

FINAL

BOSTON POST ROAD CORRIDOR PLAN

CONNECTICUT RIVER TO CLINTON WESTERN TOWN BOUNDARY

PART ONE - Phases 1 & 2: Existing Conditions and Corridor Vision

PART TWO - Phases 3 & 4: Recommendations and Implementation

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An abstract landscape illustration. The background is a light green gradient. In the foreground, there are stylized green hills and a blue body of water. The hills are represented by simple, rounded shapes in various shades of green. The water is a solid blue color. The overall style is minimalist and modern.

I. Introduction

I. Introduction

A. Background and Purpose

WHAT IS THE PURPOSE OF THE PLAN?

The purpose of the Route 1 Corridor Improvement Plan is to develop a conceptual plan to address current and long-range intermodal travel and community quality of life issues along this route in coastal Connecticut. Based on public and stakeholder input, field data, existing plans, and innovative design options that are acceptable to stakeholders, the plan will serve as a conceptual plan for future design and construction of improvements or projects within the corridor. The plan will also build on opportunities to enhance a seamless intermodal design along the corridor. The study effort will focus on the Boston Post Road within the Towns of Clinton, Westbrook, and Old Saybrook from the Connecticut River south to the western boundary of the Town of Clinton. This study will also result in a coordinated land use and transportation system plan for the Boston Post Road in this study area. Toward this end, the emphasis of the study will be on enhancing the safety, capacity, and multimodal options along the existing Route 1/Boston Post Road, while factoring in smart growth planning, fostering more livable, economically sustainable communities, and complete streets.

The Plan will:

- Establish a *vision* for the corridor – both locally and regionally,
- Evaluate current transportation and land use conditions and investigate opportunities to make improvements ,
- Explore opportunities for continued economic growth using Smart Growth planning principals, and
- Develop recommendations for transportation and land use aimed to achieve the corridor *vision*.

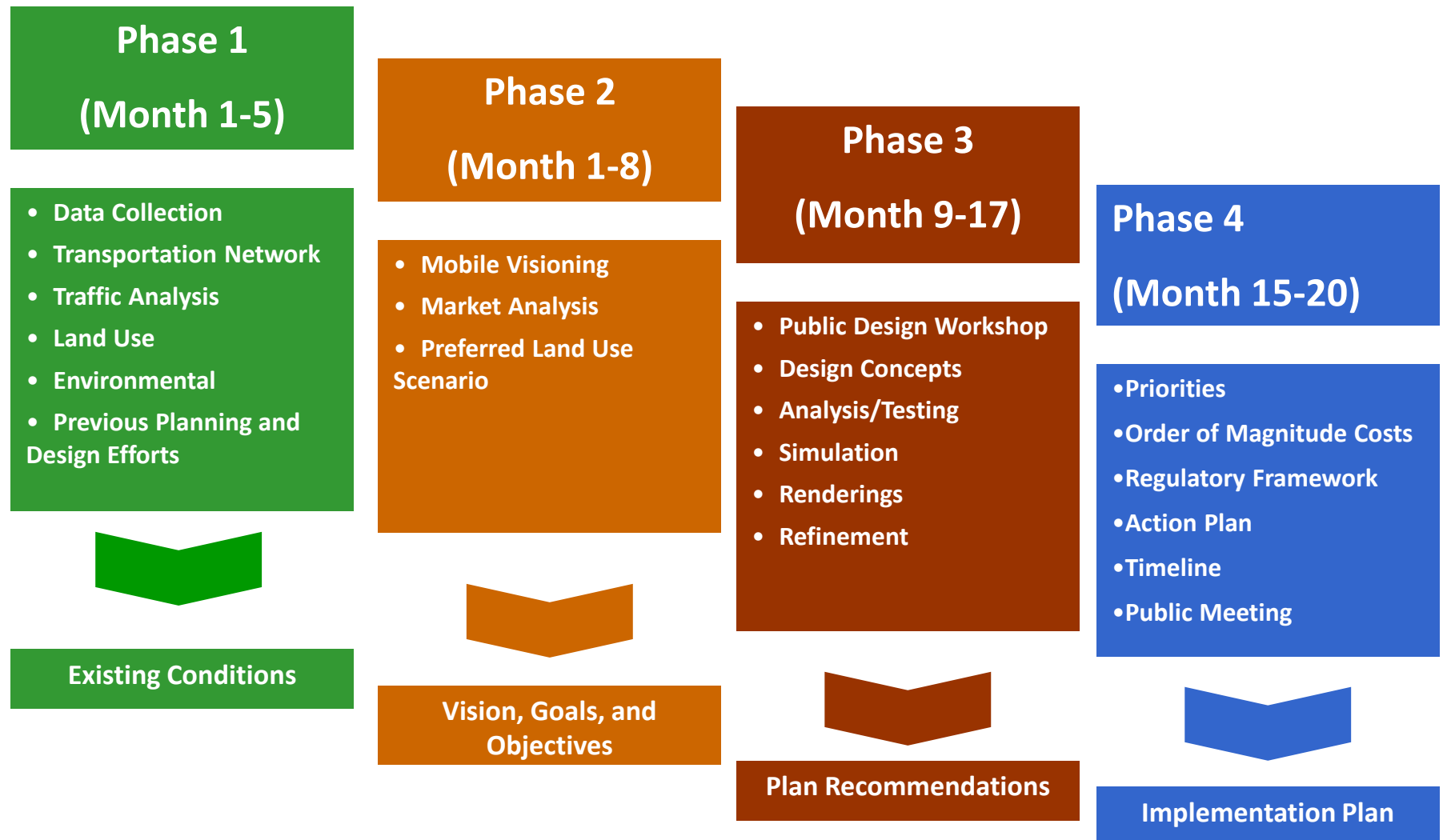
WHO IS RESPONSIBLE FOR THE PLAN?

The development of this plan is sponsored by the Connecticut Department of Transportation (CTDOT) and is being administered by the Lower Connecticut River Valley Council of Governments (RiverCOG) in partnership with the three towns of Clinton, Westbrook, and Old Saybrook.

HOW IS THE PLAN BEING DEVELOPED?

The plan will be developed in four phases as shown in *Figure 1*:

FIGURE 1: ROUTE 1 STUDY WORK PLAN



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

This report documents the efforts of the first two phases of the plan development: Existing Conditions and Vision, Goals, and Objectives. Phases 1 and 2 set the stage and framework for development of the corridor plan recommendation and implementation plan. The conclusion of Phase 2 sets a Preferred Land Use Scenario that is based on the broad vision for the corridor in the context of environmental and development constraints. Results of these two phases will illustrate existing issues and opportunities, and will set a vision for the corridor that allows the study team to evaluate the various alternative improvement options to help reach the community's vision.

Throughout the plan development process, a variety of community engagement and stakeholder outreach has been employed to ensure that the plan benefits from the perspective of the variety of users and stakeholders in the corridor.

WHO IS PROVIDING INPUT INTO THE PLAN?

A proactive and comprehensive public involvement plan has been developed and is being implemented to support the development of the Route 1 Corridor Plan. Public involvement takes place at three levels over the course of the study, which together provide for broad interactive community involvement and in-depth stakeholder participation. A broad range of community and stakeholder engagement efforts are being employed including:

Study Advisory Committee

A Study Advisory Committee (SAC) has been formed and consists of representatives from municipal staff from each town, Estuary Transit District, CTDOT, RiverCOG, special interest groups including representatives from the business community, tourist industry, school community, environmental interest, bike/pedestrian interests, and residents.

The role of the SAC is to:

- Offer information and expertise about local conditions and issues
- Provide a broad range of perspectives
- Brainstorm with the project team on solutions
- Review and comment on study recommendations
- Help raise awareness about the Plan efforts to support public events
- Support the consensus of this group within the community

Technical Input Meetings

In addition to the Study Advisory Committee, day-to-day technical input from professionals such as fire, police, ambulance, maintenance, and school transportation providers is helpful in understanding many issues that might not easily show from data or field visits. A series of two rounds of technical input meetings are being held to support this plan development; one to help identify issues and ideas and a second to seek feedback on the plan elements.

Public Engagement

A variety of other public input venues and events support the plan development and include:

- A project webpage hosted on the RiverCOG website: www.Rivercog.org/Route1.html where a variety of study information is posted and updated periodically
- Interactive study visioning booths at large public events around the 2013 winter holiday season
- Study displays in all three towns (Town Halls and Libraries) with handouts providing the address of the project webpage
- An on-line visioning survey to help establish long-term community vision and priorities in the corridor
- a full-day public design workshop planned for June 2014

- a final public informational meeting to present the draft plan and receive comments on it's content

B. Study Area

The Route 1 Corridor Plan is being developed for the three towns of Clinton, Westbrook, and Old Saybrook. The corridor spans approximately 12 miles as shown in *Figure 2* and provides access to a wide variety of retail and restaurant establishments, neighborhoods, beach communities, civic buildings and spaces such as town halls and town greens. While considerably different from each other, all three towns are still considered to be relatively small coastal towns that experience a large influx of population and visitors during the summer months. The three towns are comparable in land area at 15 to 16 square miles each. Of them, Old Saybrook has the largest job base and is considered a hub in the region for retail opportunities. While Clinton and Westbrook are less intensely developed, they too have significant regional retail destinations with the Tanger Outlet Mall in Westbrook and the Clinton Crossing Premium Outlet Mall on Route 81 and other significant retail in and just east of the village in Clinton on Route 1. While Route 1 is generally a retail corridor serving local and regional needs, the towns maintain a strong sense of community and pride in the unique coastal character and environmental and recreational resources. There is a significant increase in summer population and activity associated with the shoreline neighborhoods, beaches, and marinas and the region in general is considered an attractive tourist destination.

FIGURE 2: STUDY AREA



Source: GIS Base Map Data provided by Towns of Clinton, Westbrook, and Old Saybrook, 2013.

Some of the key elements that define Route 1 include:

- Town Centers in Clinton and Westbrook, with Old Saybrook's Town Center just south of Route 1 on Main Street
- Each town has a train station providing access to Shoreline East Commuter Rail to New Haven; The Old Saybrook station also provide access to Amtrak intercity passenger rail service
- Town greens in Westbrook and Clinton on Route 1
- A variety of retail establishments from small "mom and pop" stores to plazas with national retailers such as Staples, West Marine, Marshalls, Walmart, and Home Goods
- A thriving marina community with one of the State's largest recreational marinas, Pilot's Point in Westbrook, as well as many smaller recreational marinas and supporting boating industry businesses
- Access to the CT waterways and shoreline beaches in all three towns and a number of significant resorts such as the Water's Edge and the Saybrook Point Inn

With the exception of a short stretch in Old Saybrook, Route 1 is generally a two-lane arterial that meanders along the shoreline and provide direct access to the wide variety of properties along its length. Some sections of Route 1 are much busier than others with Old Saybrook generally characterized by larger-scale retail development; Westbrook generally characterized by smaller retail mixed with residential, civic, and open space; and Clinton generally characterized by a mix of retail on the outskirts of a well-defined Town Center.

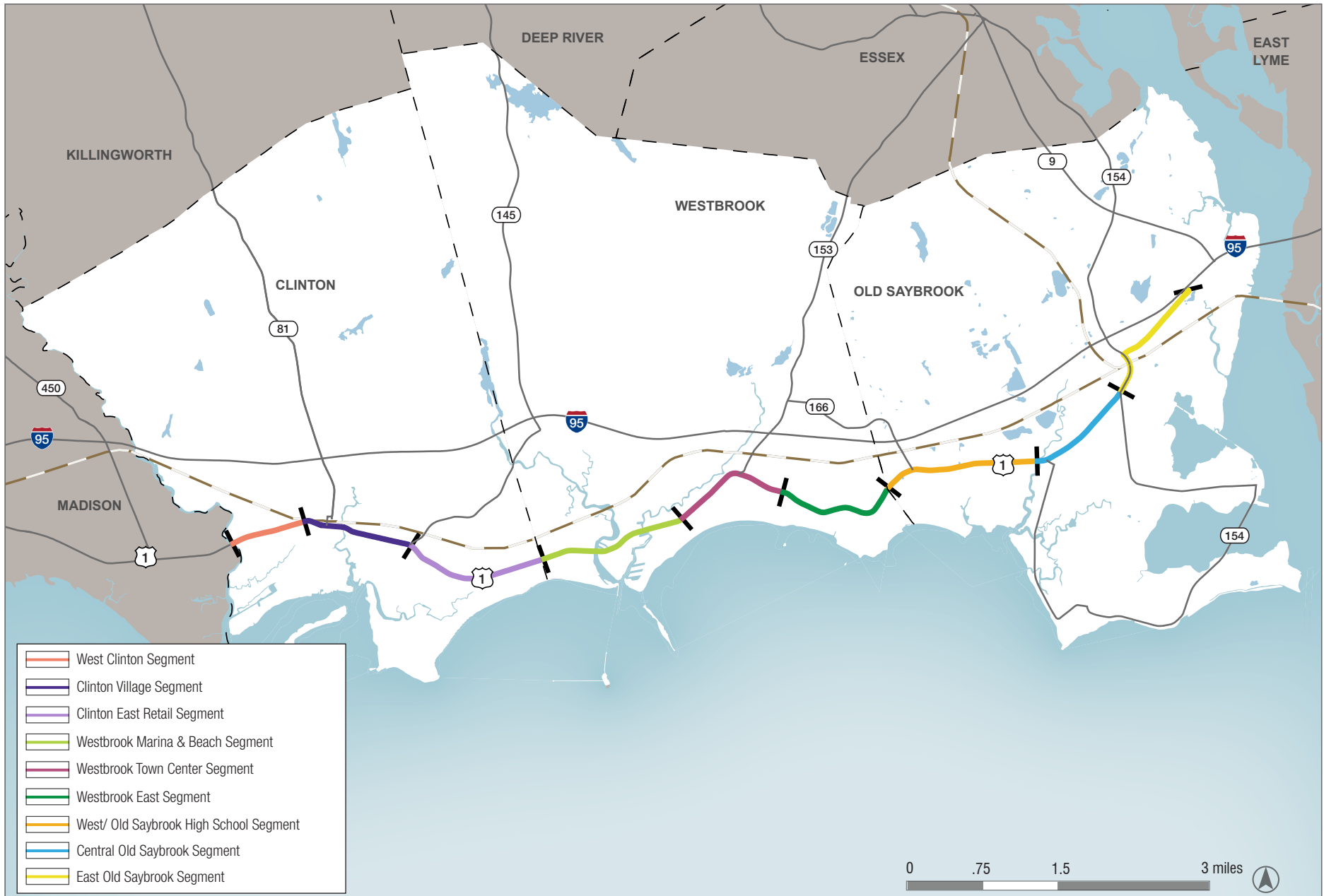
In order to present the variety of existing conditions, the corridor was divided into nine (9) distinct segments as shown in *Figure 3* and summarized in Table 1.

Table 1: Route 1 Corridor Segments

Segment Name	Extends Eastward from...	Through Intersection with
West Clinton Segment	The town border between Madison and Clinton	Grove Street
Clinton Town Center Segment	Grove Street	Old Post Road/ Route 145
Clinton East Retail Segment	Old Post Road/ Route 145	The town border between Clinton and Westbrook
Westbrook Marina and Beach Segment	The town border between Clinton and Westbrook	Eckford Avenue
Westbrook Town Center Segment	Eckford Avenue	Westbrook Heights
Westbrook East Segment	Westbrook Heights	The town border between Westbrook and Old Saybrook
West/ Old Saybrook High School Segment	The town border between Westbrook and Old Saybrook	Ingham Hill Road
Central Old Saybrook Segment	Ingham Hill Road	Main Street
East Old Saybrook Segment	Main Street	The end of the study area

Source: Fitzgerald & Halliday, Inc.

FIGURE 3: ROUTE 1 SEGMENTS



Source: Fitzgerald & Halliday, Inc.

C. Planning Context

The Lower Connecticut River Valley Council of Governments (RiverCOG) initiated this study to take both a local and regional look at the future of the corridor with respect to land use and transportation. All three towns have completed significant planning efforts that provide input and context into the development of this overall regional corridor plan. The state DOT (CTDOT) has also been investing in the train stations. A series of projects, studies, initiatives, and plans have been conducted or are underway including:

Clinton

- Current Unilever Redevelopment Study; ongoing
- Plan of Conservation and Development; 2007
- Safe Routes to School Masterplan; July 2011 including the Abraham Pierson School on the north side of Route 1 on the east side of the village
- The Bike and Pedestrian Alliance of Clinton (BPAC) – Proposal for safer accommodation of bicyclists on State Routes in Clinton
- Commuter rail station upgrades - planned
- Draft – Clinton Natural Hazards Mitigation Plan - 2013
- Town Plan of Conservation and Development; ongoing

Westbrook

- Sidewalk enhancement program; ongoing
- Town Green village plan
- 2011 Plan of Conservation and Development
- Safe Routes to School Plan, Daisy Ingraham School
- Upgrades and expansion to the Shoreline East station; under construction
- Town Center Master Plan – UCONN Community Research and Design Collaborative
- Natural Hazard Mitigation Plan
- Town Sidewalk Improvement Plan

- Town Center Parking Project
- Menunketesuck-Cockaponset Regional Greenway

Old Saybrook

- Mariner's Way – Route 1 East in Old Saybrook – A vision to improve the Route 1 connector between Saybrook Junction's Town Center and Ferry Point's Marina District; August 2013
- Old Saybrook Route 1 Corridor Study – Yale Urban Design Workshop; December 2005
- Old Saybrook Plan of Conservation and Development; February 2006
- North Main Street Sidewalk Plan; January 2012
- Old Saybrook Sidewalk Plan; February 2006
- Upgrades to the Old Saybrook Train Station and additional parking plans; CTDOT
- Old Saybrook Train Station Transit Oriented Development efforts

Just west of the study corridor, the Shoreline Greenway Trail is a project underway with various sections complete of a continuous 25-mile multi-use trail from Lighthouse Point in New Haven, through East Haven, Branford, and Guilford, to Hammonasset State Park in Madison. This project is being led by an all-volunteer organization that recognizes the value of providing off-road multiuse access to the shoreline for recreation. The RiverCOG is also currently developing the regional bicycle and pedestrian plan which will outline the greatest opportunities for biking and walking in the region as well as improvements to the biking and walking network.

These efforts provide the planning context from which this Route 1 Corridor Plan will be developed. The study team will consider all these plans and projects within the larger study corridor context and vision.



II. Existing Transportation Conditions

II. Existing Transportation Conditions

A. Route 1 Overview

INTRODUCTION TO THE TRANSPORTATION SYSTEM

Route 1 is a unique transportation facility as it serves many functions and users. It is geographically situated between I-95 to the north and coastal areas to the south and as such provides direct access to several coastal communities. In fact, Route 1 in many areas is within walking distance to the coast. For this reason, Route 1 is heavily relied on for tourism activity and a large influx of seasonal residents during the summer months. Route 1 serves many purposes including:

- Regional and state tourism
- Recreational activities including boating
- Local and regional truck traffic
- Local residential and shopping access
- Employment commuting
- Bicycle and pedestrian activity
- Local business access
- I-95 diversion route
- Emergency and Security Response

The profile of users varies along the corridor as does the traffic demand. This is evident by nearly 17,000 daily trips along Route 1 in Old Saybrook and approximately 12,000 daily trips in Clinton and Westbrook. The Route 1 corridor is the transportation spine for this region of Connecticut, and as such it must accommodate and continue to plan for a wide array of users with varying trip purposes and travel modes. The needs of all users must be evaluated in a comprehensive manner, thus preserving the integrity of the roadway, as a local and regional transportation asset. The Route 1 Corridor Improvement Plan will 1) consider the integration of all modes and travel choices in the corridor, 2) address any gaps in the transportation system, and 3) suggest a

prioritized investment strategy to implement infrastructure projects that align with community goals and objectives.

REGIONAL ACCESS

Route 1 is a major north-south US Highway that serves the east coast of the United States. It runs over 2,300 miles from Key West, Florida, north to the Canadian border in Maine. In Connecticut, Route 1 serves towns and cities as a parallel facility to I-95 making its way along the Long Island Sound. Within the study area, five (5) CT State Highways intersect with Route 1 including Routes 154, 145 and 81 – important corridors with connections to I-95. While Route 1 itself is responsible for the conveyance of people and goods along this busy corridor, a parallel passenger and freight rail line shares the responsibility. Three train stations – one in each town - are situated directly adjacent to Route 1 providing regular service to locations such as New Haven and New York City to the south, and to Providence and Boston to the north. Regional bus service serving destinations throughout New England is also provided on Route 1 with stops located near train stations. *Figure 4* illustrates the regional connectivity of the Route 1 corridor.

FIGURE 4: LOCAL AND REGIONAL TRANSPORTATION ACCESS



Source: Fitzgerald & Halliday, Inc.

FUNCTIONAL CLASSIFICATION/REGIONAL NETWORK

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the degree of mobility that they are intended to provide and the role they play in the overall roadway network. In many cases, the key word is simply what streets and highways are *intended* to provide. This section will help set the stage for a more in-depth discussion regarding the function of Route 1.

According to the Federal Highway Administration (FHWA), the three general functional systems are arterials, collectors, and local streets. Most state and local agencies adhere to this functional classification system, which is required for allocating federal funding to roads designated as part of the Nation Highway System. Table 2 provides a brief description of each functional system's traffic service they are intended to provide.

Table 2: Three Functional Systems

Arterial	Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.
Collector	Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
Local	Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.

Source: FHWA

While arterials, collectors, and local roads span the full range of roadway functions, the Federal and at times local functional classification scheme uses additional categories to describe these functions more precisely. Distinctions between access-controlled and full-access roadways; the urban and rural development pattern; and subtleties between "principal" and "minor" sub-classifications are key considerations when determining the Federal functional classification category to which a particular roadway belongs. The process of determining the correct functional classification of a particular roadway

is as much art as it is science. While Route 1 formally serves north-south traffic along the east coast of the United States, in the study area, it is characterized as a two- or four-lane arterial that serves east-west traffic between towns within the region. As such, according to the intended description, Route 1 reflects travel characteristics that require the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control. However, in reality Route 1 is more than an inter-regional highway. It also functions as a collector and a local road, depending on the context of the environment in which it serves. *Figure 5* illustrates where Route 1 fits into the federal functional classification system within the region.

FIGURE 5: FEDERAL FUNCTIONAL CLASSIFICATION SYSTEM



Source: Functional Classification Data - Connecticut Department of Energy & Environmental Protection (DEEP), 2013.

Unintended Consequences

The actual function and role of each street is more nuanced than the federal functional classification system used by state Departments of Transportation that seek federal funding for road projects. Often, roadway design standards are tied to functional classification as well, and the prevailing national and local design manuals tend to encourage optimizing the public right-of-way for automobile mobility. These common practices often have unintended consequences such as chronic congestion, increased injuries and fatalities, low pedestrian and bicycle use, decline in human health, poor transit performance, increased noise and emissions, increased street-water runoff, increased parking (and decreased developable space), and a general decrease in the quality of life of a place. Given the unique character of this corridor, this study will be driven largely by local context, rather than the intent of generalized functionality; however, this will be balanced by a recognition of the regional role of the corridor and the ability to acquire federal funding stipulated by such formal classifications.

B. Travel Demand

Travel demand refers to the amount and type of travel people choose under specific conditions. This section will help set the transportation stage for the Corridor Improvement Plan by understanding the historical and existing travel demand context of Route 1.

HISTORICAL TRAFFIC

When analyzing a corridor, it is important to understand the change that has occurred over time in order to better understand current travel demands and anticipated future travel demands. The Connecticut Department of Transportation (CTDOT) maintains permanent count recorders embedded within certain roadways throughout the state that continuously monitor traffic conditions. While this permanent data is very useful, it is also limited in its deployment; therefore, only three locations near the study area have permanent count stations with historical data available. Because tourism during the summer months increases demand, both winter and summer weekday average daily traffic (ADT) conditions have been presented. An index of historical traffic volumes was created in Table 3 at each location near the study area where data was available from 2005 through 2012. Demand has increased along the state highway network during winter and summer periods but has decreased along I-95. This may be due to national trends as a result of the economic downturn, which has shown only a nominal recovery in demand along interstate networks throughout the country.

This historical assessment is useful for understanding traffic in the region, but does not provide specific information about Route 1 within this study area. Traffic on Route 1 will ultimately vary from street to

Table 3: Historical Traffic Trends

Location	Count Month	2005	2006	2007	2008	2009	2010	2011	2012	Annual Growth Rate
Route 1 in Lyme	January	3,300	3,100	3,100	3,400	3,100	3,400	3,200	3,500	0.84%
	August	4,400	4,300	4,700	4,600	4,900	5,200	5,800	4,900	1.55%
Route 81 in Clinton	January	6,400	7,000	7,000	6,900	6,400	6,900	6,400	7,000	1.29%
	August	8,600	8,400	8,600	N/A	8,900	8,800	8,600	8,700	0.17%
I-95 in Lyme	January	62,300	61,100	63,200	62,200	58,000	60,200	N/A	N/A	-0.68%
	August	86,800	85,100	86,800	84,200	84,700	83,200	N/A	N/A	-0.84%

N/A: no counts available

Source: CTDOT

street with the highest demand – including development – near major access points. Route 1 has experienced traffic demand fluctuations over time as a result of localized land use changes. By no means will this historical trend guarantee similar outcomes in the future. It attempts to provide regional context to help understand how traffic patterns change over time.

EXISTING TRAFFIC

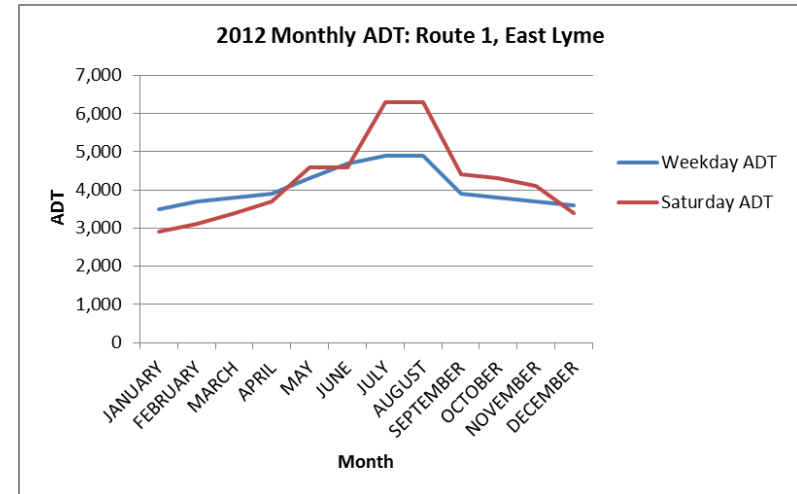
Available traffic counts along Route 1 were assembled from CTDOT's automatic traffic recorder (ATR) database. This database system contains 24-hour traffic counts, usually data collected on a Tuesday, Wednesday, or Thursday, at various locations throughout the state, and were used in the historical assessment. Some counts available through CTDOT's ATR database are several years old; therefore, new 24-hour daily volume counts were collected in August 2013 at concurrent locations to understand existing conditions. The raw data can be found within the *Appendix*.

As counts were generally collected during summer peak conditions, it is important to also understand non-summer, typical-day traffic conditions to avoid overstating traffic demand that may only occur during short periods throughout the year and on summer weekends.

Seasonal Variations

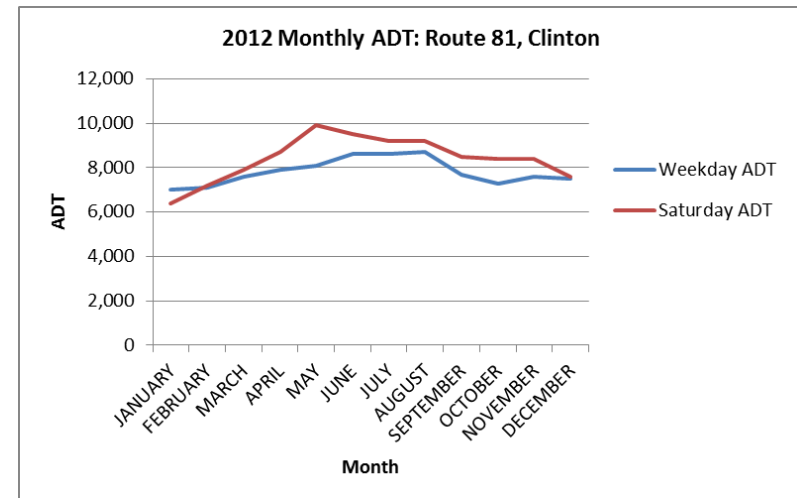
Seasonal variations are important and reflect the changing patterns of recreational and tourist activity, particularly during the summer months. The monthly data from CTDOT's permanent count sites for 2012 are identified at two available locations near the study area. I-95 was not included for the purposes of determining seasonal variations. Exhibits 1 and 2 illustrate the variations in demand over the course of one year.

Exhibit 1: Seasonal Variation in Traffic Demand on Route 1



Source: CTDOT

Exhibit 2: Seasonal Variation in Traffic Demand on Route 81



Source: CTDOT

The summer months reflect the highest demand in the region and a pronounced spike in weekend (Saturday) traffic demand is observed on Route 1 in East Lyme during July and August; otherwise there is little difference between weekday and weekend average traffic volumes during the other months. Because the counts for this study were obtained during August, seasonal variations in traffic demand should be considered when determining non-summer annual conditions along Route 1. Table 4 identifies the weekday and weekend (Saturday) seasonal adjustment factor that may be applied to existing traffic counts to reflect non-summer conditions.

Table 4: Seasonal Adjustments

ID	Location	2012 Weekday Seasonal Factor (August)	2012 Weekend Seasonal Factor (August)
A	Route 1, Lyme	0.83	0.68
B	Route 81, Clinton	0.90	0.91
Average (A,B)		0.86	0.79

Source: CTDOT permanent count station locations; Fitzgerald & Halliday, Inc.

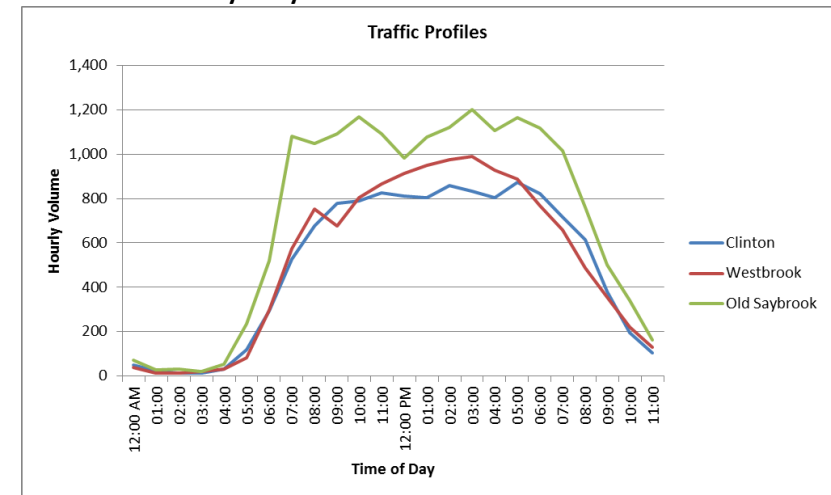
Since there is no permanent count station located on Route 1 within the study area, seasonal adjustment data from the two available count stations immediately adjacent to the Route 1 corridor were averaged and the results appear reasonable for application to the Route 1 traffic data. Saturday traffic during the summer peak is over 20% higher than Saturday traffic during non-summer conditions. The difference in weekday variations is not as pronounced, which is to be expected given a higher mix of commuter traffic and lower presence of tourist traffic on weekdays. The adjustment factors will be applied to existing traffic volumes obtained in August to reflect a 'typical' condition, or one that exhibits average traffic levels that are typical during about 90% of the total days in the year, for use in the subsequent traffic analysis. (This is an estimate based on average daily traffic that is not influenced by road construction or traffic accidents.)

Route 1 Corridor Daily Traffic Conditions

Route 1 is part of a larger network of roads in the region and the traffic conditions on these surrounding roadways are inextricably linked to conditions along Route 1. For example, an incident on I-95, whether due

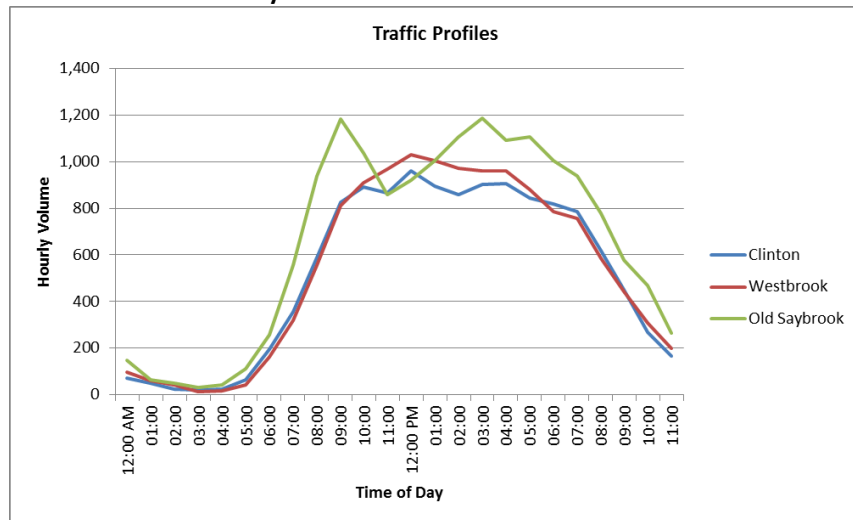
to highway maintenance or a traffic accident, almost always leads to increased traffic on Route 1. To help understand the existing operational characteristics, it's important to understand daily traffic trends specific to the corridor. Weekday and weekend daily traffic profiles for August from each town are illustrated in Exhibits 3 and 4.

Exhibit 3: Weekday Daily Traffic Profiles for Each Town



Source: August 2013 Traffic Counts, Fitzgerald & Halliday, Inc.

Typically, two pronounced spikes occur during the day, corresponding to the AM and PM peaks, while traffic levels are lower during the mid-day hours. For the Route 1 corridor, traffic volume increases sharply between 6:00 and 7:00 AM; and traffic remains elevated over the day, with no pronounced spikes, which are more typical of commuter routes. Traffic demand for each location generally increases over the day before peaking around 5:00 PM. This reflects a predominantly retail and tourism driven corridor where traffic builds and is maintained over the course of the day.

Exhibit 4: Weekend Daily Traffic Profiles for Each Town

Source: August 2013 Traffic Counts; Fitzgerald & Halliday, Inc.

Weekend, or Saturday, traffic profiles nearly mirror weekday profiles, except the morning spike occurs slightly later. There is also a pronounced reduction in traffic in Old Saybrook during the late morning. Traffic levels are maintained throughout the day which is typical of weekend traffic in most locations across the board. The total daily weekday and weekend volumes are similar; however, hourly peaks during weekend hours show higher measured demand. This is confirmed with the peak hour traffic conditions in the subsequent section.

The profile of users and land use activity varies along the corridor, which is reflected in the traffic demand. This is evident by approximately 17,000 daily trips along Route 1 in Old Saybrook and 12,000 daily trips in Clinton and Westbrook. Because traffic counts were obtained during the summer, they are expected to be about 20% lower during typical non-summer months and about 13,600 daily trips in Old Saybrook and 9,600 daily trips in Clinton and Westbrook.

Route 1 Peak Hour Traffic Conditions

Traffic levels during the weekday morning, afternoon, and weekend mid-day peak hours tend to be higher than other periods throughout the day, which reflects higher percentages of commuter and recreational traffic. Weekday morning (7:00 to 9:00 AM), evening (4:00 to 6:00 PM), and weekend (11:00 AM to 1:00 PM) peak period intersection turning movement counts were collected at the study intersections in August 2013 on a clear day. A total of 21 intersections (19 signalized, 2 unsignalized) were collected as part of this study. As the study progressed and more data was needed, traffic counts were obtained from recently completed traffic studies and compared against the collected counts to ensure consistency.

When it comes to traffic flow in the morning and afternoon peak hours of the day, the directionality of the flow typically fluctuates. For example, one direction of traffic may be higher in the morning and the opposite direction may be higher in the afternoon, at the same location. However, this typical pattern does not characterize the traffic flow of Route 1. In fact, traffic levels during the peak hours are generally consistent by direction, except for the eastern section of the corridor in Old Saybrook near I-95. Here, traffic levels moving northeast along Route 1 are higher in the PM, a result of traffic turning onto Route 1 from Main Street to access I-95 or Route 9. *Figure 6* illustrates the peak period flow of traffic on Route 1 during AM, PM, and Saturday conditions and illustrates where peak period traffic flow is highest. As shown, the busiest areas on Route 1 are located in Old Saybrook near Main Street and the central retail area. Traffic is lighter through Westbrook but gets heavier again in Clinton. This pattern is consistent with the intensity of land uses in these sections and the retail traffic generators.

FIGURE 6: SUMMER BI-DIRECTIONAL PEAK HOUR TRAFFIC VOLUME



Source: Fitzgerald & Halliday, Inc.; 2013 Traffic Count Program

Some general conclusions from the existing travel demand assessment include:

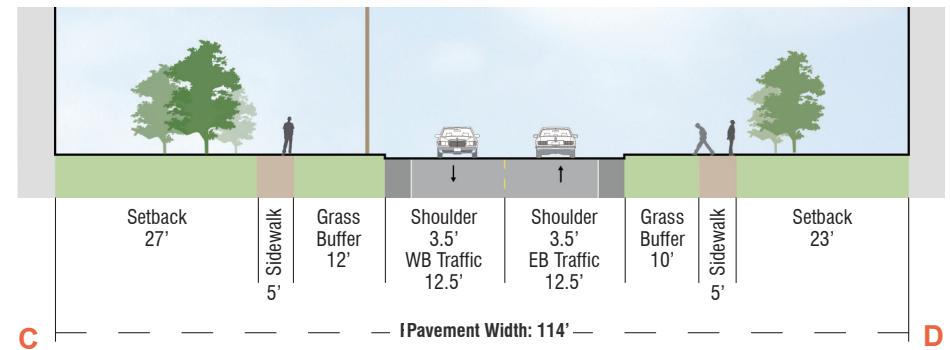
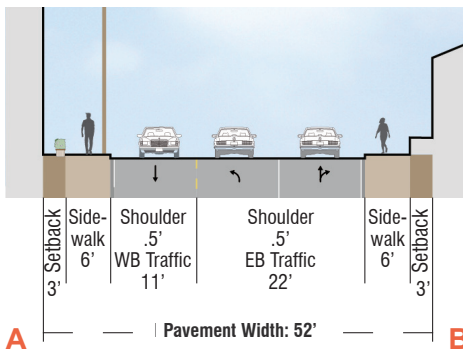
- Seasonal variations in traffic are important to understand when assessing conditions along the corridor. Saturday traffic demand is over 20% higher during the summertime than non-summer times of the year.
- According to the daily traffic counts on Route 1 in the study area, there is little difference in weekday and weekend traffic demand during the summer. However, hourly peaks during the weekend hours show higher measured demand.
- Traffic counts obtained in August 2013 do not reflect conditions during an incident or excessive congestion on I-95.
- A pronounced spike in AM and PM traffic demand does not occur along the Route 1 corridor. Traffic generally steadily increases over the course of the day until it peaks during the evening hours.
- PM peak traffic levels are higher than AM peak traffic levels for most locations along the corridor.
- Most locations along the corridor generally reflect an even directional split in traffic flow.

The individual peak hour schematics for each study area intersection and ADT can be found within the *Appendix*.

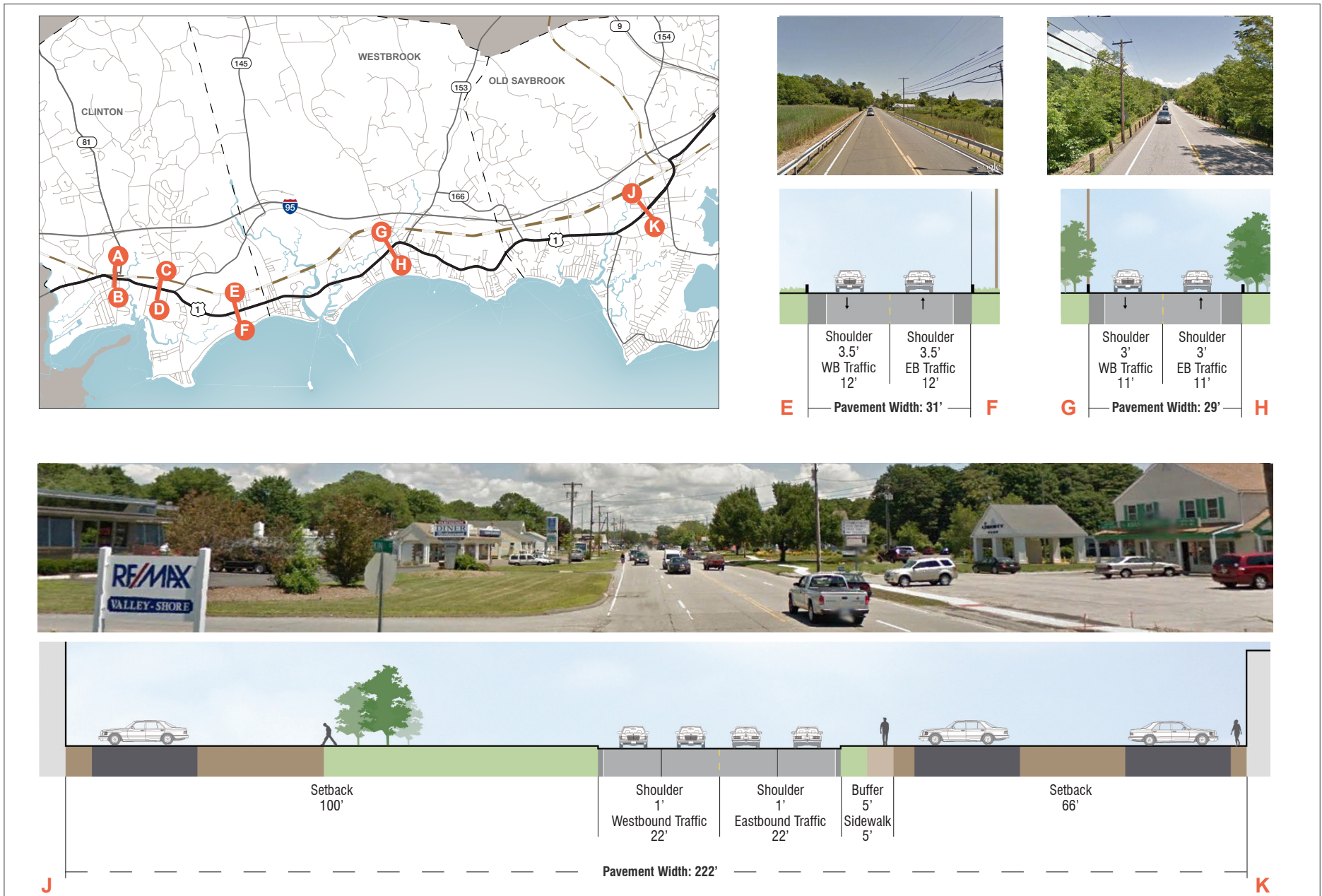
C. Roadway Description and Geometry

The physical layout, or geometry, of a road contributes to the degree of safety for motorists, bicyclists, and pedestrians. Factors such as number of lanes, lane width, grade, curvature, and intersection type affect traffic volume, capacity, travel speed, congestion, safety, access to property, and driver behavior. This section summarizes Route 1's geometric conditions and will be important when considering the integration of all travel modes and addressing any gaps in the transportation system. *Figure 7* illustrates several roadway cross sections of the Route 1 corridor.

FIGURES 7-1 THROUGH 7-3: ROUTE 1 CROSS SECTIONS



FIGURES 7-4 THROUGH 7-6: ROUTE 1 CROSS SECTIONS



ROADWAY GEOMETRY

Travel Lanes

Route 1 is an arterial highway that begins as two-lanes (one lane per direction) in Clinton and transitions to four-lanes (two lanes per direction) in Old Saybrook. Route 1 serves many functions and users, depending on the context of the environment along the corridor. For example, sections of Route 1 that travel through the Town Centers of Old Saybrook and Clinton are generally characterized by lower speeds, frequent driveways, curb and gutter drainage, and dedicated turn lanes at major intersections. Rural sections in Westbrook are characterized by higher speeds, inconsistent sidewalks, drainage ditches, clustered driveways, and a general lack of dedicated turn lanes.

Daily traffic levels range from 12,000 vehicles per day in Clinton and Westbrook to 17,000 vehicles per day near I-95 in Old Saybrook during the summer months. The posted speed ranges from 35 miles per hour (mph) to 45 mph, except for downtown areas in Westbrook and Clinton, which range from 25 mph to 30 mph. The specific speed zones along the Route 1 corridor are shown in the *Appendix*.

Shoulder Width

Road shoulders serve a number of purposes including emergency vehicle access, breakdown space, and lane separation for bicyclists. According to the CTDOT Design Manual, arterials are typically designed with 4 to 8-foot shoulders. Generally, Route 1 has inconsistent and undersized shoulder widths of less than 4 feet, which cannot effectively accommodate a vehicle and challenges bicycle and pedestrian travel in the corridor. There are several relatively short segments which have shoulder widths that fall within CTDOT's design standards. Cross sections on *Figure 7* illustrate typical shoulder widths along the Route 1 corridor.

Vertical Grade

Highway grade, or hills, can present safety and operational challenges by restricting sight lines and increasing the distance a vehicle needs to safely stop. During inclement weather, road grades can also contribute

to the loss of traction between a vehicle's tires and the pavement surface. Route 1 is located near the coast and has stretches that are within wetlands and are relatively flat; therefore, has a very low rolling terrain. The CTDOT Design Manual suggests that a 7% grade should be considered a maximum for an arterial; however, Route 1 has no locations near a 7% grade.

Horizontal Curvature and Sight Distance

The alignment of Route 1 is generally defined by topography. Natural coastal features and significant expanses of wetlands run parallel to the highway. As such, Route 1 is noted for its curvilinear alignment. Horizontal curvature of a road affects a driver's ability to see far enough to be able to stop safely to avoid a collision. Curves can also contribute to a loss of control of a vehicle if speed limits are not adhered to. The CTDOT Design Manual suggests that a stopping sight distance of 425 feet is required for level surfaces with a posted speed limit of 45 mph, which is common along the corridor. Because Route 1 is noted for its curvilinear alignment, poor visibility presents a challenge for the corridor in many locations.

Geometric Observations

The geometric review performed for this study resulted in the formulation of the following observations, which will help set the stage for a more in-depth discussion of issues and opportunities.

- The 45 mph posted speed zone between Clinton and Westbrook, particularly near Grove Beach Road, may not fit within the abutting land use context and is the only 45 mph zone along the Route 1 corridor. Design (and observed) speed in this section is too high for the uses along the road - clustered and wide driveways, narrow shoulders, lack of turn lanes, and limited visibility.
- Traveling west along Route 1 approaching Stage Road after crossing the RR bridge in Old Saybrook, field observations indicated speeds consistently exceeded 45 mph; however, there is only 400 feet of sight distance to the intersection, not including queued vehicles that might be stopped at the light.

Factor in poor weather conditions, and this distance is further reduced.

- Traveling east along Route 1 approaching Old Clinton Road in Westbrook, a curve in the highway limits a driver's view of the approaching intersection to approximately 225 feet, which is below CTDOT standards of at least 300 feet, given the posted speeds.
- From a non-motorized travel perspective, bicycle and pedestrian use in the corridor is limited by the physical geometry of Route 1, including narrow shoulders for much of the corridor and high volume and speed of motorized vehicles. In addition, the high number and concentration of driveways (which is discussed in the next section in more detail) are hazardous to pedestrians as well as bicyclists. Motorists, turning into these driveways, often do not look for bicyclist and pedestrians.
- Periodic roadway maintenance inhibits traffic flow along the corridor as lanes must be blocked. This is also true for other incidents such as motor vehicle crashes.
- There are deficient sidewalk and crossing area amenities for pedestrians, particularly those with disabilities. Intersections are often lacking ramps, detectable warning surfaces, and appropriate sidewalks connecting to push buttons, and are largely underutilized as a result of their condition.
- Poor roadway lighting exists along rural stretches of the Route 1 corridor, particularly west of downtown Clinton and east of Beach Park Road to downtown Westbrook. This exacerbates the existing sight distance challenges along the corridor.

D. Traffic Operations and Safety

TRAFFIC CONTROL

Traffic Control Devices

Traffic signals control the flow of traffic on Route 1 and streets that intersect with it. Side streets are controlled by a traffic signal, yield, or

stop sign. There are 26 signalized intersections along the corridor and CTDOT operates and maintains these signals.

Traffic flow at signalized intersections is controlled by the signal timing and phasing as well as the overall cycle length (the amount of time given to complete all traffic movements). The cycle length is the total time for a traffic signal to complete one sequence of all movements within an intersection and generally range from 45 seconds to 180 seconds. The larger or more complex an intersection's configuration is, the greater the cycle length will be to accommodate all movements. Changes in traffic demand throughout the day will also result in varying cycle lengths, with longer cycle lengths during peak times and lower during off-peak times. Traffic demand and intersection configurations vary along Route 1 and cycle lengths range from 45 seconds to 145 seconds.

To further manage traffic flow, signals can be actuated; meaning triggered by an approaching vehicle, or set at a fixed time if no detection device has been installed. These detection devices are usually loops located in the travel lane or radar mounted on the span pole extending over the intersection. All signals in the Route 1 study corridor are actuated, even if every movement is not. Signal coordination is another form of traffic control management. This occurs when closely-spaced signals coordinate individual movements so that drivers encounter long streams of green lights. Most signals along the Route 1 corridor are uncoordinated because spacing is too great or traffic flow is interrupted by roadway characteristics making it difficult to coordinate.

The standard practice is to develop time-of-day signal timing plans to account for the fluctuations in traffic that naturally occur throughout the day. The plans are usually made for a "typical" day; however, when traffic conditions change significantly as a result of seasonal fluctuations or incidents, the pre-programmed plans often cannot process traffic efficiently. Other forms of traffic control measures along Route 1 include speed limits and school zones. Temporary traffic control measures can be deployed by officials if an incident has occurred or to

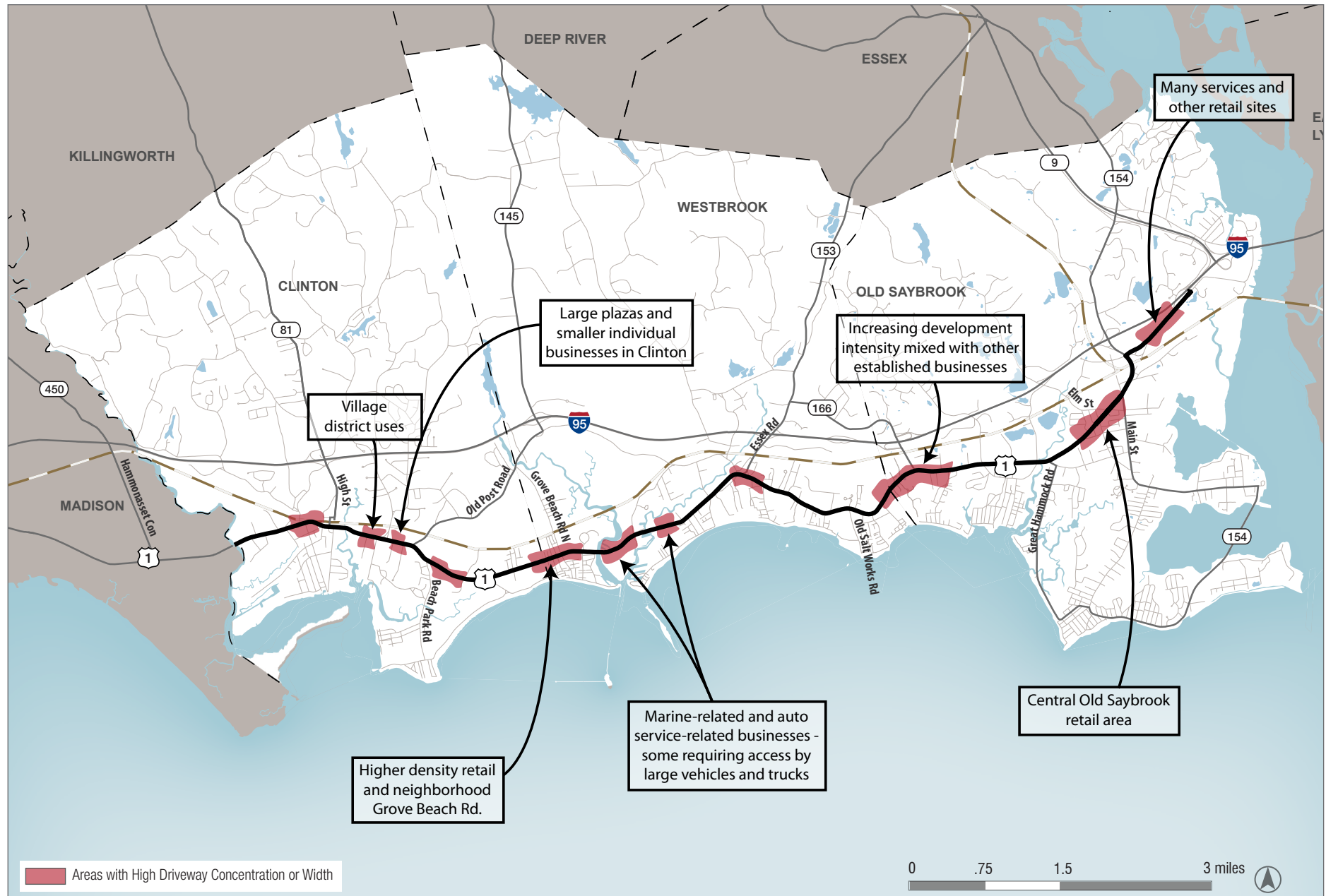
aid construction related activities. An inventory of traffic control elements is summarized in *Appendix #*.

ACCESS AND CIRCULATION

Route 1 Access Management Conditions

Route 1 has 689 driveways total; therefore, approximately 60 driveways per mile along the 11.6 mile corridor resulting in approximately 90 feet between driveways. Overall, driveways along Route 1 are evenly split; therefore, approximately 345 driveways exist by direction which equates to approximately 180 feet between the centerline of each driveway. There are pockets along the Route 1 corridor where driveway density is greater than 60 per mile and segments where driveway density is less. In short, the Route 1 corridor is well below current access management standards. *Figure 8* identifies areas along the Route 1 corridor where an excess of driveways exist and affect the safe and efficient operation of the roadway. This information will play an important role when considering the integration of all modes and travel choices in the corridor, as part of the subsequent concept development stage of the corridor improvement plan.

FIGURE 8: LOCATIONS WITH HIGH NUMBER OF DRIVEWAYS



Source: Fitzgerald & Halliday, Inc.

Access Observations

The following observations set the stage for a more in-depth discussion of issues and opportunities regarding traffic control and access management measures:

- Dense and poorly delineated driveways are frequent throughout the corridor, which is problematic and can be dangerous for motorized and non-motorized travel.
- Cars tend to line up alongside one another at wide driveways attempting to re-enter Route 1 simultaneously, resulting in poor visibility.
- At wide or poorly delineated driveways with parking directly off Route 1, drivers reverse from a parking space when vehicles were exiting Route 1, creating a dangerous conflict zone.
- At Beach Park Road and Elm Street, private driveways exist within the intersection beyond the stop bar with no signal control.
- Deteriorated shoulder conditions are due in part to vehicles maneuvering around a stopped vehicle on Route 1 waiting for a gap in traffic to turn.
- It is recognized that Route 1 serves a variety of users including marine activity. While Route 1 overall has access management problems, it is clear that certain locations should be designed to accommodate the unique types of vehicles that are primarily expected to access the property; including trucks and boat trailers.

LEVEL OF SERVICE

A traffic analysis was conducted for a total of 23 intersections (21 signalized, 2 unsignalized) in order to measure the level of vehicle delay at intersections. Weekday morning and evening peak hour counts and weekend mid-day counts were collected at the study intersections in August 2013 on a clear day with no accidents, road construction, holidays, or weather events. Seasonal adjustment factors have been applied to the existing summer counts to derive non-summer conditions. The key measure of effectiveness for the peak hour traffic

analysis is level of service (LOS) at the study area intersections. LOS is a qualitative measure of vehicular delay and takes into account a number of conditions related to intersection design and traffic volume, and the perception of those conditions by motorists. Six levels of service are defined with letter designations from A to F, with LOS A representing the best operating conditions and LOS F representing the worst. Conventional practices point to LOS C, describing a condition of stable traffic flow, as the minimum desirable level for peak traffic flow in rural and suburban areas. LOS D (and sometimes LOS E), with greater vehicle queues and delay, are often considered acceptable for urban areas because of the accessibility benefits and higher pedestrian interactions that result from increased density. Table 5, shown on the following page, summarizes the LOS criteria, as specified by the Highway Capacity Manual.

Table 5: Level of Service Criteria

Level of Service (LOS)	Signalized Intersection Control Delay (seconds/vehicle)	Unsignalized Intersection Control Delay (seconds/vehicle)
A	0-10	0-10
B	>10-20	> 10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Source: 2000 Highway Capacity Manual (Special Report 209)

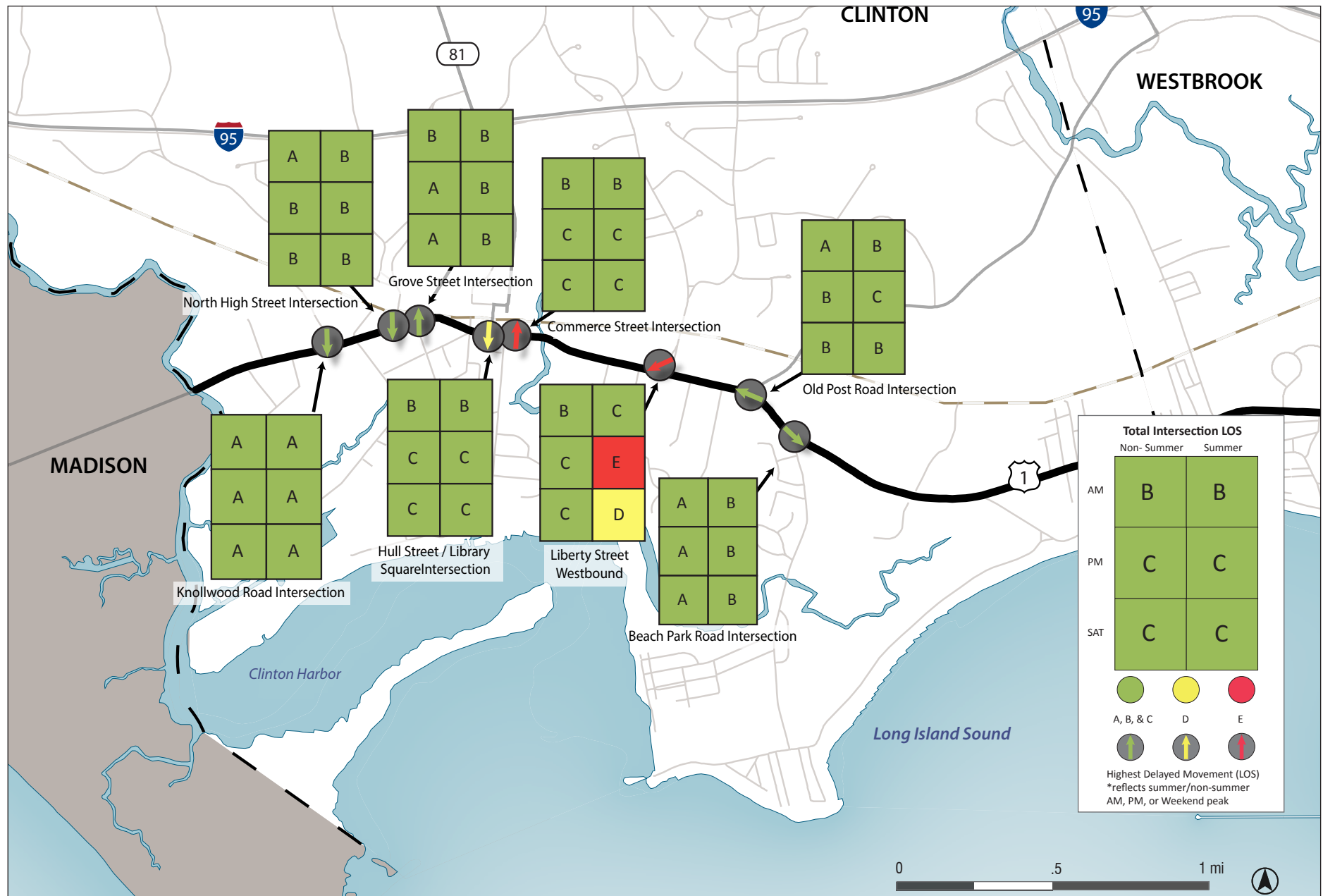
Level of service designation is reported differently for signalized and unsignalized intersections. Thus, the delay ranges differ slightly between unsignalized and signalized intersections due to driver expectations and behavior for each LOS. For signalized intersections, LOS is defined in terms of delay, which is a measure of driver discomfort and frustration, and lost travel time. For unsignalized intersections, the LOS analysis assumes that the traffic on the mainline is not affected by traffic on the side street. The LOS for each movement is calculated by determining

the number of gaps that are available in the conflicting traffic stream. Based on the number of gaps, the capacity of the movement can be calculated. For unsignalized intersections, the highest delayed movement is reported in addition to an overall delay.

Route 1 Level of Service Analysis Results

The traffic analysis for the study intersections was completed using Synchro 8.0, a computer-based intersection operations model, which implements procedures presented in the Highway Capacity Manual (HCM) 2000 and 2010. Synchro is designed to evaluate the performance of arterials, signalized intersections, and unsignalized intersections (two-way stop, all-way stop, and roundabouts). The intersection LOS reported by Synchro reflects the total intersection delay for all movements, and the results for the intersections analyzed along Route 1 have been illustrated in *Figure 9*.

FIGURE 9-1: ROUTE 1 LEVEL OF SERVICE ANALYSIS RESULTS - Clinton



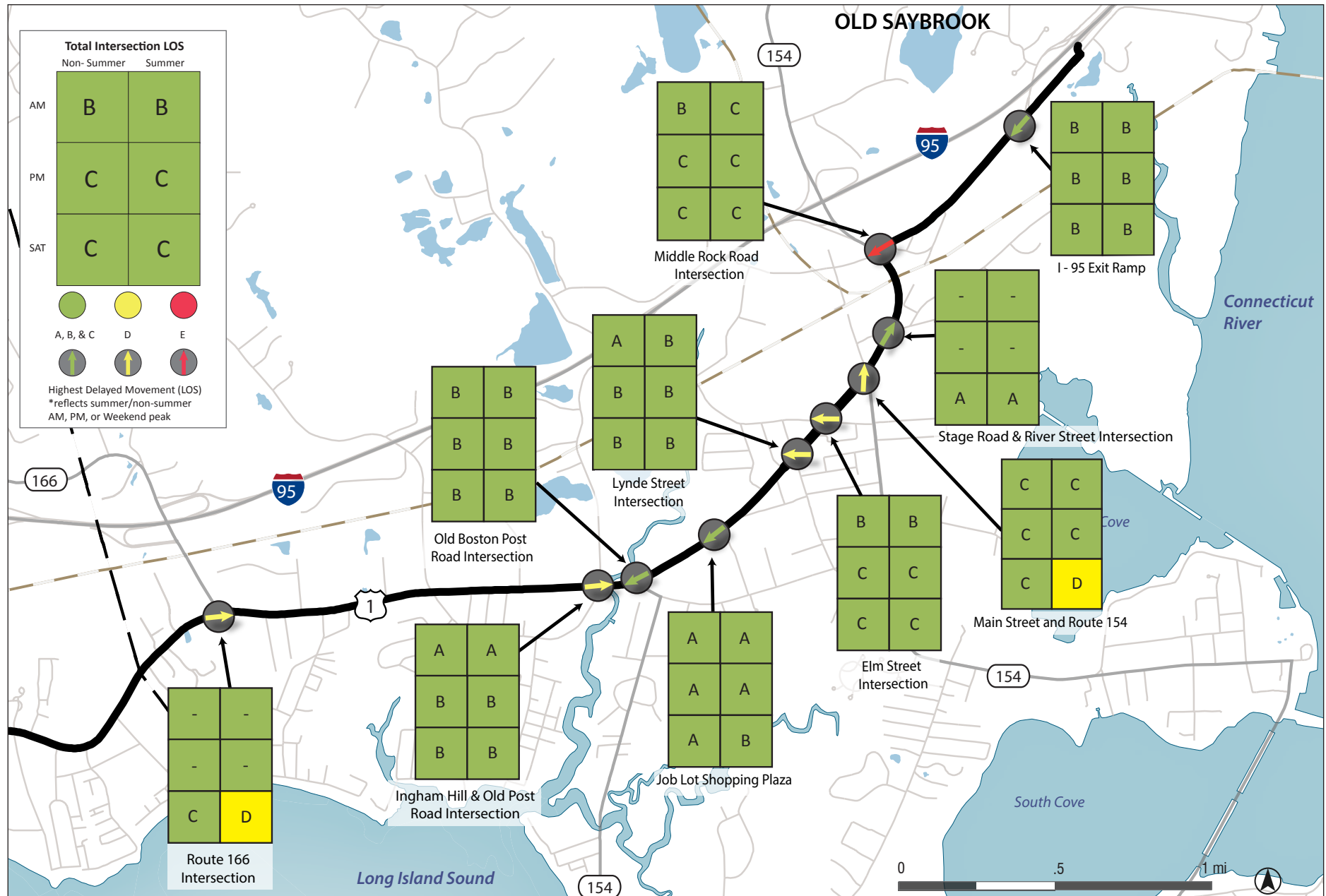
Source: Crash rate data: Connecticut Crash Data Repository (CTCD), 2009 - 2011

FIGURE 9-2: ROUTE 1 LEVEL OF SERVICE ANALYSIS RESULTS - Westbrook



Source: Crash rate data: Connecticut Crash Data Repository (CTCD), 2009 - 2011

FIGURE 9-3: ROUTE 1 LEVEL OF SERVICE ANALYSIS RESULTS - Old Saybrook



Source: Crash rate data: Connecticut Crash Data Repository (CTCD), 2009 - 2011

Results of the traffic analysis indicate that all study intersections operate at LOS C or better during typical weekday and weekend AM and PM peak hours during summer and non-summer conditions, with the exception of Liberty Street in Clinton (LOS E) and Main Street in Old Saybrook (LOS D). The detailed LOS analysis results for each study intersection is located in the *Appendix*. There are occurrences where a specific intersection approach or movement exceeds LOS C, even if the total intersection does not. According to the Synchro model, drivers may experience more extended delays (LOS D or worse) at the following locations in the AM, PM, or Mid-Day peak hour:

- Route 1 approach on Hull Street in Clinton
- Route 1 approach on Commerce Street in Clinton
- Route 1 approach on Liberty Street (West) in Clinton
- Eastbound and westbound approach to Ingham Hill Road on Route 1 in Old Saybrook
- Route 1 approach on Lynde Street and Elm Street in Old Saybrook
- Approaches at the Route 1/Main Street intersection in Old Saybrook

The delays experienced by drivers at these locations are a result of a combination of factors. Closely spaced signals and the addition of traffic on Route 1 from Hull Street increases delay for intersections in downtown Clinton. High peak hour traffic on Route 1 increases side-street wait time at Liberty Street, which is controlled by a stop sign. The eastbound approach to Ingham Hill Road serves high demand prior to traffic turning off Route 1 onto Old Boston Post Road (Route 154). The remaining delays experienced by drivers in Old Saybrook are a result of high peak hour traffic on Route 1 increasing wait time for cross streets. Furthermore, most intersections (including driveways) are not signalized and the delay from those can be high since available gaps (space between cars) in the traffic stream are infrequent. While utilizing computer-based models to assess traffic conditions provides a foundation for the existing conditions assessment, field observations and public input will also help facilitate concept development moving

forward. Based on historical traffic trends, demand will likely continue to grow, further increasing delays along the corridor.

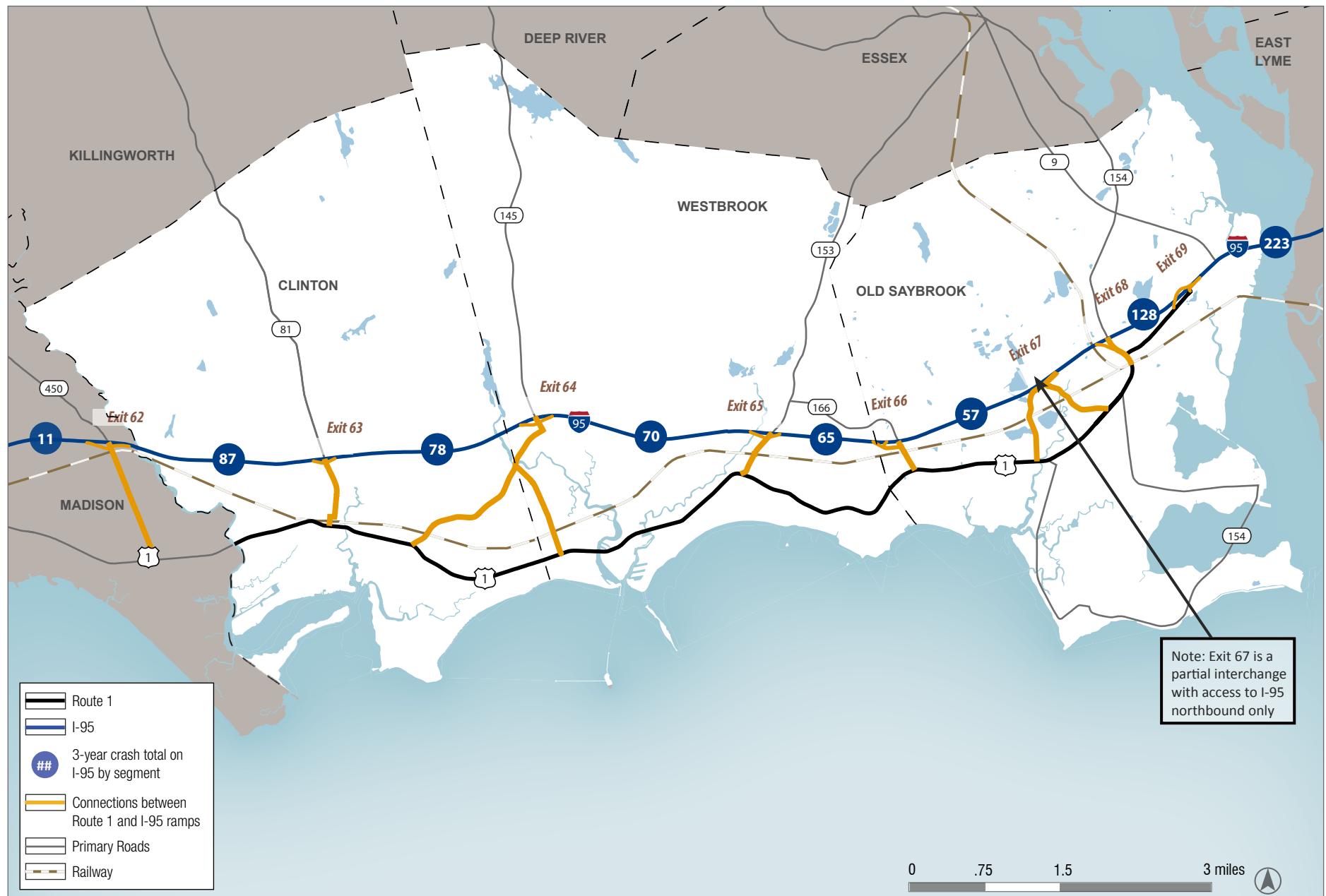
Non-Recurring Congestion from I-95

The public has become increasingly sensitive to the impact congestion has on quality of life, citing delays caused by traffic congestion as top community transportation concerns. The traffic analysis conducted for this study has indicated that overall, intersections manage traffic well, with only isolated locations of congestion occurring on a typical day. According to a FHWA report, approximately 55% of all delays are caused by non-recurring congestion (e.g., traffic incidents, work zones, bad weather, and special events).¹ In Connecticut, Route 1 serves towns and cities as a parallel facility to I-95. When traffic incidents occur on I-95, Route 1 serves as an alternate route and heavy congestion can temporarily delay all users regardless of how traffic control measures are functioning.

To help understand non-recurring congestion on Route 1 caused by traffic incidents on I-95, crash data over the last three years was obtained from the Connecticut Crash Data Repository (CTCDR) for I-95 in Clinton, Westbrook, and Old Saybrook. *Figure 10* illustrates the total number of mainline crashes that have occurred on I-95 over three years. To put these totals in perspective, the crash data was organized to reflect the total number of days crashes occurred on I-95. When averaged over a year, I-95 in the vicinity of the Route 1 corridor experiences approximately 220 days per year where at least one crash occurs. While not every crash will result in traffic diverting to Route 1, each crash does potentially contribute to highway diversions and increased traffic on Route 1. If only half of these crashes divert traffic off I-95 to Route 1, increases in traffic would occur on Route 1 at least twice per week as a result. To note, crash data for the ramps was not included in the analysis, but these incidents may also lead to traffic diversion.

¹ *Traffic Congestion and Reliability: Linking Solutions to Problems*, Federal Highway Administration, July 2004.

FIGURE 10: I-95 CRASH FREQUENCY BETWEEN RAMPS



Source: Crash rate data: Connecticut Crash Data Repository (CTCD), 2009 - 2011

Figure 10 also illustrates which routes drivers may potentially use to bypass incidents along I-95. Based on the crash locations, the following interchange exits are likely used more by drivers attempting to bypass a traffic incident on I-95:

- Exit 63 (Route 81) – high relative number of crashes east and west of Exit 63 on I-95.
- Exit 65 and 66 (Routes 153 and 166, respectively) – high concentration of crashes occurred between each exit and Route 1 is within ½ mile of I-95.
- Exit 67 and 68 (Routes 154 and 1, respectively) – high concentration of crashes occurred between each exit and near the Route 9 interchange just east of the study area.

Delays as a result of non-recurring congestion are a contributing factor to the overall congestion experienced by users of Route 1 and becoming a ‘normal’ event. The implementation of an alternate incident management route plan is a key traffic management strategy for better managing the effect of a non-recurring congestion-causing event on Route 1 and will be explored as part of the overall Corridor Improvement Plan.

Traffic Operations Observations

The traffic analysis conducted for this study resulted in the formulation of the following observations, which set the stage for a more in-depth discussion of traffic related issues and with the public.

- Overall, intersections manage traffic well during a typical day, but there are several pockets of congestion on Route 1. Traveling east along Route 1, queues during the weekday PM peak at Main Street in Old Saybrook extended 250 feet or more - roughly ten vehicles per lane. Traveling west along Route 1 at Main Street in Old Saybrook, queuing throughout the day was observed for left-turning vehicles and the through movement - at times extending back to Stage Road. Queuing was also observed on Main Street approaching Route 1 from the southeast.

- Traffic moving east along Route 1 was queuing between Ingham Hill Road and Donnelley Road in Old Saybrook during the weekday PM peak. Furthermore, three signals are located within a half mile of each other, and appeared to be uncoordinated.
- A pocket of queuing occurs in downtown Clinton, particularly near Hull Street during the AM and PM peak conditions. Hull Street serves over 200 left turns during the PM peak; thereby reducing the amount of time motorists on Route 1 see a green light. Roadway conditions such as narrow lanes, lack of shoulders, and closely spaced signals may also be a contributing factor to increased delays downtown.
- Several intersections along the corridor are influenced by driveway activity near the intersection. For example, a driveway is located within the intersection of Route 1 and Elm Street. Vehicles enter the intersection beyond the stop bar while traffic on Route 1 is stopped. This occurs at Route 1 and Beach Park Road, where a wide driveway extends along the intersection.
- Lack of pedestrian accommodations cause pedestrians to cross Route 1 where no crosswalks exist – or simply bypass them due to their condition or location.
- Non-recurring congestion delays resulting from traffic incidents along I-95 contribute to overall congestion experienced by users on Route 1.
- Congestion that took place was not solely related to traffic demand (typical and non-recurring). The interaction of dense curb cuts, wide driveways, narrow shoulders, lack of turn lanes, and limited visibility contribute to the operational challenges of Route 1.
- The 9 Town Transit service vehicles serve Route 1 and stop whenever a rider requests as an on-demand service. There are no flashing lights on the vehicles and they stop for riders as needed; therefore, potentially creating abrupt interruptions in traffic flow leading to temporary pockets of congestion.

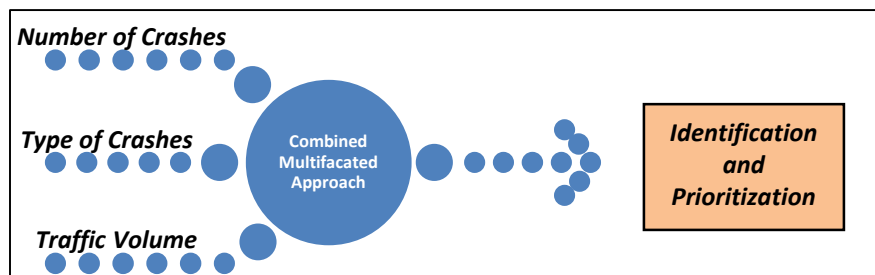
Crash Analysis

A crash analysis was conducted to help understand how road and intersection conditions affect safety. The most recent crash data was obtained from the Connecticut Crash Data Repository (CTCDR) for years 2009 through 2011. The CTCDR is a web-based tool and is comprised of crash data from two separate sources; The Department of Public Safety (DPS) and CTDOT. Because comparing crash data by individual years may distort analysis results, three years of data was analyzed to account for anomalies caused by outside influence such as construction projects. The critical analysis factors identified from CTCDR were:

- Number of Crashes
- Crash Type
- Crash Location
- Traffic Volume

The crash data collected and generated through this assessment were combined to identify and prioritize high crash locations along the corridor. Exhibit 5, shown below, depicts the crash analysis process.

Exhibit 5: Crash Analysis Process



Source: Fitzgerald & Halliday, Inc.

GENERAL CRASH STATISTICS

The crash data obtained from the CTCDR revealed that 650 crashes occurred within the study area over the three year period from 2009 to 2011. The causes of crashes on Route 1 result from a combination of many factors including driver behavior, traffic density, weather and light

conditions, and roadway geometry. Approximately 54% of crashes were the result of rear-end collisions and about 24% involved turning vehicles, indicative of a corridor with a lot of driveways and intersections. Table 5 summarizes the corridor crash types.

Table 5: Route 1 Corridor Crash Summary

Crash Type	Corridor	Percent of Total
Angle	14	2.2%
Backing	15	2.3%
Fixed Object	62	9.5%
Head-on	5	0.8%
Miscellaneous	1	0.2%
Moving Object	3	0.5%
Overturn	4	0.6%
Parking	2	0.3%
Pedestrian	6	0.9%
Rear-end	349	53.7%
Sideswipe	36	5.5%
Turning	153	23.5%
Total	650	100.0%

Source: CTCDR, 2009-2011

Crash Rates

In addition to reviewing the number and type of crashes along the Route 1 corridor, crash rates were calculated which account for segment length, average daily traffic (ADT), timeframe, **and** number of crashes. This method normalizes the data so that individual segments can be compared, regardless of their respective length, volume, or crash statistics. For this reason, rates are better suited to reflect safety deficient locations than number of crashes alone. The individual crash rates by segment are outlined in Table 6. Red highlights represent higher crash rates while orange and yellow highlights represent lower crash rates, respectively.

Crash rates were found to be highest on Route 1 in Clinton and Old Saybrook. The segments with the highest rates do not necessarily have

the highest number of crashes, but rather high concentrations of accidents relative to traffic volume and segment length. For this reason, crash rates provide a tool for use in prioritizing locations for system improvements. *Figure 11* illustrates the corridor crash rates and total crashes over three years for the Route 1 corridor.

The crash rates identified in this analysis were calculated using industry standard methodologies; therefore, they may be used in pursuit of Highway Safety Funds through the Federal Highway Administration (FHWA). While the State of Connecticut does not set thresholds for crash rates, the areas along the Route 1 corridor highlighted in red warrant the most immediate attention.

Table 6: Crash Rates

Segment From/To	Town	3-Year Crash Total	Segment Length (ft)	2011 ADT*	Length (mi)	Crash Rate ¹
River to Grove Street	Clinton	45	3,900	10,000	0.74	5.56
Grove Street to Liberty Park Center	Clinton	82	4,339	10,000	0.82	9.11
Liberty Park Center to Beach Park Road	Clinton	39	2,463	10,000	0.47	7.64
Beach Park Road to Clinton Town Line	Clinton	52	6,600	10,000	1.25	3.80
Westbrook Town Line to Eckford Avenue	Westbrook	32	7,698	8,100	1.46	2.47
Eckford Avenue to Westbrook Heights	Westbrook	60	6,164	8,100	1.17	5.79
Westbrook Heights to Westbrook Town Line	Westbrook	30	6,831	8,100	1.29	2.61
Old Saybrook Town Line to Center Road	Old Saybrook	32	3,064	16,000	0.58	3.15
Center Road to Ledge Rd	Old Saybrook	101	7,437	16,000	1.41	4.09
Ledge Road to Mill Rock Road	Old Saybrook	134	5,724	16,000	1.08	7.05
Mill Rock Road to I-95 Interchange	Old Saybrook	43	5,129	16,000	0.97	2.53
Route 1 Corridor		650	59,350	11,664	11.24	4.53

¹Crash Rate = Crash Count x Million Miles Traveled / Exposure

Where Exposure = Average Daily Traffic x 365 x 3 x length of segment

*ADT obtained from the CTCDR and averaged by town over three years.

FIGURE 11-1: ROUTE 1 CRASH FREQUENCY (2009 - 2011) - Clinton



Source: Crash rate data: Connecticut Crash Data Repository (CTCD), 2009 - 2011

FIGURE 11-2: ROUTE 1 CRASH FREQUENCY (2009 - 2011) - Westbrook



Source: Crash rate data: Connecticut Crash Data Repository (CTCD), 2009 - 2011

FIGURE 11-3: ROUTE 1 CRASH FREQUENCY (2009 - 2011) - Old Saybrook



Source: Crash rate data: Connecticut Crash Data Repository (CTCD), 2009 - 2011

Crash Observations

Crash statistics provide a tool for identifying and prioritizing locations on Route 1 and will help set the stage moving forward for a more in-depth discussion of safety issues and opportunities.

- Over a three year period, 650 crashes were recorded, or approximately four crashes per week somewhere along the corridor. In general, the causes of crashes on Route 1 stem from a combination of many factors including driver behavior, a mix of local and through traffic, weather and light conditions, and roadway geometry – narrow shoulders, poor visibility, dense curb cuts, and lack of dedicated turning lanes.
- When incidents occur on I-95, traffic diverts to Route 1 and non-recurring congestion can reach high levels, which is exacerbated by introducing delayed drivers unfamiliar to Route 1's characteristics. While the number of crashes that have occurred on Route 1 as a result of traffic diverting from I-95 is not known, it is likely to be a contributing factor.
- In Clinton, Route 1 is characterized by high driveway density and above standard driveway widths, particularly near Beach Park Road and Route 145. This section of Route 1 has a lot of turning vehicles in the traffic stream and may contribute to the high percentage of rear-ends when compared against corridor averages. Furthermore, posted speed limits on Route 1 range from 25 mph in downtown Clinton to 45 mph entering Westbrook, while the roadway character remains fairly consistent.
- Route 1 follows a curvilinear alignment in downtown Westbrook and limited sight distance may be a leading factor in the high concentration of crashes relative to traffic volume near downtown.
- In Old Saybrook, congestion occurs along Route 1 near the Old Saybrook High School. Crash data in this area has indicated a high percentage of rear-end collisions, likely associated with inexperienced drivers (new high-school aged drivers), sight distance challenges, and poor roadway geometry.

- Crash data on Route 1 east of Main Street in Old Saybrook documented several head-on collisions and incidents involving pedestrians. The collisions involving pedestrians are likely a result of increased pedestrian traffic generated by the nearby train station, which is exacerbated by deficient pedestrian accommodations at intersections such as crosswalks or pedestrian signals.
- In Old Saybrook, side-swipe collision types are prevalent west of Main Street. These types of collisions are generally a result of lane changes, as a driver may aggressively attempt a last minute lane change to access an abutting land use or maneuver past a slowing or stopped vehicle.
- Left-turns from cross streets, particularly across 4-lane sections in Old Saybrook, are problematic for drivers on Route 1 by limited the number of gaps – space between vehicles, in traffic flow. This is exacerbated by traffic demand that remains high throughout the day.

D. Bicyclist and Pedestrian Environment

INTRODUCTION

Much of Route 1 in the study area has been designed to prioritize the automobile and the emphasis on a singular mode of transportation has largely contributed to the issues regarding safety, congestion, and accessibility along the corridor today. This auto-oriented approach has simultaneously created an environment along the corridor that generally neglects to provide or maintain sufficient facilities for alternative modes of transportation, such as biking and walking.

While these conditions cause much of the corridor within the study area to be intimidating and discouraging for bicyclists and pedestrians today, a significant amount of potential does exist. There has been a growing recognition not only across the state, but across the nation that the key to designing efficient, sustainable, and safe transportation systems is to incorporate multiple modes that are accessible and convenient for all users.

The creation of such a comprehensive pedestrian and bicyclist network is very much in line with the goals and visions as described in all the most recently updated plans for Clinton, Westbrook, and Old Saybrook as well the goals of this Plan. Specifically, a comprehensive, multi-modal network would benefit the communities in these towns in the following ways:

Enhanced Mobility and Safety for All Modes of Transportation

The introduction of alternative modes of transportation would take some motorists off the corridor, thereby reducing congestion. And many of the facilities necessary for a successful pedestrian and bicyclist network would simultaneously serve to slow traffic and improve safety. For example, the introduction of bike lanes would provide a safe space for bikers while signaling to drivers the need to drive more cautiously. Improved and consistent shoulders for biking would also provide space for transit buses to more safely stop at undesignated bus stops (for demand-responsive service) and would provide room for vehicles to move out of the travel lane when emergency response vehicles are on a call. These two issues were highlighted during technical input meetings in all three towns.

Preserve Community Character & Heritage

There is a strong desire to retain the existing character and charm of these three coastal towns that is valued strongly by residents and tourists alike. The creation and enhancement of facilities for bicyclists and pedestrians would allow for opportunities to celebrate the elements that currently define the community while preserving the small-town character that exists today.

Stimulate Economic Activity

By attracting more people to the corridor, Route 1 would no longer be simply a corridor to travel on but a destination to travel to, thereby sparking the potential for increased economic vitality for the community. And places which clearly demonstrate a high level of community pride and vibrancy are much more likely to both be economically strong and to attract tourists. Additionally, the

infrastructure that would be required to create and enhance such a multi-modal environment can be designed so as to achieve the maximum benefit for their cost.

Environmentally Sensitive Design

Even a small shift from vehicles to walking or biking can help reduce congestion along the corridor and lead to a reduction in the levels of pollution and greenhouse gas emissions within the study area. Additionally, the encouragement of walking and biking would also promote an energy efficient means of travel.

Improve Quality of Life and Strengthen Community Ties

Facilitating biking and walking would promote a healthier lifestyle and allow people to spend more time enjoying recreational activities. Additionally, increased accessibility and enhanced pedestrian amenities would make the areas along Route 1 more attractive gathering places for the community. An integrated, multi-modal network would further strengthen community ties by creating connections within and between neighborhoods as well as to the Town Centers along Route 1. This community pride and activity is essential to not only preserving the character that makes these places so unique, but celebrating it in order to revitalize the areas along the corridor.

It is for all these reasons that all three towns have noted the need to address the overall lack of pedestrian and bicyclist facilities along the corridor. Additionally, an enhanced multi-modal network would allow these towns to establish key connections with the surrounding area and region. One such opportunity already exists in the Shoreline Greenway Trail, a nonprofit organization committed to the creation of a multi-use, continuous trail from the New Haven harbor to the Hammonasset Beach State Park in Madison. The organizations' stated mission is to "...enhance the livability of each town, and help improve the well-being of people of all ages who love the outdoors..." While much of the trail is still in development, the areas in Madison closest to Clinton have been constructed and are already open to the public. The close proximity of this existing infrastructure in addition to the shared goals and vision present the opportunity to partner with the organization and extend the

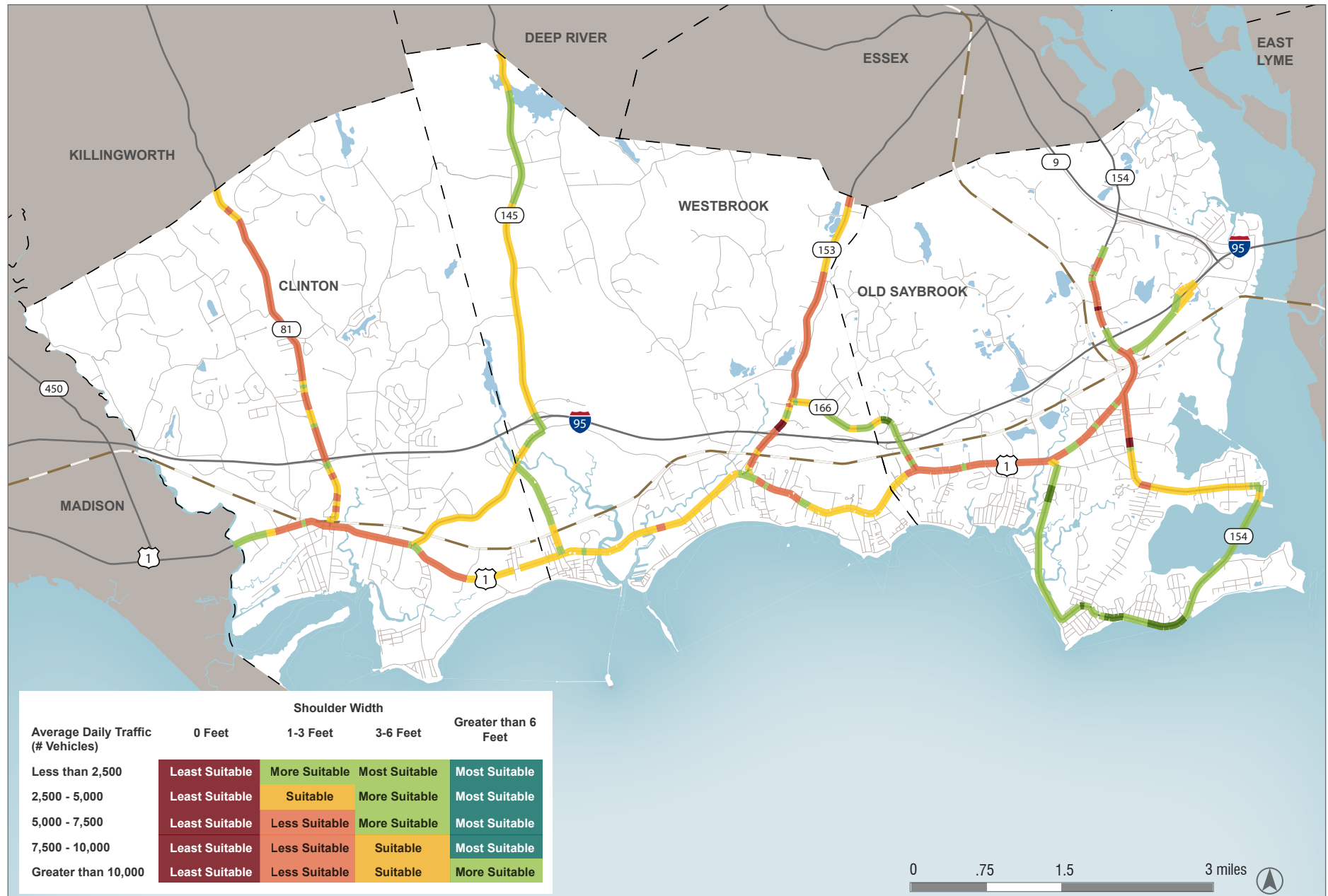
Shoreline Greenway Trail through Old Saybrook. The trail would create a valuable asset for pedestrians and bicyclists within the community and establish strong connections between the three towns in this study as well as four more towns to the west along the shoreline. Additional opportunities to encourage the creation of a strong, multi-modal network can be seen throughout the corridor today.

BICYCLING FACILITIES

While there are currently no separated bike routes, signage, or facilities for bicyclists along Route 1, this mode of transportation has the potential to be well utilized in the study area. Currently, the bicycle environment is less than ideal and characterized by inconsistent shoulders, numerous intersecting roadways and driveways, consistent streams of traffic that sometimes travels at high speeds, and a lack of “share the road” signage or other means that would alert drivers of the potential to encounter a bicyclist. A bicyclist network would be particularly beneficial to the community during the summer season, when the influx of vacationers leads to a surge in the population and more activity along the roadways. Additionally, the climate at that time of year would be well suited for such a transportation choice and the community would have the opportunity to lead more active and healthy lifestyles.

Route 1 is also an ideal corridor to create a friendlier environment for bicyclists because much of the necessary infrastructure already exists. As illustrated in *Figure 12*, approximately half of the corridor in the study area has been deemed to be suitable or better according to the CTDOT’s bicycle suitability system. This system calculates how suitable a road is for bicyclists according to the average shoulder width in which cyclists can ride and the average daily motorist traffic. While no areas along Route 1 were deemed ‘least suitable,’ it should be noted that there are many areas that were categorized as “less suitable.” Since any successful bicyclist network depends on connectivity, it will be important to address the challenges causing these areas of the road to be less suitable.

FIGURE 12: BIKABILITY INDEX



Source: Bikability Index Data - Connecticut Statewide Bicycle Map Website sponsored by CTDOT, 2009.

In spite of these challenges, Route 1 has consistently been recognized for its potential to create strong links between communities and the region through the creation of a bicyclist transportation network. For example, it is identified as the only area to receive the highest funding priority with regards to potential pedestrian/ bicyclist priority funding areas in Westbrook. This funding would provide improvements such as on-road bike lanes, off-road bike paths, sharrows, and/ or 'share-the-road' signs. Additionally, it has been identified by CTDOT as a Cross State Route, which means it is a suggested route on which cyclists can cross the state in order to better connect the region. In fact, Route 1 could fill an existing gap in Connecticut's Regional Bicyclists Routes. As shown in *Figure 13*, the majority of the Regional Bicyclist Routes are North-South so Route 1 could serve a significant need as an official East-West route for bicyclists.

FIGURE 13: CROSS STATE ROUTES & REGIONAL BIKE ROUTES



Source: Biking Route Data - Connecticut Statewide Bicycle Map Website sponsored by CTDOT, 2009.

PEDESTRIAN FACILITIES

Key Elements

The pedestrian realm is lacking in a majority of places along the corridor, thus creating a largely unwelcoming environment to those on foot. While there are many factors that have contributed to the development of this environment, five key elements have been identified for the significant role they play in defining the pedestrian realm today. These elements have been used to frame the evaluation of the existing pedestrian environment and a brief description of each and how it relates to our study area is described below.

1. Sidewalk Quantity and Quality

Sidewalks are vital in any pedestrian environment as they play not only a key role in delineating a safe zone for the pedestrian to walk between destinations, but also in the creation of a sense of vibrancy. Sidewalks are a space where those within the community can easily come into contact with another, thereby enlivening the streetscape overall.

While the existence of sidewalks is lacking along much of Route 1, it is important to note that some areas along the corridor do not contain any destinations that would attract pedestrian traffic while there are other areas with no sidewalks in spite of demand or where there are frequent gaps within the sidewalk network. While the majority of the sidewalks that do exist are in good condition like those highlighted in *Figure 14-1*, one-third are in average or poor condition due to minimal or lack of maintenance. In order for the existing sidewalks to effectively serve pedestrians and provide walkable, safe pathways between destinations, they must be of sufficient quality and well maintained.

FIGURE 14-1 THROUGH 14-7: ASSETS FOR THE PEDESTRIAN ENVIRONMENT



2. Pedestrian-Oriented Built Environment

Sidewalks often work directly with pedestrian-oriented buildings in order to create a vibrant and active street life. A pedestrian-oriented built environment is one which has been designed at a human scale and in which the pedestrians feel a sense of connectivity with these surroundings. Elements such as building massing, building setback, parking placement, ground floor uses, and architectural qualities can all be designed to encourage a pedestrian environment.

As previously stated, the majority of Route 1 has been designed to prioritize the automobile and as a result, much of the development along the corridor has also been designed to be auto-oriented. One clear example is the lack of pedestrian-friendly liner buildings, which usually contribute to an interesting and lively streetscape while allowing for a direct connection with pedestrians. Alternatively, buildings with a large setback, such as those illustrated in *Figure 15-2*, inhibit engagement with the pedestrian. These large setbacks are often utilized to place parking in front of the building, further heightening the degree to which the built environment is oriented towards the automobile as opposed to the pedestrian. Furthermore, surface parking lots create a vast, unapproachable space along the streetscape that severely devalues attempts at placemaking.

Maximum and minimum setback requirements within towns' zoning codes are one tool through which towns can control the distance between a building and the public realm. But upon examination of the zoning codes along Route 1 within the study area, the average minimum setback is 27' and the majority of areas have no maximum setback. This creates a wide gap between the pedestrian and the built environment, decreasing the convenience of walking between such establishments and any feeling of security or enclosure that might have otherwise existed. Additionally, parking is placed at the front of the building for the vast majority of the buildings along the corridor, such as those highlighted in *Figure 15-1*, which discourages pedestrian accessibility.

FIGURE 15-1 THROUGH 15-3: OBSTACLES TO THE PEDESTRIAN ENVIRONMENT



3. Pedestrian Amenities

Pedestrian amenities present another opportunity for the surrounding area to express their character and heritage through the design of such amenities, which include things such as signage and signalization, pedestrian seating, lighting, landscape plantings, and utilities. These amenities should support a variety of activities in order to create a high quality pedestrian environment that can attract people to the street as a pathway and as a destination. Pedestrian amenities can also be utilized to establish a sense of continuity through the network overall. Within the study area, pedestrian amenities are generally clustered within the Town Centers along Route 1, as shown in Westbrook's Town Green in *Figure 14-2*, with few such amenities in the areas in between.

4. Continuous Pedestrian Network

A walkable environment is dependent on not just the presence of sporadic pedestrian facilities and streetscape design elements, but on the *continuous* presence of these elements. The pedestrian network should provide its users with continuous pathways by which to conveniently connect to various key destinations, and this consistency is critical in creating a smooth flow of pedestrian movement. Additionally, the repetition of these elements along the pedestrian network allow for a uniform appearance that will help to establish this area as a pedestrian friendly environment. There is also an opportunity to uniquely design these repeating facilities in a way that imbues the surrounding area's character and creates a sense of place.

In the areas along Route 1 where pedestrian facilities do exist, there is often a high level of inconsistency in their presence and quality, which leads to gaps in the overall network and make it difficult for users to navigate. For example, *Figure 15-2* demonstrates how some sidewalks along the corridor end suddenly, leaving the pedestrian with no way to safely continue along their path and disrupting the network.

Driveways are another element that cause breaks in the pedestrian network and there are a significant number of them along Route 1 that are spaced fairly unevenly, leaving certain areas of the sidewalk extremely disjointed. This is problematic because the number of

vehicle-pedestrian conflicts increases with the number of driveways. And although pedestrians legally have the right-of-way when crossing private driveways, this is not well known or observed and pedestrians and motorists often become confused at driveway crossings, increasing the likelihood of a conflict.

5. Pedestrian Safety

While listed last, safety is one of the most important elements that make for a pedestrian-friendly environment. Various types of crosswalks are one of the most commonly used tools to increase pedestrian safety. These types include traditional white painted crossings, crossings that utilize specialized paving, or crossings that clearly mark the entire intersection using white stripes. Another element often utilized is signalized crossings which more formally regulate the interactions between the pedestrian and the motorist.

About a third of the intersections along Route 1 include crosswalks or signalized crosswalks. While many of these crosswalks are located in areas with higher levels of pedestrian traffic, there were a total of seven crashes involving pedestrians between 2009 and 2011, many of which were in those high pedestrian traffic areas. This indicates that pedestrian safety is an issue along the corridor. In addition to the real danger that exists, many potential pedestrians can be intimidated by the perceived danger along the corridor and choose not to walk. For example, many pedestrian are intimidated by the wide intersections like the example shown in *Figure 15-3*, regardless of whether or not there are crosswalks. The areas of perceived fear and those that present a real danger both need to be addressed in order to create a sense of comfort and safety for pedestrians.

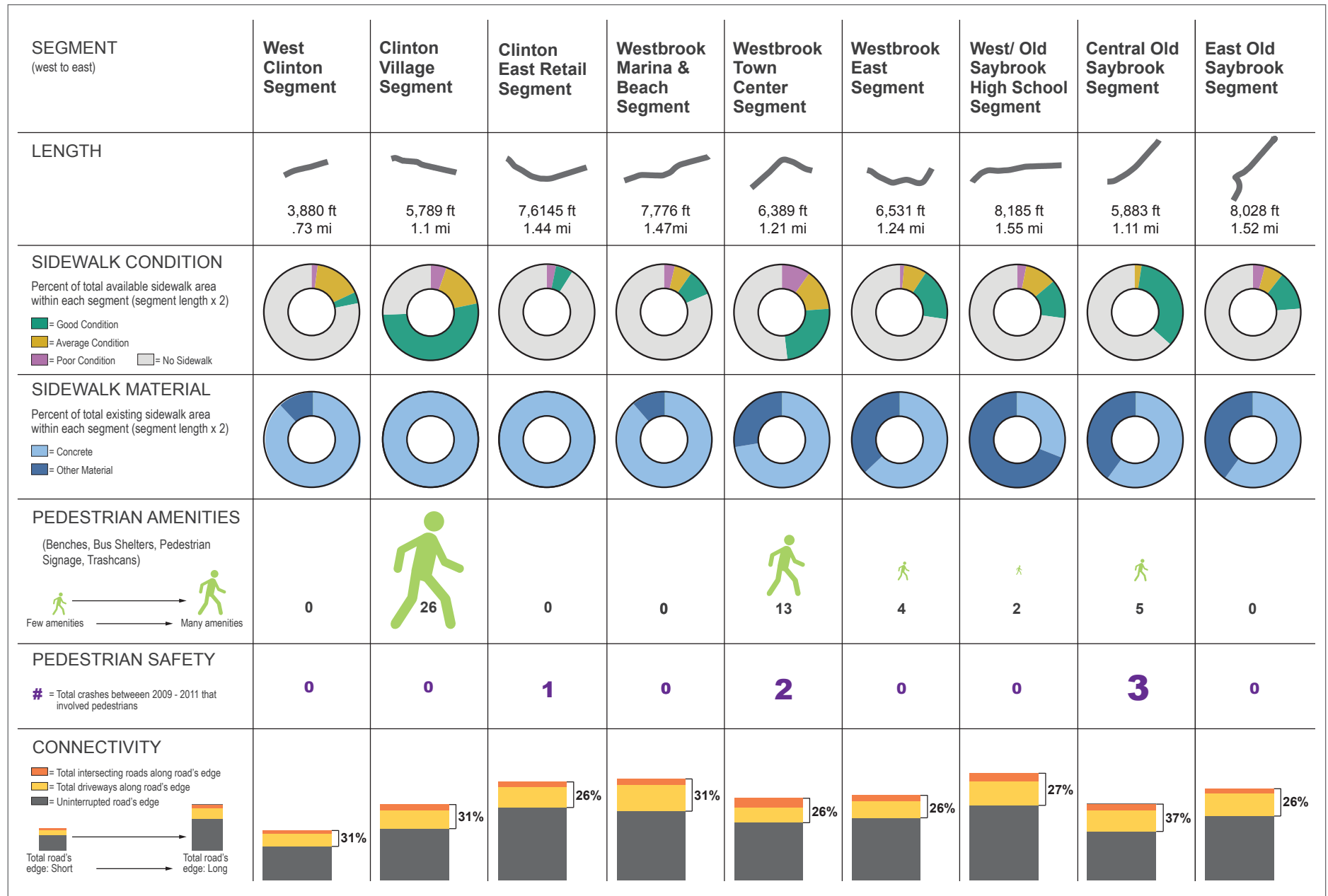
Segments

When examining the pedestrian realm along the corridor it's important to note the connection between land use and pedestrian activity. While there are some areas with land use patterns and destinations that generate high levels of pedestrian activity or have the potential to do so in the future, there are also areas where land use patterns do not create any significant pedestrian demand.

In accordance with the relationship between land use and the pedestrian realm, this section will be organized according to the nine segments of the corridor described in the Introduction of this report. Additionally, the pedestrian environment is best evaluated at the segment's smaller scale in order to identify key features.

A Bicycle-Pedestrian Field Inventory was conducted for this study to identify the location and condition of sidewalks as well as the location of pedestrian amenities, crosswalks, and driveways. Pedestrian amenities were defined as street furnishings (such as benches, trash cans, and bus shelters) and pedestrian signage. The below discussion and the Pedestrian Environment (PE) Matrix, as shown in *Figure 16*, has been based upon the data collected during this field and its subsequent analysis. More information can be found in *Appendix #*, which contains detailed maps illustrating the fieldwork results and a thorough explanation of how the data was then quantified and analyzed.

FIGURE 16: PEDESTRIAN ENVIRONMENT (PE) MATRIX



Source: Fitzgerald & Halliday, Inc.

West Clinton Segment

This segment of the corridor is one which should act as a gateway into the town of Clinton from the west, from Madison and the Hammonasset Beach Connector. It should welcome home residents and present a positive first impression for new visitors of the town. While a strong pedestrian environment can create the type of vibrant street environment that would leave such an impression, the area has very little pedestrian accommodations or amenities. As illustrated in the PE Matrix, there are sidewalks along only about 20% of the road's edge in this area. The lack of a pedestrian environment as one approaches Clinton from the west creates an unwelcoming and slightly intimidating environment not only to those on foot, but also to motorists since there is no indication that you are about to enter the Town Center. There are few key attraction points in this area so there might not be a high demand for pedestrian facilities along this segment until you are closer to the approach to the Town Center.

Clinton Town Center Segment

Unlike the western approach to the town of Clinton, the Clinton Town Center District is a highly walkable with a very comfortable and friendly pedestrian environment. The segment includes almost 6 pedestrian amenities for every ¼ of a mile, which is more than any other segment along the entire study corridor. The PE Matrix emphasizes the fact that the segment which had the next highest number of pedestrian amenities was Route 1 East/ Westbrook Town Green with 1.73 pedestrian amenities for every ¼ mile.

The high prevalence of pedestrian amenities allows for continuity in the pedestrian network which is rare along much of Route 1. This continuity is further enforced by the fact that sidewalk exists along almost 75% of the road's edge, the large majority of which is in good condition. Another element which makes this segment especially unique within the study area is that this is the only place where the majority of the built environment along the corridor is pedestrian-oriented with liner buildings and parking placed in the rear of the lot. While there are a few other blocks where this occurs along the corridor, there is no other place where the sidewalk and the built environment work together to

create such a comfortable sense of enclosure as well as a keen sense of place, as the photographs depicted below.

As its name suggests, this segment largely exists within Clinton's Town Center, which includes a traditional downtown shopping area, the train station, and many of the town's civic activities. This explains the very comfortable pedestrian environment along this segment, which is necessary because of the large amount of foot traffic along with the high volume of automobiles that travels along this segment. The Town has ensured that these two modes coincide safely with one another by investing in infrastructure such as painted crosswalks and signalized crosswalks. So while there has been a fairly high frequency of small crashes within the segment, there have been none involving a pedestrian.

Clinton East Retail Segment

It's immediately clear from the PE Matrix that similar to the first segment in Clinton, this third and final segment has very limited pedestrian facilities. Less than 20% of its intersections have crosswalks, and only 9% of the road's edge contains sidewalks. The pedestrian environment within this segment is highly intimidating and threatening and the built environment is oriented to the automobile. For example, although there are two main shopping plazas, they have been designed with minimal architectural detail and have large setbacks with parking lots lining the right-of-way.

The differences between these three segments highlights a challenge described in Clinton's Master Plan, which is that the construction of the sidewalks in town has occurred without providing a more complete network for all of Route 1 in Clinton. However, the quality of the pedestrian network in the Clinton Town Center provides a great opportunity to continue to build the network and design stronger transitions and gateways from both directions.

Westbrook Marina and Beach Segment

This segment serves as a key gateway into the Westbrook Town Center and contains many boating businesses, recreational boating marinas,

restaurants, and beach communities. While Westbrook has a proactive sidewalk program and a strong desire to improve walkability in town, the pedestrian environment is currently poor as this segment is representative of the original auto-centric design of the corridor. There are no pedestrian facilities as defined by the survey work and over 80% of the road's edge lacks sidewalks of any kind.

The sidewalks that do exist are sporadically located in bits and pieces as opposed to along a continuous network. Yet there are also many key areas and attractions, such as the marina and beaches, which could attract significant foot traffic. The growing desire to walk between destinations in this segment can already be seen in clues such as worn pathways in grassed areas and indicate the strong pedestrian demand that already exists in areas lacking facilities.

Westbrook Town Center Segment

This segment includes Westbrook's Town Center as well as the sections leading into and out of this activity node. One central feature of the Town Center is the town green, which is a triangular, landscaped area located between Route 1 and Essex Street. This area is extremely pedestrian friendly as it creates a welcoming public space that attracts pedestrians on a day-to-day basis as well for community gatherings and celebrations, such as the Annual Christmas Tree Lighting in December, craft fairs, and regular concerts in the summer. The landscaping elements and the flexible nature of the space significantly contribute to its success as a focal point of this walkable area for the community.

While this area does present a strong pedestrian environment and crosswalks exist at almost half of the intersections, as illustrated in the PE Matrix, there is an issue of safety that is evident in the two auto accidents that involved pedestrians between 2009 and 2011. Recent reconstruction of the roadway and parking configuration around the green, including crosswalk locations, have resulted in some concerns for pedestrian safety crossing Route 1 to the green and at the intersection of Old Clinton Road. Efforts are underway to address these issues, including a recent Safe Routes to School study supports efforts to enhance the sidewalk network so children can safely walk and bike to

and from school, such as the Daisy Ingraham School which is located just to the east of the town green. Overall, the pedestrian environment in this corridor is one with a significant amount of potential, many drivers of pedestrian traffic and an adequate amount of facilities already in place.

Westbrook East Segment

As one travels along this segment and towards the boundary between Westbrook and Old Saybrook, the pedestrian environment begins to deteriorate. The similarities between this segment and the Westbrook Marina and Beach Segment are highlighted in the PE Matrix as the majority of the road's edge in this segment also lacks sidewalks and there are no pedestrian facilities. One key difference, though, is that this segment is mainly comprised of neighborhoods and there are not as many drivers of foot traffic. While the demand for improvements in the pedestrian environment isn't quite as strong in this segment, the gaps in the sidewalk network should still be addressed in order to truly create a continuous pathway for those on foot.

Improvements in the pedestrian environment are evolving over time as Westbrook requires all new developments to provide sidewalks within the site and along road frontages. Additionally, the town has developed a number of potential sidewalk standards. These standards include sidewalks along Route 1 on both sides at a width of at least five feet, with wider sidewalks in areas with expected increased pedestrian activity.

West/ Old Saybrook High School Segment

This district is the western portion of Route 1 in Old Saybrook and it contains the Town's high school, the Town Center Plaza shopping center, and the Oyster River shopping center. While the majority of this segment is located in a "Pedestrian Node" according to its definition in Section 9 of Old Saybrook's Zoning Regulations, the current pedestrian environment is lacking. Pedestrian nodes have been identified by the town as any portion of land lying within the business districts and within 1500' lineal feet of the following intersections with Route 1: Oyster River, North Main Street, Spencer Plain Road, and School House Road.

The existing facilities in this segment currently do not support a strong pedestrian-friendly environment, as emphasized by the PE Matrix Sidewalks cover slightly under a third of the road's edge, and there are minimal pedestrian amenities and crosswalks. Additionally, much of the built environment is very oriented to the automobile with large areas of parking in front of the buildings.

Central Old Saybrook Segment

This segment includes a wide variety of retail and service businesses, some larger shopping plazas, as well as the main intersection that provides access to the Old Saybrook train station (on North Main Street) and the vibrant village center on Main Street. These uses create a significant amount of both pedestrian and automobile traffic, and therefore create the need to manage conflicts between the two modes to ensure safety. The number of driveways along this segment further increases these potential conflicts as the segment has the highest number of curb cuts created by driveways and roadway intersections within the study corridor. Driveways are spaced closely with an average distance of under 100' between driveways. There were three reported crashes involving pedestrians between 2009 and 2011, and this segment of the corridor is considered dangerous for walkers.

Sidewalks currently exist along about a third of the corridor in this segment, however, the Town has proposed to adding sidewalks in almost all the places where none currently exist, as seen in the PE Matrix. Most of sidewalks that do exist are in good condition.

East Old Saybrook Segment

This segment runs from the intersection of North Main Street to that with I-95, which is the primary gateway into Old Saybrook for the many motorists who enter the town via I-95 and from the east and north. This segment has been developed with a prioritization on the automobile with essentially no pedestrian amenities and few intersections with crosswalks. Sidewalks exist along only about ¼ of the road's edge. However, the Town has proposed to add sidewalks along

the majority of the places in this segment where none currently exist. Many of the buildings and uses along this segment are oriented towards motorists who have just pulled off the highway and thus, this area is likely to have less pedestrian demand than other parts of Old Saybrook.

E. Public Transportation System

The three main public transportation services that currently exist along Route 1 are 9 Town Transit, Shore Line East, and Amtrak. These three systems work together to provide a transit system that is highly utilized by the study area's residents with ridership levels that have been experiencing steady growth. This growth is especially important to take into consideration with regards to Route 1 because the transit services all have facilities either adjacent to or in close proximity of the corridor. While 9 Town Transit and Shore Line East both have facilities in all three towns in the study area, Amtrak's Regional line stops only in Old Saybrook. These transit services are a strong transportation resource for the study area for both local and regional travel.

9 TOWN TRANSIT SYSTEM

Overview

9 Town Transit was formed in 1981 by the Estuary Transit District (ETD), which still operates the system today based on the founding mission to provide "local, coordinated public transportation for residents of the area." Originally, service focused solely on the 9 towns within the Connecticut River Estuary Region, which include Clinton, Chester, Deep River, Essex, Killingworth, Lyme, Old Lyme, Old Saybrook, and Westbrook, but limited services have been extended to recently to Haddam and East Haddam under contracts with the towns.

ETD is governed by a Board of Directors comprised of one elected member from each of the 9 towns. The Board sets policy, oversees finances, and appoints both an Executive Director and a Transit Advisory Committee (TAC) through a system by which each Director's vote is weighted according to town population. The Executive Director manages day-to-day operations with the assistance of a professional transit management company. The TAC focuses on improving public

involvement and provides the board with insight from the public's perspective.

The system operates with a \$1.5 million annual budget, which includes funding sources from fare revenue, the Federal Transit Administration (FTA), CTDOT, and the nine member towns. Additionally, ETD receives a Title III grant which allows senior citizens in the area to ride any of the services it operates, including 9 Town Transit, on a donation only basis.

9 Town Transit serves its transit users through two main services: four flexible bus routes and a demand response service, known as Dial-A-Ride, both of which are illustrated in *Figure 17*.

FIGURE 17: TRANSIT SYSTEM MAP



Source:

Services

Buses

Thirteen buses operate along 9 Town Transit's four flexible bus routes, which provide service seven days a week for a fare of \$1.50. These four bus routes offer the services as described below:

Table 7: Transit system – 9 town transit

Bus Route	Connecting Towns	Days of Service	Areas served	Connections and free transfers to:
Shoreline Shuttle	Old Saybrook to Madison	Weekdays & Saturdays	Old Westbrook, Saybrook, Clinton, Madison	New Haven via CT Transit S-Route
Riverside Shuttle	Old Saybrook to Chester	Weekdays	Chester, Deep River, Essex, Old Saybrook	-New Haven via Shoreline East Rail Service
Southeast Shuttle	Old Saybrook to New London	Weekdays	Old Saybrook, Old Lyme, New London	-New Haven via Shoreline East Rail Service -New London/ Norwich via South East Area Transit (SEAT)
Mid-Shore Express	Old Saybrook to Middletown		Middletown, Haddam, Chester, Deep River, Essex, Old Saybrook	-New Haven via Shoreline East Rail Service -Middletown via Middletown Area Transit (MAT) -Hartford via CT Transit Route 55 from Middletown

Source: 9 Town Transit website, <http://www.estuarytransit.org/>

It is important to note that because these buses operate along flexible bus routes, also known as deviated fixed routes, they often deviate from the established route that's illustrated in *Figure 17* to provide service to the surrounding area upon request. This service is offered in order to fill in the gaps within the transportation system, yet it can also often

negatively impact the ability to stay on schedule. This has become increasingly problematic as ridership has continued to grow in recent years, especially along the Old Saybrook to Madison Shoreline Shuttle Route.

DIAL-A-RIDE

Dial-A-Ride is 9 Town Transit's demand response service which provides door-to-door transit service between 6 AM – 6 PM on weekdays a fare of \$3.00 per trip. The service is open to the general public for any trip purpose, although users are required to make a reservation at least one day in advance.

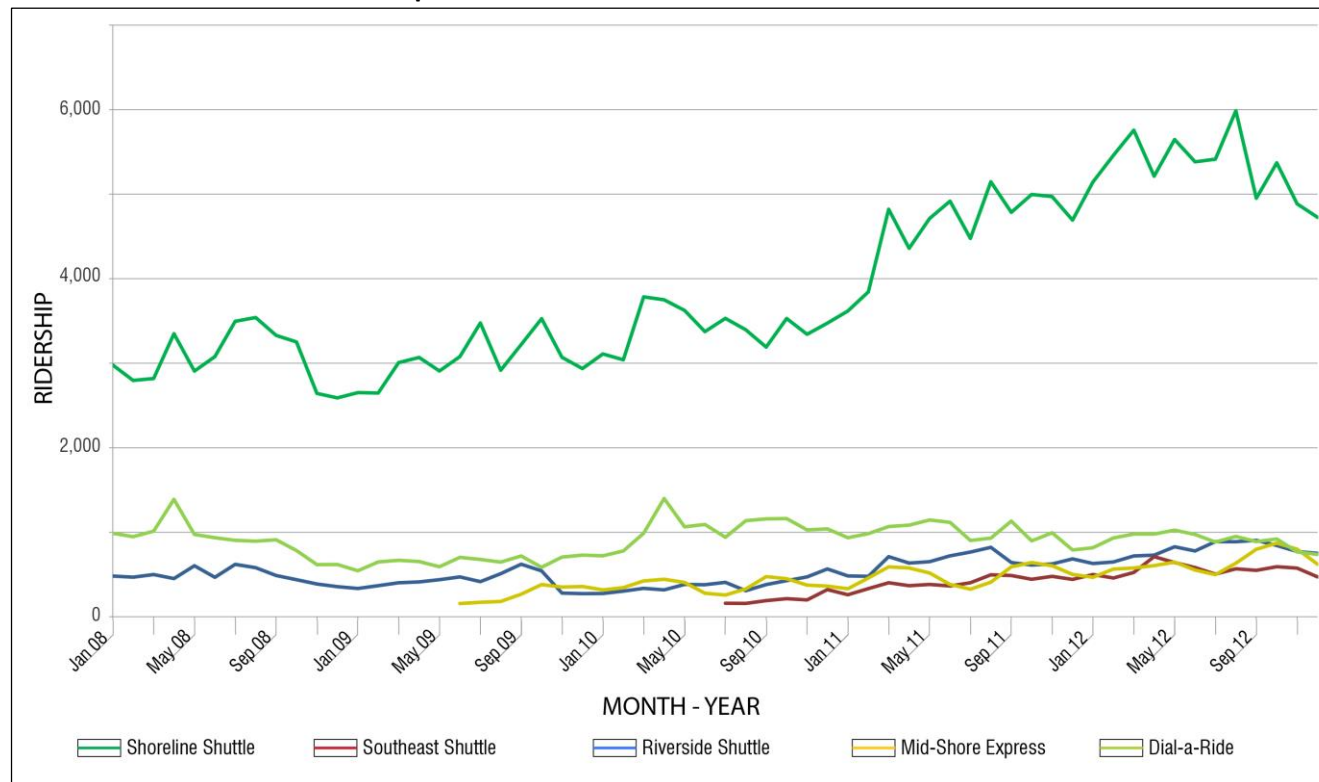
This service is very well utilized and has resulted in 550,000 miles travelled annually. Its primary users are those located in the towns'

rural areas, those with disabilities that require door-to-door service, and those who are travelling to or from somewhere that is not served by one of the bus routes. It is especially useful in further eliminating any gaps that exist in the bus shuttle service.

Existing and Future Trends

9 Town Transit's ridership levels are strong with 100,000 passenger trips made annually, which is a 90% increase since 2009. However, as illustrated in Exhibit 6 below, there are large differences between each of the services' ridership levels.

Exhibit 6: 9 Town Transit Ridership Levels



Source: 9 Town Transit

All the shuttle routes and Dial-A-Ride have actually maintained fairly consistent ridership levels with the exception of the Shoreline Shuttle, which has experienced an enormous increase in its ridership. In fact, its ridership has nearly doubled since January 2008. This is especially significant since the Shoreline Shuttle travels along Route 1 for much of its route, including almost the entire study area. Additionally, one of the most frequently used stations for both boarding and alighting is within the study area at the intersection with S. Main Street in Old Saybrook. It will be important to enhance the transitions that occur in this area between modes and ensure maximum efficiency and safety for all the users of the road.

Today, the majority of those using the Shoreline Shuttle, and all of 9 Town Transit's services, are under 60 years old as the majority of trips were employment related and many people over 60 are no longer in the work force. This trend is consistent with a growing preference among the younger generations for public transit as opposed to automobile ownership.

While it is likely that the younger generation will continue to use 9 Town Transit's services with frequency, it is possible there will also be a surge in ridership among senior citizens as the elderly population across the nation, and in the study corridor, increases. The implications of such an increase should be considered when assessing 9 Town Transit's future growth and public transportation needs of the area's residents.

Because the ridership on the Shoreline Shuttle is expected to grow, it will be important to consider how the service might need to be updated to accommodate additional riders. This could mean changes to the service itself as well as additional and improved facilities, including more buses, increased frequency, and enhanced and additional bus stops.

COMMUTER RAIL – SHORELINE EAST SERVICE

Shoreline East Service (SLE) is a commuter rail service along the Northeast Corridor in Southeastern CT. While it's a fully-owned subsidiary of CTDOT, the National Railroad Passenger Corporation

(Amtrak) operates the service between New London and New Haven seven days a week. Additionally, SLE offers limited service to Bridgeport and Stamford, and provides connections to NYC via Metro-North Railroad's New Haven Line.

SLE ridership has grown considerable over the years and continues to grow, however, it had originally been conceived as a temporary measure to reduce congestion in the area during construction on I-95 in the 1990s. The service quickly became popular and drew large ridership numbers and thus, it was decided to retain the service and to make further investments into the commuter rail stations along the line. Today, the SLE's popularity has continued and it has experienced growing ridership levels since 2004 at an annual rate of approximately 4% without factoring any service expansion, according to CTDOT's Statewide Travel Model. A 2005 survey by CTDOT of SLE riders found that 94% were satisfied with the overall service in the past year on the SLE. The same survey also found that slightly under half of SLE passengers transfer to the New Haven Line in order to continue travelling to New York City, Stamford, or Bridgeport.

Efforts have continually been made to upgrade the service as the SLE's popularity and ridership continued to grow. These efforts were increased in the early 2000s when the State increased its focus on the need for improved mass transportation. As a result of this focus, CTDOT published a report entitled "Expanding Rail Service on Shore Line East" in January of 2007 that identified obstacles to improving SLE service and recommended phases through which to implement improved service. In 2008, Phase One added weekend train service at the six SLE stops from New Haven to Old Saybrook. Phase Two was implemented after funding was secured in July 2012, thereby extending SLE service to New London and satisfying many community members who had strongly advocated for such an extension.

Although the extension of SLE to New London relieved some of the parking demand for the Old Saybrook Shore Line East Railroad Station because it is no longer the final stop for those travelling northbound, Old Saybrook has continued to struggle with parking availability. Many

people still drive to Old Saybrook to park and board the train, especially because the station is the only one in the study area to offer Amtrak service. As a result, there is a significant shortage in parking at the station and a resulting proposed project to expand parking with the addition of a new, 200-space commuter lot on the south side of the railway tracks. While this proposed project is only at the preliminary stages, it has already sparked some controversy within the community due to concerns about traffic impacts. The current parking shortfall, and need for an expanded lot, could likely be relieved if regular SLE service were further extended past New London and should be further investigated.

INTERCITY RAIL - AMTRAK

The train station in Old Saybrook is busy and has heavy parking demand because it is one of the last northbound regular stops on the Shore Line East commuter rail line. It's also very busy because it provides service to Amtrak's Northeast Regional Train. Amtrak's high-speed Acela service does not stop at the station and there are currently no planned changes to these lines that would affect Old Saybrook. However, potential plans related to the Northeast Corridor Future project could impact the station and the rail service. The NEC Future is a planning effort by the Federal Railroad Administration (FRA) that is currently investigating alternatives for more robust high-speed rail service between Washington to Boston. The NEC Future project has the potential to have a long-term impact on the various rail services within the study corridor.

F. Other Transportation Systems

FREIGHT

Route 1 is a major north-south US Highway that extends over 2,300 miles from Key West, Florida, north to the Canadian border in Maine. In Connecticut, Route 1 serves towns and cities as a parallel facility to I-95 making its way along the Long Island Sound. Along with I-95, Route 1 plays an important role in the movement of freight in and out of the region and to the shoreline towns. Route 1 also serves as a bypass to I-

95, if an incident were to occur. Within the study area, Route 1 shares the movement of freight with an active freight rail line. Trucks and rail provide regular service to and from port locations in New Haven and New York City to the south, and New London, Providence, and Boston to the north. While there is no active freight rail loading zone adjacent to the corridor, local and regional truck activity is prevalent. Truck generators along the corridor include the following:

- Commercial development along the corridor
- Industrial warehousing in Westbrook, particularly off Route 145
- Marine activity in Westbrook and Clinton
- Local construction activities

According to recent traffic counts, truck traffic along the Route 1 corridor ranges from 2% to 4% of daily traffic. Another unique aspect of the corridor is the presence of boat trailers, given the corridor's access to multiple marina facilities and marine-related businesses. The marine industry is vital to the local economy and during peak summer periods, the presence of vehicles towing trailers is prevalent.

In general, most trucks or vehicles towing a trailer turning at intersections encroach on either the roadway shoulder or adjacent lanes. For example, the turning path of a truck turning right is controlled by the curb while the path of a truck turning left may be constrained by a median or other traffic lanes. At times, intersections with skewed alignments in the study area may not safely accommodate a five-axle tractor trailer combination. Intersection and driveways should be designed to accommodate the types of vehicles that are primarily expected to access the property (i.e. commercial vehicles and boat trailers). It is important to understand both the everyday large vehicle needs (business deliveries and emergency vehicle access) and the unique design needs associated with the marine industry and boat trailering when considering any geometric modifications to the roadway.

G. Conclusion: Transportation Issues and Opportunities

SUMMARY OF EXISTING TRANSPORTATION CONDITIONS

The Route 1 corridor (including I-95 and the Shoreline east Railroad) is the transportation spine for the southeast region of Connecticut, and as such it must accommodate and continue to plan for a wide array of users with varying trip purposes and travel modes. The Transportation Conditions assessment for the Route 1 Corridor Improvement Plan included a multifaceted approach that consisted of 1) data collection, 2) feedback from the project stakeholders, and 3) analysis of existing conditions documented in detail within this chapter. The stakeholders spoke to a wide range of corridor issues with the goal of establishing an overall vision for the corridor, along with goals and objectives for protecting, promoting, and enhancing the corridor's qualities. Part of the visioning process included identifying existing transportation issues along the Route 1 corridor. The most pressing raised have been summarized below:

- Pockets of routine congestion on Route 1
- Diversion of traffic from I-95 leading to frequent congestion
- Limited connectivity from train stations to Route 1 and other mobility options
- No bike lanes and generally dangerous conditions for bicycle travel
- High speeds along some segments of the corridor
- Frequent driveways that are challenging to pull out of
- Lack of pedestrian accommodations and connectivity along corridor

While the visioning exercise will be used to help the project team determine priorities and an overall vision for the corridor in the future, issues raised help frame the existing transportation characteristics that challenge the corridor. The following section provides a brief summary of the transportation findings detailed in this Chapter, setting the stage for subsequent planning focused on infrastructure modifications to

address deficiencies and enhance efficient and safe travel options and quality of life.

System Gaps and Opportunities

- Traffic demand on Route 1 is heavily influenced by tourism activity during the summer months – May through August. In general, summer traffic levels increase by more than 20 % when compared against non-summer months. While traffic levels vary throughout the year, they fluctuate little throughout the week. Weekday traffic increases steadily over the course of the day until it peaks in the evening hours, as commuter traffic mixes with shopping and other trip purposes to create sustained traffic levels, rather than more typical pronounced spikes during AM and PM peak commuter periods. Weekend traffic patterns mirror the weekday except that higher tourism traffic mixes with shopping and other trip purposes, rather than commuter traffic.
- Overall, the traffic operations analysis indicated signalized intersections manage traffic well during 'typical' summer and non-summer conditions, but there are isolated locations or "pockets" of congestion on Route 1 which was both measured and confirmed by field observations. This congestion is generally limited to the evening hours in downtown Clinton and Old Saybrook at Ingham Hill Road and Main Street intersections, when traffic demand is highest.
- Safety along the Route 1 corridor is a concern, both from a human injury standpoint as well as a contributor to traffic congestion. Over a three-year period, 650 crashes were recorded, or approximately four crashes per week along the corridor. In general, the causes of crashes on Route 1 stem from a combination of many factors including driver behavior, a mix of local and through traffic, weather and light conditions, and roadway geometry – narrow shoulders, poor visibility, and dense curb cuts.

- Route 1 is currently not well suited for bicycle and pedestrian travel. The physical geometry of Route 1, including narrow shoulders and inconsistent sidewalks for much of the corridor. The high volume and speed of motorized vehicles limits non-motorized forms of travel by creating unsafe walking and biking conditions. In addition, numerous driveways are hazardous to pedestrians as well as bicyclists. Deficient pedestrian accommodations cause pedestrians to cross Route 1 where no crosswalks exist – or simply bypass them due to their condition or location.
- While dense and poorly delineated driveways are problematic and can be dangerous for motorized and non-motorized forms of travel, it is clear that certain locations should be designed to accommodate the types of vehicles that are primarily expected to access properties adjacent to route 1. The marine industry is vital to the local economy and during peak summer conditions the presence of vehicles towing boat trailers is prevalent and needs to be safely accommodated.
- A parallel rail line and regional bus system along Route 1 provide passenger service along this busy corridor. National trends as well as ridership growth indicate increasing demand and a need for continued investment in the public transportation system. The aging of the local population, the rising preference for transit among young people, and the increased focus on rail service in the state along with associated higher-density development around stations points to the need to strengthen transit opportunities in the corridor.
- Delays as a result of non-recurring congestion (e.g., traffic incidents, work zones, bad weather, and special events) are a contributing factor to the overall congestion experienced by motorists on Route 1. When incidents occur on I-95, traffic diverts to Route 1 and congestion can reach high levels. The same is true for the frequent accidents reported on Route 1 itself. Furthermore, periodic roadway maintenance – pot holes or tree trimming, adds to congestion because a travel lane typically needs to be closed to accommodate equipment.

CONCLUSIONS AND NEXT STEPS

This Chapter of the Route 1 Corridor Improvement Plan has identified deficiencies in the transportation system, considerate of all travel modes in the corridor, and confirms some of the most pressing issues raised by corridor stakeholders. Through a multifaceted approach, several conclusions about the transportation system in the Route 1 corridor were made. Congestion that occurs is not solely related to Route 1 traffic demand, but often the result of regular traffic diversions by long-distance travelers on I-95. The interaction of dense and wide driveways, narrow shoulders, periodic roadway maintenance, lack of turn lanes at some intersections, and limited visibility all contribute to the operational challenges of Route 1. Considering the number of crashes that have occurred, it is clear that the safety of the corridor should be a key focal point in future planning. Furthermore, while bike facilities are essentially not provided along Route 1, outreach initiatives have concluded latent demand for biking, if such facilities were provided. The same is true for deficient or inconsistent pedestrian accommodations.

The needs of all users must be evaluated in a comprehensive manner, thus preserving the integrity of the roadway, as a local as well as regional transportation asset. In practice, Route 1 is more than an inter-regional highway. It functions as a collector and a local road, depending on the context of the environment in which it serves, and that role will continue to evolve over time. From a transportation perspective, 1) addressing safety concerns 2) integrating and enhancing non-motorized forms of travel in the corridor, and 3) managing non-recurring congestion, will lead to a successful investment strategy to implement infrastructure projects that align with community goals and objectives. Collectively, this assessment sets the stage for the next stage of the study which will explore and recommend transportation improvements within the corridor.

The background of the slide is a stylized landscape. It features a light green sky, a dark green border at the top, and a light blue body of water at the bottom. The water is separated from the land by a white, wavy line representing the shoreline. The land is depicted in a light green color. The text is positioned in the lower right area of the slide, over the water.

III. Existing Land Use, Utilities, and Zoning

III. Existing Land Use, Utilities, and Zoning

A. Overview

The patterns and character of land use within the 3 communities included in the Route 1 Study Corridor have been formed in large part by their relationship to the transportation system. Historically, Old Saybrook, Westbrook and Clinton were oriented to the sea and maritime commerce. That orientation shifted somewhat as the Boston Post Road was established and then the rail line was constructed. Goods and people moved inland along these major travel ways. Finally, as Interstate 95 was completed, high-speed, pass-through traffic, tourism traffic, and seasonal residents became more common. New commercial activity focused on the major interchanges along I-95 in order to serve the auto-oriented consumer. As such, the character of development shifted again.

As a result, the types and mix of land uses along the Route 1 corridor are very diverse. There is a mix of small businesses and homes and institutional uses scattered along the roadway. These include a variety of small-scale ‘mom and pop’ stores, a range of services from boat yards to day spas to small medical and real estate offices, as well as restaurants, specialty goods such as antiques, and some resort tourism. There is also some warehousing and small manufacturing scattered throughout.

There are two cohesive Town Centers along Route 1, one each in Westbrook and Clinton. These serve as the ‘downtown’ where the seat of local government is located. In the case of Old Saybrook, the town center is just southeast of Route 1, intersecting with it at its northern edge.

Along the corridor, most development is at a suburban scale with uses separated on half-acre lots or larger. Buildings are generally one to two stories and of mixed character. Density increases, with smaller lots sizes

within and immediately adjacent to the Town Centers. Yet, in the vicinity of the major interchanges with I-95, a number of franchise businesses, with national retailers have located. This includes a mix of fast-food restaurants, and medium (15,000 s.f.) and big box (100,000 s.f. +) retailers in a suburban shopping plaza format.

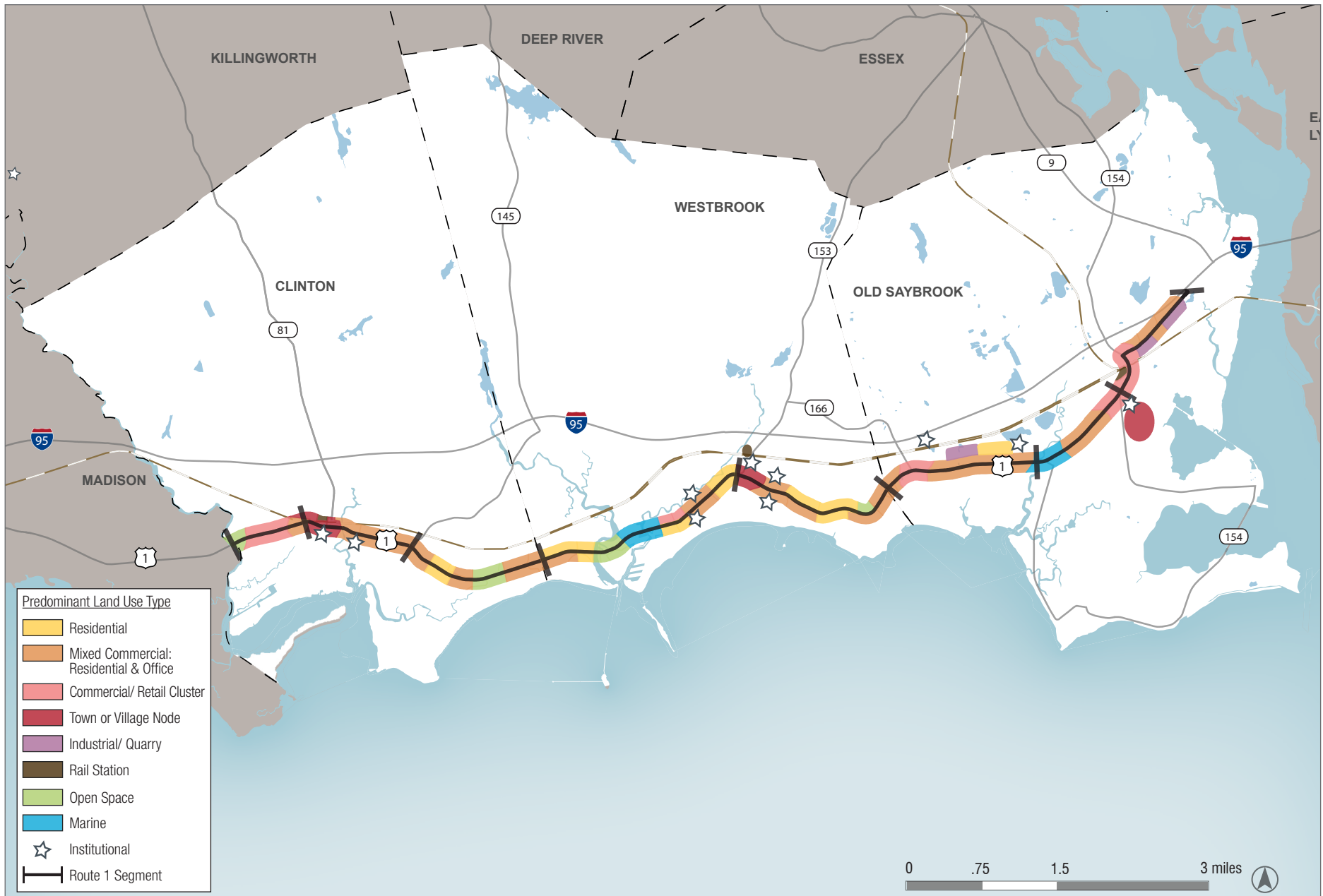
All of this development occurs in a uniquely sensitive coastal environment. Each of the three communities have a vision for their future that includes preserving their natural assets, fostering a vibrant and active shoreline, and encouraging a mix of uses along Route 1 that contributes to the quality of life and character of the community as a whole. Given the disparate pattern of land uses along the corridor that often change abruptly in character from one segment to another, this poses a constraint to achieving the local visions as well as that for the corridor as a whole. There is an inherent challenge to meeting the broad vision for the corridor as articulated in this plan; one of creating a seamless pattern of uses that meets community goals while linking the segments of the corridor and creating a unified, human-scale environment along its length.

A more detailed look at the land use conditions in each segment of the corridor, including opportunities and constraints follows.

B. Existing Land Use

The predominant land use by type in each segment of the corridor is shown in *Figure 18*.

FIGURE 18: EXISTING LAND USE



Source: Fitzgerald and Halliday, Inc, 2014.

A brief summary of the land use patterns from west to east is as follows:

West Clinton Segment

The westernmost segment of the study corridor in Clinton is a diverse array of small to medium scale commercial and light industrial sites. Residences are located on side roads perpendicular to Route 1. The largest single use, which extends along a substantial stretch of Route 1 in this segment, is the Clinton Nurseries on the south side of Route 1.

Clinton Town Center Segment

This segment of the corridor encompasses the Clinton town center. Land uses are predominantly services or retail, many located in former homes. Additionally, many of the structures have a colonial or other historic period character. As this segment travels easterly, it includes the Town Hall, an elementary school, and other civic uses. The rail station is just north of Route 1 in this area. A large vacant industrial site (Unilever) is situated on the northern side of the tracks near the Town Center and is currently under study for redevelopment opportunities.

Clinton East Retail Segment

At its eastern end and immediately east of the Clinton Town Center Segment area is the village district for Clinton. The area is characterized by small-scale retail uses, many in former homes, mixed with single family homes. Abruptly east of this, the corridor becomes a mix of medium- to large-scale commercial with two national supermarket developments; one with several outparcels developing as medium box franchise retailers or restaurants. Then, just as abruptly, the corridor enters an extensive tidal wetland area. The undeveloped wetland area transitions to a residential cluster before becoming predominantly commercial with some small scale warehousing at the town line with Westbrook.

Westbrook Marina and Beach Community Segment

The western edge of this segment is notable for the large mobile home development at the Clinton town line. Traveling eastward, land use along the corridor transitions to a mix of commercial and residential uses of varied scale as it approaches the Stewart B. McKinney Wildlife Refuge and tidal marsh. The area just west of the tidal marsh is again

predominantly residential with single family homes on large lots north of Route 1 and a smaller lot neighborhood residential south of Route 1.

Within and just beyond the tidal marsh, the uses include a mix of commercial sites including many large and small marinas and marina-related uses. This includes the Pilot's Point Marina complex, boat sales, services, and storage which dominates the roadway as Route 1 approaches Eckford Avenue.

Westbrook Town Center Segment

This segment begins at Eckford Avenue. From Eckford Avenue, traveling east, uses remain commercial on the north side of Route 1 and mostly residential south of Route 1. They become predominantly residential where it approaches the Westbrook Town Center. Single family homes on ½ to one acre lots dot the roadway edges between the Town Center and the Town Hall.

The center itself is a mix of small-scale civic, retail, entertainment, and services uses surrounding an active village green. There are several historic structures in the Town Center as well. Travelling eastward from the Town Center, there are a variety of small-scale individual commercial buildings with a mix of uses and including a number of vacant storefronts that form its eastern gateway. This segment then transitions to mostly residential parcels and institutional uses including the Oxford Academy and the Westbrook Public Library.

Westbrook East Segment

This segment of the corridor extends from the intersection of Route 1 with Westbrook Heights to the eastern end at the Old Saybrook Town line. This area is predominantly residential with a number of subdivisions perpendicular to Route 1 having a single access road for traffic into the subdivision. While this pattern continues throughout this area, the Water's Edge resort is also in this segment of the corridor, with related resort businesses between Route 1 and the shoreline.

West/ Old Saybrook High School Segment

This segment of the corridor extends eastward from the Westbrook town line. The western portion of this segment has experienced and

continues to experience big-box commercial growth near Spencer Plains Rd (Route 166) interspersed with some residential subdivisions and scattered small retail sites.

On its eastern end it is dominated by single-family residences and the Old Saybrook High School. There are a few small manufacturing sites in this area as well and a large industrial building with sublets for small manufacturing tenants on Donnelley Road between Route 1 and I-95. Also notable in this segment is the Bushnell Farm, a privately-owned historic farmstead that is accessible to the public.

Central Old Saybrook Segment

The western end of this segment traverses the Oyster Point neighborhood. Commercial uses are present on Route 1 until the tidal area where wetlands have limited the development. Some residential development and recreational marina uses occur right at the Oyster River.

The remaining land uses in this segment of the corridor are predominantly commercial. The commercial uses are principally national retailers and franchise restaurants of varied scale, including three shopping plazas with extensive areas of surface parking. Here, the uses are closer together than in the East Old Saybrook segment (just to the east) with greater intensity of uses created by the shopping plaza destinations. Beyond the immediate roadway corridor lie a number of cohesive residential neighborhoods with mostly single-family homes on ½ acre lots or less. Main Street intersects with Route 1 in this segment and the Town Center or downtown core of Old Saybrook is located along Main Street between Route 1 and the shoreline. The Town Center, just south of Route 1, is a vibrant, dense, mix of businesses, services, entertainment, and town government uses.

East Old Saybrook Segment

The western end of this segment is dominated by the Old Saybrook Train Station, a strip of small to medium retail establishments and the bridge spanning the railroad tracks. The rail station site includes a large, L-shaped, one-story office and retail building. The 'Hollow' residential

neighborhood is tucked in to the landscape on the southeast corner of the sharp turn on Route 1 at Route 154 northeast of the railroad bridge

Traveling eastward along the corridor, this segment is a mix of mostly commercial uses of varied scale separated by surface parking and including auto and boat dealerships. There are also two earth materials processing areas southeast of the corridor in this segment, one of which has a permit (though no activity yet) for processing recycled materials. These industrial sites lie adjacent to the rail line. The far eastern end of study corridor touches upon the Ferry Point neighborhood. This is a predominantly single-family residential neighborhood with recreational marina uses at the shoreline along with some more recent condominium developments. There is long-term vision plan for the area for mixed-use commercial near Exit 69 on I-95 and infill of housing, restaurants, recreation, and retail throughout Ferry Point. The retail development is envisioned to be relatively large scale, such as wholesale clubs and hotels, intended to attract business from the interstate to take advantage of its proximity to I-95.

C. Utilities

There are no public sewerage systems in the Route 1 corridor study area. While the three municipalities explored options for a shared public sewerage system a number of years ago, no consensus on developing one along Route 1 was achieved. All three communities have since maintained a sewer avoidance policy intended, in part, to manage development densities. The communities envision use of small community scale septic systems to meet the needs for infill development to strengthen the village and Town Centers. Large site developers in the corridor have also looked to opportunities for small community septic systems to meet their sewer needs.

The Connecticut Water Company provides public water supply to portions of each of the three towns. The Town of Clinton service area includes all of the properties along and adjacent to Route 1. About 70% of Westbrook is served by the public water system including Route 1. In

Old Saybrook the central public water supply system generally provides service to the area south of I-95 or the railroad.

D. Existing Zoning

As might be expected, each community has a distinct set of zoning districts laid out to meet local long-term development objectives. Consequently, along Route 1 where the municipal boundaries meet, the zoning designations from one community are inconsistent with those in the adjacent community. This fosters the diverse and sometimes disparate mix of uses along the corridor. In order to show this effect, zoning by primary intended land uses was generalized and is shown in *Figure 18*. A recap of the zoning within each municipality from west to east along Route 1 is as follows.

Clinton: The Town of Clinton is currently revisiting its zoning regulations with an eye to updating the districts in key development areas, including Route 1 in particular. The opportunity to coordinate the ongoing re-evaluation of the zoning with the findings of this study will be addressed as part of the outcomes of this study and Route 1 implementation plan.

As of this report's preparation, however, the western end of the Route 1 Corridor in Clinton is zoned for varied business uses including: B-4, B-3, and B-2 reaching to the Town Center which is zoned as a village zone (VZ). There is also a designation on the zoning map for the Clinton Nurseries as B-1 with somewhat more restricted allowable uses than the B-4 district. East of the Village Zone, the corridor in Clinton is zoned residential, B-4, and for industry. The zoning continues to be industrial and B-4 where it meets the Westbrook town line. The immediate adjacent zoning in Westbrook is for a neighborhood commercial district. The notable features of each relevant existing Clinton zoning district are as follows:

- B-2 – Minimum lot size is ¼ acre; intended for offices, retail, and neighborhood scale shopping centers; dwellings (single family) are a Special Exception

- B-3 – Minimum lot size is ¼ acre; same uses as B-2 except hospitals and retirement homes are not permitted; dwellings not permitted
- B-4 – Minimum lot size is ½ acre; same uses as B-2 zone, except large scale shopping centers are permitted; dwellings not permitted
- VZ – The purpose of this zone is to foster future development or redevelopment consistent with the character of the zone defined as at the scale of a small New England village. Development there is guided by a set of design standards. It extends from the Indian River east along Route 1 to the intersection with Route 145.

Westbrook: As noted above, zoning in Westbrook at the town line with Clinton is for NCD or neighborhood commercial. Adjacent to the east is the CB zone which encompasses the marina uses surrounding the inlets of the Menunketsuck and Patchogue Rivers. To the north and east of this is residential zoning extending to the Town Center. At Route 153, Route 1 is zoned as CTC or the Commercial Town Center district. From the Town Center to the town line with Old Saybrook, the Route 1 corridor is again zoned for NCD or neighborhood commercial. This zone is abutted to the north and south by medium- to high-density residential zoning. Where Westbrook meets the Old Saybrook town line, the adjacent zoning in Old Saybrook is for regional businesses that rely on access to I-95. The notable features of each relevant Westbrook zoning district are as follows:

- NCD – The intent of this district to promote a flexible mix of compatible residential and commercial uses that are also compatible with the New England village-scale streetscape; uses that do not generate large volumes of traffic
- CB – This is Westbrook's commercial boating (CB) district. Its primary purpose is to accommodate land development of for water dependent uses and associated accessory uses complementary to waterfront activity including recreational boating services and commercial fishing trades

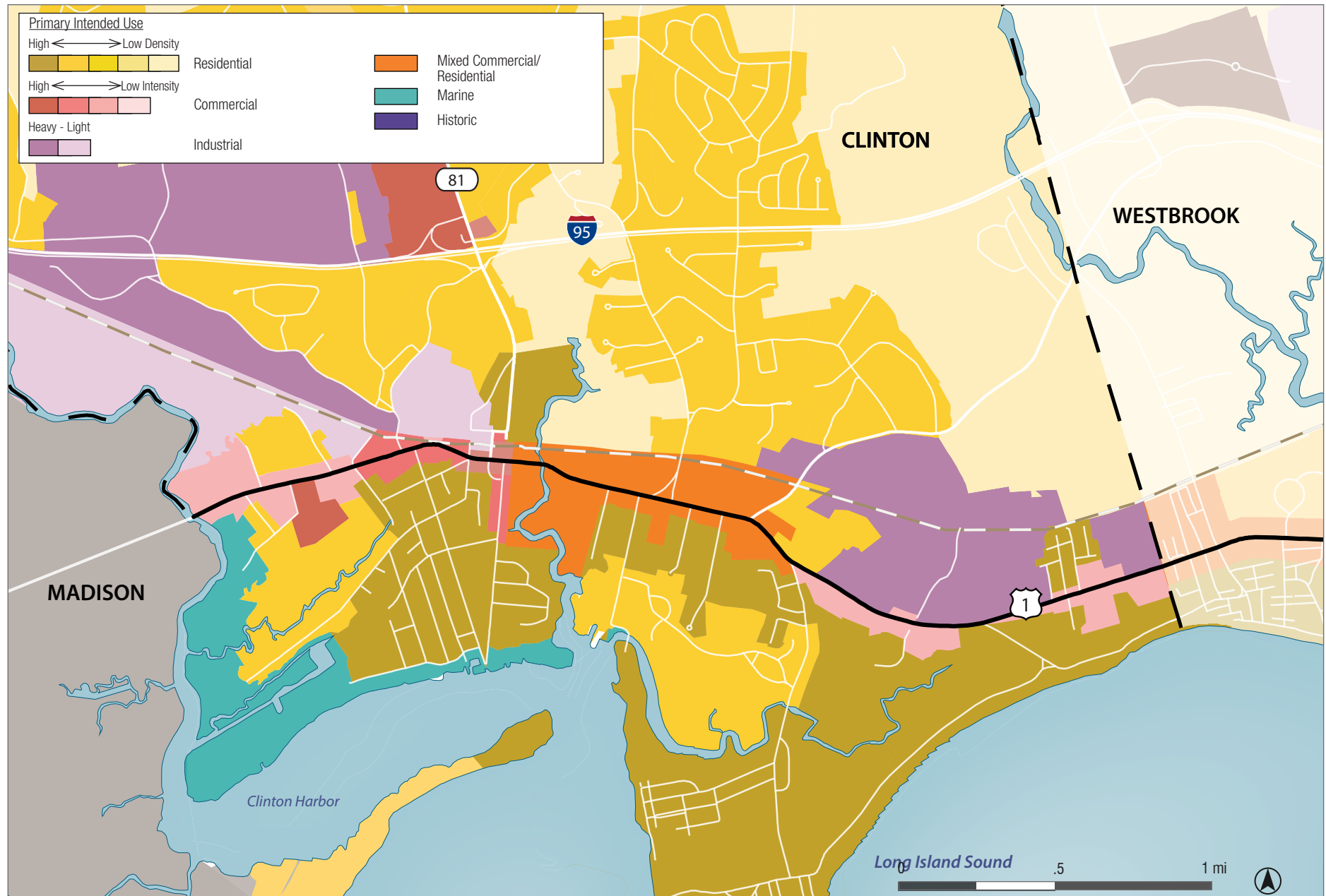
- CTC – Commercial Town Center - provides for the central retail, office, cultural and governmental activities of the community as well as encouraging limited residential use; encourages design which promotes the aesthetic qualities associated with a small New England village.
- MDR and HDR – Medium density residential is defined as one and two family homes on lots of ½ acre or more. The high density residential is defined as primarily for single family homes on 15,000 square foot lots.

Old Saybrook: From the intersection with Route 154 and Main Street westerly, the corridor is zoned primarily for businesses. These zones include:

- B-2 – purpose is to sustain the existing central shopping center areas consisting of anchor retail shopping with small attached complementary stores; buildings with a 10,000 s.f. footprint or less; no dwellings permitted
- B-3 – Restricted Business - transition area from residential to business intended to achieve harmony with the adjacent residential neighborhoods; single family residences, offices, and farms are permitted; restaurants are allowed as a special exception
- B-4 – Gateway Business – Intended for regional businesses that require easy access to major highways; no dwellings permitted

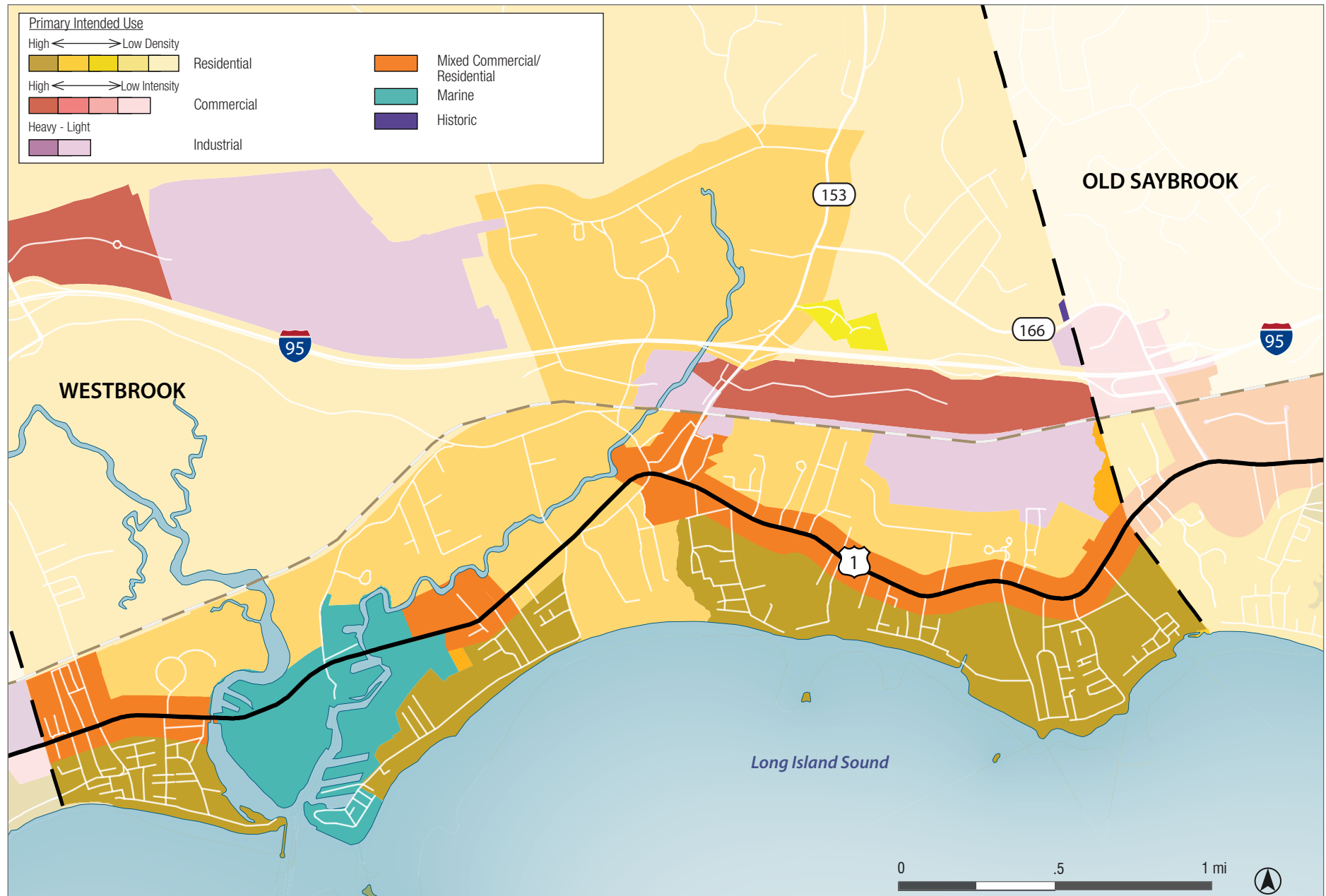
The Route 1 corridor is zoned for industrial and commercial uses at its eastern end in Old Saybrook. The Ferry Point area has, however, been proposed for rezoning to mixed-use to facilitate the implementation of the Mariner's Way vision plan. This plan sees the eastern end of the Route 1 corridor as a mix of hospitality, office, event, high-density multi-family, and retail uses that form a visitor gateway to Old Saybrook. The gateway uses would transition to recreation and tourism uses such as restaurants, festival spaces, and sports complexes. Zoning abutting the commercial and industrial zones all along the corridor in Old Saybrook is for residential uses with one- or two-family homes on ½ to 1 acre lots.

FIGURE 19-1: GENERALIZED ZONING - Clinton



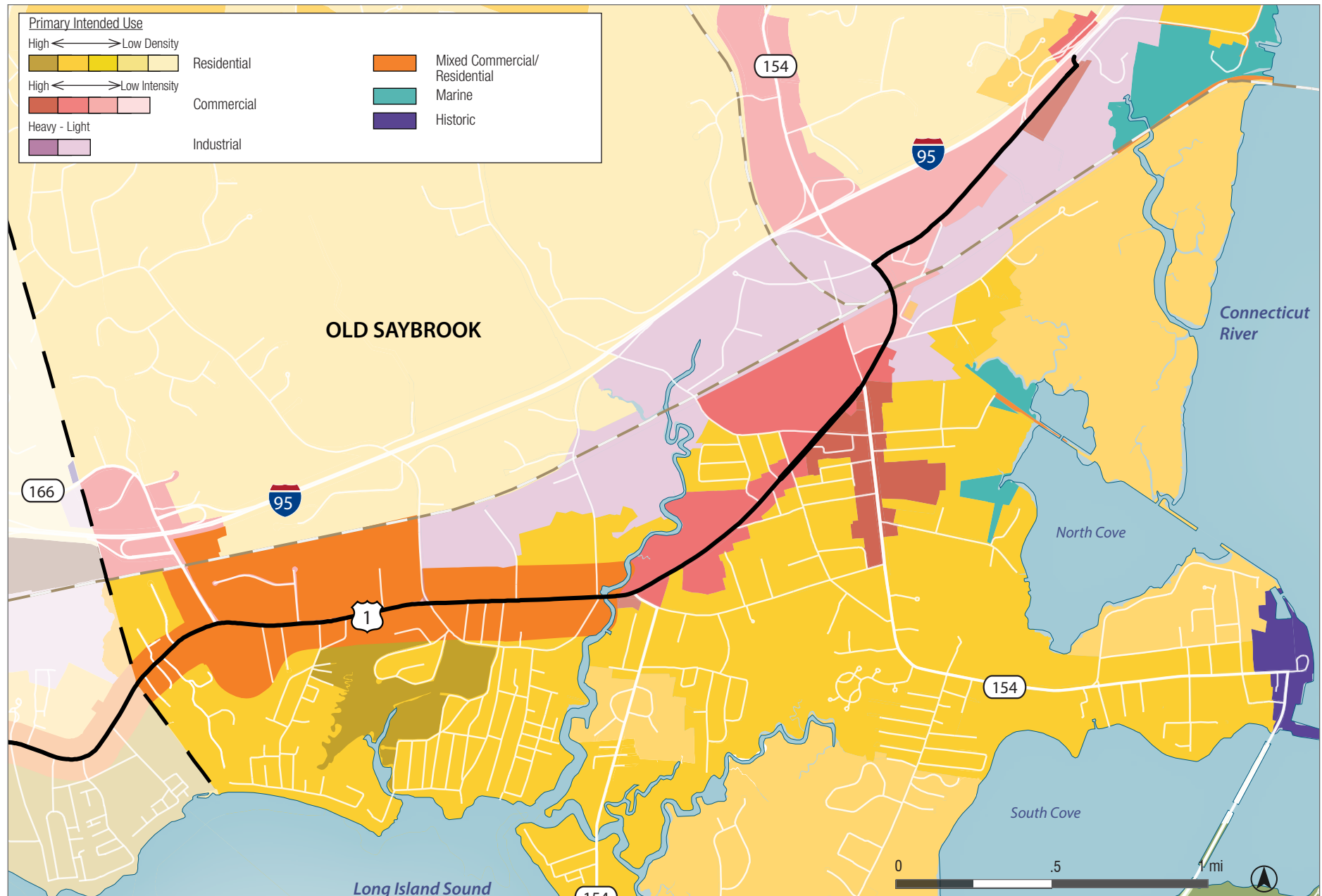
Source: Zoning Data, Towns of Clinton, Westbrook, and Old Saybrook, 2013.

FIGURE 19-2: GENERALIZED ZONING - Westbrook



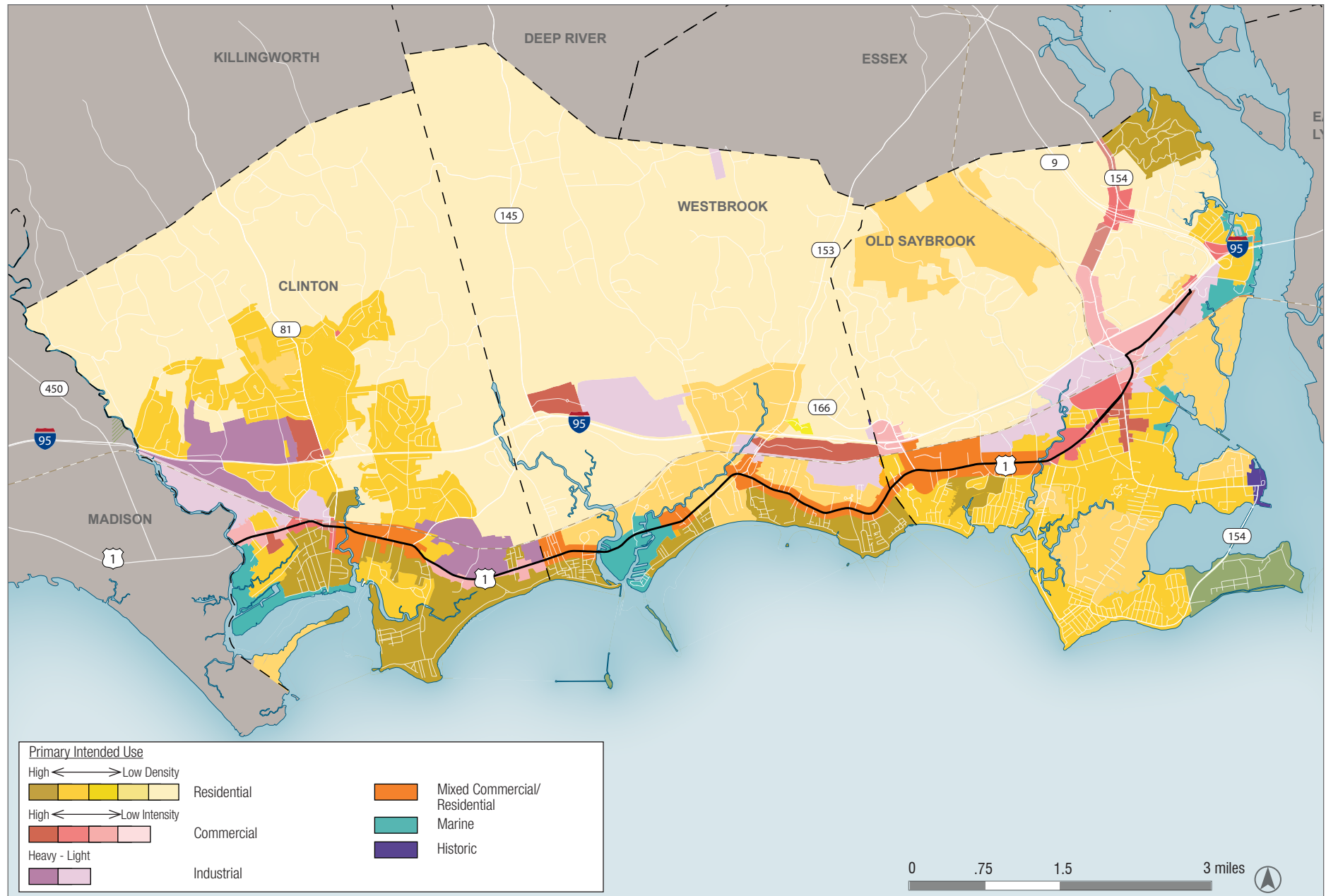
Source: Zoning Data, Towns of Clinton, Westbrook, and Old Saybrook, 2013.

FIGURE 19-3: GENERALIZED ZONING - Old Saybrook



Source: Zoning Data, Towns of Clinton, Westbrook, and Old Saybrook, 2013.

FIGURE 19-4: GENERALIZED ZONING



Source: Zoning Data, Towns of Clinton, Westbrook, and Old Saybrook, 2013.



IV. Environmental Conditions

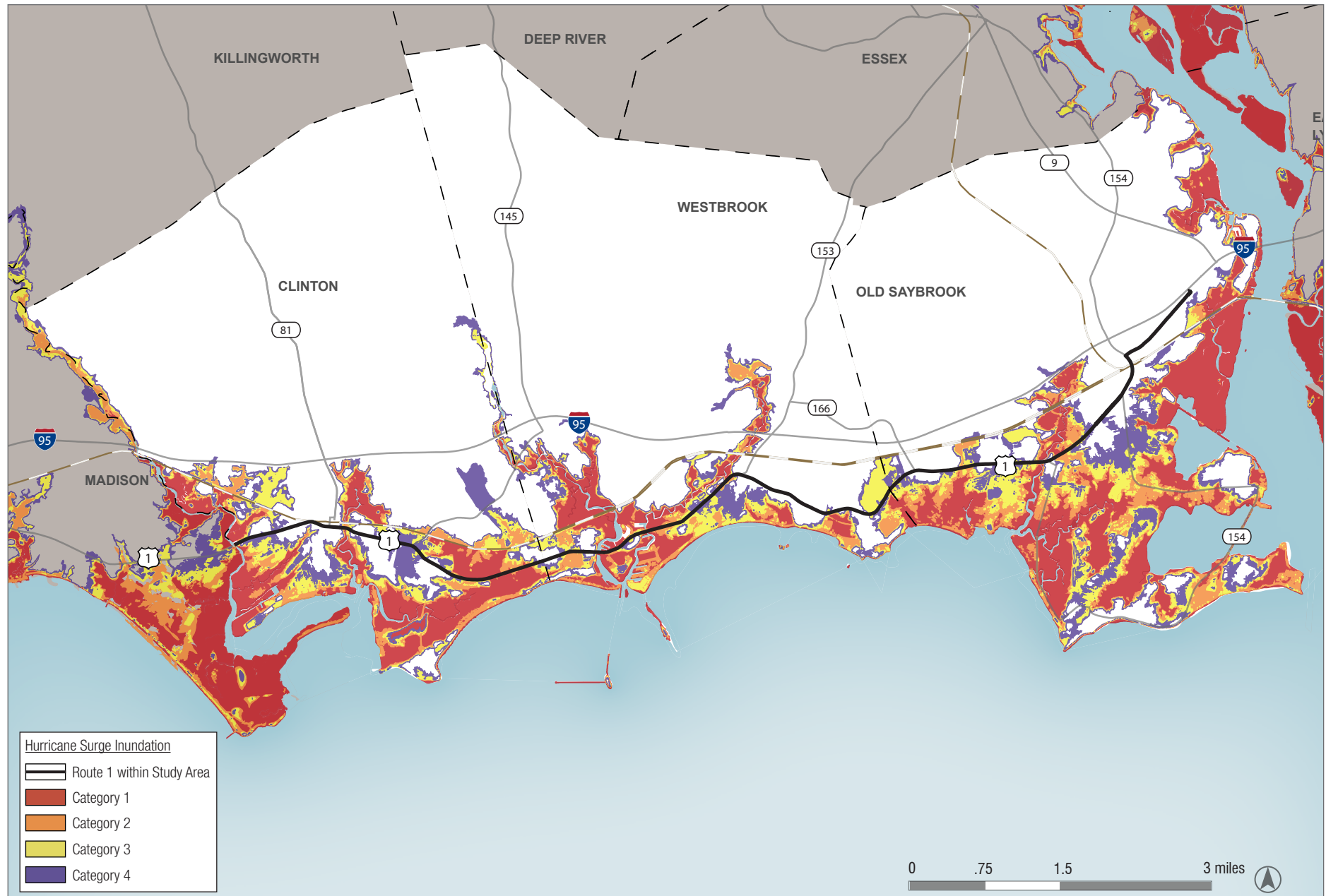
IV. Environmental Conditions

A. Overview

Environmental conditions are a significant consideration for the Route 1 Corridor due to two complementary factors. The abundant natural resources of the Connecticut shoreline through which Route 1 travels are a valued asset to each community as well as regionally, to the state and nationally. They serve as critical wildlife habitat, unique natural areas, as natural hazard mitigation areas, and as recreational and tourism destinations. Second, the extensive areas of these resources in the corridor create limitations on where new development and redevelopment can reasonably occur. Not only can development not take place on wetlands, but as evidenced by recent hurricanes, the area of storm surge, where ocean waves rush inland, makes development more challenging and expensive all along the coastline.

For the purposes of evaluating the impact of environmental conditions on the Route 1 corridor, this study looked at them from the perspective of the two factors above. There are natural resource and historic resource assets to be preserved and protected over time. Valuing and protecting these assets is a goal and part of the vision of each of the corridor communities. Then, there are storm surge areas (wave action inland during a Category 3 hurricane or worse), and areas of steep slopes, wetlands, watercourses, surface water, and flood plains that form a barrier to development on opportunity sites within the corridor. It is also noteworthy that the entire corridor falls inside the state's coastal boundary intended to protect sensitive coastal resources. This means that any development within this area must also consider the coastal area management plan for the town and specific coastal zone site design requirements contained in the local zoning regulations. The Route 1 assets and constraints are described by corridor segment as follows. *Figures 20 and 21* in the following section of this report show the areas of environmental assets and development constraints within the corridor.

FIGURE 20: HURRICANE SURGE INUNDATION



Source: Hurricane Surge Inundation, CT DEEP, 2013.

Key Environmental and Cultural Assets

- Route 1 within Study Area
- Preserved Open Space
- Wildlife Refuge
- Beaches
- Menunketesuck-Cockaponset Regional Greenway Boundary
- Additional Key Environmental Assets
- Historic Properties on National Register

The map displays the Saybrook River Watershed, highlighting various environmental and cultural assets. Key locations include Clinton, Westbrook, and Old Saybrook. The map shows the Menunketesuck-Cockaponset Regional Greenway Boundary, Route 1, and various parks and green spaces. Historic properties on the National Register are also marked. The map includes a legend, a scale bar (0 to 3 miles), and a north arrow.

Source: Historic Properties Data, Connecticut National Register Of Historic Places, June 2008; Open Space Data: CT DEEP, 2013.

B. Environmental Assets and Constraints

West Clinton Segment

This segment begins where Route 1 crosses the Hammonasset River. There are wetlands and floodplains there, particularly on the north side of Route 1. Traveling easterly, there very limited wetlands in the balance of this segment. There is a narrow band of wetlands and floodplain along the stream edges just east of High Street. Additionally, the western edge of this segment has some risk for impacts due to storm surge, but is less at risk as the segment travels east.

There is one historic site at the far western end of this segment of the corridor and one area of preserved open space near Lumberyard Road.

Clinton Town Center Segment

This segment of the corridor occurs at and crosses the Indian River. It is surrounded by wetlands and floodplains. It is also an area at risk for impacts due to storm surge.

This segment also encompasses the Clinton Historic District, the Liberty Green within the Liberty Green Historic District, and several historic properties between Liberty Road and Church Road. There is also access to a public beach from Route 1 and via Waterside Lane in this segment.

Clinton East Retail Segment:

The western end of this segment of the corridor has a single extensive wetland system, and no floodplain, steep slopes or ledge issues. It is, however, at risk for impacts due to storm surge.

There are no historic sites and resources in this segment. A portion of the Menunketesuck Greenway area occurs at the Town line with Westbrook in this segment.

Westbrook Marina and Beach Community Segment

This segment of the corridor extends from the streams of the Salt Meadow unit of the Stewart B McKinney Wildlife Refuge easterly to Eckford Avenue. Route 1 is surrounded by floodplains and wetlands at

the streams and marshes in this segment. The entire segment may be affected by storm surge.

There are no historic resources in this segment of the corridor. The wildlife refuge is a significant natural resource asset in this segment and for the corridor as a whole. A portion of the Menunketesuck Greenway area is also located in this segment of the corridor. Additionally, there is access from Route 1 along collector roads to the town beach in this segment.

Westbrook Town Center Segment

The western end of this segment from Eckford Avenue to the Town Center is bordered by wetlands along the northerly side of the Route 1 along its length. This stretch of Route 1 may also be affected by storm surge. There is a single notable large wetland area just west of the Town Center and South Main Street. At the Town Center, itself, and eastward to Westbrook Heights Road there are very limited areas of wetlands within the study corridor and no floodplains or storm surge hazard areas.

Westbrook East Segment

Continuing eastward from Westbrook Heights Road, there are limited areas of wetlands and floodplains until the area of the town line with Old Saybrook. Except in the immediate area of the Town Center and the Town line with Old Saybrook, this segment lies just north and out of the path of potential risk due to storm surge.

The Town Center has a number of historic period structures, but none listed on the state or national registers of historic places. There is town-owned open space, some with playing fields (Ted Lane Field), on the south side of Route 1 in this segment. Wren Park is adjacent to Route 1 east of the Westbrook Town Center.

West/Old Saybrook High School Segment

The western end of this segment has scattered wetlands south of Route 1 and an area of steep slopes behind the shopping plaza at the intersection of Route 1 with Route 166. This segment then crosses the

Oyster River and associated wetlands, floodplains, and tidal marshes. To the east of the Oyster River is an area of ledge that has inhibited development there. There are scattered areas of wetland areas in this segment of the corridor continuing eastward. This segment and particularly the area of the Oyster River are at risk for impacts due to storm surge.

There is one designated historic property in this segment as well as the Bushnell Farm located west of Old Saybrook High School. The farm includes an historic farmstead and open fields and woods to the north. This property is privately owned and has not been permanently preserved or designated as an historic site.

Central Old Saybrook Segment

There are limited wetland areas in this segment with the exception of the area north of Route 1 where it makes its sharp turn from north to east. This segment lies adjacent to and on the northern edge of an area at risk for impacts due to storm surge.

The historic resources of note in this segment are those within the Old Saybrook Town Center immediately southeast of the study corridor. There is access along local roads from Route 1 to two public beaches in this segment.

East Old Saybrook Segment

The eastern end of this segment is close to the CT River shoreline and includes Ferry Point, a marina, and beach community. There are few areas of wetlands adjacent to Route 1 in this segment. One notable water body adjacent to the roadway is Springdale Pond which will limit and frame the depth of potential redevelopment along the frontage of Route 1 there. This segment lies just north and out of the path of potential risk due to storm surge.

There is a single historic property just east of the far eastern end of this segment.

C. Community Appearance and Design

OVERVIEW

The Route 1 corridor parallels the Connecticut coastline and offers some views of Long Island Sound. It traverses coastal communities, each with a Town Center and with a long history dating back to colonial times. As a consequence, the Route 1 corridor through Clinton, Westbrook, and Old Saybrook today has a mix of aesthetics, appearance, and design. The historic, scenic, and natural resources of the corridor have been identified as highly valued in each community as reflected in their plans of conservation and development. This includes the value they add to quality of everyday life as viewed by those living, working, and traveling through the corridor. The following is summary of the scenic and visual assets within the corridor that contribute to its design and aesthetics. In order to identify defining visual and scenic elements of community appearance and design the following assets were considered:

- Scenic views as seen driving (or walking) along the corridor
- Parks, greens, and other public open spaces
- Natural areas with open vistas
- Historic sites on the National or State Registers of Historic Places
- Historic Districts

These resources are depicted in *Figure 21*.

VISUAL RESOURCES

The following offers a listing of visual character by corridor section and a pictorial sampling of typical corridor views representing prevailing design themes and scenic or visual resources.

- West Clinton Segment: This segment is predominantly suburban scale commercial in character with some open tidal views.



Tidal marsh as seen from Route 1 – west of Clinton Nurseries

- Clinton Town Center Segment: This segment encompasses the historic Town Center in Clinton.



Downtown Clinton

- Clinton East Retail Segment: This segment includes a truly varied mix of design and appearance with retail plaza views as well as inlets and tidal views.



View looking east near Beach Road

- Westbrook Marina and Beach Segment: The character of this segment is mostly defined by the coastal environment and is benefited by the presence of the Salt Meadow Wildlife Refuge where it meets the coastline.



Westbrook marina



Winter inlet view

- Westbrook Town Center Segment: This segment encompasses the historic Town Center in Westbrook.



Westbrook Town Green

- Westbrook East Segment: The character of this segment is primarily open and residential views with scattered retail and the Water's Edge Resort as a focal point along the segment.



Route 1 looking east near Knothe Hill Road

- **West/Old Saybrook High School Segment:** This segment includes a truly varied mix of design and appearance.



Route 1, just east of Old Saybrook High School



Inlet view near Route 1 and Spencer Plain Road intersection



Intersection of Route 1 and Spencer Plain Road

- Central Old Saybrook Segment: This segment is predominantly suburban-scale commercial in character.



View looking east near Main Street

- East Old Saybrook Segment: This segment is predominantly suburban scale with varied architecture and design. At its western end it is notable that a scenic view of tidal wetlands is interrupted by several billboards.



Route 1 at marsh with historic marker and billboards

An abstract landscape graphic. The top half is a solid light green rectangle. The bottom half is a light blue area with a white line that meanders across it, creating a jagged horizon. The white line starts on the left, dips, then rises and falls several times before rising sharply on the right side. The text 'V. Development Potential' is written in a dark red, serif font in the bottom right corner of the blue area.

V. Development Potential

V. Development Potential

A. Development Opportunities

A picture of the distribution of development opportunity sites within the corridor is shown in *Figure 22*. These were identified through interviews with the community planners and planning or zoning commission members along with field review. These sites are generally 2 or more acres in size. They fall into two broad categories:

- Planned and programmed development sites
- Vacant undeveloped sites or previously developed sites which are now vacant (redevelopment and infill opportunities)

It is worth noting that in several areas of the corridor, particularly in East Clinton, parts of West Clinton, and traveling eastward out of Westbrook's town center, the existing retail is in need of revitalization. This is despite the current presence of active uses there. Revitalization areas have not been included in the following calculation of development opportunity sites, as their current active use means the potential for a change in the future is difficult to realistically incorporate in the estimation of overall development potential. However, they do collectively represent an opportunity for enhanced economic vitality that will be addressed further in the implementation plan for this corridor study.

PLANNED OR PROGRAMMED DEVELOPMENTS

Planned and programmed developments are those that can reasonably be expected to be developed in the coming five years. They include those that:

- a) Are planned by the town or State of Connecticut,
- b) One or more developers have a preliminary site development concept
- c) Have a development application in the approval process with the town or,
- d) Have been approved and may be programmed or under construction

Information about these projects gives an indication of not only where new development is expected, but also where the development market currently has interest in projects in the corridor. Table 8, shown on the following page, summarizes the location and character of known planned and programmed projects in the corridor. These also appear on the Development Opportunities and Constraints graphic, *Figure 22*, as Planned (PL) or Programmed (PR).

Table 8: Known Planned and Programmed Projects along Route 1

Project Segment/Location	Planned (PL) or Programmed (PR)	Description
West Clinton		
Clinton Nurseries	PL	70 acres; consider mixed-use village; 100+ dwelling units
Marina	PL	Redevelopment being considered– could create linkage from Clinton Nurseries to river
Bostich Brownfield – Knollwood Drive	PL	North of corridor; requires remediation; surrounded by wetlands
Clinton Town Center		
West Main Street	PR	Approved for mixed-use with 12 dwelling units and 10-12,000 s.f. commercial
Unilever	PL	22 acres with 260,000 s.f. of vacant building under study for re-use
TOD vision area	PL	Vision by the Town – east of the rail station and south of Unilever site
School – East Main Street	PL	Town has vision for re-use of existing school; options include a library and housing
Clinton East		
Stop N Shop	PR	Infill on out parcels in this development underway
Westbrook Marina and Beach Community		
East of boat storage	PR	Mini-storage development approved
East of/adjacent to mini-storage	PR	27 dwelling units
Westbrook Town Center		
Parcels on east leg of Essex Road at Route 1	PL	Town vision for redevelopment in village format
Westbrook East		
Across Route 1 from Water's edge	PL	Mostly interior lots – potential for 40 dwelling units
Eastern Town line-south side of Route 1	PR	Multi-family development
Eastern Town line – north side of Route 1	PR	Expansion of existing business

West/Old Saybrook High School		
Spencer Plain Rd	PR	126,000 s.f. commercial under construction – big box retail and grocery
East of Chalker Beach Road	PL	Currently undeveloped – commercial infill being considered
East of Bushnell Farm	PL	Consolidation of several parcels – possible residential use – wetland constraints
Central Old Saybrook		
Lynde Street	PL	Approved development plan – site on the market
West of Rail Station	PR	Approved multi-family development
Hotel site west of rail station	PL	200 units of Incentive Housing zone dwellings
East Old Saybrook		
Ferry Point	PR	Approved mixed use – 90 dwelling units, restaurant, retail anchor business

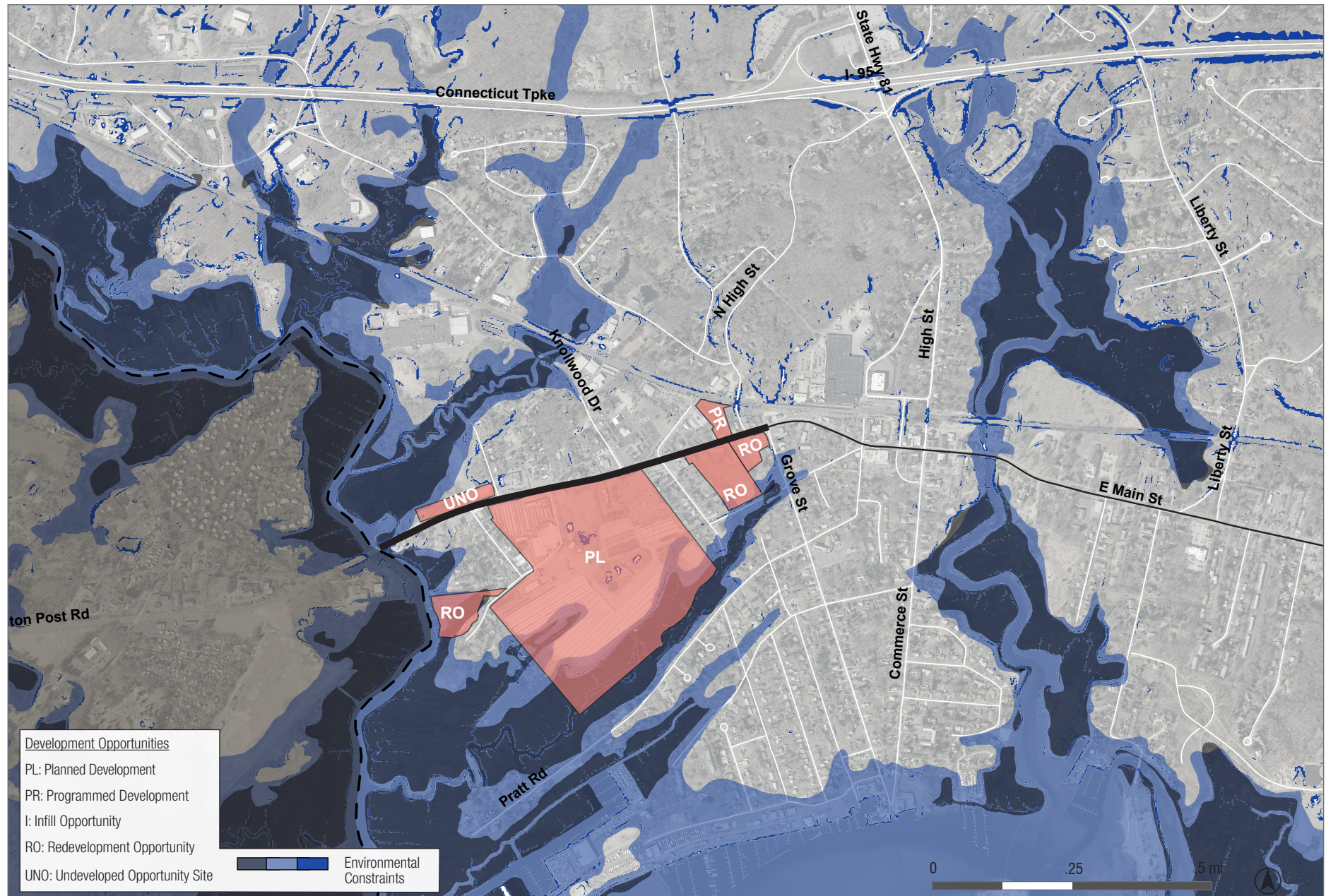
Source: Fitzgerald & Halliday, Inc.

EXISTING VACANT AND REDEVELOP-ABLE PARCELS

The Route 1 corridor is well developed and there are a limited number of undeveloped or vacant parcels along it. Many of those of substantial size (more than a couple of acres) contain wetlands, floodplains, or are adjacent to a marsh, stream, or other water body. Consequently, development opportunities on raw land are generally constrained within the corridor. Nonetheless, there are a variety of opportunities for redevelopment of vacated commercial sites and infill on parcels with some existing development.

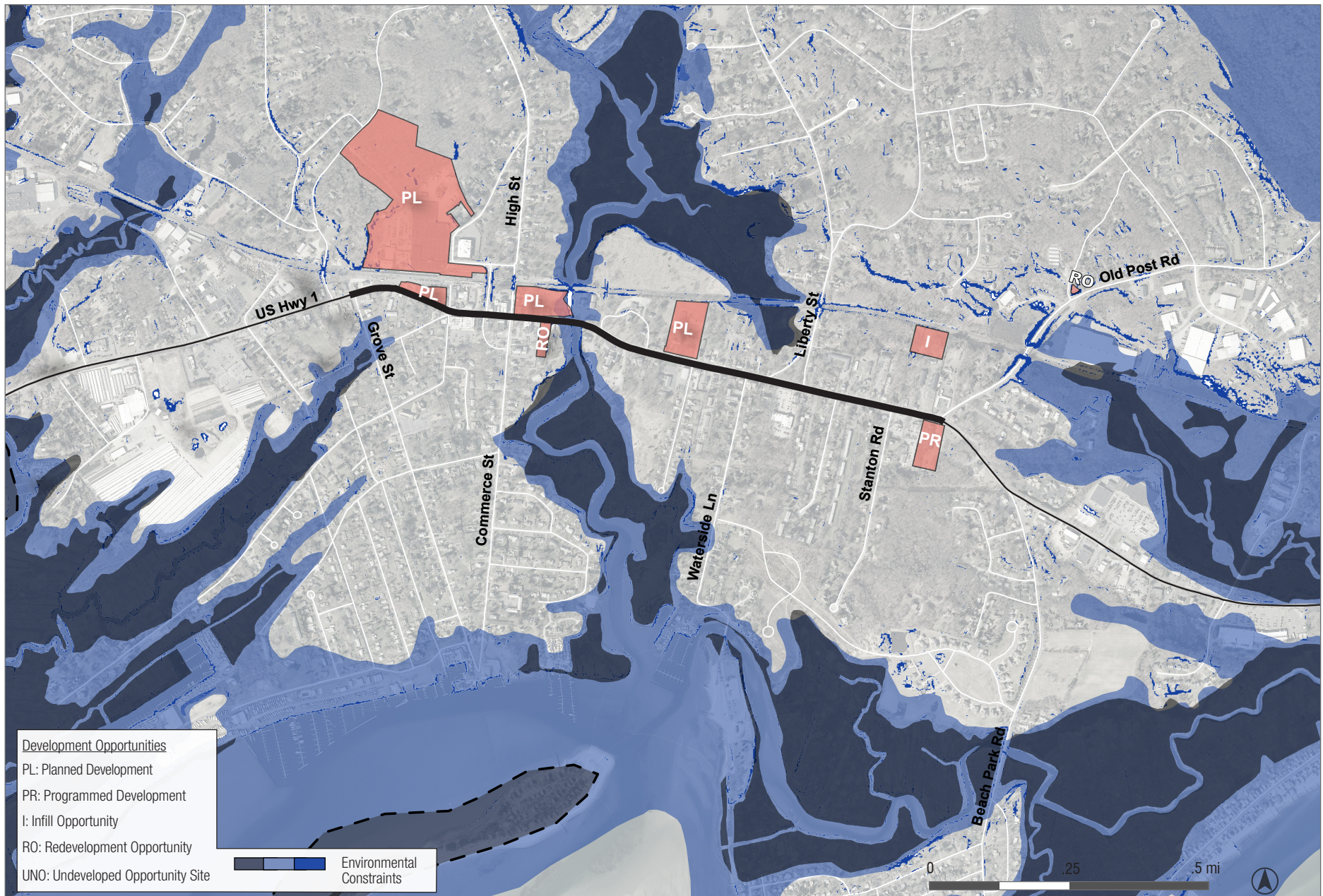
Interviews were conducted with town staff and zoning commission members in order to get a picture of the development potential on undeveloped and vacant former development sites as well as infill. Then, in order to understand how existing environmental constraints in the form of wetlands, floodplains, water bodies, and steep slopes might impact the development potential of these sites, this information was overlaid on the parcel information. This collective information is shown on *Figure 22*. A summary overview of the findings regarding vacant and redevelopment opportunity sites by corridor segment follows.

FIGURE 22-1: ENVIRONMENTAL CONSTRAINTS & DEVELOPMENT OPPORTUNITIES



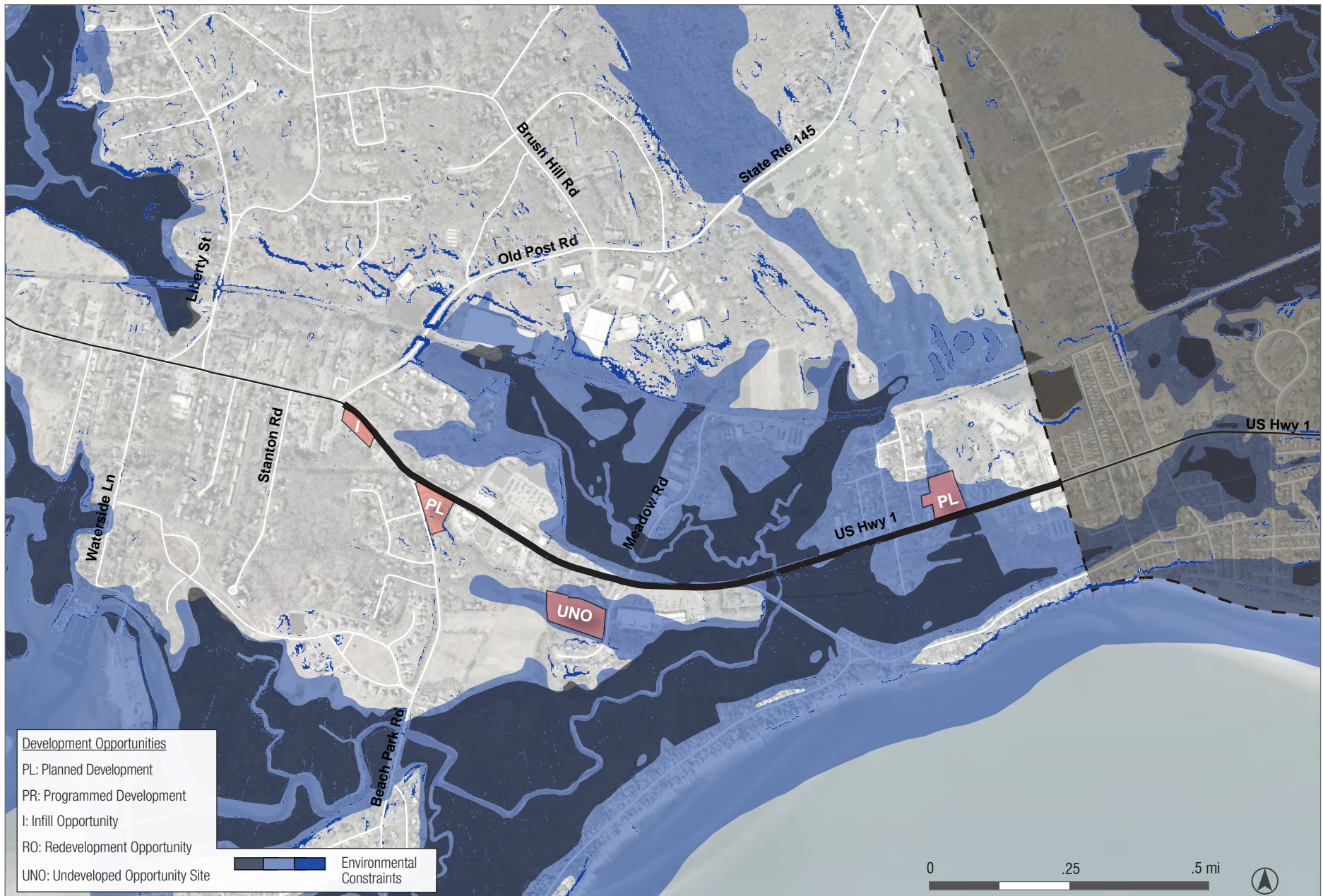
Source: Development Opportunity Sites, Towns of Old Saybrook, Westbrook, and Clinton, January 2014; Steep Slopes Data: CT Terrain Dataset provided in parts by Aero-Metric, Inc, TerraPoint Inc, Dewberry Inc., and FEMA; 2006; 100-Year Flood Zone Data: FEMA, 2013; Tidal Wetlands: Towns of Clinton, Westbrook, and Old Saybrook.

FIGURE 22-2: ENVIRONMENTAL CONSTRAINTS & DEVELOPMENT OPPORTUNITIES



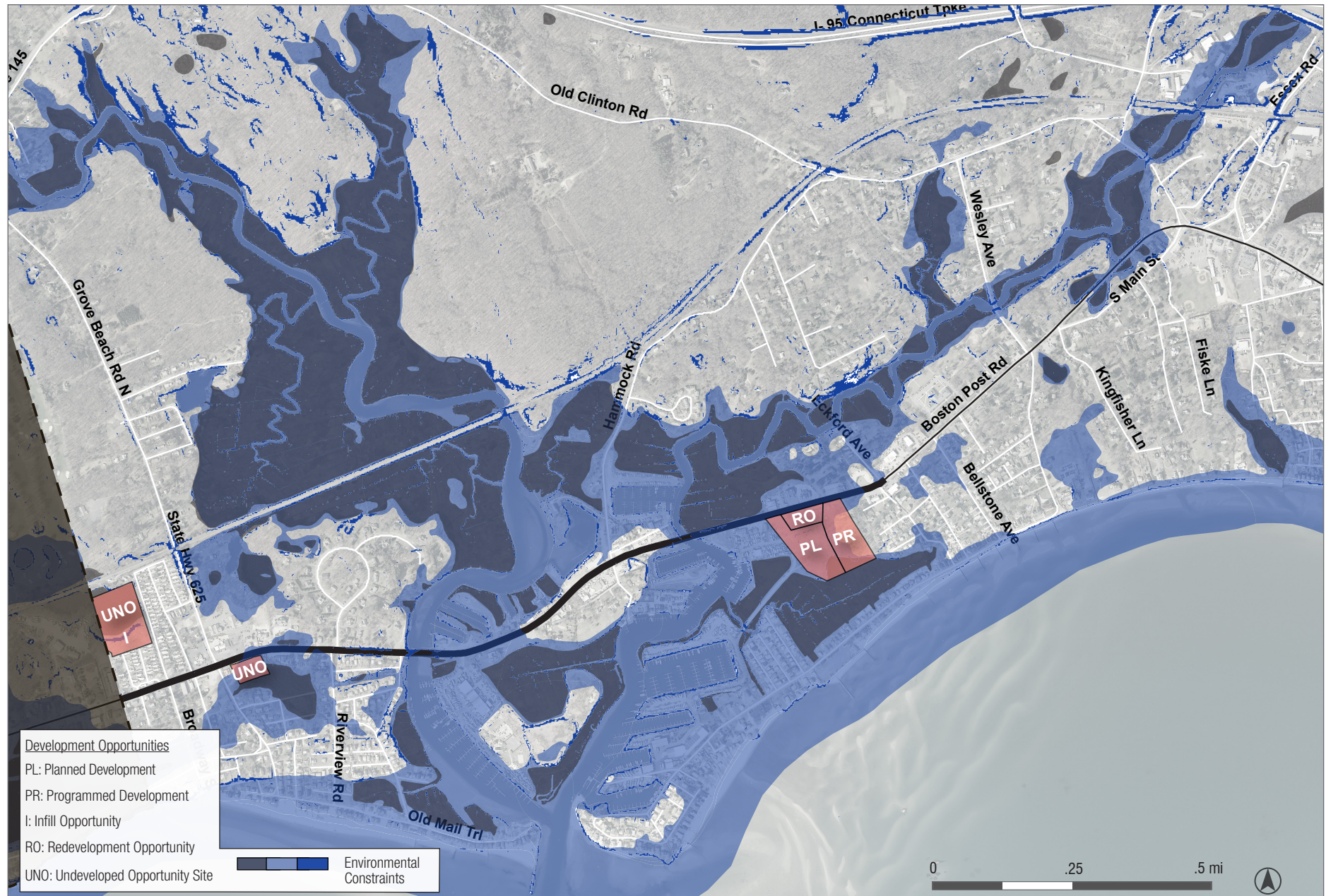
Source: Development Opportunity Sites, Towns of Old Saybrook, Westbrook, and Clinton, January 2014; Steep Slopes Data: CT Terrain Dataset provided in parts by Aero-Metric, Inc, TerraPoint Inc, Dewberry Inc., and FEMA; 2006; 100-Year Flood Zone Data: FEMA, 2013; Tidal Wetlands: Towns of Clinton, Westbrook, and Old Saybrook.

FIGURE 22-3: ENVIRONMENTAL CONSTRAINTS & DEVELOPMENT OPPORTUNITIES



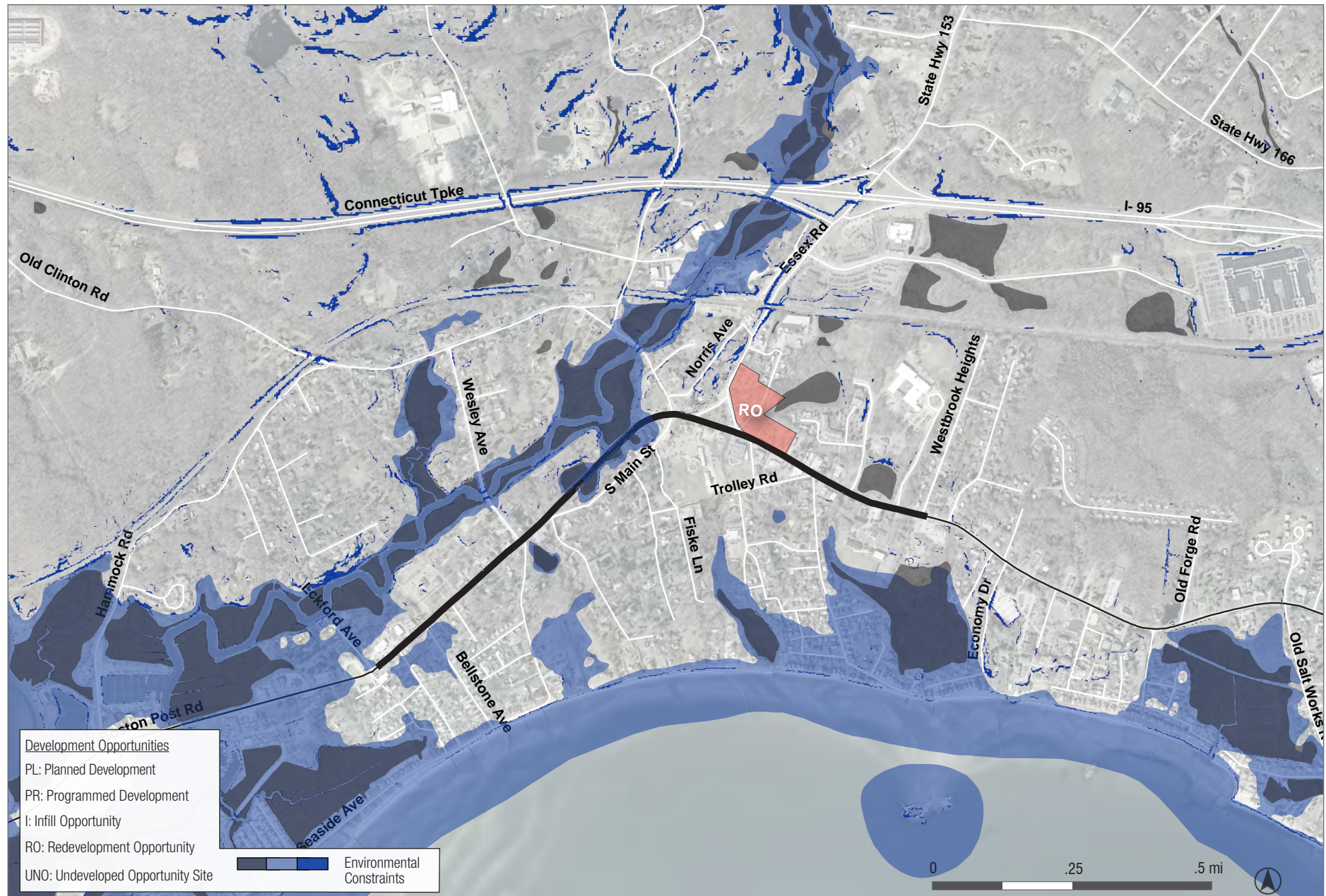
Source: Development Opportunity Sites, Towns of Old Saybrook, Westbrook, and Clinton, January 2014; Steep Slopes Data: CT Terrain Dataset provided in parts by Aero-Metric, Inc, TerraPoint Inc, Dewberry Inc., and FEMA; 2006; 100-Year Flood Zone Data: FEMA, 2013; Tidal Wetlands: Towns of Clinton, Westbrook, and Old Saybrook.

FIGURE 22-4: ENVIRONMENTAL CONSTRAINTS & DEVELOPMENT OPPORTUNITIES



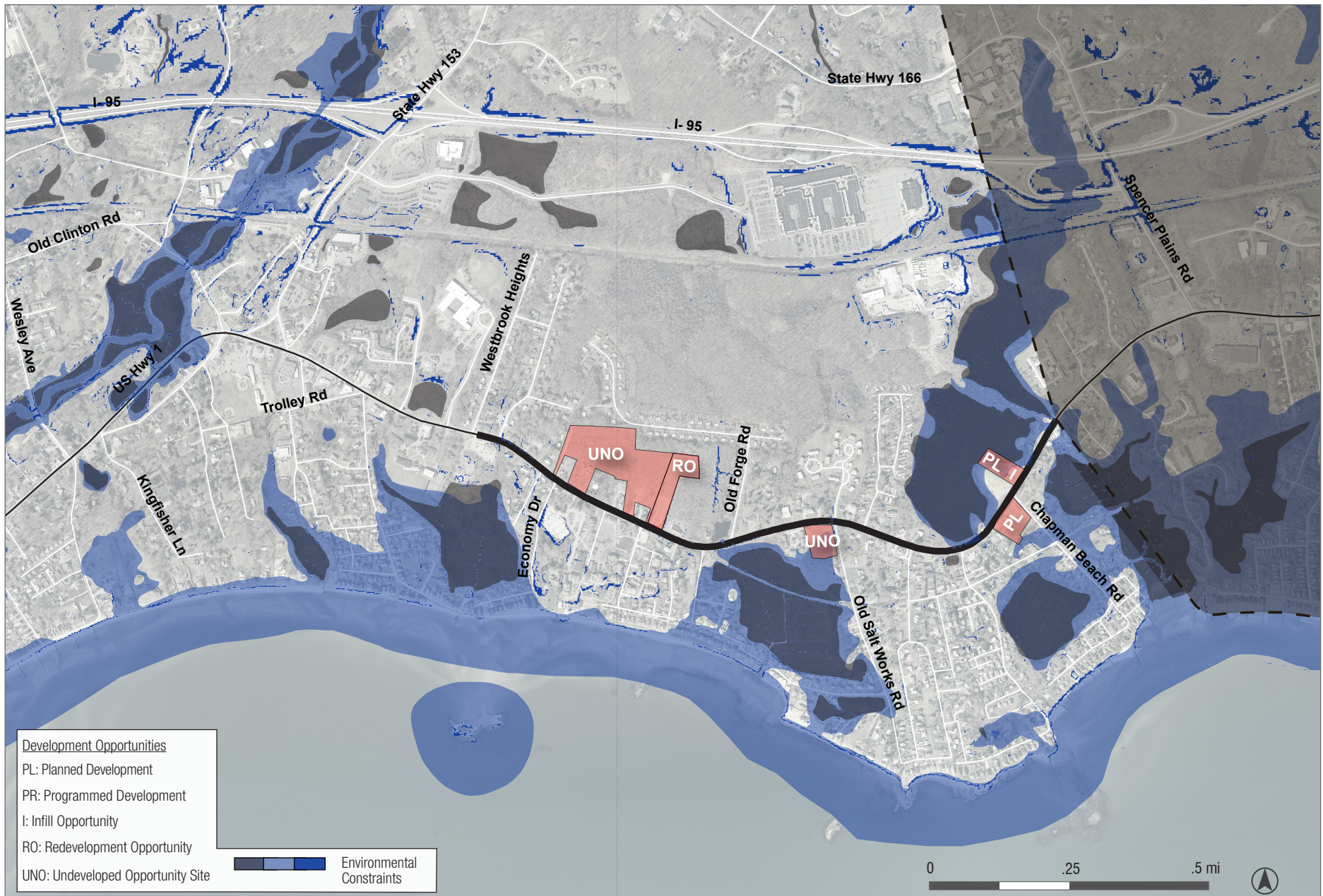
Source: Development Opportunity Sites, Towns of Old Saybrook, Westbrook, and Clinton, January 2014; Steep Slopes Data: CT Terrain Dataset provided in parts by Aero-Metric, Inc, TerraPoint Inc, Dewberry Inc., and FEMA; 2006; 100-Year Flood Zone Data: FEMA, 2013; Tidal Wetlands: Towns of Clinton, Westbrook, and Old Saybrook.

FIGURE 22-5: ENVIRONMENTAL CONSTRAINTS & DEVELOPMENT OPPORTUNITIES



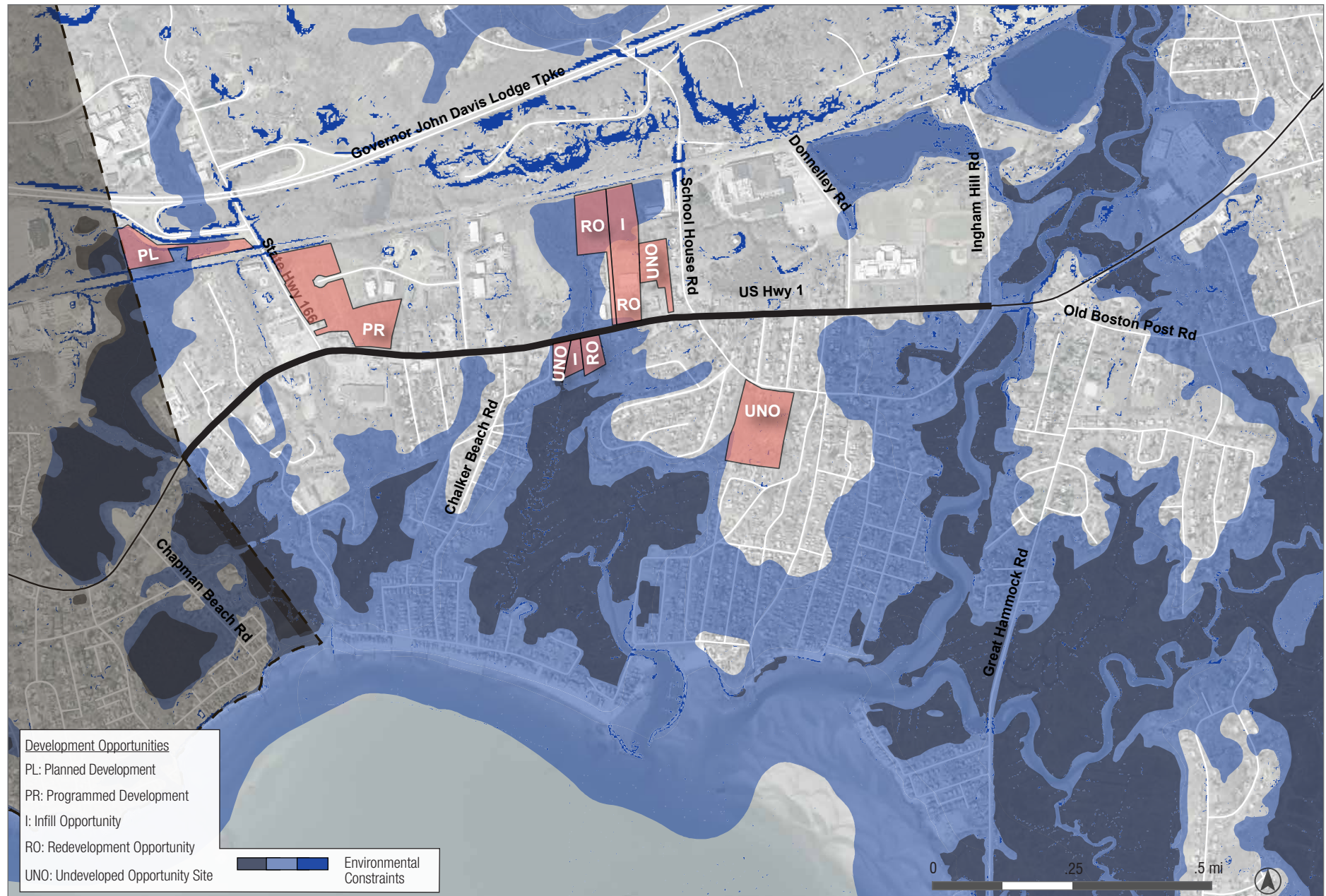
Source: Development Opportunity Sites, Towns of Old Saybrook, Westbrook, and Clinton, January 2014; Steep Slopes Data: CT Terrain Dataset provided in parts by Aero-Metric, Inc, TerraPoint Inc, Dewberry Inc., and FEMA; 2006; 100-Year Flood Zone Data: FEMA, 2013; Tidal Wetlands: Towns of Clinton, Westbrook, and Old Saybrook.

FIGURE 22-6: ENVIRONMENTAL CONSTRAINTS & DEVELOPMENT OPPORTUNITIES



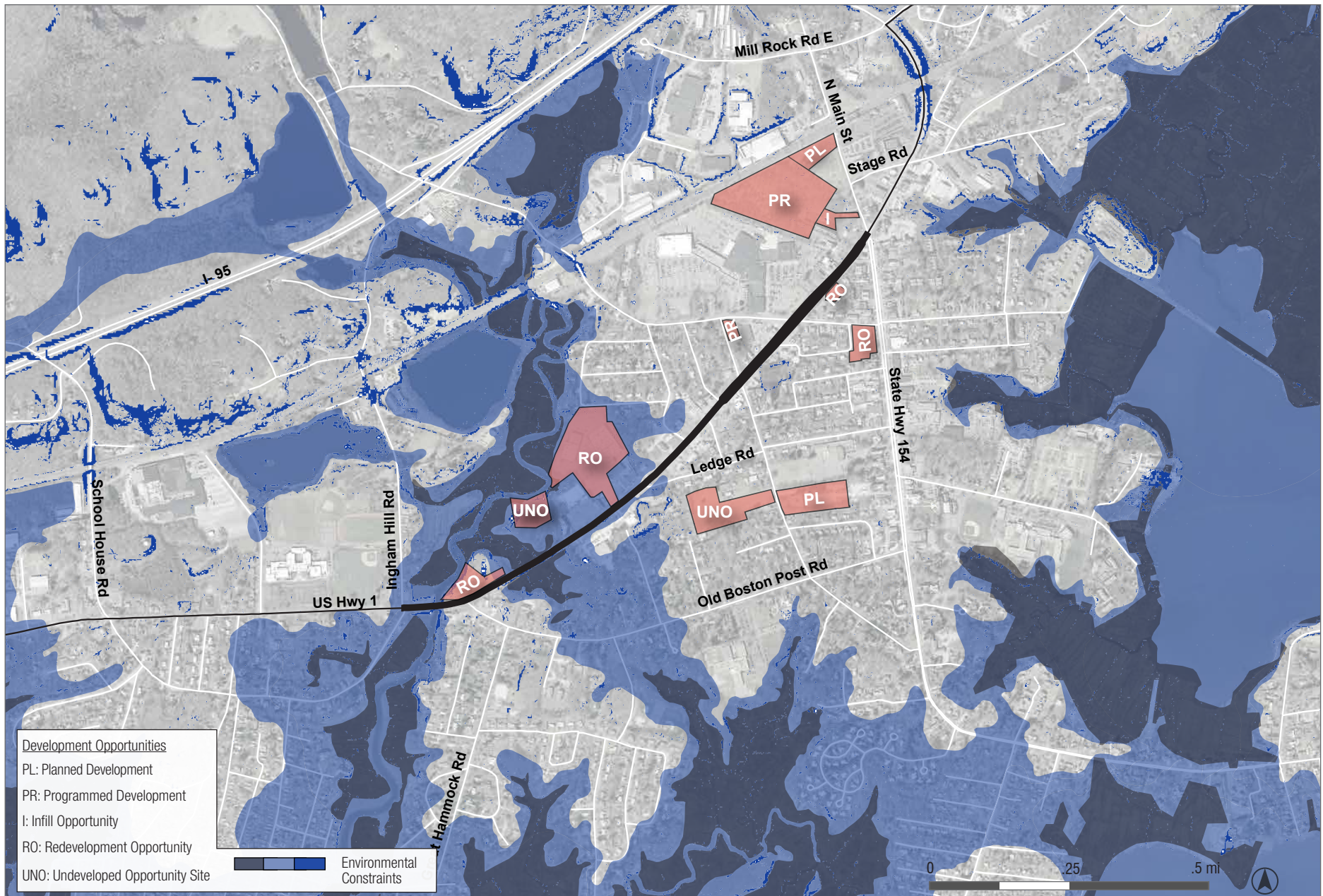
Source: Development Opportunity Sites, Towns of Old Saybrook, Westbrook, and Clinton, January 2014; Steep Slopes Data: CT Terrain Dataset provided in parts by Aero-Metric, Inc, TerraPoint Inc, Dewberry Inc., and FEMA; 2006; 100-Year Flood Zone Data: FEMA, 2013; Tidal Wetlands: Towns of Clinton, Westbrook, and Old Saybrook.

FIGURE 22-7: ENVIRONMENTAL CONSTRAINTS & DEVELOPMENT OPPORTUNITIES



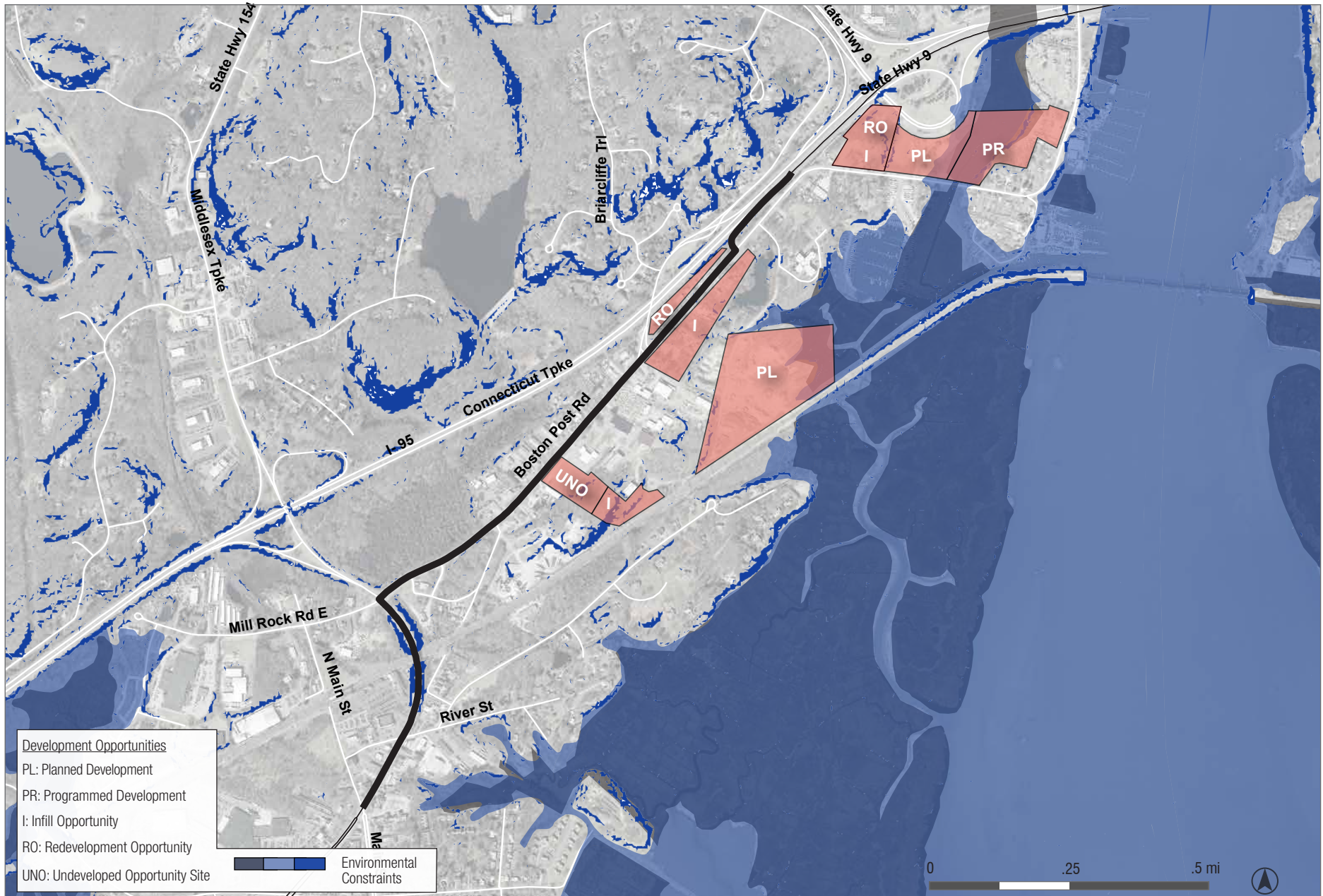
Source: Development Opportunity Sites, Towns of Old Saybrook, Westbrook, and Clinton, January 2014; Steep Slopes Data: CT Terrain Dataset provided in parts by Aero-Metric, Inc, TerraPoint Inc, Dewberry Inc., and FEMA; 2006; 100-Year Flood Zone Data: FEMA, 2013; Tidal Wetlands: Towns of Clinton, Westbrook, and Old Saybrook.

FIGURE 22-8: ENVIRONMENTAL CONSTRAINTS & DEVELOPMENT OPPORTUNITIES



Source: Development Opportunity Sites, Towns of Old Saybrook, Westbrook, and Clinton, January 2014; Steep Slopes Data: CT Terrain Dataset provided in parts by Aero-Metric, Inc, TerraPoint Inc, Dewberry Inc., and FEMA; 2006; 100-Year Flood Zone Data: FEMA, 2013; Tidal Wetlands: Towns of Clinton, Westbrook, and Old Saybrook.

FIGURE 22-9: ENVIRONMENTAL CONSTRAINTS & DEVELOPMENT OPPORTUNITIES



Source: Development Opportunity Sites, Towns of Old Saybrook, Westbrook, and Clinton, January 2014; Steep Slopes Data: CT Terrain Dataset provided in parts by Aero-Metric, Inc, TerraPoint Inc, Dewberry Inc., and FEMA; 2006; 100-Year Flood Zone Data: FEMA, 2013; Tidal Wetlands: Towns of Clinton, Westbrook, and Old Saybrook.

West Clinton Segment

There are a total of 4 development opportunity sites in this segment. The marina on the Hammonasset River at the western edge of the Route 1 corridor presents a redevelopment opportunity, but is constrained by wetlands and floodplains. This site could be reconfigured, when and if it is redeveloped for more, different recreational uses and create a linkage from the Clinton Nurseries site. There is also a limited opportunity for some development along the north frontage of Route 1 in the same vicinity. Some vacant parcels occur there at the western end of this segment. The interior of those sites are mostly wetland and marsh but the frontage on Route 1 may be developable. The remaining two opportunity sites lie just west of the Town Center and include some underutilized commercial uses on the street frontage at Route 1, with interior undeveloped lands.

Clinton Town Center Segment

There is a single redevelopment opportunity site that has been identified in this segment adjacent to the school site targeted for re-use. This is within the Village Zone and historic districts. The traditional development patterns in this segment, with long-established uses on all parcels are expected to remain. Other infill opportunity sites occur near the junction of Old Post Road (SR 145) and Route 1.

Clinton East Retail Segment

There is a single vacant, undeveloped opportunity site. Yet, it is entirely within an area of environmental constraints to development. The majority of this segment is also constrained for future development by wetlands and floodplains.

Westbrook Marina and Beach Segment

There are a total of five opportunity sites on vacant or redevelopable parcels in this segment of the corridor. At the town line between Clinton and Westbrook there are two undeveloped sites. The first is situated north of the existing mobile home park and offers an opportunity for infill there. The second is on the south side of Route 1 just east of Grove Beach Road South. The remaining three are a cluster with a redevelopment opportunity site along the south frontage of Route 1

tucked in between two planned and programmed developments. The two more easterly sites are also in an area of environmental constraints to development.

Westbrook Town Center Segment

There is a single redevelopment opportunity area in this segment of the corridor. In the Westbrook Town Center, the town envisions redevelopment of a group of parcels on the northeast corner of Essex Road and Route 1. Some of these relatively small parcels are abutted to the east by vacant undeveloped land.

Westbrook East Segment

There is one redevelopment opportunity site and two undeveloped sites in this segment of the corridor. Two of these three parcels are situated north of Route 1 in the vicinity of Old Forge Road. One is undeveloped and the other presents a redevelopment opportunity; together they would be an infill opportunity. The larger undeveloped site could involve an aggregation of up to six separate parcels. Then, near Old Works Road to the east, there is one undeveloped parcel that. The majority of these sites are free of environmental constraints to development.

West/Old Saybrook High School Segment

This segment has the greatest number of development opportunity sites among all segments in the corridor in the form of vacant or redevelopable parcels. There are four undeveloped parcels and three redevelopment opportunity sites, some with potential for aggregation of several parcels. These sites are somewhat scattered through the segment. There is one notable cluster near the Old Saybrook Senior High School just west of School House Road on the north side of Route 1. Two redevelopment sites occur there along with an undeveloped parcel which could all be aggregated to form a comparatively large new planned development. A second notable area with redevelopment potential is on the eastern shore of the Oyster River north of Route 1 in Oyster Point. In addition to two redevelopment opportunity areas, there is some undeveloped land that is constrained by wetlands and floodplains at its frontage with Route 1, but offers some development potential in its interior.

Central Old Saybrook Segment

There are two undeveloped parcels in this segment of the corridor and three redevelopment opportunity sites. Only two of the redevelopment opportunity sites fronts on or has direct access to Route 1. The other is accessed from Route 54 south of Route 1. The one undeveloped parcel with no environmental development constraints would be accessed from Lynde Street. It is surrounded by residences and would be across the street from the planned location for a new town police department facility.

East Old Saybrook Segment

This segment of the corridor has one undeveloped opportunity site and three areas of potential infill with redevelopment. All four sites have frontage on Route 1 and fall within the planned Mariner's Way concept plan area envisioned by the town for this segment.

Conclusion: Land Use Issues and Opportunities

An assessment of the existing land use conditions in the corridor and the development potential sets the framework for evaluating potential future conditions. Future development trends will be informed by the market conditions as well. This is considered in the following section of this report. From this and the corridor vision, a preferred future land use scenario can be formulated. While the three communities each have a future land use plan as part of their Plan of Conservation and Development, this existing conditions assessment along with the future land use scenario can build corridor-wide themes and identify regional strategies that will help create a more dynamic economic and human-scale environment supportive of progress towards the land use vision in each community individually.

Development in the study corridor is diverse. There is a mix of uses throughout and which is sometimes quite disparate and also occurring at varied densities. Yet, an overall pattern can be discerned of well-formed town centers, clusters of activity near the coastal inlets and

marine access points, and then dispersed variable land uses sprawled in between. Larger format commercial uses occur near the interchanges along Interstate 95. The following observations about land use issues and opportunities can be made:

- Existing development has, for the most part, occurred on land that is most suitable in terms of environmental constraints. There is limited availability of vacant, undeveloped land that can be readily developed in the future.
- Development opportunity sites are dispersed across the corridor, with the single greatest concentration in the vicinity of Old Saybrook High School. While the number of opportunities is relatively small, it also creates a challenge for fostering new and redevelopment in the town core areas, as envisioned for the corridor.
- There are pockets of retail development in need of revitalization, often occurring at the gateways to the Town Centers; it will be both a challenge and an opportunity to enhance these areas as part of future redevelopment efforts.
- While environmental resources offer a constraint to development in much of the corridor, and limit development opportunities, these same resources are an asset in terms of providing a coastal environment conducive to tourism, residential infill, and leveraging of coastal access for economic growth.
- Zoning is mostly traditional Euclidian in approach (separation of uses) throughout the corridor with some application of contemporary techniques such as mixed-use village center zones. Without change, this zoning will reinforce current patterns of relatively low-density sprawl intermingled with high-intensity big-box development near I-95.
- The three communities have differing policy and goals for land development which may encourage incongruity in development form when considering the corridor as a whole and in a regional context.

B. Existing Market Conditions, Trends, and Opportunities

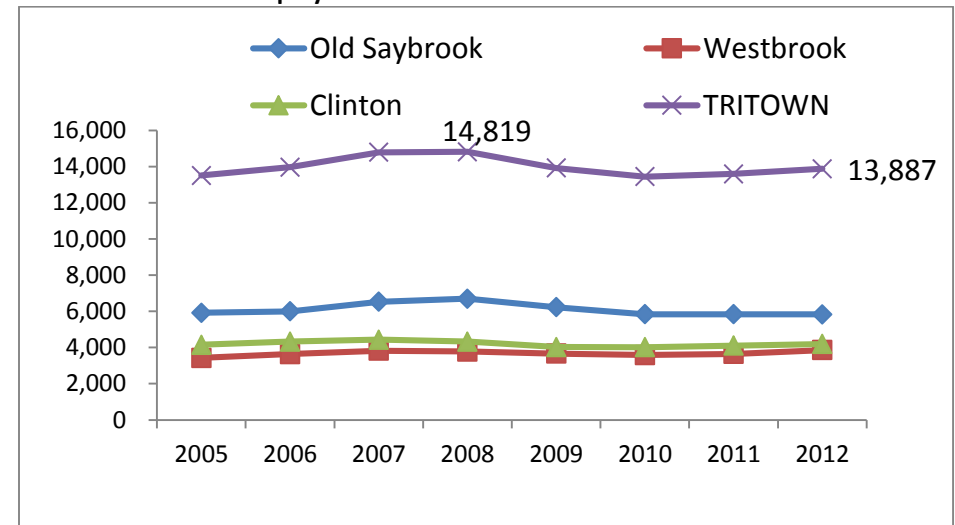
It's important to understand the community's vision of the corridor when setting goals for the Corridor Plan. Likewise it's also important to understand existing market conditions, trends, and opportunities within the corridor and the region when developing corridor goals in order to set attainable goals and develop an action plan that incorporates strategies to encourage sustainable development. This section presents information about the economic base within the three towns, real estate market conditions, demographics and housing information, and conclusions about market conditions, trends and economic development opportunities. The next phase of the study will provide recommendations related to strategies that will help guide desired economic development within the Preferred Land Use Scenario that is presented later in this report.

ECONOMIC BASE

Employment

2013 employment data for the towns of Old Saybrook, Westbrook, and Clinton, hereinafter referred to as TriTown, shows a total combined private employment base of approximately 13,888 jobs as shown in Exhibit 7. Old Saybrook represents 42% of the total employment of these communities, Clinton represents 30% and Westbrook has the smallest employment base with 28%. Employment for these towns is approximately 1,000 jobs below its 2008 peak. Only Westbrook has recovered the jobs lost during the 'Great Recession' of 2007/2008.

Exhibit 7: TRITOWN Employment



Source: NP calculations based on Connecticut LMI ES 2012 data

Industries

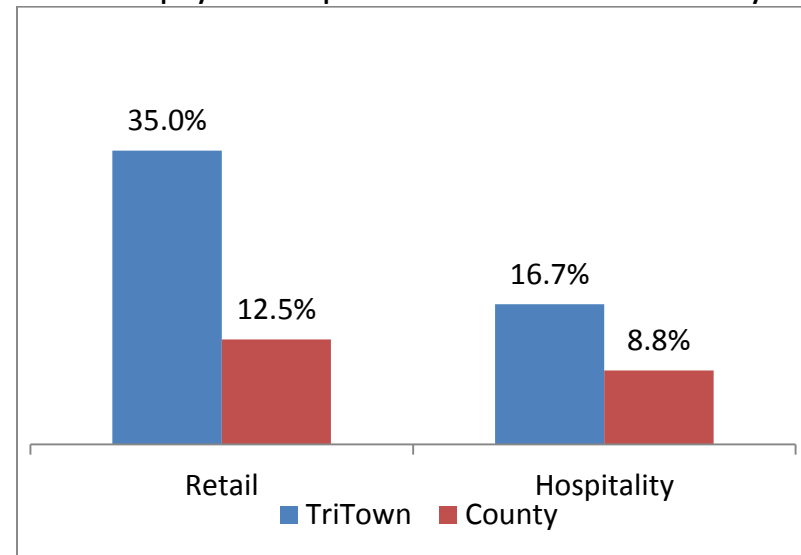
Retail and hospitality industries represent about 55% of TriTown private employment as shown in Exhibit 8. This level of employment concentration is substantially greater than across Middlesex County where approximately 21% of employment is found in these industries (see Exhibit 9). The next largest category of employment is that of the healthcare/social assistance sector representing almost 13% of total employment.

Exhibit 8: TRITOWN Employment by Category



Source: NP analysis of Connecticut Labor Market information, 2013

Exhibit 9: Employment Comparison TRITOWN vs. Middlesex County



Source: NP analysis of Connecticut Labor Market information, 2013

Factors Driving Employment Growth

Factors driving employment growth for the healthcare and social assistance sectors include increased or stable levels of reimbursement from payers, a continued transformation from hospital campus-centric to ambulatory-centric delivery models, overall population growth rates, demographic changes in the local population and aging, and the ability to attract medical services from other areas of the state.

If the TriTown's goal is to grow employment in the hospitality industry, tourism activity must increase. One way to accomplish this is to extend the length of the traditional summer tourism season by adding activity during the "shoulder" seasons of spring and fall. An expansion in the length of the season would increase the viability of additional tourism-driven businesses and result in a change in highly seasonal employment.

Employment growth in the retail sector depends on a continued growth in households and the ability to attract a "magnet" development, which is a unique product not dependent on a local market, e.g. Clinton

Crossing. It is important to note that this opportunity is more likely to require an appropriate site rather than represent a real estate infill development.

Worksite Size Distribution

Establishment distribution is a key indicator of the relative physical size (i.e. real estate) requirements of the companies in the area. This analysis is particularly useful for understanding the size requirements for office space. The following categories are used to determine office space requirements:

- Information services
- Finance and insurance
- Real estate and rental leasing
- Professional, scientific and technical services
- Management of companies and enterprises
- Administrative support

Space requirements for these businesses are calculated by the following formula:

(Total number of eligible establishments X the maximum potential number of employees per establishment in each category) X 150 SF per employee

Based on this analysis, the TriTown area requires approximately 414,000 square feet to support its current level of employment. 40% of businesses require less than 1,400 sq. ft. At present, there are very few users of spaces in excess of 15,000 sq. ft.

Table 9: Number of Office Establishments at Each Size by TriTown

Tri Town	Number of Establishments at Each Size					
Summary	'1-4'	'5-9'	'10-19'	'20-49'	'50-99'	'100-249'
Total Establishments	170	59	23	17	4	3
Max Total Space Required (SF)	102,000	79,650	65,550	124,950	59,400	112,050
Max Avg Size Required (SF)	600	1,350	2,850	7,350	14,850	37,350

Source: NP analysis of County Business Patterns 2012 data

Each town's "office" market requirements are found in the tables on the following page.

Table 10: Clinton “Office” Market Requirements

Clinton	Number of Establishments at Each Size					
Industry Segment	'1-4'	'5-9'	'10-19'	'20-49'	'50-99'	'100-249'
Information	5	1	0	1	0	0
Finance and insurance	9	4	0	0	0	0
Real estate and rental and leasing	4	1	1	1	0	0
Professional, scientific, and technical services	19	2	2	1	0	0
Administrative and Support and Waste Mang and Remediation Srvs	16	1	3	2	0	0
Total Establishments	53	9	6	5	0	0
Maximum Employee Multiplier	4	9	19	49	99	249
Maximum Total Space Required= (#estab X max employ)*150sqft	31,800	12,150	17,100	36,750	0	0
Total "Office" Square Footage Required Clinton						97,800
Max Avg Size Required	600	1,350	2,850	7,350	0	-

Source: NP analysis of County Business Patterns 2012 data

Table 11: Westbrook “Office” Market Requirements

Westbrook	Number of Establishments at Each Size					
Industry Segment	'1-4'	'5-9'	'10-19'	'20-49'	'50-99'	'100-249'
Information	0	0	0	1	0	0
Finance and insurance	3	3	1	0	2	0
Real estate and rental and leasing	5	2	0	0	0	0
Professional, scientific, and technical services	9	1	2	0	0	0
Administrative and Support and Waste Mang and Remediation Srvs	12	2	1	1	0	0
Total Establishments	29	8	4	2	2	0
Maximum Employee Multiplier	4	9	19	49	99	249
Maximum Total Space Required= (#estab X max employ)*150sqft	17,400	10,800	11,400	14,700	29,700	0
Total "Office" Square Footage Required Westbrook						84,000
Max Avg Size Required	600	1,350	2,850	7,350	14,850	0

Source: NP analysis of County Business Patterns 2012 data

Table 12: Old Saybrook “Office” Market Requirements

Old Saybrook	Number of Establishments at Each Size					
Industry Segment	'1-4'	'5-9'	'10-19'	'20-49'	'50-99'	'100-249'
Information	6	0	2	0	1	
Finance and insurance	12	5	3	2	0	
Real estate and rental and leasing	17	2	1	0	0	
Professional, scientific, and technical services	29	10	2	6	1	
Management of companies and enterprises	0	1	0	0	0	
Administrative and Support and Waste Mang and Remediation Srvs	24	3	1	0	0	1
Total Establishments	88	21	9	8	2	1
Maximum Employee Multiplier	4	9	19	49	99	249
Maximum Total Space Required= (#estab X max employ)*150sqft	52,800	28,350	25,650	58,800	29,700	37,350
Total "Office" Square Footage Required Old Saybrook						232,650
Max Avg Size Required	600	1,350	2,850	7,350	14,850	-

Source: NP analysis of County Business Patterns 2012 data

REAL ESTATE MARKET CONDITIONS

The real estate market remains soft, reflecting the slow economic recovery and similar to the overall real estate market throughout the country.² The TriTown area consists of a number of smaller employers that do not demand large footprint spaces. This has created an advantage for the area in that large footprint office buildings are not sitting vacant in office parks, as is the case in areas surrounding Boston or Hartford; however, without an adaptive reuse plan, the area also does not have existing real estate capacity to support a potential large employer seeking space within a six to nine month timeframe.

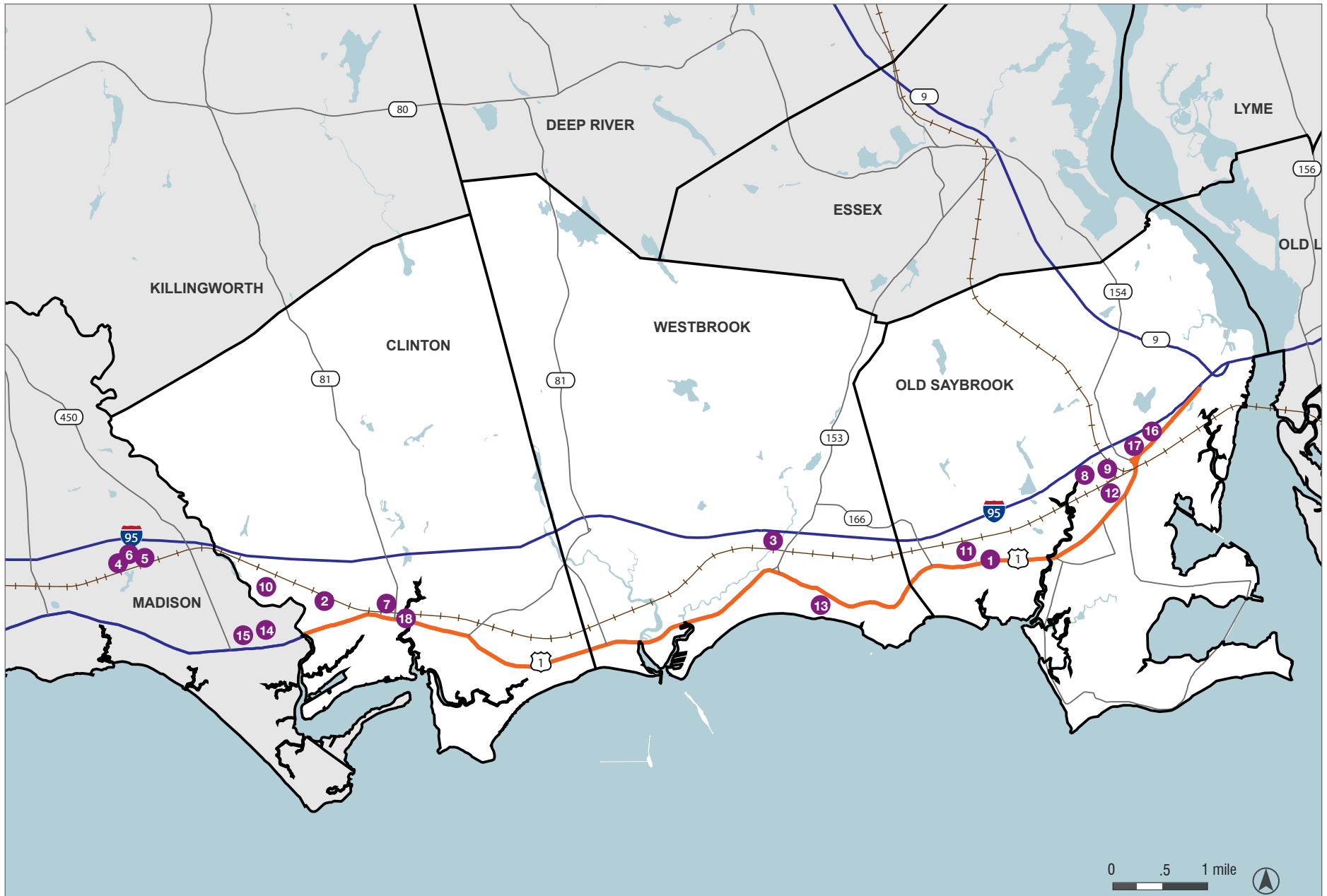
Industrial/ Office

Availability

The map illustrated in *Figure 23* provides a geographic perspective of available properties. Most of the properties are clustered either in Old Saybrook or Clinton. Based on LoopNet's comprehensive listing service, 18 industrial/office properties are available for lease within the TriTown area.

² There are some notable exceptions such as Boston, NYC, Silicon Valley, and similar large metro areas. Also the multifamily residential market particularly in urban centers is particularly robust.

FIGURE 23: INDUSTRIAL PROPERTIES FOR LEASE



Source: Industrial Properties for Lease, Loopnet, compiled by Ninigret Partners, January 2014.

Table 13: Industrial/ Office Properties Availability for Lease within TriTown Area

Property Sub-type	Total Space	Rental Rate	Space Count	Town
Warehouse	12,000 SF		1	Old Saybrook
Flex Space	53,440 SF	\$0.41 /SF/Mo	4	Clinton
Warehouse	9,480 SF	\$0.30 /SF/Mo	1	Westbrook
Flex Space	960 SF	\$0.81 /SF/Mo	1	Madison
Warehouse	15,000 SF	\$0.58 /SF/Mo	1	Madison
Distribution Warehouse	41,718 SF		1	Madison
Distribution Warehouse	265,000 SF		1	Clinton
Flex Space	3,990 SF	\$0.58 – 0.60 /SF/Mo	2	Old Saybrook
Flex Space	5,192 SF	\$0.65 /SF/Mo	1	Old Saybrook
Manufacturing	238,000 SF		1	Clinton
Manufacturing	139,560 SF	\$0.46 /SF/Mo	1	Old Saybrook
Office Building	1,500 SF	\$1.25 /SF/Mo	1	Old Saybrook
Office Building	3,300 SF	\$1.25 /SF/Mo	2	Westbrook
Office Building	8,056 SF	\$1.58 /SF/Mo	1	Madison
Medical Office	11,865 SF	\$1.63 /SF/Mo	1	Madison
Office Building	450 SF	\$0.76 /SF/Mo	1	Old Saybrook
Office-R&D	3,000 SF	\$0.63 /SF/Mo	1	Old Saybrook
Office Building	3,460 SF	\$1.17 /SF/Mo	1	Clinton

Source: Loopnet January 2014

Excluding the warehouse space, the area has available approximately 220,000 sq. ft. of space or slightly more than 50% of the total office space required to meet existing utilization. Note this excludes 571,000 sq. ft. of warehouse and older manufacturing space because conversion is more complex. Viewed from another perspective, existing space, including industrial conversions (except warehouses), could accommodate another 1,466 office employees.

Industrial and Office Rents

Rental rates are relatively inexpensive and generally below or at breakeven on development costs. Existing office space rents for \$14 to \$19 per square foot. The most expensive space, which only accounts

for 4% of the total available space, is medical office space currently leasing for \$19.56 on an annual basis.

Observations about Industrial and Office Market Dynamics

In general, the existing available TriTown office space distribution could not easily support a tenant with 50 employees in a single site. As well, given that space needs are less than 10,000 sq. ft. for a user of this size, it can be difficult to do a build-to-suit ground up development for a single tenant. The reality is that, given the rental economics in the region, speculative development would likely have a difficult time attracting financing for the development without a substantial equity investment or public subsidy.

The TriTown area offers a lifestyle decision for professionals that are highly mobile. Co-working space, as well as on-demand office space may make some sense for the area. It is highly unlikely, however, that new construction will be the result of this type of product being introduced into the market. It is more likely a potential repurposing or reprogramming of existing space.

Changes in retail, particularly the impact of Internet shopping and the increasing trend toward same-day delivery, may make the area attractive to some distribution companies; however, adequate land capacity coupled with proximity to transportation networks will likely be the deciding factor.

In general, the best development opportunity, and hardest one to forecast, is a large footprint development as a build-to-suit situation for a larger anchor tenant. The TriTown area will be competing for locational opportunities against existing available properties that are either move-in ready or construction ready. Given the large availability of existing space in the Hartford, New Haven, New London triangle, competing for this type of opportunity requires the key following consideration: **creation of pad-ready sites with an easy development pathway.**

Retail

Supply-Demand

The basic issue for the area is that, based on standard metrics, the region in total has an excess amount of retail capacity in most categories for what its population can in theory support (See Table 14). For example General Merchandise, Apparel, Accessories, Furniture, and Other Sales GAFO sales³ are \$149 million in excess of locally-generated demand. Full-service restaurants are almost \$22 million more than locally-generated demand. This is possible for three major reasons. First, the outlet malls are major magnets that pull traffic from Interstate 95. Clothing sales are 68% of the excess demand in GAFO, indicating a

strong regional draw. Second, the area is a tourist draw during the summer; supporting higher levels of restaurant spending. Third, the area is the major shopping hub for people living in immediately surrounding towns who do not want to travel north of Middletown/Cromwell, east to Waterford/New London, or west to Greater New Haven to shop.

Table 14: Retail Types and Gaps/ Surpluses

RETAIL CATEGORIES	Gap / (Surplus)
GAFO *	\$ (149,775,560)
General Merchandise Stores-452	\$ (39,553,186)
Clothing and Clothing Accessories Stores-448	\$ (97,903,168)
Furniture and Home Furnishings Stores-442	\$ (3,333,626)
Electronics and Appliance Stores-443	\$ 610,896
Sporting Goods, Hobby, Book, Music Stores-451	\$ (2,522,523)
Office Supplies, Stationery, Gift Stores-4532	\$ (7,073,953)
Foodservice and Drinking Places-722	\$ (28,795,806)
Full-Service Restaurants-7221	\$ (21,559,219)
Grocery Stores-4451	\$ 12,996,391
Supermarkets, Grocery (Ex Conv) Stores-44511	\$ 12,258,078

Source: NP analysis of Nielsen Site Reports data, 2013

While the data in Table 14 implies that local market needs may be underserved, that may not necessarily be the case. For example, the data suggests that grocery stores, particularly supermarkets, are an unmet need with a demand level of \$12-\$13 million across the three communities. A typical supermarket will generate at least \$12 million a year in revenue⁴, thus indicating that the region is right on the cusp of being able to support another full-service grocery store. These estimates are inexact and do not reflect different categories and product segments typically carried which can make a particular geography more or less attractive. Therefore, even though the data is suggestive of demand, it is more likely that existing retailers will expand

³ GAFO is product typically found in a general department store

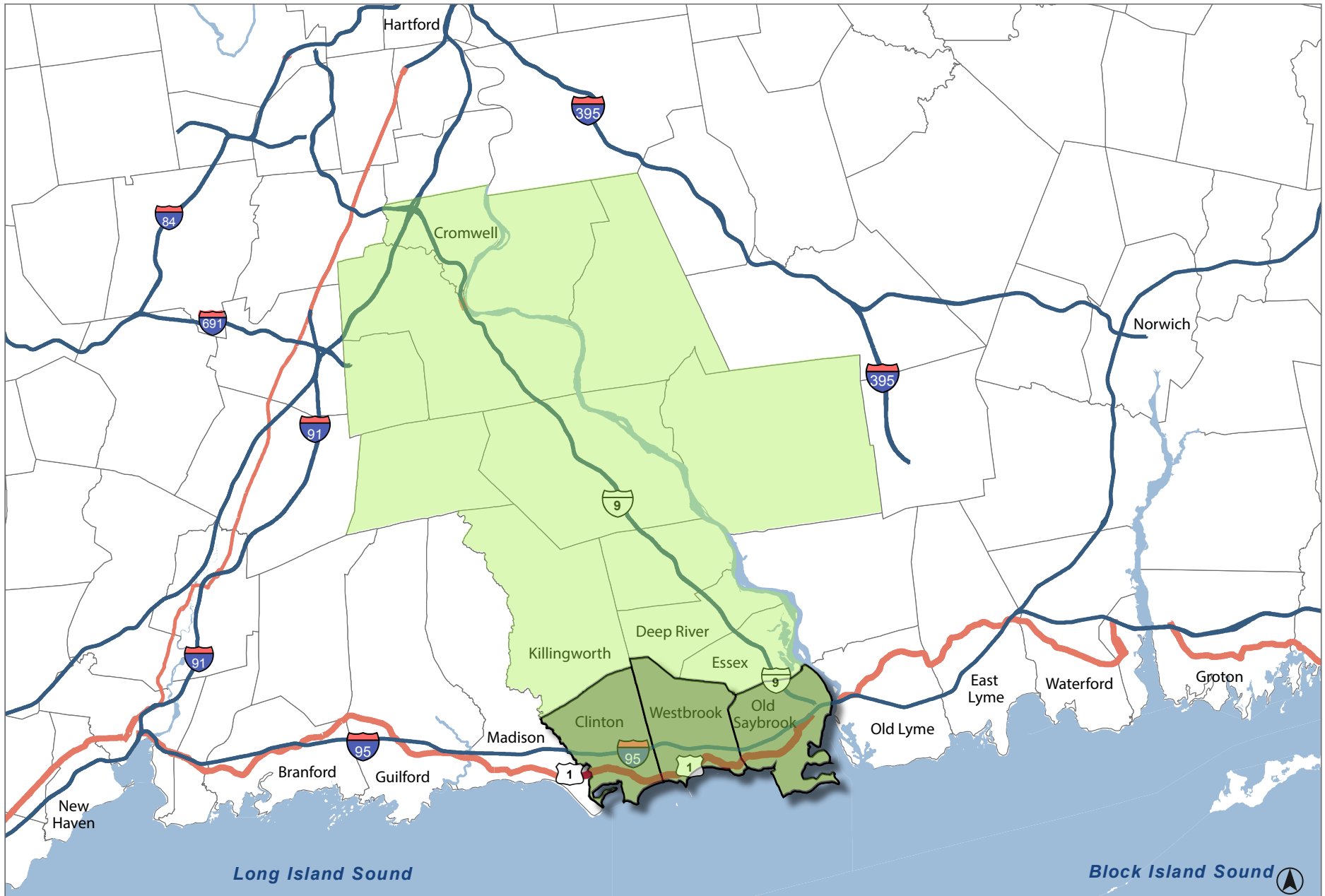
⁴ Food Marketing Institute, Supermarket Facts 2012

their merchandise categories or more detailed customer profiling will identify an unmet market need for a retailer with a merchandising model that matches well with those customers.

Availability & Market Factors

Another significant factor is availability and pricing of existing retail space with particular emphasis on its impact on non-national/super regional chain anchored speculative developments. Presently, the broad regional market has 2.4 million square feet of retail capacity.

FIGURE 24: MARKET AREA FOR RETAIL INVESTMENT



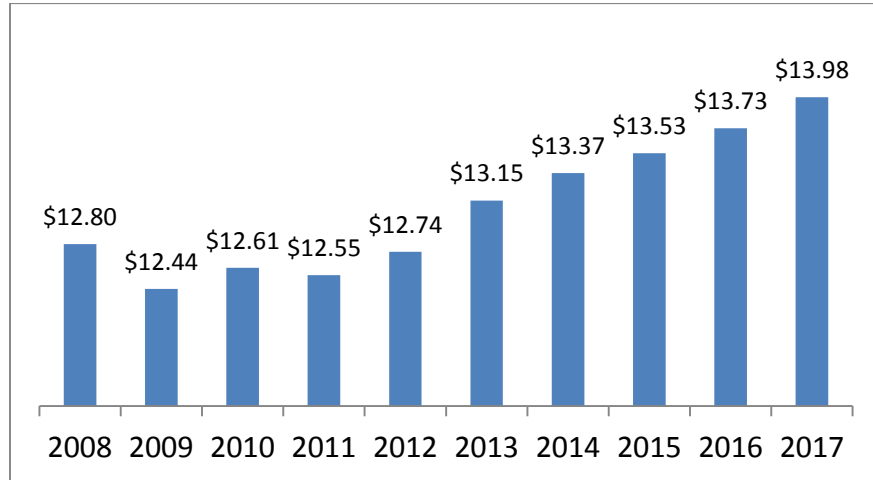
Source: Major Retail Store Locations, Loopnet, compiled by Ninigret Partners, January 2014.

One aspect that could promote new development, or certainly increases the possibilities of redevelopment, is the relative age of the shopping centers in this major shopping corridor in the TriTown area. 74% of the buildings were built before 1979. Only 2 % of the retail buildings are less than 10 years old. Most importantly the older buildings have better highway access, with a median distance to the highway of 3.6 miles.

Rents

Rents have been essentially flat since the recession but are forecasted to begin growing, albeit slowly, in 2014. Rents have fluctuated between \$12.44 to \$12.80 per square foot over the last five years as shown in Exhibit 10.

Exhibit 10: Retail Rents, Middlesex Sub Area



Source: NP analysis of REIS Reports, 2013

Although available vacant space totals approximately 133,000 sq. ft. in the overall region as shown in Exhibit 11, some perspective is necessary. A Target store or general merchandise store is 126,000 sq. ft. in size. The vacancy rate of 6% is substantially less than the Hartford-area

vacancy rate of 8% and well below the national rate of 9.7%.⁵ Therefore, although the amount of vacant space seems high, in fact compared to the market conditions and formats it is not.

The TriTown Region

Broker listings suggest that approximately 63,000 sq. ft. of retail space is currently available. This suggests that the TriTown region may account for somewhere between 40% to 50% of current vacancies of the total region. Leasable space ranges from 1,600 sq. ft. up to 24,000 sq. ft. Another 127,000 sq. ft. has been proposed. Rents for the available space range from \$8.76 sq. ft. up to \$24 sq. ft. for a restaurant with equipment. Most of the rents are below the region's average asking rent.

Observations about Retail

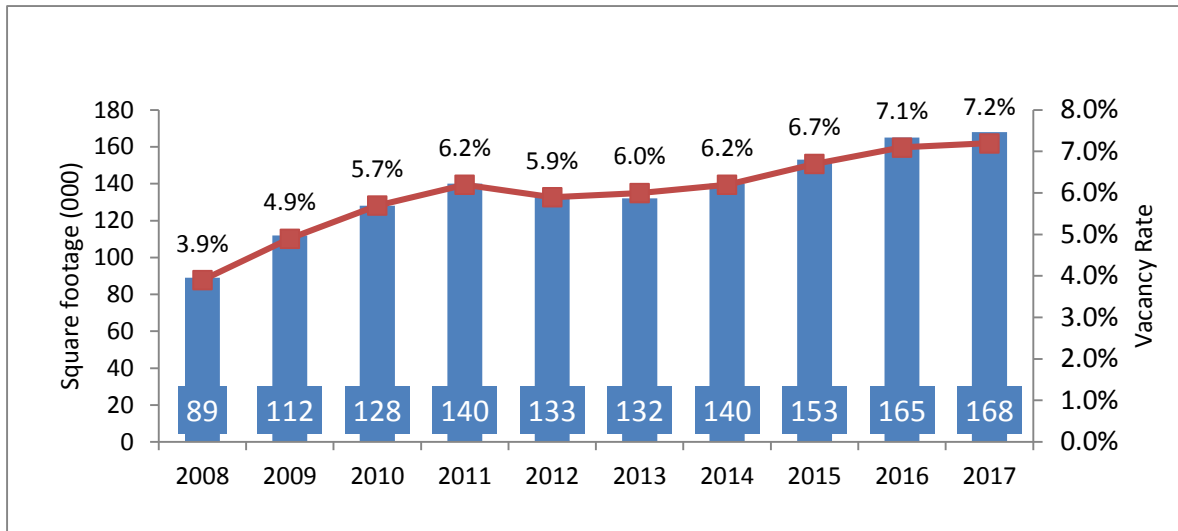
Retail as an industry is at a crossroads because of the internet and new emerging retail formats; which is putting pressure on retail space development and utilization. However, like any other product, innovation in the areas of merchandising models, retail experience and formats, periodically reshapes the landscape. For example Marcus and Millichap, real estate investment advisors, note that 20 million sq. ft. of outlet center development is underway in the US – an area in which the TriTown region already maintains an extensive presence. Lifestyle centers and new urbanist-style formats are the current focus of major retail development projects around the country.

Given the relatively low population growth dynamics of the area, towns must be cognizant that any new retail development focused on the local market will likely cause a redistribution of existing sales. Therefore key consideration should be given to appropriate reuse of existing shopping destinations. A thorough understanding of zoning, parking, and access limitations is necessary to fully utilize those sites for new retail formats. Finally, given the dynamics of rents, parking, and access, town center retail is substantially different from shopping center retail. Moreover, unless the town center becomes a shopping destination by itself due to

⁵ NP analysis of REIS Hartford Submarket reports

some unique offering, a mix of programming and activities will be necessary to support an active customer base.

Exhibit 11: Retail Vacancy Levels



Source: NP analysis of REIS 2013 market data

Demographics & Housing

The relationship between demographics and housing demand is related to three key factors: population growth and household formation, commuting patterns of the labor shed, and demographic changes. Absorption of housing is a much more complex subject involving a mix of product types, price points, target markets, accessibility to work, and a myriad of other factors that will need to be considered as the corridor plan moves forward.

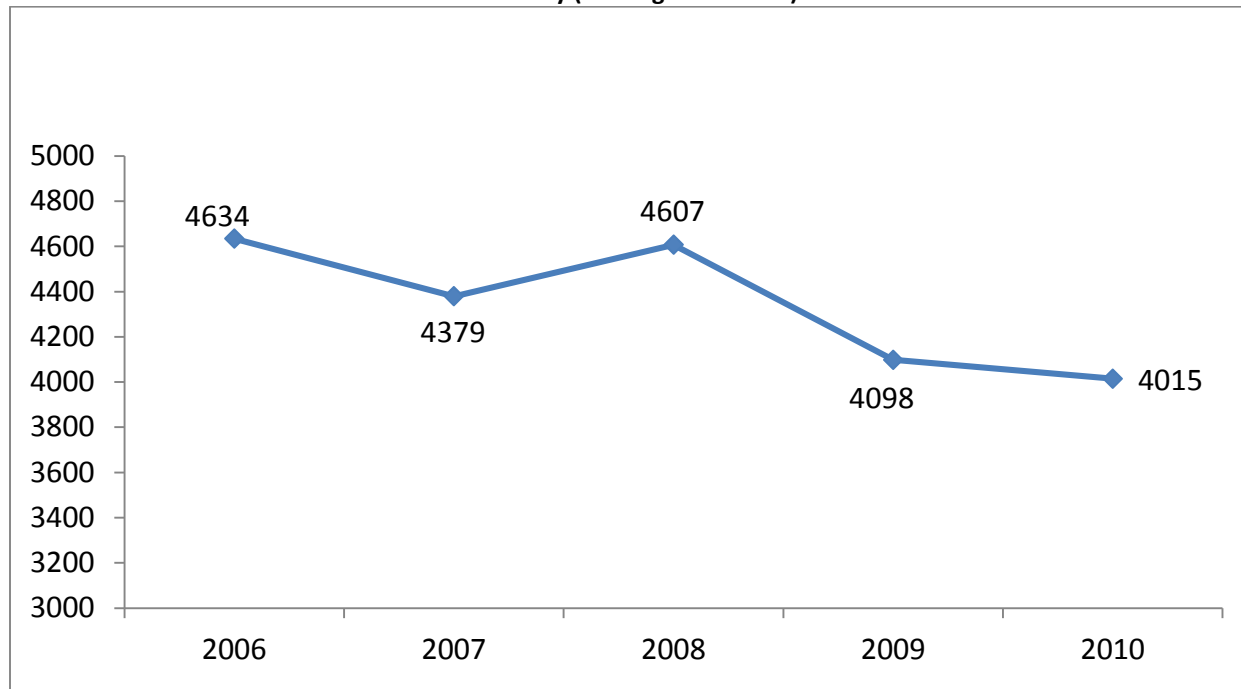
Population Growth and Household Formation

Population forecasts generated by The University of Connecticut for the Lower CT River Valley estimate that in 2025, 181,000 people will live in the Lower Connecticut River Valley planning region. This represents an increase of 2,200 people above its current population. Based on current ratios of people to households, this equates to roughly 966 additional households needed by 2025.

IRS migration data for 2010 shows that Middlesex County has on average a net outmigration of approximately 250 households for the year (See Exhibit 12). Inflows into Middlesex were 4,015 and outflows were 4,258 households in 2010. However, from the perspective of housing development, 4,015 households moved to Middlesex County in 2010. This represents the lowest point in the last 5 years. For purposes of planning, it is reasonable to assume a range between 4,000 to 5,000 moves into the region. A portion will choose to live in the TriTown area.

The vast majority of this migration will move into existing housing structures; however, a portion will seek new homes. Nationally, new home sales represent between 8% and 10% of all home sales. Additionally, some will seek to rent in new multi-family developments. For frame of reference, 1,992 new apartments were approved for construction in Connecticut in 2012.⁶

⁶ National Multifamily Housing Council

Exhibit 12: Household Moves to Middlesex County (IRS Migration Data)

Source: NP analysis of IRS County to County Migration data

Commuting Patterns & the Labor Shed

Commuting patterns are particularly important when one considers the potential for housing growth as a driver of future demand. For example, examination of the distance-direction data from the Longitudinal Employer Household Dynamics survey (LEHDS) finds that 2,287 workers commute more than 25 miles to the TriTown area.⁷ This would suggest that, given the distance involved in their commutes to work, with appropriate housing options in the area some portion of this pool of people could potentially move to the TriTown.

Additionally, continued growth in the life sciences sector in New Haven, as well as its spin offs in Branford and the surrounding communities,

could have a positive impact on the area in terms of housing development and supporting retail. These benefits could however be limited by the proposed development of commuter rail service between Hartford and New Haven as well as the high probability that transit oriented developments will also occur along the MetroNorth corridor into New Haven.

⁷ We exclude those that commute more than 50 miles from these surveys particularly for smaller communities as likely a statistical anomaly

Demographic Changes

Some fundamental demographic data for the three towns is shown in Table 15 below. The data from the Connecticut Economic Resource Center (CERC) indicates a relatively affluent area, as compared with the State of Connecticut as a whole. Total population is projected to grow to 2020 in Westbrook but decline in Clinton and Old Saybrook for a slight decline in the three towns overall in the coming 6 years.

The population forecast created by UCONN shown in Exhibit 13 shows a predicted increase in three demographic cohorts: 1) “empty nesters” or those between the ages of 50 to 65, 2) people 75 and older still living in

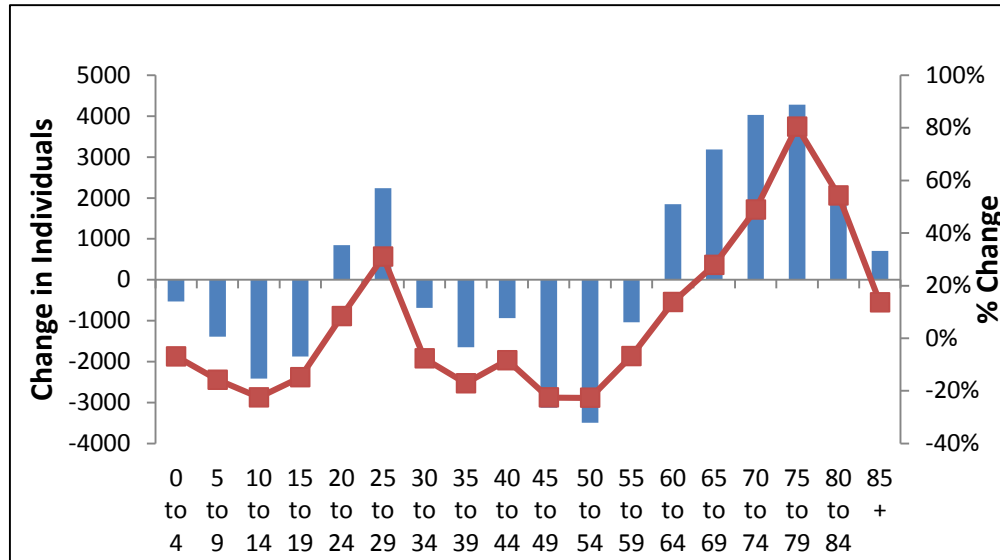
their home, and 3) people between the ages of 25 and 29. The data shows a decline in those between the ages of 30 to 45. This has some interesting potential implications. The predicted surge in “empty nesters” who may choose to sell their homes and downsize creates a potential upside for multifamily housing structures, either rental or condominium, and similar type properties. Additionally, the increase in 25 to 29 years olds reinforces that potential demand due to their higher propensity to rent; however, the decline of population of those in prime home purchasing years, the 30 to 45 group, is a concern because it raises questions as to the potential buyers for the empty nester properties.

Table 15: Existing and Projected Demographic Data for the TriTown Area

Town	Total Population 2010	Projected 2020 Population	Median Age	Housing Units	Average Household Size	Median Household Income	Median Household Value
Clinton	13,316	12,840	44	6,105	2.2	\$75,122	\$286,000
Westbrook	6,860	7,362	46	3,444	2.0	\$60,422	\$270,900
Old Saybrook	10,326	9,643	51	5,890	1.75	\$80,347	\$371,250
Total	30,502	29,845		15,439			

Source: Connecticut Economic Resource center (CERC)

Exhibit 13: Age Projections for Lower Connecticut River Valley Planning Area (UCONN)



Source: NP analysis of UCONN population forecast data for state planning regions

SUMMARY: MARKET CONDITIONS AND OPPORTUNITIES IN THE ROUTE 1 CORRIDOR

The Clinton, Westbrook, Old Saybrook area has several key factors that will influence development patterns:

- Demographic changes suggest a potential for increased demand for multifamily housing products resulting from a combination of growth in empty-nesters and 25-29 age cohorts.
- Improved rail access and increased job growth in the New Haven metro area could be an important driver of some TOD-oriented demand supporting development in the study area.
Note that:
 - There will be competition for this investment in the I-91 corridor, and

- Additional development of amenities and “place-making” will be important points of differentiation versus other communities seeking TOD-driven investment.
- Commercial real estate dynamics suggest a greater probability of infill and reuse development rather than new “greenfield” development. This is because:
 - Relatively low price points for space coupled with low vacancy suggests limited demand,
 - Development aimed at local markets will likely serve to redistribute existing retail sales creating the potential for increased vacancies,
 - Older retail facilities in the area will need refitting in the next several years to remain viable, and
 - Changing retail formats (e.g. plaza infill, lifestyle centers, new urbanist models) may require an examination of zoning including increased reuse of existing Town Center storefronts.

The lack of fervent demand in the towns creates an opportunity to carefully consider zoning, design standards, and transportation issues to encourage and enhance refit and reuse strategies for the Corridor’s existing developed properties. These strategies will be explored in subsequent study phases.

The background of the slide is a stylized landscape. It features a light green sky, a light green ground area, and a blue water area at the bottom. The water area is irregular and wavy, suggesting a body of water. The green area is also irregular, with some darker green patches. The overall style is minimalist and modern.

VI. Corridor Vision and Preferred Land Use Scenario

VI. Corridor Vision and Preferred Land Use Scenario

A. Community Visioning

A critical early step in developing a corridor plan is to understand the community's vision for the corridor over time. Visioning helps answer questions such as how much and what type of development is envisioned, what are the priorities for infrastructure improvements, how does the function and character of the corridor change over time, and what will be the regional role of the corridor in the future? To try to understand and develop a shared vision for the corridor, the study team conducted a number of outreach events including:

- **Study Advisory Committee (SAC) Visioning Exercise:** This exercise focused on a variety of topics and asked the committee members to brainstorm the key issues to address as well as what elements they would add or eliminate. Topics such as walking and biking, driving, transit, public spaces, tourism/recreation, retail /services, and environmental preservation were explored.

The SAC members were also asked about their thoughts on the most pressing issues and the greatest potentials for the corridor. Samplings of their responses are listed below:

Most Pressing Issues:

- Safety
- Management of traffic from I-95 and increasing volume and congestion, particularly in summer
- Excessive number of driveways
- Lack of sidewalks and other pedestrian amenities
- Balancing economic development with preservation of corridor character

- Larger retail near interchanges drawing business from Route 1 and Town Centers

Greatest Potential:

- Transit oriented development opportunities near all three Town Centers
- Multimodal opportunities to serve recreational nature of area and enhance neighborhoods
- Access management and 'road diet' to increase safety
- Extension of Shoreline Greenway from Madison to Connecticut River
- Unifying Route 1 with core community identity through branding on a regional basis
- Preservation of unique shoreline character

- **On-Line Visioning Survey:** An online survey was conducted as part of the public outreach for the Route 1 Corridor Plan. Nearly 300 people completed the survey, which consisted of 20 questions. A report outlining the results of the survey is included in the Appendix and comprises an overview of all survey responses, as well as responses separated by town and a comparison by town.

The vision that respondents have for Route 1 creates a scenic corridor of charming coastal towns or Town Centers, complete with small-scale shopping, dining and housing within each town, and connected by open spaces for coastal views and environmental preservation. Accommodations along the corridor would include those for bicycling and walking and would include specific items such as a marked bike lane or off-road bike path and connected sidewalks and crosswalks. Growth should primarily be limited to the towns, and traffic calming enhancements and overall beautification of the corridor are other important components.

Highlights noted from the survey include:

Live and work

- Most respondents claimed to be year-round residents, and more than 50% of all respondents were from Old Saybrook.
- Most respondents work outside of the three study towns, Clinton, Westbrook, Old Saybrook and nearby towns, but the Towns of Westbrook and Old Saybrook have a greater proportion of respondents that work within their hometown than the Town of Clinton.

Use of corridor

- Most respondents use the corridor for shopping, dining, recreation and traveling home.
- More than half of the respondents use the corridor on a daily basis.

Vision

- The preferred vision for the corridor is described as charming coastal towns with concentrated retail in Town Centers.
- The preferred types of land use include shops and restaurants, public spaces for community use and open spaces for environmental preservation. The Town of Clinton respondents had a stronger preference for shopping and restaurants, while the Towns of Westbrook and Old Saybrook had a stronger preference for open space and preservation.
- The preferred types of economic development includes commercial growth and housing within Town Centers, though more than a third of respondents felt that growth should be limited.
- The preferred type of open space is the preservation of open coastal views.

Concerns

- The greatest travel concern is traffic congestion; other concerns include the lack of sidewalks and crosswalks and the lack of bicycle facilities.

Improvements and opportunities

- High priority improvements include bicycle lanes, shoulder or paths; sidewalks and crosswalks; traffic calming enhancements and beautification. Medium priority improvements include shops and restaurants and additional bus routes and stops.
- The highest priority for bicycle improvements was a marked bicycle path, followed by an off-road bicycle path and then wider shoulders.
- High priority transportation improvements include reducing vehicle congestion and creating a more bikable corridor. Medium priority transportation improvements include improving the safety of the corridor, creating a more walkable corridor and traffic calming.
- Most respondents see the greatest opportunity for the Route 1 corridor to become a shopping and restaurant district, pedestrian and bicycle recreation and a scenic corridor.

- **Mobile Visioning Event:** This was a multi-day traveling workshop to community events in each town to gather input on issues, transportation priorities, and land use vision from public participants or all ages. These mobile visioning charrettes were held at the Saybrook Winter Stroll on December 6, 2013, and the holiday tree lighting events in Clinton and Westbrook, both on December 8, 2013. A simple interactive display was set up and the team encourage participation from everyone attending the events. The display asked participant to 'vote' for their priorities with respect to transportation and land use in the

corridor. The tables below show a summary of responses to the priorities of the study area residents. Key observations include:

- Improving bicycle accommodations was the top priority in all three towns
- Congestion was a larger issue for Clinton respondents than the other two towns
- Improving pedestrian accommodations was a high priority for all three towns
- All three towns felt that preserving or enhancing the recreational and coastal character of the corridor was the highest priority for land use
- Higher density active Town Centers was the next highest land use priority for all three towns
- All three towns valued their town greens
- There was moderate support for medium- to larger-scale economic development throughout the corridor and at interchanges and near train stations

The study team got great positive feedback on the need for the study and the outreach effort itself and liked the concept of “taking the public meeting TO the public – even in the cold. As part of the Mobile visioning events, the study team developed a tri-fold informational project display which were then to be utilized at Town Hall and Public Library displays as well as some additional outreach to some traditionally underserved groups such as Vista, senior centers and LEP groups to inform the public about the study. Business cards were passed out providing a link to the project webpage to increase visibility about the project and help to develop the project email list.

Table 16: Public Involvement Meetings

Event Location and Date	Clinton 12-8-2013	Westbrook 12-8-2013	Old Saybrook 12-6-2013	
Transportation Priorities				
				Total
Reduce Congestion	62	31	54	147
Improve Safety	36	52	40	128
Improve Bike Accommodations	66	143	114	323
Improve Pedestrian Accommodations	54	99	90	243
Increase Transit Options	40	60	32	132
Total	258	385	330	
Land Use Vision				
				Total
Coastal and Recreational Uses	96	122	125	343
Village Greens	40	91	74	205
Low Density Quiet Village	21	42	34	97
Higher Density Active Villages	76	93	85	254
Moderate Scale Off-Street Retail Throughout Corridor	45	42	20	107
High Density Development Near Interchanges and Train Stations	18	20	24	62
Total	296	410	362	

Source: Fitzgerald and Halliday, Inc.

B. The Vision

The variety of visioning outreach events helped the project team develop a shared vision for the corridor that was developed from a wide variety of residents and other stakeholders. A summary of the corridor vision is:

Route 1 will be known regionally as a coastal and recreational destination with small-scale and larger national retail shopping and dining opportunities combined with cohesive Town Centers that reflect a sense of vibrancy and a strong year-round community.

The Route 1 corridor transportation network will:

- Balance local and regional transportation needs
- Provide mobility and safety for all modes of travel – auto, transit, bicycle, and walking
- Provide continuity in the transportation network – within and between modes
- Provide safe and efficient access to properties along the corridor
- Enhance train station areas with better station access and connections to Town Centers

The land use patterns along Route 1 will:

- Emphasize and enhance Town Centers and other activity nodes and focus development in clusters
- Preserve lands outside development clusters
- Discourage continued sprawl
- Preserve and enhance environmental and recreational resources
- Preserve neighborhoods and the unique coastal character and history of the corridor
- Promote higher-density mixed-use growth near train stations following Transit-Oriented Development principles

C. Preferred Land Use Scenario

OVERVIEW

The vision expressed for Route 1 reflects the way that stakeholders would like to see the character of the corridor evolve. The question becomes, what pattern and mix of land uses would accomplish the vision while still being considered feasible in the context of existing land

use conditions, the environment, and economic climate? Second, what does this mean for the transportation system and the vision for how that should function? How land is used is a major factor affecting travel demand and patterns in the corridor. As new land development patterns occur, it impacts or changes travel modes used and travel demand. Consequently, it was essential as part of the corridor planning process to explore potential patterns of land use and articulate potential scenarios for the future.

Land use and the transportation system each influence one another in a dynamic way. Where there is sound, safe, and convenient access, development has a greater opportunity to flourish. Conversely, where the pattern of land use follows Smart Growth principles, congestion can be better managed on the roadways and use of alternate means of travel such as walking, bicycling, and taking transit can be supported and optimized. A Preferred Land Use Scenario was developed for the Route 1 corridor that embodies these objectives and offers a framework for guiding decision-making on both future development approvals and transportation system enhancements.

Scenario Development Process: Two land use scenarios were evaluated in order to develop a Preferred Land Use Scenario for the Route 1 Corridor and for future transportation planning purposes. These two scenarios included:

1. **Status Quo Scenario:** This scenario reflects what might occur if no changes were made to the existing systems of land use management including zoning and municipal investment, and all the current development opportunity sites were fully utilized.
2. **Preferred Land Use Scenario:** This scenario incorporates the corridor Vision, market considerations, environmental constraints, and contemporary land-use regulatory practices, as well as Smart Growth principles. It aims to concentrate higher density development in the most appropriate locations rather than continue the existing trends of random sprawl development; ultimately allowing for preservation and

enhancement of the balance of the corridor. This scenario, as will be explained later, aims to create more comfortable transitions in development type and density, particularly with respect to transportation access and proximity to I-95 interchanges.

This discussion concludes with a look at each scenario by the numbers. An assessment and estimate was made of how many square feet of non-residential development and housing units would occur under each scenario. This information was translated into potential vehicle trips on Route 1 and also illustrates the transportation impact benefit of following Smart Growth principals.

STATUS QUO SCENARIO

The Status Quo Scenario provides some insight into what the future could look like if no pro-active changes are made to land use management or infrastructure in the Route 1 corridor. For the purposes of developing this scenario, it was assumed that:

- All the development opportunity sites would be fully developed
- Yet, environmental constraints to development would limit the developable area on any one site
- Today's zoning would apply to the uses on each site
- Where both residential and commercial uses are permitted in the same zone, it was assumed that 60% would become commercial and 40% would become new dwelling units

Two versions of this scenario were considered; a Short-Term vision (5-7 years) under which the 3 major development concept sites (Clinton Nurseries, Unilever, and Mariner's Way) would not be completed and a Long-Term version (8 years or more) under which those sites development would be complete.

Under the Short-Term Status Quo scenario, the pattern of land use would remain the same yet become more intense. The tendency to sprawl along the corridor would continue. Where the development opportunities are clustered in a Town Center or downtown (such as in

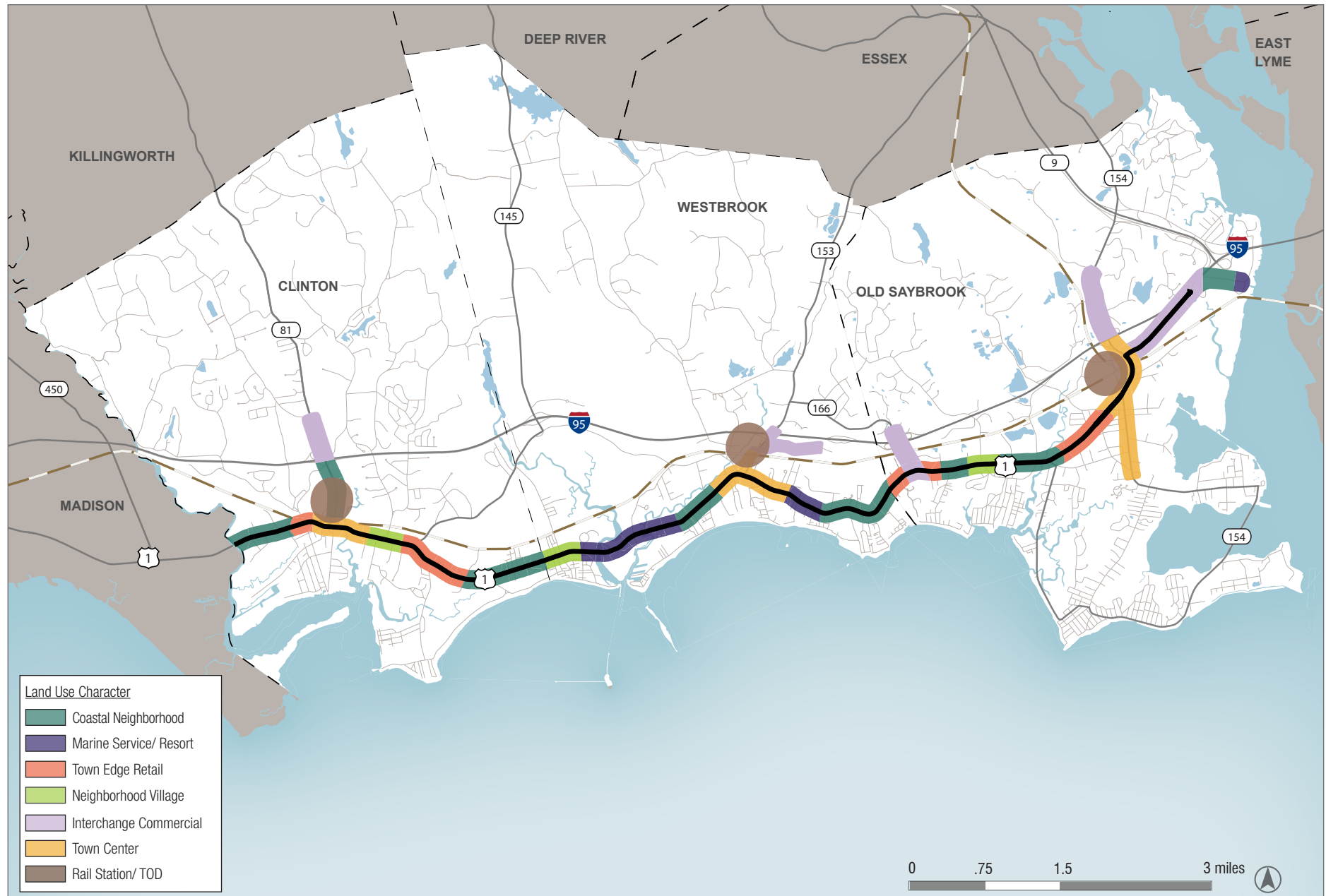
Westbrook), that development node could have a greater intensity of uses clustered together, but no other enhancements to the character of the node would occur. Under the Long-Term Status Quo Scenario, the land use patterns would be altered somewhat with much greater intensity of development at and surrounding the three major development sites/areas, while the sprawl along the balance of the corridor would remain and also intensify somewhat.

The evaluation of this scenario allows a better understanding of the implications of allowing current trends to continue and highlights the value of determining a Preferred Land Use Scenario and putting into place the regulatory framework, incentives, and transportation infrastructure needed to promote the evolution of this scenario.

PREFERRED LAND USE SCENARIO

The Preferred Land Use Scenario is shown in *Figure 25*.

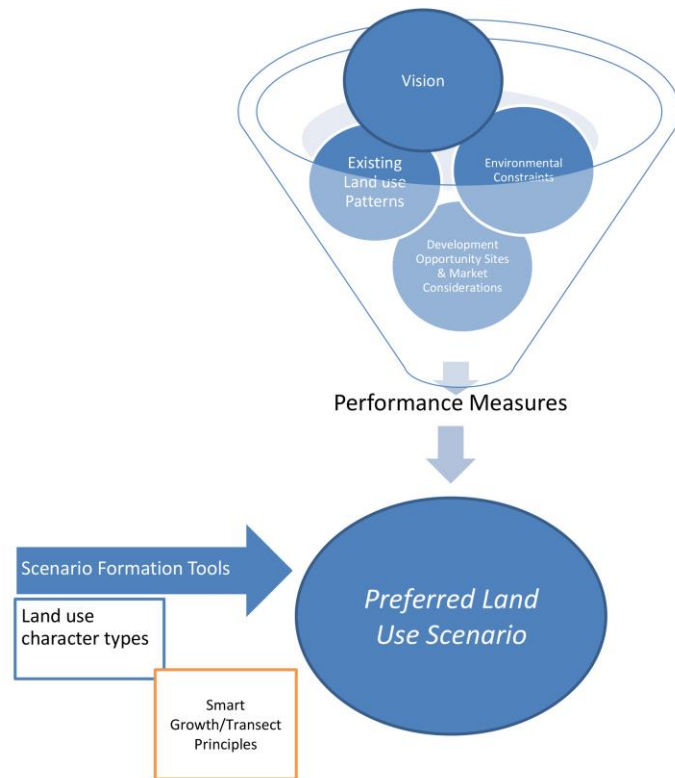
FIGURE 25: PREFERRED LAND USE SCENARIO



Source: Fitzgerald & Halliday, Inc.

The process of developing this preferred future land use scenario is shown in the flow chart in Exhibit 14. The inputs to this process are described in more detail below.

Exhibit 14: Preferred Land Use Scenario Process Flow Chart



Source: Fitzgerald & Halliday, Inc.

The Corridor Vision, existing land use, environmental constraints, market considerations, and development opportunity sites were examined in the foregoing chapters of this report. The inputs to the process for performance measures and scenario formation tools are detailed in the next section.

PERFORMANCE MEASURES

The performance measures are a comprehensive listing of the key existing conditions that the future land use scenario should address and the objectives derived from the Corridor Vision it should help accomplish. An additional core principle applied as a performance measure was to consider a pattern of land use that takes a corridor-wide perspective. Transitions in land use should be complementary across the corridor regardless of municipal boundaries and should provide more comfortable transitions in development type and density, particularly with respect to transportation access and proximity to I-95 interchanges. Where the municipal lines meet, the character of development in one community should be complementary to the character of development in the adjoining community at the town lines.

Key elements that the Preferred Land Use Scenario should address include:

- Community visions from Plans of Conservation and Development as well as visioning exercises completed for this study:
 - Old Saybrook seeks the most significant economic development in the form of infill – Mariner’s Way on Route 1 is a major conceptual vision for highway-oriented development in the Route 1 East Old Saybrook segment. The potential for mixed-use transit oriented development (TOD) near the Old Saybrook train station should be also forwarded in the Preferred Land Use Scenario.
 - Westbrook seeks little to modest growth to preserve existing patterns with concentration of growth and community node enhancements near the Town Green.
 - Clinton seeks modest growth concentrated near the train station/Town Center area as well as at the Route 81 interchange. Clinton also envisions an enhanced Town Center with strong connections to the potential train station development node.

- Sprawl; Existing disparate land uses and scale of uses along the corridor
- Natural resource constraints; incursion of development into sensitive natural areas
- Ongoing climate change; need to design sites and structures to respond to significant storm events
- Sewer avoidance policy; no public sewerage systems planned
- Seasonal population fluctuations; influences sustainability and viability of businesses
- Limited ‘greenfields’ of size for ‘anchor’ attraction or magnet development; Mariner’s Way, Unilever and Clinton Nurseries are the largest opportunity sites/areas
- Large population of empty nesters and decline in population of typical home-buying age
- The market assessment conclusions indicate that the Town Centers need reinforcement as unique destinations with unique shopping offerings, as well as civic uses or activities that draw the public there with a mix of programming and activities to support an active customer base

Key land use pattern objectives emerging from the Corridor Visioning process were presented in the previous section and are repeated here with respect to how the preferred land use scenario should reflect these goals.

The land use patterns along Route 1 will:

- Emphasize and enhance Town Centers and focus development in clusters
- Preserve lands outside development clusters
- Discourage continued sprawl
- Preserve and enhance environmental and recreational resources
- Preserve neighborhoods and the unique coastal character and history of the corridor
- Promote higher-density mixed-use growth near train stations following Transit-Oriented Development principles

SMART GROWTH/ TRANSECT PRINCIPLES

The best practices applied to formulating the Preferred Land Use Scenario include both accepted Smart Growth practices and a Transect approach to land use form. Smart growth is defined by the national Smart Growth Network as “building urban, suburban, and rural communities with housing and transportation choices near jobs, shops, and schools. This approach supports local economies and protects the environment”. The Smart Growth principles and best practices applied to the Preferred Land Use Scenario include:

- Encouraging sustainable growth; use strategies that meet society’s current needs without compromising the ability of future generations to meet their own needs
- Preserving valued community and natural resources and safeguarding land identified for preservation
- Locating development where there is or will be infrastructure (water, sewer, and roads) and concentrating development there before using raw land
- Placing priority on locating new development in targeted growth areas
- Pursuing a compact, mixed-use pattern of development that preserves or creates walkable neighborhoods and village character
- Fostering housing choice
- Providing adequate public facilities to support the envisioned development form and transportation system
- Using methods, systems, and materials that won’t deplete resources or harm natural cycles
- Creating development under which humans and nature exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations

A Transect approach to land use form is one that defines development in a series of zones that transition from sparse rural areas that are predominantly in a natural state to dense urban core. Each zone contains a similar transition from the edge to the center. Transect form provides a framework for regulating land uses that focuses on

design and protects and preserves the character of each transect and seamlessly transitions from one transect to the next. Today, the existing Route 1 land use distribution already shows glimpses of the transect form as a result of coastline development constraints and historic evolution of coastal villages. However, within the existing regulatory framework and influences of the highway (I-95) and market trends, eventually the glimpses of this transect form that exist today could become much less well defined. Sprawl could become more pronounced and downtowns and Town Centers could be compromised as a result of those sprawl-like development patterns.

Because best practices for a Transect approach to the land use scenario serves to better define the desired land development patterns, particularly with respect to formalizing clusters of development and preserving areas in between, it is more closely aligned with the Corridor Vision. The 'classic' or basic transect concept (T-1 through T-6) as developed by Duany Plater-Zyberk & Co. is shown to the right.



LAND USE CHARACTER TYPES

In order to develop a Preferred Land Use Scenario that incorporates the Transect approach and all of the objectives of the vision and Smart Growth principles, a fresh way of describing the character of the preferred mix of land uses was needed. The following land use character types were developed as part of this study effort using the transect concept and tailoring it to the Route 1 corridor and its communities. These are preferred or desired land use types for broad areas of the corridor that create a unique Route 1 Transect and can, in turn, be utilized to reconsider the type, distribution, and standards for zoning districts across the corridor.

TABLE 17: LAND USE CHARACTER TYPE (1 OF 2)








Map Code	Name	Predominant Use	Typical Lot Size	Commercial building – max footprint in square feet [s.f.]	Transportation Network Type	Example - View
CN	Coastal Neighborhood	Single family homes/beach communities/neighborhood scale commercial uses	1 -2 acres	5,000 s.f. (e.g. beauty salon or gift shop)	Sidewalks in subdivisions and connections to and along Route 1, two-lane arterial along Rte. 1; strategically placed crosswalks on Route 1	
MS	Marine Service/Resort	Pleasure craft marinas, sales, service; resort service/retail, restaurants/entertainment, and water recreation	1-10 acres	10,000 s.f. (e.g. Day spa, boat repair)	Roadway design to ensure boat trailer access and transport, also provides for safe pedestrian and bicycle network to connect marinas to service, retail, and dining opportunities and other tourist destinations	
TR	Town Edge Retail	Mid-scale retail, offices, and personal services with some mixed single, two-family, and garden-apartment style multi-family	1-5 acres	15,000 s.f. (e.g. CVS)	Arterial boulevard along Route 1; focus on access management to preserve capacity and improve safety; interconnectivity between parcels by vehicles and pedestrians	

TABLE 17: LAND USE CHARACTER TYPE (2 OF 2)

Map Code	Name	Predominant Use	Typical Lot Size	Commercial building – max footprint in square feet [s.f.]	Transportation Network Type	Example - View
NV	Neighborhood Village	Mixed Use, moderate density, mostly retail-oriented to serve local residents.	¼ - 1 acre	5,000 s.f. (e.g. small restaurant, neighborhood services and shops)	Pedestrian oriented – with public spaces and destinations that are located outside Town Center	
IC	Interchange Commercial	Large-scale retail, office complexes, lifestyle centers, plazas	10+ acres	250,000 s.f. (e.g. Large grocery, large national retailer)	Auto-oriented boulevard with strong regional highway access; access management, turn lanes; off-street parking with connectivity btwn parcels	
TC	Town Center	Mix of predominantly small-medium scale retail uses; residences over retail storefronts; local government offices; community destinations such as parks, ball fields, library	¼ - 1 acre	5,000 s.f. (e.g. sandwich shop/café; specialty grocer)	Pedestrian oriented; accommodates bicyclists; traffic calmed; public spaces integrated within; strategically organized public parking with buildings close to the street with parking behind	
RR	Rail Station - TOD	Mixed-use at high density (20 residential units per acre) with both residential and retail/services oriented to commuter using the rail station and living within ½ mile	¼ acre	5,000 s.f. (e.g. sandwich shop/café; specialty grocer, dry cleaners)	Pedestrian-oriented, with focus on connectivity to rail station from nearby residential and village environments	

LAND USE SCENARIOS BY THE NUMBERS

One major objective for defining the Preferred Land Use Scenario is to correlate land use to the transportation system and how it operates. The next step in the land use analysis process was to translate the two land use scenarios into numbers. How much land would be developed in each corridor scenario and how that translate into housing units or square footage of commercial space is shown in Table 18. Once these numbers were estimated, the volume of traffic in terms of new daily trips generated can also be estimated to illustrate the related transportation benefits of the Preferred Land Use Scenario. The Preferred Land Use Scenario allows for higher density in Town Centers and Transit Oriented Development (TOD) areas and lower density in coastal neighborhoods and marine/tourist districts. As a result, with the same amount of developed acreage, slightly more economic development potential exists between the Long-Term Status Quo Scenario and the Preferred Land Use Scenario. In addition, as a result of the efficiencies in transportation and access with higher density/mixed-use node, less overall traffic generation is expected with the Preferred Land Use Scenario.

It's important to recognize that this analysis is hypothetical and illustrates a full build-out condition for the two long-term scenarios. The likelihood of development of all 231 acres is slim with the trending for redevelopment and the competitive and slow growing economy. However, the purpose of this illustration is to show the benefits of the Preferred Land Use Scenario, which include:

- Increased opportunity for economic development with higher density development allowed in Town Centers and near transit stations
- Reduced overall traffic impact of development by following Smart Growth principals
- A comfortable and logical transition of development and density as one travels along the corridor as a result of following a Transect mode

- Development of walkable activity nodes with a mix of housing type and services that helps to enhance existing Town Centers while creating additional community nodes
- The opportunity to employ shared-parking policies as well as the efficiencies for parking in areas with a multiple destinations in close proximity to each other
- The ability to discourage continued sprawl trends and preserve the neighborhoods, recreational assets, and environmental resources outside significant activity nodes

These benefits are highly consistent with the community vision for the corridor and still support strong economic growth and sustainability for the region.

The comparative numbers for the two land use scenarios are shown in Table 18 on the following page.

Table 18: Developable Area by Land Use Scenario Type

	Short-Term Status Quo Scenario	Long-Term Status Quo Scenario	Preferred Land use Scenario
Total Acres Analyzed	142	231	231
Net Gain Dwelling Units	172	380	514
Net Gain Non-Residential Floor Area (SF)	2,088,000	3,556,500	3,794,400
Trip Reduction Potential due to Smart Land Use Patterns*	N/A	2,600	10,600
Net New Daily Trips	51,300	85,600	84,600

* Trip reductions due to Smart land use patterns such as shared trips, mode shift to walking or transit, and TOD benefits for commuters.

Source: Fitzgerald & Halliday, Inc.; Use Impacts on Transport, Victoria Transport Policy Institute, 2008

TRANSIT ORIENTED DEVELOPMENT (TOD) OPPORTUNITIES AND THE PREFERRED LAND USE SCENARIO

Each of the train stations along the Route 1 corridor offer an opportunity for transit-oriented-development or TOD. TOD is typically defined as higher-density mixed-use development within walking distance (1/2 to ¼ mile) of transit stations. A TOD area also:

- Increases “location efficiency” or spatial relationships of varied developments so people can conveniently and safely walk and bike and take transit
- Boosts transit ridership and minimizes traffic
- Provides a rich mix of housing, shopping, services, and transportation choices
- Creates a sense of place

TOD is about creating attractive, walkable, sustainable places that allow residents to have housing and transportation choices. Nonetheless, TOD can take many forms. The character of TOD is relative to the area where

it is located. A TOD neighborhood in a suburban community around a Bus Rapid Transit stop may have different development density and qualities than a TOD neighborhood embedded in a City. For the Route 1 corridor communities, their rural coastal character should provide the context for TOD around each train station. The value of identifying these potential TOD areas is that transportation system enhancements can then be targeted to strengthening pedestrian connections to the rail stations and helping to create a complementary surrounding environment. Then, as part of calculating the ‘numbers’ in terms of new development for the Preferred Land Use Scenario, it was assumed that development opportunity sites would be utilized relative to TOD potential with the following distinctions:

- Clinton: the overall intensity of development surrounding the station would remain consistent with the character of the downtown Town Center today. The Unilever site would be redeveloped in a TOD format. It would have a mix of uses consistent with TOD principles including a density of 20 dwelling units per acre.

- Westbrook: development opportunities at an immediately near the train station appear limited, however, better connections to the Town Green and the existing neighborhoods to the west and south of the station should be enhanced. Transit shuttle connections to the Westbrook Outlet Mall and the Shoreline Medical Center on Flat Rock Place could fill the transit gap between the current commuter rail service (Shoreline East) and this large employment node.
- Old Saybrook: the existing development at the train station would remain and the new development opportunity site to the west of the rail station would be in a TOD format with mixed-use while including the number of dwelling units currently programmed for one of the parcels.

FUTURE LAND USE SUMMARY AND THE CORRIDOR VISION

This section illustrated the difference between the continuance of current land development trends and the benefits of attempting to adjust future development trends towards a Preferred Land Use Scenario. These benefits include:

- The ability to create more cohesive activity nodes in key locations along the corridor – these nodes will concentrate development so that the balance of the corridor can be preserved or enhanced
- The ability to create robust economic development opportunities in logical locations that are already served by a strong transportation network while minimizing trip generation and traffic impact
- Increasing the opportunity to use alternative modes of travel between major destinations by increasing density and therefore the viability of public transportation
- Taking advantage of the existing commuter rail service to New Haven and New London by pursuing transit oriented development (TOD) opportunities at all three corridor train stations

- Increasing walking opportunity by concentrating development in nodes
- Producing shared parking opportunities by concentrating development in nodes, and
- Producing a more pronounced Transect development patterns with gradual increases or decreases in development intensity along the corridor to improve transitions into neighborhoods, Town Centers, retail stretches, and highway-oriented development activity areas.

The next phases of this corridor plan development will focus on the development of recommendations to help advance the Preferred Land Use Scenario and the Corridor Vision. It will explore a wide variety of alternative transportation alternatives to support the Corridor Vision and will develop a comprehensive set of land use and transportation recommendations to form the Corridor Improvement Plan.

The background of the slide is an abstract landscape. It features a light green sky and a light blue body of water. The horizon is defined by a white line that creates a series of rolling hills and islands. The water is a solid light blue, and the hills are a solid light green. The overall style is minimalist and modern.

VII. Recommendations and Implementation

VII. Recommendations and Implementation

A. Development of Recommendations

The findings and outcomes of the Route 1 Corridor study process highlighted the unique issues along the corridor associated with the small-town coastal character. These issues often led to competing interests and it was clear that a variety of transportation, economic development, and natural resource priorities needed to be balanced to reach the shared corridor vision, which is as follows:

“Route 1 will be known regionally as a southern New England coastal recreation and retail destination with small-scale and larger national retail shopping and dining opportunities combined with cohesive Town Centers that reflect a sense of vibrancy, history, and a strong year-round community.”

The corridor plan recommendations have been developed to strike this balance while still addressing the needs of stakeholders. To begin this process, the team developed a set of preliminary concepts based on information from the existing conditions analyses, previous reports, best practices research, and the public input received throughout the project. To confirm that these concepts comprehensively reflected the community’s priorities, the Project Team invited the public to a two-day Planning Charrette in June of 2014. The event engaged the public so that they were truly part of the planning and design process. Various activities, such as “Planner for an Afternoon”, established a better understanding of the necessary trade-offs that took place in the development of the preliminary concepts.

Additionally, the input we heard throughout the two-day Charrette highlighted issues that we had yet to identify, confirmed the importance of the issues we had been closely examining, and provided new ideas on how to approach those issues. This kind of ongoing public engagement

helped to garner support within the community for the recommendations.

The first day of the Planning Charrette is consisted of:

- Part 1: “Economic Development along Route 1” – A presentation and discussion of existing market conditions and potential future economic drivers for economic development.
- Part 2: “Planner for an Afternoon” - An interactive activity in which stakeholders engaged in the planning and design process of their town’s focus areas to understand the trade-offs that are often necessary in reaching a consensus on priorities.
- Part 3: “Public Open House” - An interactive opportunity for the public to learn more about the project and give their input on the preliminary recommendation ideas.

On Day 2, the public was invited to participate in a study team working design session and offer their detailed ideas to address the complex issues and desires for the corridor.

Valuable public input was received during the Planning Charrette and greatly contributed to the continued development of the recommendations. Continued engagement and transparency throughout the process through the opportunity to view updated material on the RiverCOG/ Route 1 website and submit comments allowed the community to stay informed, involved, and to develop a sense of ownership of the project. Two meetings were held with the members of the Study Advisory Committee (SAC) in April and December of 2014 to provide project updates and garner feedback. A final public meeting was held in March of 2015 during which a summary of the corridor plan recommendations was presented and discussed in interactive break-out groups by geography. The feedback received during all of these events has been taken into consideration and incorporated whenever possible into the final recommendations.

B. The Recommendations

ORGANIZATION AND APPROACH

The perspective taken throughout this study has been one of looking at the corridor regionally; as a cohesive whole. This is in keeping with the corridor vision to create a dynamic destination with an integrated transportation network that serves the entire corridor while creating a strong identity and sense of place for the community.

The recommendations are intended to outline an agenda for the region and the three local towns for working towards the community vision over time. For this reason, recommendations have been organized by geography into four groups: Regional, Town of Clinton, Town of Westbrook, and Town of Old Saybrook. Each geography's set of recommendations have been further organized according to the main issue that is addressed by the associated recommendations. These issues are as follows:

Mobility and Safety

These recommendations focus on transportation improvements to the study area's roadways and include intersection modifications, network enhancements, improved access ways, access management, curb cut modifications, a road diet of the existing multi-lane section of Route 1 in Old Saybrook, major interchange enhancements, and a regional management plan. The overall objective is to improve traffic operations and flow while enhancing safety and better accommodating other modes of travel.

Transit

The transit options build on and compliment proposed improvements to the Shoreline Shuttle Route and the 9 Town Transit System. The overall objective for transit access improvements is to support the safe and efficient operation of transit vehicles within the corridor and support transit-oriented development in key locales. This means offering a diversity of access points for using transit; transit stops that are integrated with activity centers, and which create connections among them as an alternative to travel by automobile.

Bicycle and Pedestrian Environment

For bicycling, the plan includes shoulder upgrades along much of Route 1, bike accommodations at intersections, a bike signage program, extension of the off-road Shoreline Greenway Trail, and bike amenities (racks) in village centers and at train stations. The overall objective for these recommendations is to create a network of facilities (paths, lanes, enhanced roadway shoulders) that will enable safe travel along the length of Route 1 in the study area by bicyclists.

The plan includes pedestrian improvements that include filling sidewalk gaps and upgrading pedestrian amenities in high activity nodes, such as near each town's train station. Recommendations pertaining to increasing pedestrian safety at intersections include installing pedestrian countdown signals, and painting and maintaining crosswalks at specified intersections. The overall objective is to create a more walkable, human-scale, environment within all the activity centers along the corridor and to enhance pedestrian safety elsewhere, particularly for crossing Route 1 on foot.

Land Use and Development Opportunities

The findings of the first phase of this study resulted in a preferred framework for future land use shown in the Preferred Land Use Scenario documented earlier in this report. This scenario encourages a pattern of land use that transitions from rural to suburban to more densely developed town centers; with each distinct area demonstrating a similar transition from the edge to the center in terms of character and intensity of land use (a concept referred to as "transects"). A variety of tools and strategies are recommended to help promote the development of the preferred land use patterns over time and include modified zoning; design guidelines, transit-oriented development (TOD), resiliency planning, natural resource conservation and restoration, regional branding, targeted corridor marketing, regional land use planning, and regional economic development programs.

LOCAL RECOMMENDATIONS: FOCUS AREA CONCEPTS

In addition to the broad corridor and regional recommendations, detailed focus area concepts were developed in each town based on priority areas identified by the Town Planner in each municipality.

Conceptual enhancement plans were developed for priority “Focus Areas” in each of the three towns and were based on a community vision of the focus area. These plans have been featured on large posters created for each town that illustrate all the concept plans developed for that location. Please refer to *Figure 26*, *Figure 27*, and *Figure 28* on the following pages for snapshots of these posters. For additional detail, high-resolution PDFs can be downloaded from the [RiverCOG/ Route 1 website](#) or viewed at the RiverCOG office.

For Clinton, the Town Center was identified as the focus area and the goal to enhance its economic vibrancy, walkability, and character, as well as to take advantage of planned train station enhancements and nearby development opportunities. The Westbrook focus area centers on the marina district near Pilot’s Point between the Menunketesuck River and Eckford Avenue. The goal was to control growth while simultaneously enhancing the beach and marina-related character and services in order to help sustain and enhance existing businesses. The Old Saybrook main focus area is located west of Downtown Old Saybrook and the heavily developed commercial crossroads of Route 1 and North Main Street (Route 154). The vision for this focus area was to be a regional shopping destination with major national retailers as well as to maintain a smaller-scale local Main Street commercial district.

FIGURE 26: SNAPSHOT OF “LOCAL CONCEPT PLAN POSTER” | TOWN OF CLINTON

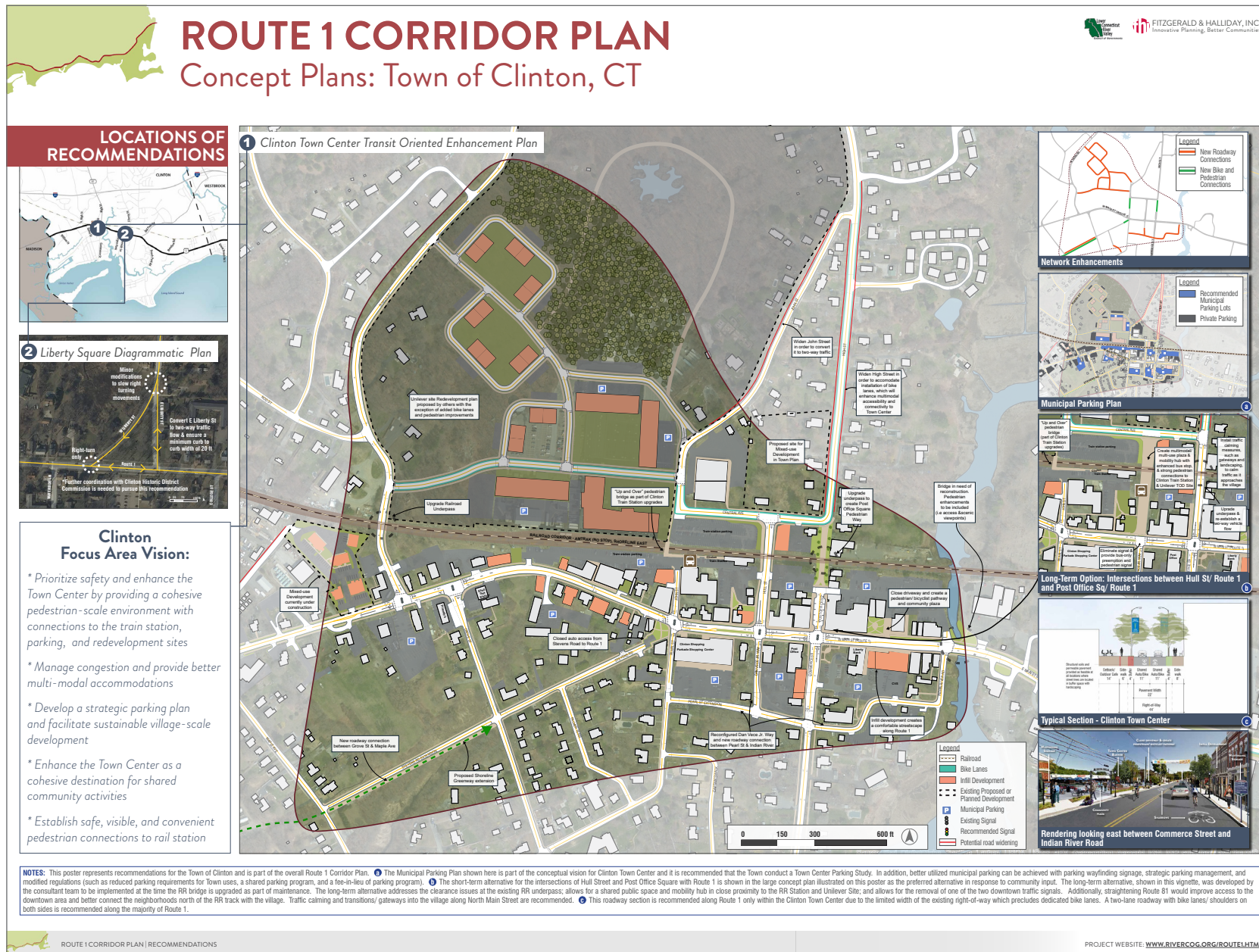


FIGURE 27: SNAPSHOT OF “LOCAL CONCEPT PLAN POSTER” | TOWN OF WESTBROOK

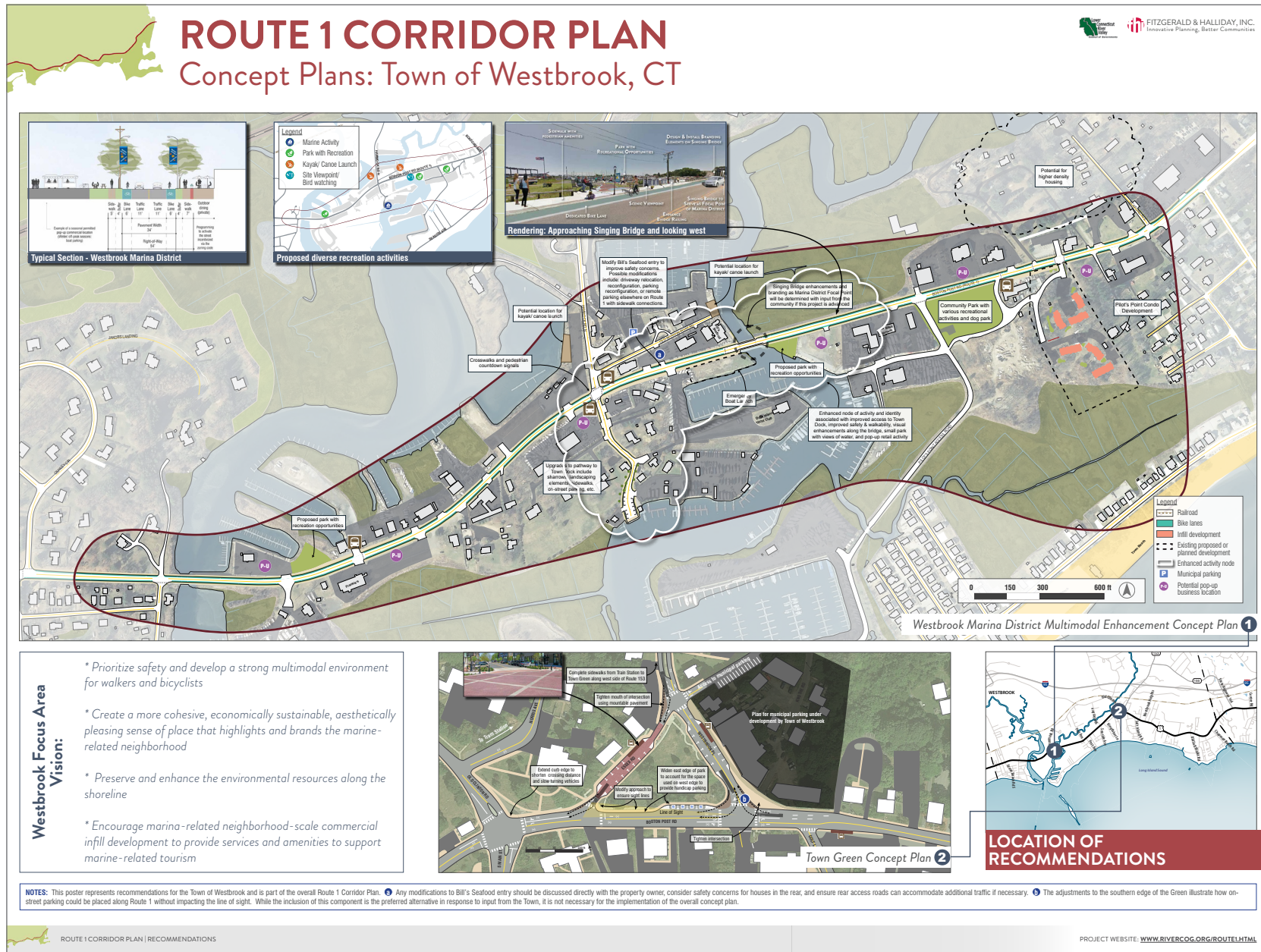


FIGURE 28: SNAPSHOT OF “LOCAL CONCEPT PLAN POSTER” | TOWN OF OLD SAYBROOK



RECOMMENDATION DOCUMENTS & OTHER RESOURCES

These recommendations take the form of both strategies and action items, and the various products have been created to not only guide implementation but also to be utilized during that process as marketing material. This package of products includes this report, the Boston Post Road Corridor Plan Technical Appendix, traffic simulation and mapping files, Local Concept Plan Posters, PowerPoint Presentation Summary, and a Project Summary Booklet.

C. Implementation and Costs

In addition to the package of products listed in the previous section, an Implementation Table (*Table 19* and included at the end of this section) contains a complete, detailed, listing of all recommendations. It also includes information on time frame, designated champions, and order-of-magnitude cost estimates for each.

The Boston Post Road Corridor Plan consists of a total of approximately \$60,000,000 in infrastructure investments and an additional \$500,000 in future study of some key elements. The most significant costs are associated with upgrades to railroad underpasses and I-95 interchanges. The recommendations have been packaged to guide the process of implementation. The realities associated with limited funding sources have been taken into account, and allows the region and towns the flexibility to implement stand-alone projects in accordance with their budgets and priorities. Please refer to *Table 19* on the following pages for further detail on each recommendation as well as an overall cost summary.

TABLE 19-A: RECOMMENDATIONS FOR THE REGION (1 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Mobility & Safety	Major Interchange Enhancements	Complete Elm Street Interchange with I-95 to provide all access movements; Upgrade RR underpass on Elm Street. All network enhancements should employ traffic calming where appropriate	Old Saybrook	5-10 Years	CTDOT	\$14,900,000
	Network Enhancements	Connect Westbrook Outlet Mall (Flat Rock Road) to Route 166 south of I-95. Upgrade North High Street and High Street underpasses in Clinton. All network enhancements should employ traffic calming where appropriate	Regional	5-10 Years	RiverCOG	\$27,400,000
	Access Management	Develop Access Management Standards to be adopted by each Town and complete Curb Cut Plan for entire corridor. Improves Safety, facilitates multimodal operations, and preserves existing capacity by encouraging shared driveways and interconnected parcels, and potential for rear access.	Regional	Immediate	All Three Towns	NA
	Regional Incident Management Plan	Initiate a regional incident management study to address congestion and incidents on I-95. Use real-time variable message signs to direct drivers to preferred diversion routes and provide delay information which has been shown to minimize diversions.	Regional	Immediate	CTDOT	\$200,000
Transit	Shoreline Shuttle Route	Eliminate route deviation system and establish fixed route system for Shoreline Shuttle route. Improves on-time performance and decreases route travel time.	Regional	1-3 Years	9 Town Transit	NA
		Introduce Paratransit service to supplement Shoreline Shuttle Fixed Route. Allows for certification of disabled patrons – benefiting them in all transit district who offer para-transit services.	Regional	1-3 Years	9 Town Transit	\$230,000
		Increase the size of the buses on the Shoreline Shuttle to thirty foot heavy duty transit style buses to allow for four buses (three used at peak plus one spare).	Regional	1-3 Years	9 Town Transit	\$2,650,000

TABLE 19-A: RECOMMENDATIONS FOR THE REGION (2 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Transit (continued)	Shoreline Shuttle Route (continued)	Additional service in the morning and evening to fill in the gap of eastbound commute availability.	Regional	Immediate	9 Town Transit	\$98,000
		Modify current Shoreline Shuttle Route to include Westbrook YMCA. The YMCA is a major destination within Corridor with potential for strong transit use.	Westbrook	Immediate	9 Town Transit	Negligible
		Establish marked bus stops throughout Shoreline Shuttle Route & eliminate "flag down" practice. Aimed to address random bus stopping & associated safety concerns.	Regional	Immediate	9 Town Transit	\$15,000
		Construct major bus stops at key locations with enhanced amenities and information kiosks that will provide better information to riders and enhance rider comfort. Nine locations identified.	Regional	1-3 Years	9 Town Transit	\$450,000
	9 Town Transit System Changes	Create pulse point for 4 routes at Old Saybrook Train Station. Coordinate route schedules to minimize layovers for transfers between routes.	Regional/Old Saybrook	1-3 Years	9 Town Transit/CTDOT	NA
Bike & Ped Improvements	Upgrade Pedestrian Amenities in high activity nodes	High activity nodes: <ul style="list-style-type: none"> • Old Saybrook from Stage to Elm • Westbrook Green and Old Clinton Road area • Grove Beach Rd intersection (<i>Intersection identified for potential operational & streetscape improvements to be determined with input from the community if the project is advanced.</i>) • Hull St in Clinton converted to woonerf/ pedestrian path 	Regional	1-3 Years	Towns and CTDOT	Included within roadway reconstruction cost estimates
	Shoulder upgrades	Provide 5-foot wide shoulders throughout the length of Route 1 to be utilized by bicyclists (see ideal cross section illustration).	Regional	1-3 Years	CTDOT	\$1,500,000
	Extend Shoreline Greenway Trail	Establish partnership with existing coalition and conduct a study to establish trail Right-of-Way.	Regional	1-3 Years	Local coalition/RiverCOG	\$200,000
	Bike Signage Program	Recommendation for a study to identify locations and design of bike signage network with the following goals: (1) encourage bicycling by improving awareness of route locations; and (2) improve awareness and safety by educating motorists, cyclist, and pedestrians of 'rules of the road'.	Regional	Immediate	CTDOT	\$25,000

TABLE 19-A: RECOMMENDATIONS FOR THE REGION (3 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Bike & Ped (cont)	Bike Racks	Install well-designed bike racks in town centers, train stations, and other major destinations such as public beaches, high school, marinas, shopping plazas and restaurants.	Regional	1-3 Years	Three towns	\$150,000
Land Use & Development Opportunities	Resiliency Enhancements	Adopt CRS-based standards into zoning regulations - modify flood protection overlay zone to include other climate adaptation standards and guidelines.	Regional	Immediate	Zoning Commissions	NA
		Incorporate Climate-Change adaptation factors into public works/infrastructure decision-making process. For example: physical shoreline protection measures, roadway design alterations, stormwater systems, and requirements for retrofit of septic systems.	Regional	Immediate	Municipal public works and/or engineering departments	NA
		Require Low Impact Development (LID) techniques be applied for all future development/redevelopment.	Regional	Immediate	Zoning Commissions	NA
		Develop local resiliency plans to supplement the hazard mitigation plans.	Regional	1-3 years	Planning Commissions	Low
		Develop public information campaign linked to economic development efforts to inform potential business owners of strategies and tools relative to development in natural hazard areas.	Regional	1-3 years	Regional economic development working group	Low
		Take advantage of redevelopment activity to restore wetlands and waterways functions.	Regional	Immediate	Planning Office and Wetlands Commissions	Moderate (with PPP)
	Strengthen Economic Sustainability	Develop a regional strategy for inter-municipal collaboration for a regional approach to economic development, and services.	Regional	Immediate	Regional economic development working group	Low
		Offer regulatory (i.e. reduced fees) and non-regulatory (i.e. tax increment financing) incentives to promote the type of development desired.	Regional	1-3 years	Zoning Commissions	Low

TABLE 19-A: RECOMMENDATIONS FOR THE REGION (4 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Land Use & Development Opportunities (continued)	Strengthen Economic Sustainability (continued)	Develop an information packet and process for fostering public-private partnerships. Set priorities for partnership development; consider partnerships for a variety of purposes such as shared responsibility for parking facilities, public spaces; sidewalk and greenway connections; shared driveways and access roads from public roads to private development; and workforce housing ventures.	Regional	1-3 years	Regional economic development working group	Low
		Create “First In Best Offer” Incentive Program, which is a graduated program under which first developers to invest in redevelopment in each focus area gain the greatest financial incentives.	Regional	1-3 years	Municipal economic development commissions	NA
		Develop corridor-wide publicity campaign to periodically announce economic development opportunities, community gatherings/activities, and developer assistance tool.	Regional	1-3 years	Regional economic development working group	Low
		Offer an expedited zoning review and approval process where a proposed development serves the goals of the focus-area plans. For example, relief from the need for a public hearing or a guarantee of completion of the zoning approval process within a given time frame. Develop a checklist of criteria determining which proposals qualify.	Regional	Immediate	Zoning Commissions	NA

TABLE 19-A: RECOMMENDATIONS FOR THE REGION (5 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Land Use & Development Opportunities (continued)	Strengthen Economic Sustainability (continued)	Allow and regulate 'Pop-Up' seasonal businesses; identify suitable locations where they may be located off the street. Adapt signage, parking and lighting standards relative to these uses.	Regional	1-3 years	Municipal planning office with Zoning Commissions	NA
		Develop a business retention program.	Regional	1-3 years	Economic development commissions	Moderate
		Develop corridor branding program.	Regional	Immediate	Regional economic development working group	Low
	Enhance Town Centers & Discourage Sprawl	Enhance design guidelines for development form and incorporate into local zoning to promote consistency across the corridor with land use typologies identified in the Preferred Land Use Scenario.	Regional	1-3 years	Inter-municipal - regulatory working group	Low
		Develop mechanisms for inter-municipal collaboration for achieving regional transect form (Preferred Land Use Scenario development patterns).	Regional	1-3 years	Inter-municipal - regulatory working group	Low
		Each town adopt the corridor plan as a supplement to the POCD.	Regional	Immediate	Planning Commissions	NA
		Develop a relocation assistance program for businesses relocating to the town centers and for nonconforming (per zoning) businesses moving out. The program should include opportunities for funding (grant and loans provided to affected businesses), listings of prospective relocation sites, and eligibility policies.	Regional	1-3 years	Municipal economic development commissions	Moderate

TABLE 19-A: RECOMMENDATIONS FOR THE REGION (6 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost	
Land Use & Development Opportunities (continued)	Encourage Transit-friendly development	Modify zoning to encourage mixed-use with housing at 8-20 units per acre within 1/4 mile of rail station	Regional	Immediate	Zoning Commissions	Low	
		Adapt town center district zoning to incorporate TOD principles for site layout, densities, parking, and mix of uses.	Regional	Immediate	Zoning Commissions	Low	
Total Investment		Capital Costs				Immediate	\$113,000
						1-3 Years	\$4,980,000
						5-10 Years	\$29,800,000
						Total	\$34,893,000
		Study Costs					\$425,000

N/A = Little to no capital cost. Could include increased operational costs

Low = < \$50,000

Moderate = \$50,000 - \$250,000

High = \$250,000 - \$1,000,000

Very High = > \$1,000,000

TABLE 19-B: RECOMMENDATIONS FOR THE TOWN OF CLINTON (1 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Mobility & Safety	Intersection Modifications	Liberty Street	Liberty Green	1-3 Years	Town of Clinton	\$75,250
	Network Enhancements and improved access to downtown *This recommendation is a component of the "Clinton Transit Oriented Town Center Enhancement Plan"	<p>Widen John Street to accomodate 2-way traffic. Widen High Street to accomodate bike lanes in order to improve multimodal access to downtown and strengthen connection between Downtown Clinton and Outlets/ other key destination points.</p> <p>Realign Dan Vece Jr Way. Establish connection between Pearl Street and Indian River.</p> <p>Close access from Stevens Road to Route 1 in order to reconfigure that intersection from 5 to 4-way intersection and increase safety. Extend Palmer Street extension to provide additional access routes to Stevens Road.</p> <p>Extend Stevens Road to Maple Avenue.</p>	Clinton Town Center/ Focus Area	5 - 10 Years	Town of Clinton	\$662,500 \$1,503,000 <u>\$1,102,000</u> = \$3,267,500

TABLE 19-B: RECOMMENDATIONS FOR THE TOWN OF CLINTON (2 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Mobility & Safety (continued)	Network Enhancements and improved access to downtown	<p>LONG-TERM OPTION: Reestablish Route 81 direct connection to Route 1 by upgrading High Street RR underpass to Post Office Square and eliminating zig zag to Hull Street - could be included in Clinton Train Station upgrades (planned) or future rail bridge upgrade work. Distance from station might allow better clearance for trucks. Create pedestrian underpass and shared space at Hull Street to connect Unilever site to village.</p> <p>PREFERRED SHORT-TERM OPTION: Upgrade underpass at Post Office Square for pedestrians and bicylists</p>	Clinton Town Center/ Focus Area	<p>5-10 Years</p> <p>-----</p> <p>1-3 Years</p>	CTDOT	<p>\$500,000</p> <p>-----</p> <p>\$200,000</p>
	Install Clinton Town Center directional signage at Hammonssett Connector interchange with I-95 (Exit 62) *This recommendation is a component of the "Clinton Transit Oriented Town Center Enhancement Plan"	Will encourage alternative access to the downtown from Hammonssett Connector and Route 1 rather than Route 81.	Madison	Immediate	CTDOT	\$5,000

TABLE 19-B: RECOMMENDATIONS FOR THE TOWN OF CLINTON (3 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Bike & Ped Improvements	Connect gaps in sidewalks	Priority pedestrian activity zones include Clinton near near Liberty Square, and Downtown Clinton.	Clinton	1-3 Years	CTDOT	\$225,000
	Install Pedestrian Countdown Signals	Install pedestrian countdowns at following intersections: Route 1/Route 145 Clinton, Route 1/ Post Office Square, Route 1/ Hull Street, and and Route 1/ Liberty Street.	Clinton	1-3 Years	CTDOT	\$15,000
	Develop Wayfinding System and Signage *This recommendation is a component of the "Clinton Transit Oriented Town Center Enhancement Plan"	Create consistent, easily understood, and aesthetically appealing graphic signage and placement standards to encourage pedestrian activity and increase awareness of amenities within town center, including public parking.	Clinton Town Center/ Focus Area	1-3 Years	Town of Clinton	\$100,000
Land Use & Development Opportunities	Village Parking Enhancements	Develop primary reliance on municipal parking over time and complementary to town-center character. Achieve this by mapping out priorities for strategic locations for municipal facilities.	Clinton	Immediate	Town of Clinton	NA
		Modify parking regulations to discourage overbuilding of parking. Offer reductions in the town center, with shared parking and fee-in-lieu of parking options.	Clinton	Immediate	Town of Clinton	NA
		Parking Wayfinding Signage	Clinton	Immediate	Town of Clinton	\$50,000
		Conduct parking study to evaluate existing and future supply/demand and strategic parking management.	Clinton	Immediate	Town of Clinton	\$50,000

TABLE 19-B: RECOMMENDATIONS FOR THE TOWN OF CLINTON (4 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Land Use & Development Opportunities (continued)	Regulatory and Zoning Modifications *This recommendation is a component of the "Clinton Transit Oriented Town Center Enhancement Plan"	Include incentive language in the zoning regulations such as flexibility of some requirements or development fee waivers for complementary development proposals	Clinton Town Center/ Focus Area	Immediate	Town of Clinton	NA
		Require a pre-application review for developments proposed in this district (rather than voluntary); employ design review board in the process.	Clinton Town Center/ Focus Area	Immediate	Town of Clinton	NA
		Rezone the town center for a flexible mix of uses, flexible parking standards, and higher densities.	Clinton Town Center/ Focus Area	1-3 Years	Town of Clinton	NA
		Adopt standards to facilitate adaptive re-use of sites as a special permit use.	Clinton Town Center/ Focus Area	1-3 Years	Town of Clinton	NA
		Adopt a Town Center District.	Clinton Town Center/ Focus	1-3 Years	Town of Clinton	NA
		Modify zoning as part of Town Center District with Transit-friendly design guidelines - such as housing over retail, higher housing densities, building orientation to the street, and high allowable lot coverage, reduced parking requirements, required pedestrian access elements, prohibiting auto-dependent uses, and minimum setbacks.	Clinton Town Center/ Focus Area	1-3 Years	Town of Clinton	NA
		Offer opportunities for public-private parking partnerships through zoning and business incentive programs.	Clinton Town Center/ Focus Area	Immediate	Town of Clinton	NA

TABLE 19-B: RECOMMENDATIONS FOR THE TOWN OF CLINTON (5 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Land Use & Development Opportunities (continued)	Develop Town Center Marketing Program to attract economic development to compliment interchange commercial and Unilever site re-use. *This recommendation is a component of the "Clinton Transit Oriented Town Center Enhancement Plan"	Identify town center marketing theme, niche commercial goals, and build branding and promotional materials based on that theme. Leverage historic resources, town fields and municipal buildings/institutions as community gathering spaces for year-round activities.	Clinton Town Center/ Focus Area	1-3 Years	Town of Clinton	\$25,000
	Participate in CT Main Street Program *This recommendation is a component of the "Clinton Transit Oriented Town Center Enhancement Plan"		Clinton Town Center/ Focus Area	Immediate	Town of Clinton	NA
	Adopt façade improvement program *This recommendation is a component of the "Clinton Transit Oriented Town Center Enhancement Plan"		Clinton Town Center/ Focus Area	1-3 Years	Town of Clinton	NA

TABLE 19-B: RECOMMENDATIONS FOR THE TOWN OF CLINTON (6 OF 6)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Land Use & Development Opportunities (continued)	Resiliency Enhancements	Participate in NFIP Community Rating System (CRS) ; The CRS uses a Class rating system to determine flood insurance premium reductions for residents. A community can gain points to improve its CRS rating and receive increasingly higher insurance rate discounts. Points are awarded for engaging in any of 19 activities, within under four categories: <ul style="list-style-type: none">● Public information● Mapping and regulations● Flood damage reduction● Warning and response.	Clinton	Immediate	Inland Wetlands or Conservation Commission	NA
Total Investment		Capital Costs	Immediate		\$80,000	
			1-3 Years		\$615,250	
			5-10 Years		\$3,767,500	
			Total		\$4,462,750	
		Study Costs		\$50,000		

N/A = Little to no capital cost. Could include increased operational costs

Low = < \$50,000

Moderate = \$50,000 - \$250,000

High = \$250,000 - \$1,000,000

Very High = > \$1,000,000

TABLE 19-C: RECOMMENDATIONS FOR THE TOWN OF WESTBROOK (1 OF 4)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Mobility & Safety	Intersection Modifications	Relocate post office driveway west to align with Westbrook Heights Road.	Westbrook Heights Road & Route 1	1-3 Years	Town of Westbrook	50,000
	Construct 'ideal multimodal cross section' including bike lanes and sidewalks *This recommendation is a component of the "Westbrook Marina District Multimodal Enhancement Plan"	See Focus Area Plan and Ideal Cross Section rendering.	Westbrook Marina District/ Focus Area	3-5 Years	CTDOT	\$3,100,000
	Curb cut modifications *This recommendation is a component of the "Westbrook Marina District Multimodal Enhancement Plan"	See concept plan for suggested curb cut modifications.	Westbrook Marina District/ Focus Area	Over Time	CTDOT	Included in above estimate
	Safety and Route 1 Access *This recommendation is a component of the "Westbrook Marina District Multimodal Enhancement Plan"	Modify Bill's Seafood entry to improve safety concerns. Possible modifications include: driveway relocation, reconfiguration, parking reconfiguration, or remote parking elsewhere on Route 1 with sidewalk connections. Any modifications should be discussed directly with the property owner, consider safety concerns for houses in the rear, and ensure rear access roads can accommodate additional traffic if necessary.	Westbrook Marina District/ Focus Area	1-3 Years	CTDOT/ Private	

TABLE 19-C: RECOMMENDATIONS FOR THE TOWN OF WESTBROOK (2 OF 4)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Bike & Ped Improvements (continued)	Placemaking *This recommendation is a component of the "Westbrook Marina District Multimodal Enhancement Plan"	Enhancements and branding for "Singing Bridge" to serve as Marina District Focal Point will be determined with input from the community if this project is advanced.	Westbrook Marina District/ Focus Area	1-3 Years	Town of Westbrook/ CTDOT	\$100,000
		Upgrade pathway to and area around Town Dock: provide better signage and create destination point for residents with benches, landscaping and other pedestrian amenities.	Westbrook Marina District/ Focus Area	1-3 Years	Town of Westbrook	\$100,000
	Reconfigure Town Green street network and create "Shared Street" concept for Essex Street along north side of Westbrook Town Green	Narrow the Essex Street at its two access points (entrance and exit ways) to encourage slower, safer vehicle flow through active town center and to discourage vehicles from using this street as a throughway. Re-pave this street with specialized, raised paving to clearly indicate that this street's use is unique; while it will be primarily used for on-street parking, it can also be closed off to be used for public events as needed. Complete sidewalk from Train Station to Town Green along west side of Route 153. Additional bus stops will be incorporated into the street network. Improvements to intersections at Rte 1 & Old Clinton Rd; Rte 1 & Essex Rd; Rte 1 & Westbrook Pl; Essex Rd & Westbrook Pl; Rte 1 & Knothe Ln. Incorporate truck aprons to allow for both safer pedestrian pathways and continued mobility for large vehicles, such as boat trailers. Convert southwest edge of Town Green (along Route 1) to be used for handicap on-street parking. Narrow east edge of Town Green to account for the space used on the west edge to provide handicap parking. Modify approach to ensure sight lines for vehicles traveling towards Clinton from the intersection of Westbrook Place and Route 1.	Westbrook Town Green	1-3 Years	Town of Westbrook/ CTDOT	\$352,000

TABLE 19-C: RECOMMENDATIONS FOR THE TOWN OF WESTBROOK (3 OF 4)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Bike & Ped Improvements (continued)	Connect gaps in sidewalks	Priority pedestrian activity zones include Westbrook Green, Old Clinton Road area, Grove Beach "neighborhood" node, and area that surrounds Singing Bridge.	Westbrook	1-3 Years	CTDOT	\$100,000
	Install Pedestrian Countdown Signals	Install pedestrian countdowns at following intersections: Route 1/Route 153 Westbrook Green Route 1/Old Clinton Road Route 1/Grove Beach Road	Westbrook	1-3 Years		\$5,000
	Paint and maintain crosswalks	Paint clearly and uniquely identifiable crosswalks at intersection of Route 1 and Hammock Rd.	Westbrook Marina District/ Focus Area	Immediate		\$2,000
	Enhance recreational opportunities *This recommendation is a component of the "Westbrook Marina District Multimodal Enhancement Plan"	Map priorities for potential municipal acquisition of open space parcels/conservation easements.	Westbrook Marina District/ Focus Area	Immediate	Town of Westbrook	NA
		Design and construct scenic viewing areas/points for opportunity locations such as near singing bridge.	Westbrook Marina District/ Focus Area	1-3 Years	Town of Westbrook	\$60,000

TABLE 19-C: RECOMMENDATIONS FOR THE TOWN OF WESTBROOK (4 OF 4)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Land Use & Development Opportunities	Enhance recreational opportunities *This recommendation is a component of the "Westbrook Marina District Multimodal Enhancement Plan"	Work with the CT DEEP and CTDOT to enhance seamless access for small boaters from upstream of the marina area to Long Island Sound.	Westbrook Marina District/ Focus Area	Immediate	Town of Westbrook	NA
		Adjust zoning to allow a broader range of recreational activities (such as ecotourism) and higher densities (floor area ratios) in the CB District.	Westbrook Marina District/ Focus Area	Immediate	Town of Westbrook	NA
	Modify regulations to promote seasonal businesses *This recommendation is a component of the "Westbrook Marina District Multimodal Enhancement Plan"	Allow and regulate 'Pop-Up' seasonal businesses; identify suitable locations where they may be located off the street. Adapt signage, parking, and lighting standards relative to these uses.	Westbrook Marina District/ Focus Area	Immediate	Town of Westbrook	NA
Total Investment				Immediate		\$2,000
		Capital Costs		1-3 Years		\$767,000
				3-5 Years		\$3,100,000
				Total		\$3,869,000
		Study Costs				\$0

N/A = Little to no capital cost. Could include increased operational costs
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 Moderate = \$50,000 - \$250,000
 High = \$250,000 - \$1,000,000
 Very High = > \$1,000,000

TABLE 19-D: RECOMMENDATIONS FOR THE TOWN OF OLD SAYBROOK (1 OF 4)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Mobility & Safety	Intersection Modifications	Modify intersection of Route 1 and Route 166 to accommodate future growth.	Route 1 at Route 166, Old Saybrook	3-5 Years	CTDOT	\$700,000
	Curb cut modifications *This recommendation is a component of the "Old Saybrook Route 1 Business District Complete Streets Enhancement Plan"	See Focus Area Concept Plan for suggested curb cut modifications.	Old Saybrook Business District / Focus Area	Over time	CTDOT	Included in below estimate
	Road Diet combined with intersection improvements at Stage Road, Main/N. Main, and Ingham Hill Road *This recommendation is a component of the "Old Saybrook Route 1 Business District Complete Streets Enhancement Plan"	4 lanes to 3 lanes from Stage Road to Staples intersection. Will improve safety, reduce dominance of vehicle, and provide space to better accommodate bike lane, sidewalks, and landscaping. See concept plan and Vissim model.	Old Saybrook Business District / Focus Area	3-5 Years	CTDOT	\$1,630,000

TABLE 19-D: RECOMMENDATIONS FOR THE TOWN OF OLD SAYBROOK (2 OF 4)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Mobility & Safety (continued)	Road Diet (continued)	Intersection modifications at Rte 1/ Elm, Rte 1/ Main, and Rte 1/ Stage in order to increase efficiency of Main St intersection by rebalancing traffic load, enhance access to businesses by train station, reduce vehicular lanes and calm traffic, and to better accomodate all modes.	Old Saybrook Business District / Focus Area	3-5 Years	CTDOT	\$1,800,000
		Intersection modifications at Route 1 and Ingham Hill Road by adding new turning lanes on two of the four approaches in order to reduce existing delays.	Old Saybrook Business District / Focus Area	1-3 Years	CTDOT	\$600,000
	Network enhancements, redundancy, and access improvements *This recommendation is a component of the "Old Saybrook Route 1 Business District Complete Streets Enhancement Plan"	Connect train station area to Stop & Shop plaza ring road – from new train station parking or a road between parking and proposed housing development;	Old Saybrook Business District / Focus Area	5-10 Years	CTDOT/ Town of Old Saybrook	\$8,350,000
		Upgrade Research Parkway as public road;				
		Upgrade RR underpass on Elm Street to address existing clearance and drainage issues.				
		All network enhancements should employ traffic calming where appropriate				
		Upgrade Mill Rock Road and Research Parkway to create an alternative east/west route within Old Saybrook. All network enhancements should employ traffic calming where appropriate	Old Saybrook	3-5 Years	Town of Old Saybrook	\$250,000

TABLE 19-D: RECOMMENDATIONS FOR THE TOWN OF OLD SAYBROOK (3 OF 4)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Bike & Ped Improvements	Connect gaps in sidewalks	Priority pedestrian activity zones include: Old Saybrook from Stage Road to Elm Street.	Old Saybrook	1-3 Years	CTDOT	\$50,000
	Install Pedestrian Countdown Signals	Install pedestrian countdowns at intersections of Route 1/Route 154E, Route 1/Main/North Main, and Route 1/Elm St.	Old Saybrook	Immediate	CTDOT	\$5,000
	Paint and maintain crosswalks	Paint crosswalks that are clearly and uniquely identifiable at intersections of Route 1/ Route 145 and Route 1/ Main St/ N. Main St.	Old Saybrook	Immediate	CTDOT	\$2,500
Land Use & Development Opportunities	Facilitate infill development that complements interchange commercial and Mariner's Way concept *This recommendation is a component of the "Old Saybrook Route 1 Business District Complete Streets Enhancement Plan"	Adjust site standards for density, lot coverage, bulk, and parking to encourage parcel consolidation and planned mixed-use developments with internal circulation off-street.	Old Saybrook Business District / Focus Area	1-3 Years	Town of Old Saybrook	NA
		Adjust site development standards to bring buildings to the street, require sidewalk connections, maintain walkable block sizes, provide green-space and place parking internal to the site (not front on a street).	Old Saybrook Business District / Focus Area	1-3 Years	Town of Old Saybrook	NA
		Consider developing a suburban retrofit overlay district with site design, mixed-use, public spaces/plazas, and complete streets standards unique to the goals for this area.	Old Saybrook Business District / Focus Area		Town of Old Saybrook	NA
		Develop niche marketing program to encourage infill development that complements interchange commercial franchise uses and supports envisioned uses for Mariner's Way.	Old Saybrook Business District / Focus Area	1-3 Years	Town of Old Saybrook	NA

TABLE 19-D: RECOMMENDATIONS FOR THE TOWN OF OLD SAYBROOK (4 OF 4)

	Recommendation	Recommendation Description and Purpose	Location	Time Frame	Champion (s)	Approximate Cost
Land Use & Development Opportunities (continued)	Adopt standards to facilitate adaptive re-use of sites as a special permit use *This recommendation is a component of the "Old Saybrook Route 1 Business District Complete Streets Enhancement Plan"	Seek a balance among desirable building form, foreseeable demand, and economic trends.	Old Saybrook Business District / Focus Area	Immediate	Town of Old Saybrook	NA
		Include incentive language in the zoning regulations such as flexibility of some requirements or development fee waivers for complementary development proposals.	Old Saybrook Business District / Focus Area	Immediate	Town of Old Saybrook	NA
		Require a pre-application review for developments proposed in this district (rather than voluntary); employ design review board input in this process.	Old Saybrook Business District / Focus Area	Immediate	Town of Old Saybrook	NA
	Resiliency Enhancements	Participate in NFIP Community Rating System (CRS); The CRS uses a Class rating system to determine flood insurance premium reductions for residents. A community can gain points to improve its CRS rating and receive increasingly higher insurance rate discounts. Points are awarded for engaging in any of 19 activities, within under four categories: <ul style="list-style-type: none"> ● Public information ● Mapping and regulations ● Flood damage reduction ● Warning and response. 	Old Saybrook	Immediate	Inland Wetlands or Conservation Commission	NA
Total Investment				Immediate	\$7,500	
				1-3 Years	\$650,000	
				3-5 Years	\$4,630,000	
				5-10 Years	\$8,350,000	
				Total	\$13,637,500	
		Study Costs			\$0	

N/A = Little to no capital cost. Could include increased operational costs

Low = < \$50,000

High = \$250,000 - \$1,000,000

Very High = > \$1,000,000

TABLE 19-E: ROUTE 1 CORRIDOR PLAN SUMMARY OF COSTS

Route 1 Corridor Plan: Summary of Costs

Cost Type	Time Frame	Location				Total
		Regional	Clinton	Westbrook	Old Saybrook	
Capital Costs	Immediate	\$113,000	\$80,000	\$2,000	\$7,500	\$202,500
	1-3 Years	\$4,980,000	\$615,250	\$767,000	\$650,000	\$7,012,250
	3-5 Years	\$0	\$0	\$3,100,000	\$4,630,000	\$7,730,000
	5-10 Years	\$29,800,000	\$3,767,500	\$0	\$8,350,000	\$41,917,500
	Total	\$34,893,000	\$4,462,750	\$3,869,000	\$13,637,500	\$56,862,250
Study Costs	Total	\$425,000	\$50,000	\$0	\$0	\$475,000

