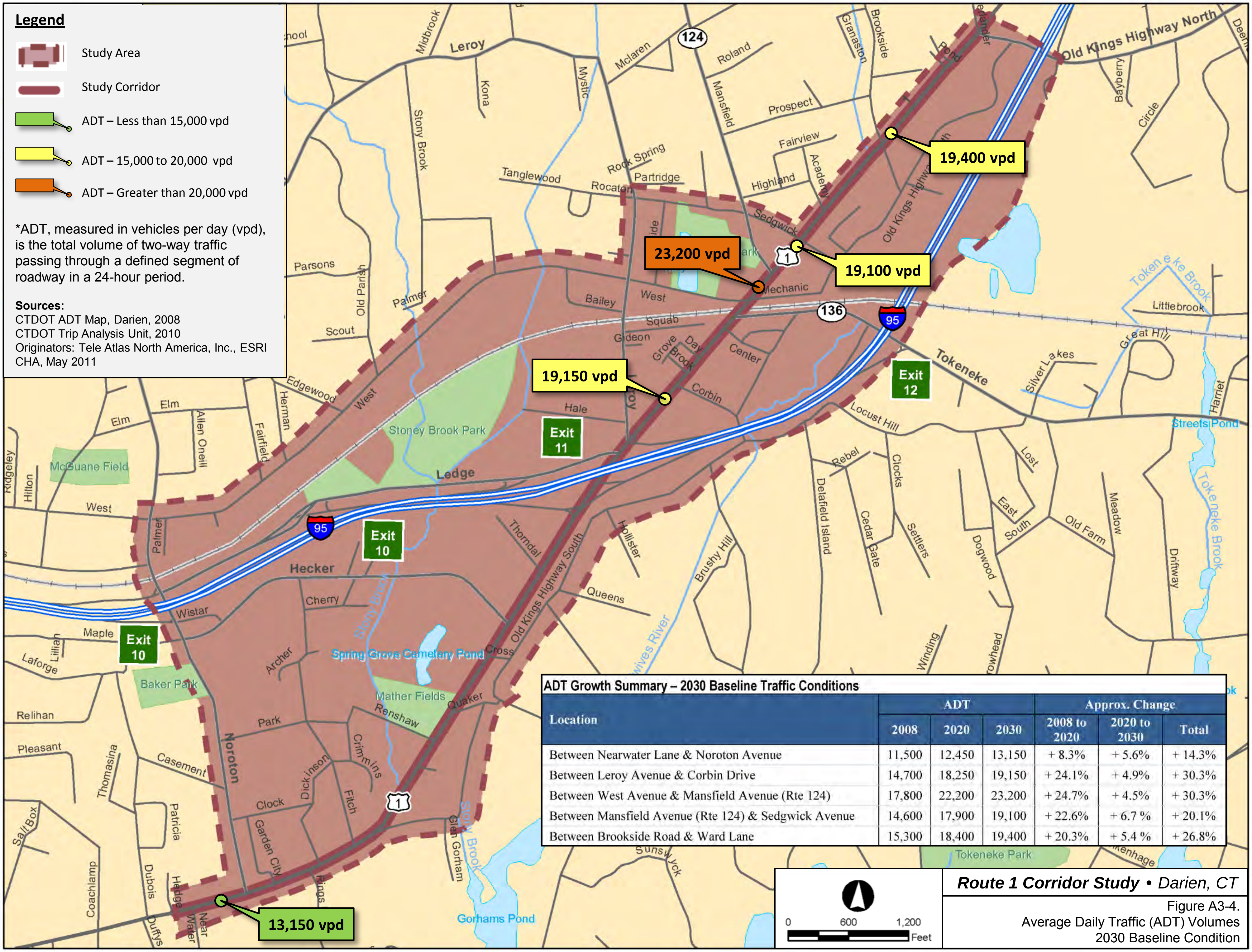


ADT Growth Summary – 2020 Baseline Traffic Conditions

Location	ADT 2008	ADT 2020	Approx. Change 2008 to 2020
Between Nearwater Lane & Noroton Avenue	11,500	12,450	+ 8.3%
Between Leroy Avenue & Corbin Drive	14,700	18,250	+ 24.1%
Between West Avenue & Mansfield Avenue (Rte 124)	17,800	22,200	+ 24.7%
Between Mansfield Avenue (Rte 124) & Sedgwick Avenue	14,600	17,900	+ 22.6%
Between Brookside Road & Ward Lane	15,300	18,400	+ 20.3%

Route 1 Corridor Study* • *Darien, CT

Figure A3-3.
Average Daily Traffic (ADT) Volumes
2020 Baseline Condition



ADT Growth Summary – 2030 Baseline Traffic Conditions

Location	ADT			Approx. Change		
	2008	2020	2030	2008 to 2020	2020 to 2030	Total
Between Nearwater Lane & Noroton Avenue	11,500	12,450	13,150	+ 8.3%	+ 5.6%	+ 14.3%
Between Leroy Avenue & Corbin Drive	14,700	18,250	19,150	+ 24.1%	+ 4.9%	+ 30.3%
Between West Avenue & Mansfield Avenue (Rte 124)	17,800	22,200	23,200	+ 24.7%	+ 4.5%	+ 30.3%
Between Mansfield Avenue (Rte 124) & Sedgwick Avenue	14,600	17,900	19,100	+ 22.6%	+ 6.7 %	+ 20.1%
Between Brookside Road & Ward Lane	15,300	18,400	19,400	+ 20.3%	+ 5.4 %	+ 26.8%

Route 1 Corridor Study* • *Darien, CT

Figure A3-4.
Average Daily Traffic (ADT) Volumes
2030 Baseline Condition

Appendix 3.3

Midday Peak Hour Traffic Operations: 2020 Baseline Condition

Table A3-1. Midday Peak Hour Traffic Operations – 2020 Baseline Condition

Intersection / Approach	Midday Peak LOS (Sec. Delay)	PM Peak LOS (Sec. Delay)
Route 1 at Exit 11 NB Off Ramp (Signalized)		
Route 1 Northbound	A (2.7)	C (22.9)
Route 1 Southbound	A (2.2)	A (4.0)
Exit 11 Northbound Off Ramp Eastbound	D (48.9)	E (61.7)
Overall	**B (11.2)**	**C (26.4)**
Route 1 at Ledge Road (Signalized)		
Route 1 Northbound	B (11.3)	C (27.0)
Route 1 Southbound	A (7.1)	A (6.1)
Ledge Road Eastbound	C (32.5)	F (89.8)
Exit 11 Southbound Off Ramp Westbound	D (48.9)	D (43.8)
Overall	**B (16.3)**	**C (27.2)**
Route 1 at Leroy Avenue (Signalized)		
Route 1 Northbound	A (9.9)	B (18.1)
Route 1 Southbound	B (10.4)	B (10.3)
Leroy Avenue Eastbound	B (13.1)	B (12.1)
Exit 11 Southbound Off Ramp Westbound	A (6.9)	B (15.7)
Overall	**B (10.1)**	**B (15.1)**
Route 1 at Corbin Drive (Signalized)		
Route 1 Northbound	A (2.5)	C (32.3)
Route 1 Southbound	A (4.1)	B (15.1)
Corbin Drive Westbound	D (37.2)	D (40.6)
Overall	**A (6.6)**	**C (28.4)**
Route 1 at Brook Street/Commercial Drive (Unsignalized)		
Route 1 Northbound	A (1.7)	A (6.4)
Route 1 Southbound	A (1.0)	A (7.3)
Commercial Drive (Gas Station) Westbound	A (6.1)	C (24.1)
Overall	**A (1.4)**	**A (6.8)**
Route 1 at Day Street/Commercial Drive (Unsignalized)		
Route 1 Northbound	A (0.6)	A (8.3)
Route 1 Southbound	A (0.6)	A (4.6)
Day Street Eastbound	A (5.8)	C (19.3)
Commercial Drive (Bank) Westbound	A (5.8)	C (20.9)
Overall	**A (1.3)**	**A (7.5)**
Route 1 at Center Street/Railroad Station Entrance (Signalized)		
Route 1 Northbound	B (17.6)	D (39.7)
Route 1 Southbound	A (3.6)	A (4.5)
Center Street Westbound	C (23.6)	F (546.6)
Overall	**B (12.0)**	**E (72.0)**
Route 1 at Tokeneke Road/Rail Station Exit (Signalized)		
Route 1 Northbound	A (3.6)	A (5.9)
Route 1 Southbound	B (10.8)	B (13.0)
Rail Station Exit Eastbound	D (44.7)	E (60.0)
Tokeneke Road Westbound	C (32.9)	F (106.0)
Overall	**C (32.9)**	**C (34.1)**

Table A3-1. Midday Peak Hour Traffic Operations (continued)

Intersection / Approach	Midday Peak LOS (Sec. Delay)	PM Peak LOS (Sec. Delay)
Route 1 at West Avenue/Mechanic Street (Signalized)		
Route 1 Northbound	A (4.1)	A (5.0)
Route 1 Southbound	E (58.4)	E (59.4)
West Avenue Eastbound	D (43.9)	F (137.2)
Overall	**C (30.0)**	**D (42.1)**
Route 1 at Mansfield Avenue/Municipal Lot Drive (Signalized)		
Route 1 Northbound	A (7.3)	B (11.0)
Route 1 Southbound	E (72.9)	F (173.8)
Mansfield Avenue Eastbound	F (1487.0)	F (1367.2)
Municipal Lot Drive Westbound	F (584.3)	F (192.7)
Overall	**F (584.3)**	**F (177.1)**
Route 1 at Sedgwick Avenue (Signalized)		
Route 1 Northbound	A (5.8)	B (13.6)
Route 1 Southbound	F (126.3)	F (347.9)
Sedgwick Avenue Eastbound	D (44.7)	E (62.9)
Sedgwick Avenue Westbound	F (94.7)	F (115.9)
Overall	**E (67.3)**	**F (130.2)**
Route 1 at Brookside Road (Signalized)		
Route 1 Northbound	-	E (72.0)
Route 1 Southbound	-	F (246.7)
Brookside Road Eastbound	-	D (40.3)
Brookside Road Westbound	-	C (21.6)
Overall	**-**	**F (122.3)**

Source: Wilbur Smith Associates, 2010; revised 2011
Route 1 Corridor Study, Darien, CT
Prepared for: South Western Regional Planning Agency
Prepared by: CHA; revised August 2012

Appendix 4.1

Complete Streets Strategies and Tools for Boston Post Road, Darien

Route 1
Corridor Study
Boston Post Road
Darien, CT

Complete Streets
Strategies and Tools

for

Boston Post Road, Darien

April 2012

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Complete Streets Overview

The transportation improvement recommendations for the Boston Post Road (Route 1) corridor in Darien promote the concept of **"Complete Streets"**. A Complete Street is one that is designed to provide safe access for all users – including pedestrians, bicyclists, transit riders, as well as motorists.

Through the implementation of improvements that promote Complete Streets, the Route 1 study area will be made safer and more accessible to all modes of transportation.

By improving walkability, bicycling conditions, and the convenience of transit options, Complete Streets reduce dependence on single occupancy vehicle use, which in turn mitigates traffic growth.

Complete Streets also foster a sense of community and enable healthy lifestyles.

This document presents general strategies and specific measures, or "tools" for the Route 1 study area that will improve roadway and driving conditions, bicycling, transit use, and walkability.

Strategies to Improve Roadway & Driving Conditions

Address High Accident Locations & Safety Issues

Rear-end collisions, sideswipe collisions, and railroad bridge collisions account for more than half of all accidents in the Route 1 study corridor. Measures that directly address these types of accidents, provide traffic calming benefits, and enhance the presence of pedestrians and bicyclists, will improve overall safety on Route 1.

Implement Improvements to Reduce Sideswipe and Rear-end Collisions:

- Provide markings and signs to define travel lanes, turn lanes, and parking lanes. Ambiguous lane usage leads to sideswipe and rear-end accidents from unanticipated lane changes or passing maneuvers.
- Reduce traffic delays that create stop-and-go conditions and long queues.

Ambiguous Lane Use

Encourage Reduced Travel Speeds:

- Implement measures that are designed to reduce motor vehicle speeds by affecting driver behavior. Viable traffic calming measures for the Route 1 study area include:
  - 'Road Diets' to reduce lanes
  - Narrow Travel Lanes
  - Corner Radius Reductions
  - Raised Medians with Vertical Features
  - Curb Extensions
  - Dynamic Speed Display Signs

'Road Diet'

Improve Visibility & Driver Awareness of Pedestrian and Bicyclists:

- Provide markings and signs to define space for bicyclists on streets.
- Improve pedestrian crossings to enhance visibility of crosswalks and of pedestrians waiting to cross.

Improve Advance Warning of Low Vertical Clearance at Railroad:

- Install new signs to target trucks originating on West Ave. and Tokeneke Rd.
- Provide targeted messages to over-height vehicle operators using over-height vehicle detection systems and enhanced warning signs that incorporate flashing beacons or variable message displays.

Over-height Vehicle Detection

Strategies to Improve Roadway & Driving Conditions (cont.)

Provide Better Roadway Definition

Poorly defined roadways create driver uncertainty and negatively affect overall corridor safety, traffic flow, and on-street parking efficiency. Lack of definition along roadway segments also results in inefficient use of existing street width that could be effectively allocated for safer bicycle travel.

Define Travel Lanes and Turn Lanes:

- Reduce driver uncertainty and improve traffic flow and safety by providing markings and signs to better define travel lanes and turn lanes.
- Lane markings help optimize the use of existing street width and help create defined shoulders for safer bicycle travel.

Define On-street Parking:

- Optimize on-street parking, reduce driver uncertainty regarding the availability and location of parking, and improve traffic flow by delineating spaces with pavement markings that supplement existing regulatory signs.
- In locations where on-street parking occupies a travel lane, prohibit parking during peak periods to eliminate conflicts, or reduce the number of travel lanes to accommodate dedicated parking lanes.

Implement "Don't Block the Box" Measures:

- Provide pavement markings and regulatory signs that reinforce the prohibition against vehicles on Route 1 blocking side street intersections and access.
- Routinely enforce *Don't Block the Box* regulations and ticket violators.

Maintain Downtown Mobility

In the face of regional traffic growth and increased traffic demands resulting from diversions from I-95, various strategies will have to be implemented to maintain mobility in Downtown for the benefit of local patrons, residents, business owners, and visitors of Darien. Specifically:

Address Poor Intersection Operations and Delays:

- Implement intersection improvements and street network modifications to effectively reduce peak hour traffic delays and queues between Center Street and Sedgwick Avenue.

Provide Better Connections within Downtown:

- Provide internal driveway connections and new street network enhancements that parallel and intersect Route 1. New connections will reduce motorist dependence on Route 1 for Downtown travel and will help facilitate access to, and circulation within, the Central Business District.

Complement Existing Guide Signing:

- Provide wayfinding or guide signing on Route 1 and other adjacent routes to direct occasional visitors and commuters to key destinations such as shopping areas, municipal and commuter parking areas, and train stations.
- Provide signing on local alternate routes to direct traffic to nearest I-95 interchange and Route 1.

Mitigate Future Traffic Growth:

- Implement strategies to improve safety, convenience, and accessibility of pedestrian, bicycle, bus, and train travel.
- Encourage *Smart Growth* development strategies that advocate compact, transit-supportive land uses; improve walkability; and facilitate park-once-and-walk behavior.

Provide Defined Space for Bicyclists on Route 1

With limited rights-of-way and no opportunity to provide off-street facilities (such as bike paths or shared use trails) for bicyclists in the Route 1 corridor, Route 1 itself should be designed to increase driver awareness of bicyclists and to more safely accommodate bicyclists in the roadway.

Depending on the availability of space in the roadway and consideration for competing needs such as on-street parking, travel lanes, and turn lanes, the following measures should be implemented on Route 1:

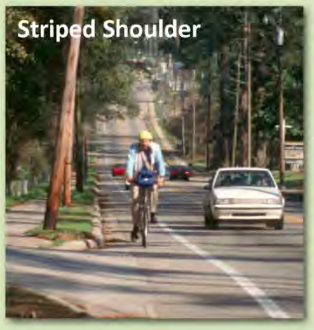
Without On-street Parking

Striped Shoulder:

- Use where a 4 ft or wider shoulder can be provided adjacent to a travel lane.

Shared Travel Lane with "Sharrow" Markings:

- Where a 4 ft striped shoulder cannot be accommodated, provide a 14 ft curb lane that is shared by motorists and bicyclists. Maximize the width of an existing curb lane if there is insufficient space for a 14 ft lane. Emphasize shared use of lane with a shared lane marking, or *sharrow*.



With On-street Parking

Shared Travel Lane with "Sharrow" Markings:

- Provide a 15 ft travel lane that is shared by motorists and bicyclists (the equivalent of 11 ft allocated to vehicles, 4 ft allocated to bicyclists). Provide a 14 ft shared lane, if necessary, where 15 ft cannot be accommodated. Emphasize shared use of the travel lane with a shared lane marking, or *sharrow*.

Create System of Bike Facilities

To promote bicycling as a safe and convenient travel option in the Route 1 study area and throughout Darien, promote shared use of all roadways; define space for bicyclists on Route 1 and other Town and State roadways that are primary bike routes; and provide bicycle parking at destinations throughout Town.

Shared Roadway Signs:

- Install bicycle warning signs on Route 1 and other primary routes in Town to supplement existing bike route signing and to increase driver awareness of bicyclists on roadways.

Space for Bicyclists:

- Provide striped shoulders, or shared travel lanes with sharrows, where possible on primary routes to increase driver awareness of bicyclists and to create a network of safer bicycle facilities in Darien.

Bicycle Parking:

- Install bike racks at community facilities (such as Town Hall, police station, library), in the Central Business District, and at commuter train stations in Noroton and Darien.
- Where bike racks are already provided in certain locations, monitor utilization and increase parking capacity when demand dictates.
- Adopt bicycle parking requirements into the Zoning Regulations to provide short and long term bicycle parking for new developments.

Bicycle Facilities Map:

- Develop a map for posting on the Town website that illustrates bike routes and locations of bicycle parking in Darien.

Provide Multimodal Accessibility

With commuter and municipal parking spaces at a premium and vehicular mobility often compromised in Downtown, trips that rely less on driving and more on walking, biking, or riding to and from Darien should be encouraged. By providing safe, convenient, and comfortable multimodal access to bus and train service options, overall mobility can be maintained while helping to mitigate future traffic growth in the Route 1 corridor.

Implement Strategies to Improve Walking and Biking:

- Provide improvements that facilitate safe and convenient pedestrian and bicycle access throughout the Route 1 corridor and Darien.

Provide Convenient, User-friendly Route Information at Stops:

- Install route marker plaques on all CTTRANSIT bus stop signs.
- Provide CTTRANSIT route maps and schedule information at train stations.

Create Enhanced Intermodal Nodes with Amenities:

At key intermodal transfer points:

- Provide attractive, sheltered or canopy-covered waiting areas for connecting bus, train, or taxi services.
- Provide adequate short and long-term parking for bicycles and mopeds.
- Install dynamic message boards that display real-time bus and train arrival times.

Real-time Arrival Information

Provide Better Transit Service Information On-line:

- Update Metropolitan Transit Authority (MTA) and Town of Darien web sites to provide accurate and complete information about train and bus services.

Provide Better Service and Parking Information On-line

The convenience and accessibility of commuter train service can be improved by making complete and accurate information about the service, connecting bus service, and parking available to patrons on-line through the Metropolitan Transit Authority (MTA) and Town of Darien web sites. Specifically:

Update Directions and Train Station Location Information:

- Provide addresses for, and comprehensive/accurate driving directions to, the Darien and Noroton Heights stations on both the MTA and Town web sites. Supplement this information with detailed maps.

Provide Hyperlinks to Connecting Bus Service Information:

- Provide direct links from MTA and Town web sites to route maps and schedules for Route 41 and Route 42 on the CTTRANSIT web site.

Update Permit and Voucher Parking Information:

- Provide comprehensive and accurate descriptions of the parking permit and parking voucher systems on the Town web site. Update list of voucher vendors to include vendor web sites, phone numbers, and business hours.

Update Downtown Parking Maps:

- Develop a Downtown parking map that shows color-coded locations of long-term permit and voucher parking, as well as short-term municipal parking. Provide approximate walking distances and times from each lot to the station.

Strategies to Improve Walkability

Provide Continuity of Accessible Pedestrian Facilities

Creating a walkable downtown is contingent upon providing continuous pedestrian pathways that can be used by people of all ages and abilities (that is, “accessible”), and that are safe and inviting. The walkability of Darien can be improved by implementing these measures:

Close Small Gaps in Sidewalks on Route 1:
- Construct new sections of accessible sidewalk to eliminate gaps along Route 1 and to eliminate the need to walk in traffic or cross at sidewalk termini.
- Provide safer crossings at sidewalk termini where gaps cannot be closed.

Provide Lighting and Interest for Underpasses:
- Make dark underpasses more inviting to pedestrians by illuminating the passages with traditional or unique lighting fixtures. Create murals on stark bridge abutments to provide visual interest to passer-bys.

Eliminate Sidewalk Obstructions:
- Relocate utility poles, street signs, and other fixed objects located within sidewalks and ramp areas, or widen the sidewalk in these areas, to provide a passable area for wheelchairs.
- Strictly prohibit parked vehicles from blocking sidewalks and crosswalks.

Improve Parking-Destination Connections:
- Provide continuous and safe pedestrian pathways between municipal/commuter parking spaces and destinations that include businesses on Route 1 and the Darien train station.

Improve Pedestrian Crossings:
- Provide better visibility and warnings for all unsignalized crossings.
- Provide better pedestrian signals at all signalized intersections.

Improve Pedestrian Crossings

Creating a walkable downtown is also contingent upon providing both signalized and unsignalized pedestrian crossings that are safe, accessible, and comfortable to use. These measures will improve crossing conditions on Route 1 and other streets in Downtown Darien:

Upgrade Pedestrian Signals:
- Install modern pedestrian signals that: 1. meet current standards for placement and accessibility; 2. clearly convey what and how each push button operates; and 3. clearly indicate when it is appropriate to cross.

Provide Exclusive Pedestrian Signal Phases at Key Locations:
- Install pedestrian signals that provide crossing movements while all traffic is stopped. Because exclusive pedestrian signal phases can increase delays to traffic, they should only be considered in select locations.

Minimize Pedestrian Exposure to Traffic:
- Minimize the time that pedestrians are in the street by providing curb extensions to reduce crossing distances or by providing refuge islands that serve as a haven midway through a crossing.

Enhance Visibility and Accessibility of Crossings:
- Provide high-visibility crosswalks, potentially using colored pavements, and new wheelchair ramps that meet current standards for the visually impaired at all signalized and unsignalized crossings on Route 1 and side streets.

Improve, Remove, or Relocate Mid-block Crossings:
- Enhance crossings that are located between public street intersections with high-visibility crosswalks and pedestrian warning signs. Provide refuge islands, where possible. Remove or relocate mid-block crossings that are no longer warranted.

Strategies to Improve Walkability (cont.)

Mitigate Other Pedestrian Safety Concerns

In general, pedestrian safety can be compromised in any location where there is a potential conflict between a motor vehicle and a pedestrian. The higher the vehicular speeds at these conflict points, the greater the risk of severe injury or death to the pedestrian. These measures, as well as improved pedestrian crossings, will help mitigate pedestrian safety concerns on Route 1 and other streets in Darien:

Encourage Slower Traffic Speeds:

- Implement measures that are designed to reduce motor vehicle speeds by affecting driver behavior. Viable traffic calming measures for the Route 1 study area include:
  - 'Road Diets' to reduce lanes
  - Narrow Travel Lanes
  - Intersection Radius Reductions
  - Raised Medians with Vertical Features
  - Curb Extensions
  - Dynamic Speed Display Signs

Minimize Number of Driveways

- Implement access management improvements that consolidate driveway access for adjacent developments and that eliminate redundant driveways for any single development. Minimizing driveways minimizes potential for pedestrian conflicts where driveways cross sidewalks.

Eliminate Pull-in Parking:

- Provide traditional on-street parking or off-street parking next to or behind businesses where existing pull-in parking – which is served by large, unrestricted breaks in the curb – is located behind sidewalks or in place of sidewalks.
- Pull-in parking can be eliminated over time in conjunction with new development or redevelopment of existing businesses.

.

'Road Diet.'

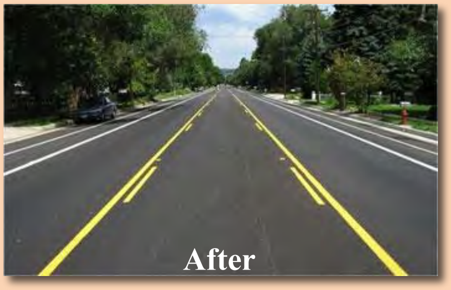
A *road diet* is a strategy to reduce the amount of roadway space allocated to motor vehicles by reducing the number of travel lanes or by reducing the width of travel lanes.

With a *road diet*, space that was previously allocated to travel lanes is used to provide wider shoulders or bike lanes, on-street parking, sidewalk improvements, pedestrian refuge islands, landscaped medians, or a combination thereof.

Potential benefits of a *road diet* include slower travel speeds, improved safety, and improved facilities for bicyclists and pedestrians. Potential drawbacks include reduced traffic capacity and increased travel times.

A *road diet* along Route 1 in Darien could consist of the:

- Conversion of four lanes to three-lanes (two travel lanes with a 14 ft wide center two-way-left-turn lane or median);
- Conversion of four lanes to two lanes with on-street parking; or
- Conversion of a wide, undefined two-lane roadway to a two-lane roadway with defined shoulders throughout and left turn lanes or median in some locations.



Narrow Travel Lanes.

Narrow travel lanes are lanes designed to be the minimum width allowed by roadway standards.

For arterials (such as Route 1 and West Avenue), lanes should be 11 feet wide. For local streets (such as Corbin Drive and Old Kings Highway South), travel lanes could be 10 ft wide.

With narrow travel lanes, drivers must reduce travel speeds in order to maintain their positions in their lanes. Additionally, narrow travel lanes maximize the amount of roadway space that is allocated to bicyclists for improved safety.

Medians.

Medians are curbed islands located along the center of a roadway between opposing travel lanes. Median lengths generally depend on their function and can range from relatively short (such as a *gateway* median) to very long (such as a continuous median along a block). Medians can be grassed, or hardscaped with brick or textured pavement, and can :

- Create refuge for pedestrians at crossing locations;
- Accommodate landscaping, street trees or decorative lighting fixtures for roadway beautification;
- Serve as gateway features;
- Provide access management by restricting turning movements to driveways.

It is noted that median features must be designed in accordance with current CTDOT standards for clear zones and sight lines.

On-street Parking.

On-street parking is a parking strategy that utilizes available roadway space to efficiently accommodate vehicular parking for adjacent land uses. On-street parking stalls can be delineated with solid white lines or tick marks to supplement parking signs and to clearly indicate the limits of parking for passing motorists. Studies have concluded that on-street parking can provide numerous benefits in downtown environments including:

- Reduced vehicular travel speeds;
- Increased safety;
- Better walkability;
- More efficient use of land.

It is noted that CTDOT will not install or maintain parking stall markings on Route 1. The Town will be responsible for installing and maintaining these markings under a maintenance agreement with CTDOT.

Pavement Markings & Signs.

Markings include lines, arrows, and symbols provided on the roadway surface. Signs include regulatory, warning, and guide signs provided along the roadside or overhead.

The purpose of adequate markings and signs is to clearly convey the intended use of the roadway to all users to reduce driver uncertainty and indecision – factors that create unsafe conditions and travel delays.

Typical pavement marking and signing improvements include:

- Defining shoulders, travel lanes, or turn lanes with white stripes where only single wide travel lanes are apparent;
- Formalizing left turn lanes where turn lanes are implied;
- Delineating on-street parking stalls;
- Enhancing guide signage for Downtown destinations such as the train station, municipal parking lots, and the Central Business District.

'Don't Block the Box' Regulation.

Don't Block the Box regulations prohibit motorists from stopping within an intersection and subsequently blocking the progression of motorists from side streets.

Specific pavement markings, such as cross-hatching within an intersection, and signs that emphasize the regulation should be provided where there is a high occurrence of violations that impede traffic and create unsafe conditions.

Dynamic Speed Display Signs.

Dynamic speed display (DSD) signs are electronic signs that detect and display the travel speeds of approaching motorists. These signs are typically mounted below speed limit signs and are used as a relatively low cost traffic calming device to encourage motorists to travel at the speed limit. Candidate locations for DSD signs in the Route 1 study area include:

- On approaches to reduced speed zones where speeding in the zone is persistent;
- On entrances to lower speed secondary roads, particularly where motorists are transitioning from higher speed roads.

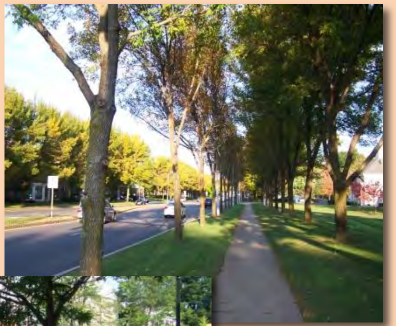
Street Trees and Streetscaping.

Street trees are particular species of trees that can withstand urban growing conditions and that are planted along the street edge or within curbed medians (small caliper trees only).

Streetscaping includes a variety of functional and aesthetic amenities provided along sidewalks such as decorative street lights, benches, information kiosks, and bike racks.

Street trees and streetscaping serve to:

- Create visual cues for motorists that the street is a high pedestrian zone;
- Encourage slower speeds;
- Promote walkability and accessibility of the street;
- Enhance aesthetics.



It is noted that street trees and landscaping placed in medians and along the edge of Route 1 must be designed in accordance with current CTDOT standards for clear zones and sight lines. Additionally, CTDOT will not maintain landscaping on Route 1. The Town will be responsible for maintaining landscaping under a maintenance agreement with CTDOT.

Access Management.

Access management measures and strategies minimize turning conflicts and better define driveways and access points resulting in safer and more efficient vehicular movements between the street and adjacent land uses.

Typical access management strategies that can be applied in the Route 1 corridor include:

- One-way driveways;
- Shared or interconnected driveways;
- Driveways with restricted turn movements (such as right-out only or prohibited left-in turns);
- Driveways with access from secondary streets;
- Driveways with reduced curb-cut widths.

Striped Shoulder.

A striped shoulder is the area of the roadway outside of the travel lane that is delineated with a white stripe. The striped shoulder width should be at least 4 ft for dedicated bicycle use.

See "Shared Roadway" for an alternative on-street bicycle treatment where 4 ft shoulders cannot be provided or where there is on-street parking.

Shared Travel Lane.

A shared travel lane is a travel lane located adjacent to the curb that is designed to be shared by motorists and bicyclists in locations where insufficient space exists for a 4 ft or greater striped shoulder or dedicated bike lane. A shared travel lane can also be use in areas adjacent to on-street parking.

The shared travel lane condition can be reinforced with sharrows and bicycle warning signs.

'Sharrows.'

Sharrows are special pavement markings that are used along the edge of a shared travel lane to help define a space for bicyclists adjacent to vehicular traffic. Sharrows can be used on Route 1 and local streets in Darien and should be placed at the beginning of new street blocks and at regular intervals to remind motorists and bicyclists of the shared travel lane condition.

It is noted that CTDOT will not maintain sharrows on Route 1. The Town will be responsible for maintaining these markings under a maintenance agreement with CTDOT.

Bicycle Warning Signs.

Bicycle warning signs can be used throughout the Route 1 corridor to remind motorists of the potential presence of bicyclists in the roadway. Auxiliary "Share the Road" plaques can be mounted in conjunction with bicycle warning signs where there is a shared travel lane condition. Signs should not be placed as frequently as sharrows in an effort to minimize sign pollution and to reduce the likelihood of the signs being ignored by motorists.

Bike Parking.

Bike parking facilities include bike racks and bike shelters that are provided to accommodate short and long-term parking needs of bicyclists. Parking can be provided on-sidewalk, at public destinations (such as library, train station, and town hall), or at private commercial and residential developments.

Route Marker Plaque.

Route marker plaques are discrete signs installed below an existing bus stop sign to indicate the route number(s) being served by the stop.

Dynamic Message Signs.

Dynamic message signs are electronic signs that display variable, real-time information about bus and train arrivals, departures, wait times, and connecting services. These signs can be installed at high-ridership bus stops, train stations, and enhanced intermodal nodes.

Bus Pullout.

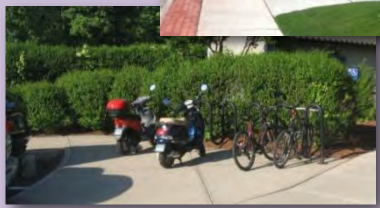
A pullout is a designated area outside of the normal travel lanes and adjacent to a bus stop where buses pull off the road to board or alight passengers. A pullout improves safety for passengers and allows through traffic to proceed while the bus is stopped. A pullout may or may not be protected by curb extensions.

Transit Stop Amenities.

Transit stop amenities are features that are provided at bus stops or train stations to enhance the user's experience of riding transit.

Examples of service amenities include:

- Sheltered waiting areas with seating and lighting
- Route and connecting service information
- Bike and moped parking
- Waste baskets
- Information Kiosks
- Landscaping, artwork, and other aesthetic enhancements



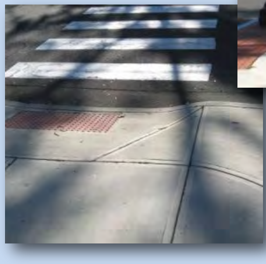
Enhanced Intermodal Node.

An enhanced intermodal node is a transit stop that serves as a transfer point between various modes of travel (such as bus to train; bike to train; walk to bus) and that provides practical and adequate amenities to enhance the comfort and convenience of using transit.

Accessible Sidewalk.

Accessible sidewalks are continuous, passable, and handicap accessible. Sidewalks should be at least 5 ft wide and free of obstructions to allow pedestrians and wheelchairs to pass each other. Sidewalk ramps on the approaches to street crossings should be outfitted with detectable warning strips for the visually-impaired.

In Darien's Central Business District, the width of sidewalks should be maximized to maintain sufficient space for pedestrians while providing street trees and streetscaping for aesthetic appeal, and while reserving space for outdoor tables and seating for cafés, window shopping, and amenities such as benches, bike racks, and informational kiosks.

High-visibility Crossing.

A high-visibility crossing is a location – either at an intersection or mid-block – that is designated for pedestrian crossing activity and that is designed to maximize the visibility of pedestrians by incorporating bright (retroreflective) white crosswalk markings or crosswalks constructed of colored/textured pavements; street lighting; and adequate warning signs.

Crosswalk treatments should be consistent throughout the corridor to create driver expectation of the crossing condition and should be provided on all legs of an intersection (except where physically impractical or unwarranted).


Pedestrian Signal Upgrades.

Signal upgrades include new or improved pedestrian signal heads and push buttons that replace antiquated signal equipment and that:

- Display "Hand/Man" indications to clearly convey when to begin crossing and when to wait.
- Provide push button plaques that display instructional messages regarding which crossing the button controls and what each of the pedestrian signal indications means.
- Are accessible from the adjacent sidewalk or sidewalk ramp.


Exclusive Pedestrian Phasing.

An exclusive pedestrian phase is a traffic signal phase that accommodates pedestrian activity across an intersection while all vehicles are stopped under an all-red traffic signal. An exclusive phase minimizes opportunities for vehicular-pedestrian conflicts, but can increase traffic delays.

Pedestrian Refuge Island.

A pedestrian refuge island is a median or channelizing island that serves as a safe haven for pedestrians while crossing a street.

Pedestrian refuge is particularly important for long crossings at signalized or unsignalized intersections where pedestrians are required to stop mid-crossing and wait for a signal change or for a larger gap in on-coming traffic.

Pedestrian refuge is also an important consideration at mid-block locations between intersections where crosswalks are not provided, but pedestrian crossings are common.

Curb Extension.

A curb extension is a bulb-out of the normal curb line at an intersection or mid-block location that serves to:

- Narrow the width of the roadway to encourage slower travel speeds;
- Shorten pedestrian crossing distances;
- Improve pedestrian visibility to motorists;
- Shadow on-street parking lanes or bus pull-outs.

Special considerations for the application of curb extensions include space requirements for turning vehicles. It is noted that CTDOT could require the Town to provide snow clearing and other maintenance under a maintenance agreement with CTDOT.

Corner Radius Reduction.

A corner radius reduction is a strategy that provides for smaller corner radii at intersections that are currently over-designed for turning vehicles. The reduction minimizes the amount of space available for turning and encourages slower turning speeds.

Smaller corner radii translate to safer pedestrian crossings through shorter crossing distances and slower vehicle speeds.

Special considerations for the application of curb radii reductions include space requirements for turning vehicles, particularly trucks, and whether the encroachment of turning vehicles into opposing travel lanes is allowable. It is noted that curb radii on Route 1 must be designed in accordance with current CTDOT standards.

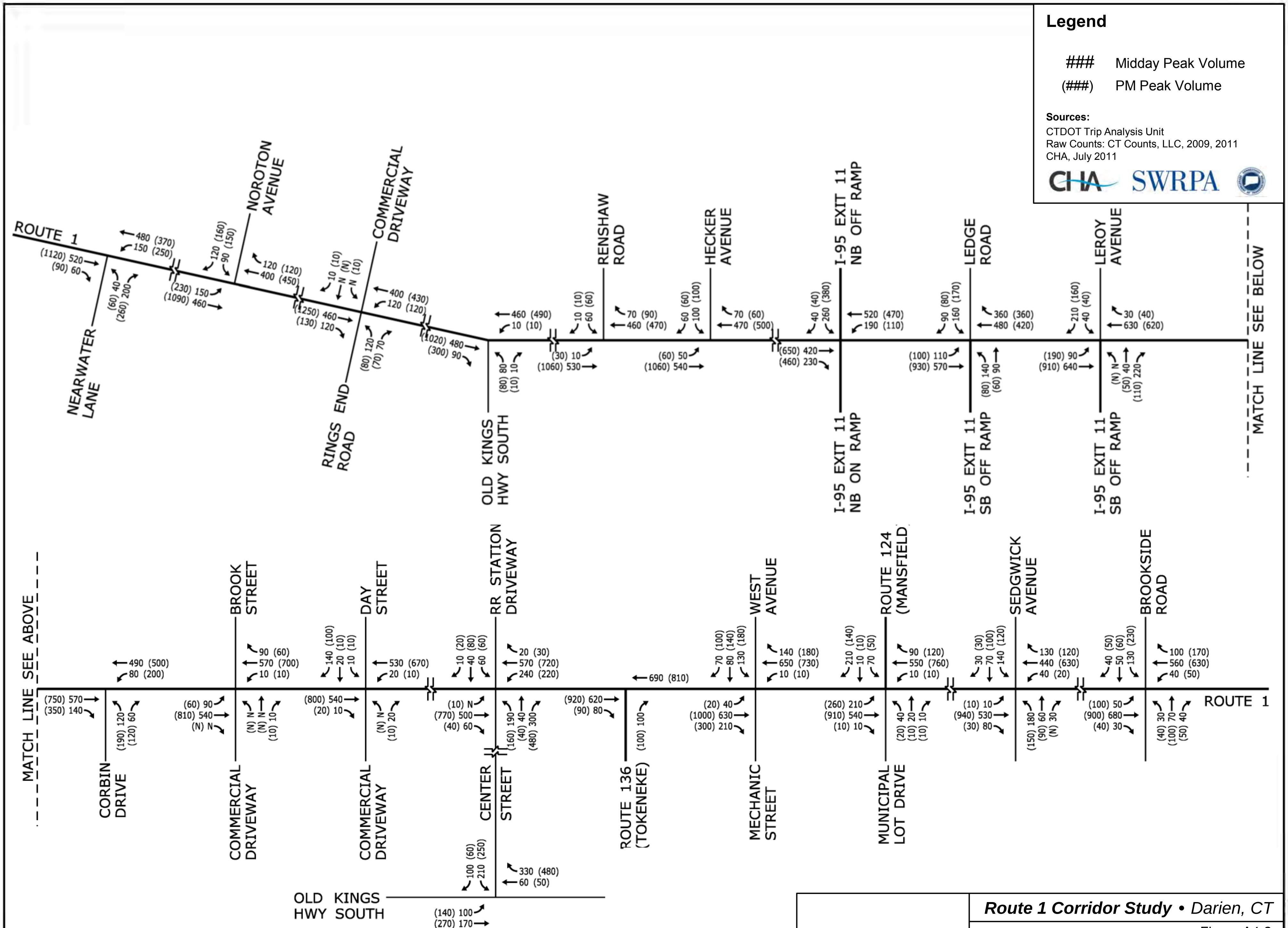
Channelizing Island.

A channelizing island is a curbed, triangular-shaped island used to define vehicle turning paths at intersections while reducing excess pavement and providing pedestrian refuge.

Intersections that require large curb radii to accommodate right turns – such as skewed intersections or intersections that must be designed for large trucks – are good candidates for channelizing islands.

Appendix 4.2

Peak Hour Traffic Volume Diagram: 2030 Build Condition



NOT TO SCALE

Route 1 Corridor Study • *Darien, CT*

Figure A4-2.
Peak Hour Traffic Volumes
2030 Build Condition

Appendix 4.3

Smart Growth Toolbox, Strategies for Downtown Darien

Route 1
Corridor Study
Boston Post Road
Darien, CT

Smart Growth Toolbox

Strategies for Downtown Darien

April 2012

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Smart Growth Overview

Smart Growth is a planning philosophy that simultaneously provides economic development, strong neighborhoods, and healthy communities.[1] Smart Growth is founded on a set of urban and transportation planning principles that advocate for compact, mixed-use development patterns within established communities that are supported by multimodal transportation systems and choices.

This *Smart Growth Toolbox* outlines recommendations for six land use and transportation strategies for Downtown Darien that reflect the core principles of the Smart Growth philosophy. These strategies are to:

- Increase Retail Density and Diversity of Uses
- Create Mixed-use Centers from Strip Plazas
- Infill along Downtown Streets
- Optimize Downtown Parking
- Implement "Complete Streets"
- Make Walkable Streets a Priority

Recent development trends in Darien are consistent with many of these strategies (see Section 2.B.8, *Development Trends*). As well, future development opportunities, transportation improvements, and policy decisions should continue to consider how Smart Growth can best be accommodated in Downtown Darien.

Smart Growth Principles[1]

- Strengthen and direct development towards existing communities
- Mix land uses
- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Provide a variety of transportation choices
- Foster distinctive, attractive communities with a strong sense of place
- Encourage community and stakeholder collaboration in development decisions

[1] "What is Smart Growth?" Smart Growth Fact Sheet, United States Environmental Protection Agency, April 2001.

Increase Retail Density and Diversity of Uses

Continue to encourage development that provides a compact mix of retail, professional service, office, restaurant, and residential uses in Downtown.

- Residential uses provided in close proximity to stores, offices, and services encourage people to work and shop close to where they live. This promotes walking and bicycling for short trips and helps mitigate traffic growth that would otherwise be associated with new development and greater development density.
- Complementary and proximate mixed uses create shared parking opportunities that capitalize on different peak parking times, and reduce parking demand by promoting ‚park once-and-walk' behavior.
- New development should match or complement the density, height, scale, and character of buildings that line Darien's "Model Block" (located on west side of Boston Post Road between West Avenue and Mansfield Avenue).
- Buildings that have active retail uses on the ground floor support window shopping and have architectural details that relate to the pedestrian.
- A critical mass of leasable space and retail services would improve the economic sustainability of Downtown and support its long-term viability.

Create Mixed-use Centers from Strip Plazas

Create new development opportunities where there are currently parking-intensive, suburban-style strip plazas – like Goodwives Shopping Center – by encouraging the redevelopment of these plazas into pedestrian-oriented, walkable, mixed use developments.

- Larger existing stores can be complemented with new multi-story, mixed-use buildings (consisting of small-scale retail, professional service, office, restaurant, and residential uses) that increase floor areas and real estate values within a fixed amount of space.
- Two or three story buildings (whether infill development or reconstruction of existing buildings) can be constructed along new streets or drives that are carved out of existing, large-scale parking lots.
- A more traditional grid of streets and drives with smaller-scale parking lots that are hidden behind new buildings would encourage walking and promote pedestrian safety and security.
- Human-scaled architecture and amenities within the mixed-use center would result in finely detailed, contextual buildings with cafés, custom pedestrian-level lighting, and signage.
- Revised zoning regulations could reduce parking requirements by allowing shared parking for complementary and proximate mixed uses. Less paved surface area would help improve storm water quality and reduce the "heat island effect" that is created by expansive parking lots characteristic of strip plazas.

Infill along Downtown Streets

Create corridors of consistent, unbroken building façades along Downtown streets by infilling gaps between buildings and redeveloping existing uses with closely spaced, multistory buildings, located close to sidewalks.

- Streets that have fewer gaps between buildings for driveways, parking lots, or vacant parcels are generally more walkable, particularly when the streets are complemented with attractive streetscape and relatively wide sidewalks that comfortably accommodate street-level activity.
- Multistory buildings located no more than 10 feet from sidewalks help visually enclose a street and can encourage slower travel speeds.
- Locating off-street parking behind buildings and providing internal parking lot connections that are accessible from lower volume streets will facilitate reducing the number of driveways on Boston Post Road, will create additional infilling opportunities, will help maintain traffic flow, and will improve pedestrian safety.

Optimize Downtown Parking

Manage parking supplies and allow structured parking to support economic growth and accommodate greater development density in Downtown.

- The Town should consider reducing mandated parking requirements and adopt parking maximums, not minimums, into the Zoning Regulations. Parking demand in mixed use, higher density districts is substantially less than is typically prescribed by minimum parking requirements.
- The Town should consider allowing structured parking under its Special Permit process. By concentrating parking in one or more parking structures, more area would be available for new development opportunities and greater development density would be possible. Parking structures located behind „liner buildings' that contain retail, office, and residential space would hide the parking structures from view from the street and would be compatible with traditional Downtown character.
- The introduction of paid parking for short-term parking would increase turnover in desirable locations and would encourage multiple patron visits on a single trip ("park-once-and-walk") while generating some revenue. Parking payment technology with variable-rate, market-based pricing could be utilized.

- Programs that provide or encourage reduced-price or free parking for employees in targeted, outlying off-site parking facilities that are within walking distance of Downtown businesses or that are served by local shuttles should be considered.
- Striping on-street parking stalls on Boston Post Road would optimize space and reduce driver uncertainty regarding the availability and location of parking.
- A well-administered parking management program would help balance short and long-term parking supplies with municipal and commuter parking demands.

Implement "Complete Streets"

Initiate transportation system improvements that promote the concept of "Complete Streets" and provide a variety of transportation choices.

- A Complete Street is one that is designed to provide safe and reasonable access for all users – including pedestrians, bicyclists, transit riders, and motorists. The transportation improvement recommendations of this study consist of a variety of strategies and tools to improve roadway and driving conditions, bicycling, transit use, and walkability along Boston Post Road and in Dowtown Darien (See Section 4 and Appendix 4.1).
- By improving walkability, bicycling conditions, and the convenience of transit options, complete and multimodal streets reduce dependence on single occupancy vehicle use, thereby mitigating traffic growth and requiring less parking supply. In turn, Complete Streets are supportive of greater development density and economic growth opportunities in Downtown.

- Better intermodal connectivity and new street network connections will improve access and circulation in Downtown and will lessen the potential impact that Route 1 traffic congestion has on the viability of businesses.
- Complete and multimodal streets are sensitive to Darien's traditional, small town context and can enhance community character.
- Measures that provide a variety of safe and accessible transportation options contribute to healthy lifestyles, conserve energy and resources, and reduce environmental impacts. These measures also enable those without the ability or means to drive – such as seniors, young people, and people with disabilities – to live comfortably.

Make Walkable Streets a Priority

Prioritize infrastructure projects and encourage business initiatives that enhance the walkability of Route 1 and other Downtown Streets by improving pedestrian safety, providing better pedestrian linkages, and improving the appeal of sidewalks.

- Projects that provide safer pedestrian crossings, new sidewalk connections, and better accessibility (ADAAG-compliance) in Downtown should be considered a priority, consistent with the expressed priority of community stakeholders.
- Quality-of-life and community benefits can be realized by providing better pedestrian connections between Downtown, adjacent residential neighborhoods, and community assets like the Darien library, Mather Fields, and local parks.
- Sidewalk amenities (such as shaded benches, wayfinding signage, and information kiosks) and beautification measures (such as seasonal planters, attractive and pedestrian-scale building architecture, and outdoor art) encourage pedestrian activity and make Downtown more attractive to strolling and shopping.

Appendix 5.1

Interim Improvements at Old Kings Highway South

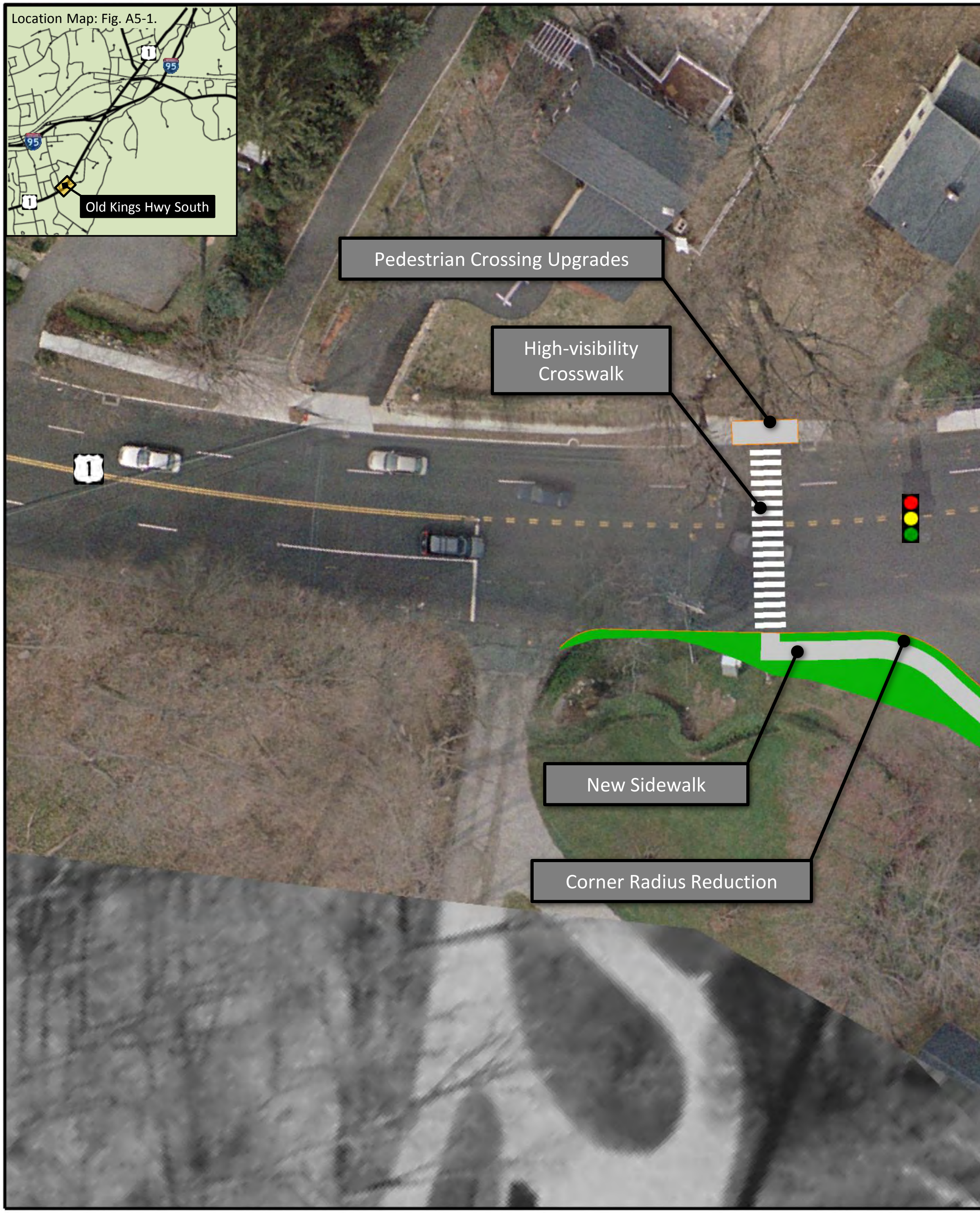

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Figure A5-1.
Interim Improvements at
Old Kings Highway South