

South Norwalk TOD Pilot Program

City of Norwalk, CT



FINAL CONCEPTUAL DESIGN REPORT

APRIL 24, 2014

**CDM
Smith**

S A S A K I



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Table of Contents

1. Project Overview and Objectives	1
2. Existing Conditions and Opportunities	1
Walkability.....	3
Bikeability	7
Public Transportation (Bus and Commuter Rail)	9
Street Network	9
3. Complete Streets Toolbox.....	14
4. Recommended Improvements.....	15
Recommended Bicycle Network.....	15
Recommended Street Network Improvements	16
Implementation.....	21
Appendices:.....	24

List of Tables

Table 1	Prioritization Table	20
Table 2	Conceptual Cost Estimate.....	22
Table 3	Public Meetings.....	24

List of Figures

Figure 1	Study Area Map	2
Figure 2	TOD Opportunity Sites.....	4
Figure 3	Notable Features and Open Space	5
Figure 4	Walkability Desire Lines – Present and Potential	6
Figure 5	Walkability: Initial District Assessment.....	8
Figure 6	Vehicle Average Daily Traffic.....	11
Figure 7	Auto, Pedestrian and Bicycle Accidents 2009 – 2011.....	12
Figure 8	Rendering of Bicycle Improvements on MLK Drive – multi-use path option.....	16
Figure 9	Recommended Roadway Improvements	17
Figure 10	Rendering of Improvements - South Main Street at Monroe Street (looking north)	18
Figure 11	Rendering of Improvements – Monroe Street at MLK Drive (looking east).....	18

Appendices

Appendix A: Norwalk Transit District Bus Routes

Appendix B: Street Condition Assessment Table

Appendix C: Complete Streets Toolbox

1. Project Overview and Objectives

The City of Norwalk was awarded a Transit Oriented Development (TOD) Pilot Program grant from the State of Connecticut to design and construct 'Complete Streets.' The funding applies to the area surrounding South Norwalk Station - generally bounded by Washington Street to the north, Dr. Martin Luther King Drive to the west, Concord Street to the south, and Water Street to the east. Over the years this district has seen substantial publically and privately funded revitalization, but there is much more need and opportunity for redevelopment. The State recognizes that public investment in Complete Streets infrastructure in the vicinity of transit stations complements and incentivizes private investment in TOD, enhances transit ridership, improves safety and helps to build vibrant, economically viable communities.

Complete Streets is a set of principles where streets are designed to enable safe and convenient access and travel for all users including pedestrians, bicyclists, transit users and motorists. TOD is an approach to urban design that focuses on compact development with a mix of residential and commercial land uses around public transit stations. TOD allows residents to live and work in a walkable environment that encourages active lifestyles and reduces dependence on automobiles. Studies show that people are far more likely to commute and run errands by transit, walking or bicycling if amenities that support these transportation modes are located close to their homes and around transit stations.

The project team, consisting of CDM Smith, Sasaki Associates and Fitzgerald & Halliday, Inc., was selected by the City to build upon the findings of the recently completed TOD Master Plan, the Norwalk Connectivity Master Plan and the Norwalk Pedestrian and Bikeway Transportation Plan. The team is charged with identifying Complete Streets improvements of highest priority to the community and developing a set of construction documents to implement them.

The scope of the project also includes the concurrent development of a bicycle network that connects South Norwalk to Norwalk Center that is the subject of a companion report titled "*The Bicycle Network Safety and Engineering Plan, Norwalk, CT.*"

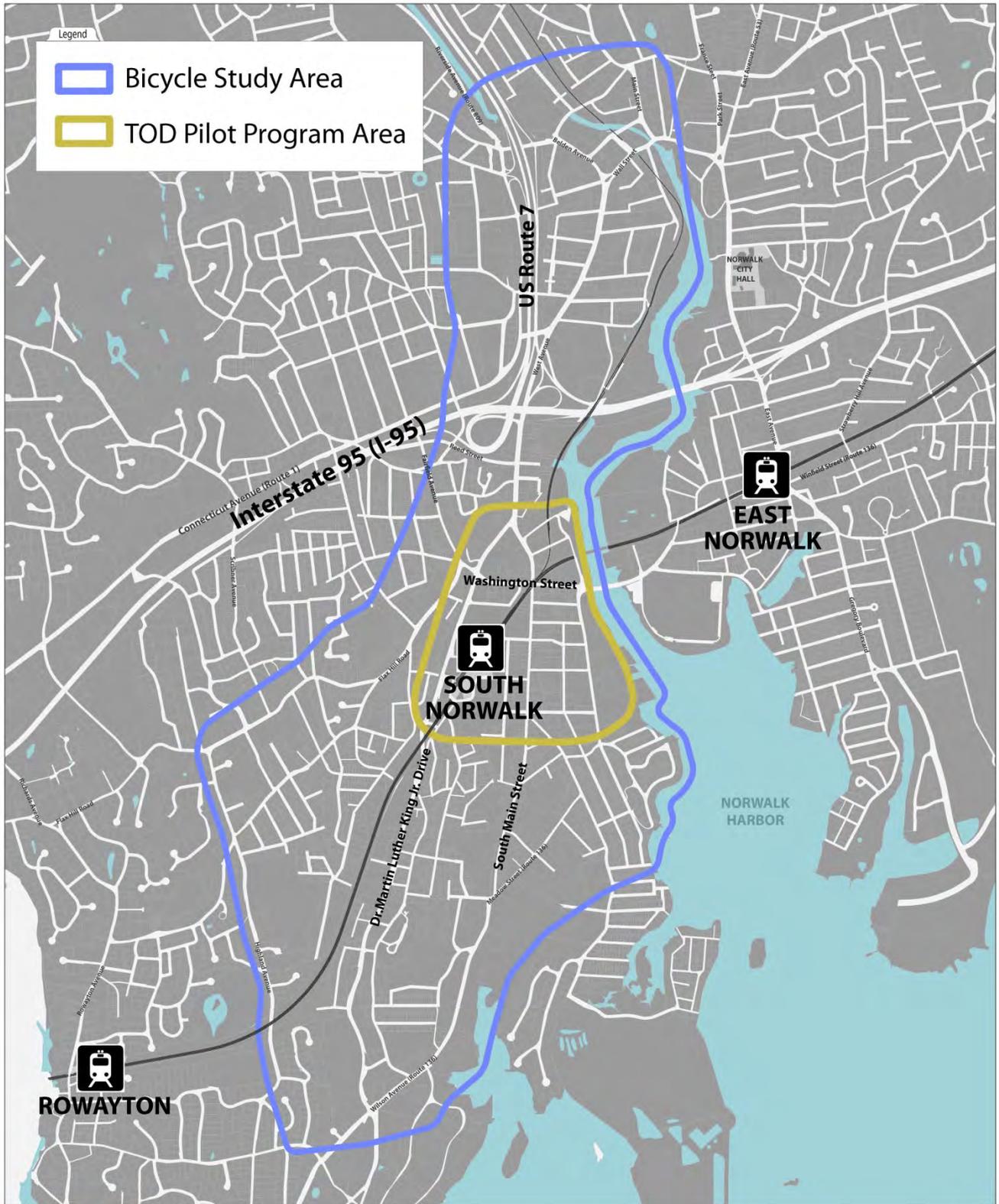
Figure 1 depicts the boundaries of the TOD Study Area and the Bicycle Study Area.

2. Existing Conditions and Opportunities

The team conducted a multidimensional analysis of the street network. Looking at condition, safety, security, convenience, transportation choice and aesthetics provided a comprehensive understanding of the infrastructure surrounding the South Norwalk Station. This holistic view helped identify neighborhood opportunities that would provide the greatest benefit relative to project objectives.

The following narrative generally explains the process of analysis and the findings.

Figure 1 Study Area Map



Study Area

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Linking SoNo Station to Norwalk's Neighborhoods with Transit Oriented Development and Complete Streets

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Walkability

Walkable urbanism is a term that defines a set of principles that integrates compact, mixed-use development, civic uses, and parks with transit and attractive, safe and secure streetscapes. Walkability is one of the prime indicators that a district has successfully integrated land use and transportation to create high-performing, livable places. Districts that are walkable are the places in which people prefer to shop, visit, invest, live, work and play – and where pedestrians of all ages and abilities feel safe from traffic.

Opportunity Sites

The South Norwalk Transit Oriented Development (TOD) Master Plan, completed in early 2011, identified sites within the study area that have the greatest potential for future redevelopment (see **Figure 2**). Strengthening pedestrian and bicycle connections to these opportunity sites and improving the visual quality of streets leading to them are principal goals of this study and will increase the likelihood of the commercial success of TOD.

Notable Features and Community Assets

The team identified community assets and activity centers, such as schools, churches, libraries, community centers, parks and open space surrounding the South Norwalk Rail Station. These locations are important considerations since they represent attractions or destinations accessed frequently by the most vulnerable of pedestrians – children and the elderly.

Other important origins and destinations (refer to **Figure 3**) within a ¼ mile distance of the rail station were also identified and mapped including employment centers, concentrations of housing, the Maritime Aquarium at Norwalk and the Washington Street historic commercial district.

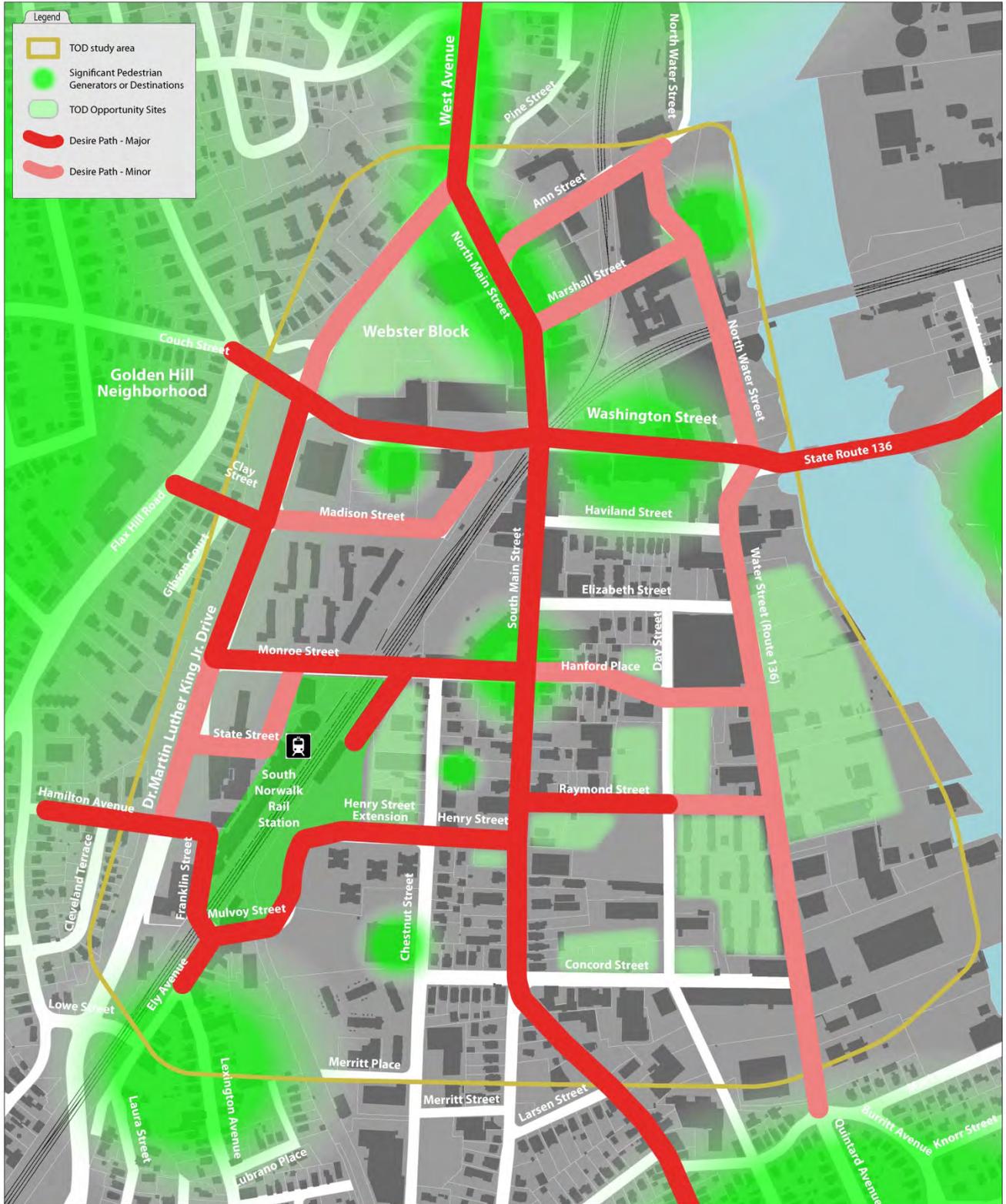
Desire Lines

The identification of opportunity sites, notable features, and community assets and discussions with residents, area workers and visitors regarding travel patterns and mobility issues helped the team identify routes used most by pedestrians on a daily basis as well as routes likely to experience an increased number of pedestrians upon construction of TOD. This analysis allows the team to focus safety improvements where there is or will be the highest concentration of pedestrians.

Figure 4 shows the strongest desire lines in dark red which are the streets believed to have the greatest demand for pedestrian use currently and those with a potential for high demand in the future. The greatest desire lines are those routes that connect the rail station to the residential neighborhoods and Washington Street commercial district.

Likely future desire lines identified in **Figure 4** include connections to the new developments to the north along West Avenue, and the potential new developments and redevelopments along Water Street.

Figure 4 Walkability Desire Lines – Present and Potential



Walkability Desire Lines - Present & Potential

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Existing Barriers to Walkability

The team also identified issues or conditions that may hinder or discourage walking due to a lack of amenities and a general sense of discomfort or insecurity. A lack of street trees, poor pavement conditions, vacant lots or unoccupied buildings are often perceived as unfriendly to pedestrians.

Other conditions that discourage pedestrian travel include perceived or real safety threats such as high traffic speeds, long crosswalks or concerns about personal security that often result from poor lighting, uninviting underpasses (there are five underpasses within the TOD study area), or a feeling of being alone (not seeing other pedestrians).

A combination of the above factors can transform a roadway, sidewalk or intersection into a veritable barrier for pedestrians. These barriers disrupt desire lines and encourage residents and visitors to drive or go elsewhere.

Pedestrians typically feel more comfortable and have a greater sense of personal security when they are among other pedestrians and users of the street. This phenomenon is typically referred to ‘eyes on the street’ – where users are looking out for one another. **Figure 5** identifies existing walkable streets and intersections and those with a need for pedestrian improvements. As shown in this exhibit and as annotated in the “Street Condition Assessment” in **Appendix B**, varying degrees of improvements are needed to improve walkability on streets within the study area.



Bikeability

Desire Lines

Bikeability, in the context of this study, is the degree to which people feel comfortable or safe while bicycling on city streets. Dedicated bicycle facilities enhance bikeability and encourage more people to use bicycles as a mode of travel or for recreation. To better understand and improve bikeability in Norwalk, the team identified key origins and destinations for cyclists within and beyond the bicycle study area.

The team also held discussions with stakeholders and members of the cycling community to generally determine where people are currently riding to and through South Norwalk. During public outreach, many members of the community expressed a need for additional bicycle facilities including on West Avenue, from the South Norwalk rail station to Rowayton and to Veteran’s Park and Calf Pasture Beach.

A detailed study of bicycle safety in Norwalk, an assessment of the ability of various streets to safely accommodate bicycle travel, and specific recommendations to improve bikeability and construct a network of bicycle facilities are addressed in the companion study to this report, titled the “*The Bicycle Network Safety and Engineering Plan, Norwalk, CT.*” Bicycle network improvements from that study that apply to streets within the TOD study area are summarized in Section 4 this report.

Figure 5 Walkability: Initial District Assessment



Walkability - Initial District Assessment
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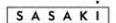
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Public Transportation (Bus and Commuter Rail)

South Norwalk Station is one of the most heavily used stations on the New Haven line of the Metro-North Railroad which connects New Haven, CT to New York City, NY. South Norwalk is where the Danbury Branch joins the New Haven line and passengers can connect to Amtrak two stops south at the Stamford Transportation Center. South Norwalk Station receives an average of over 2,200 inbound passenger boardings per day and allows many people to live in Norwalk and easily commute to jobs in New York City, New Haven, Danbury and many places in between.

The study area surrounding South Norwalk Station is also well-served by local busses operated by the Norwalk Transit District and branded under the name “Wheels.” Several routes connect the station to the Wheels Hub located in Norwalk Center, to the SoNo commercial and entertainment district as well as to several other destinations in Norwalk. Most bus stops are situated on or near the major north-south roadways including Dr. Martin Luther King Jr. Drive (referred to as MLK Drive for the remainder of this report), Main Street (North and South), and Water Street. Generally, pedestrians within the TOD study area do not have to walk more than 2 blocks to reach the nearest bus stop.

All local and regional bus routes in Norwalk pass through the Wheels Hub, or pulse point, located on Burnell Boulevard in Norwalk Center. A map of the local Norwalk bus routes can be found in **Appendix A**. Within the TOD study area, Routes 9 and 10 travel north-south, Route 11 provides east-west connectivity and Route 12 connects to the Rowayton Rail Station and neighborhoods inbetween.

Regional bus routes including the Coastal Link, the Route 7 Link and Route 41 operate from the Wheels Hub as well. Door-to-door paratransit service is also available for the elderly and people with disabilities through the Norwalk Dispatch-A-Ride. Metro-North riders disembarking at South Norwalk Station also have a constant queue of taxis standing by.

Transit amenities encourage use of regional commuter train and local bus service by increasing user comfort and satisfaction and providing a better experience – all of which increases transit ridership. Amenities found in cities similar to Norwalk include bus pull outs, bus stop shelters and real time arrival signage.

The Norwalk Transit District is in the early planning stages of site and facility improvements to South Norwalk Station that will provide more convenient and seamless interconnectivity between commuter rail service and local bus service as well as wayfinding and pedestrian improvements that will make the walk or drive between the station and the SoNo commercial district more accessible and welcoming.



Street Network

Traffic Volumes

Traffic volumes reveal the roadways in the study area most heavily used by drivers; this metric, more than any other, determines the character of the district’s roadways. The Connecticut Department of Transportation (CTDOT) measures traffic volumes by the average total number of vehicles per day (vpd), also known as Average Daily Traffic (ADT). At the writing of this report, 2011 data was the most

recent data available. Data is regularly gathered on major roadways and local street traffic volumes are not available.

Figure 6 identifies the traffic volumes on major streets measured within the study area. The heaviest traffic volumes occur on West Avenue just north of the intersection with MLK Drive and North Main Street with over 32,000 ADT. Just north of Interstate 95 (I-95), West Avenue sees over 27,000 ADT. Other key streets within the TOD study area:

- Washington Street, east of South Main Street, experiences 10,000 ADT
- MLK Drive, south of Monroe Street experiences 13,000 ADT
- South Main Street, between Monroe Street and Henry Street experiences 8,900 ADT
- Water Street south of Washington Street sees over 15,000 ADT

Traffic volumes informed the team's recommendations and will also influence design. Intersections and roadways with high traffic volumes require greater care when applying traffic calming tools. The goal is to improve safety while not disrupting traffic flow on arterials and other roads designed to carry a high volume of vehicles. Lesser, lower-volume streets, such as collector and local streets, are more conducive to traffic calming tools because travel speeds on these streets are much lower and because these streets are more likely to serve as conduits for relatively higher levels of pedestrian and bicycle travel.

Accident History

Using local automobile accident data gathered by the University of Connecticut, the team mapped recorded automobile accidents occurring at intersections throughout the bicycle and TOD study areas between 2009 and 2011. The data was separated into three categories: total automobile accidents, automobile accidents involving pedestrians and accidents involving bicyclists. Each accident location was then plotted on the study area map. (See **Figure 7**) The following are locations that experienced a relatively high number of accidents:

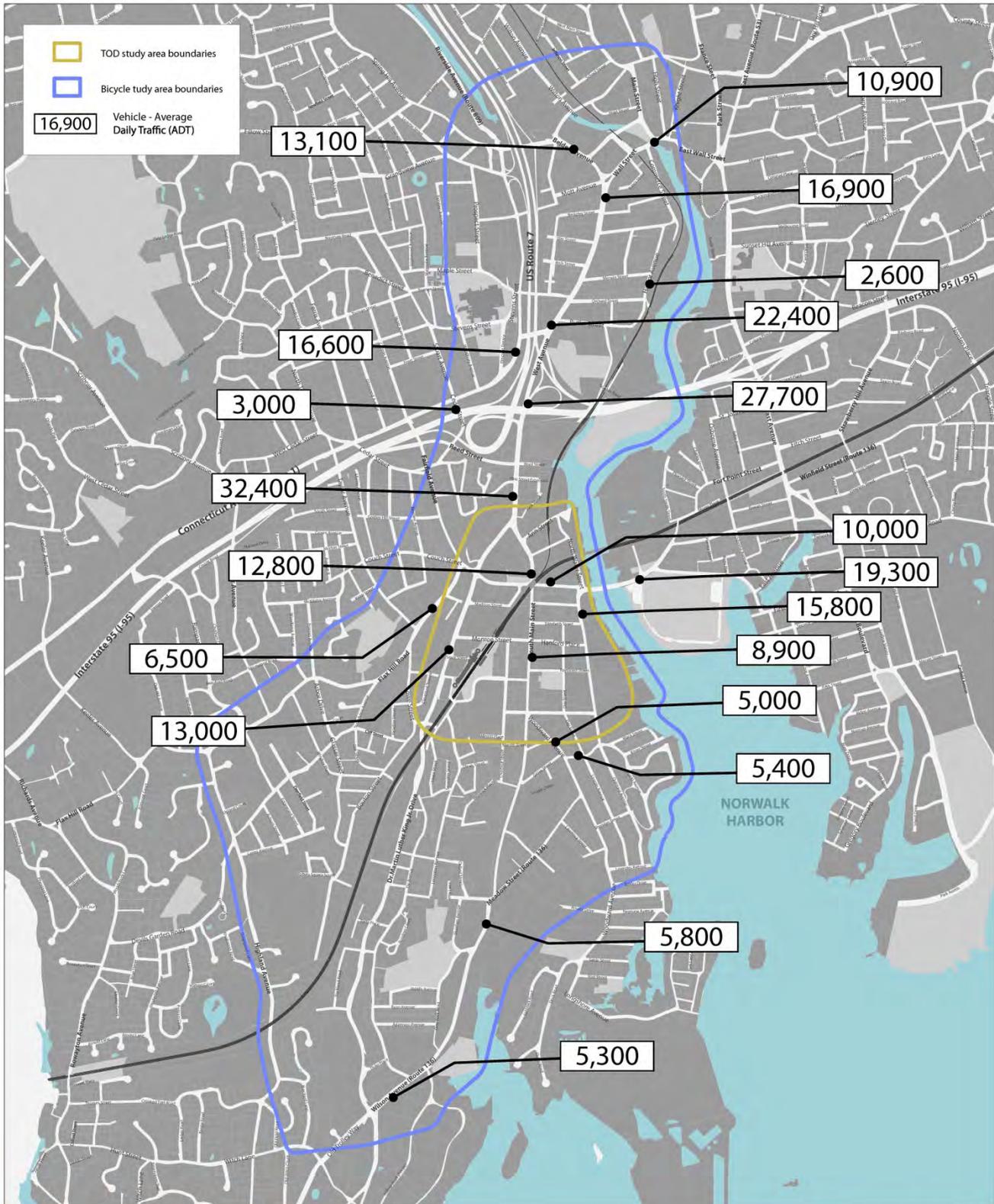
- Automobile accidents : West Avenue at Reed Street; West Avenue at North Main Street and MLK Drive; Washington Street at South Main Street; Washington Street at MLK Drive.
- Accidents involving pedestrians: Monroe Street at Chestnut Street; MLK Drive at the Hamilton Avenue staircase; Ely Avenue and Lexington Avenue.
- Bicyclists: West Avenue at Reed Street; West Avenue at Orchard Street; West Avenue at Wall Street; West Avenue at North Main Street and MLK Drive; South Main Street at Monroe Street.

This analysis identifies those intersections that have a history of multiple accidents and warrant greater attention during implementation of speed reduction and safety improvements.

Street Condition

The team conducted an audit of roadway and sidewalk conditions throughout the TOD study area. Using a scale of 1 to 3, the team determined if pavement and curbs were in good, fair or poor condition based on visual inspection. Each street segment was assigned a score, the average of which formed an assessment for the roadway as a whole. The overall assessment scores helped to determine priority of need for infrastructure improvements for each street segment. The condition assessment table can be found in the **Appendix B**.

Figure 6 Vehicle Average Daily Traffic



Vehicle Average Daily Traffic

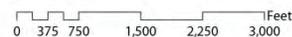
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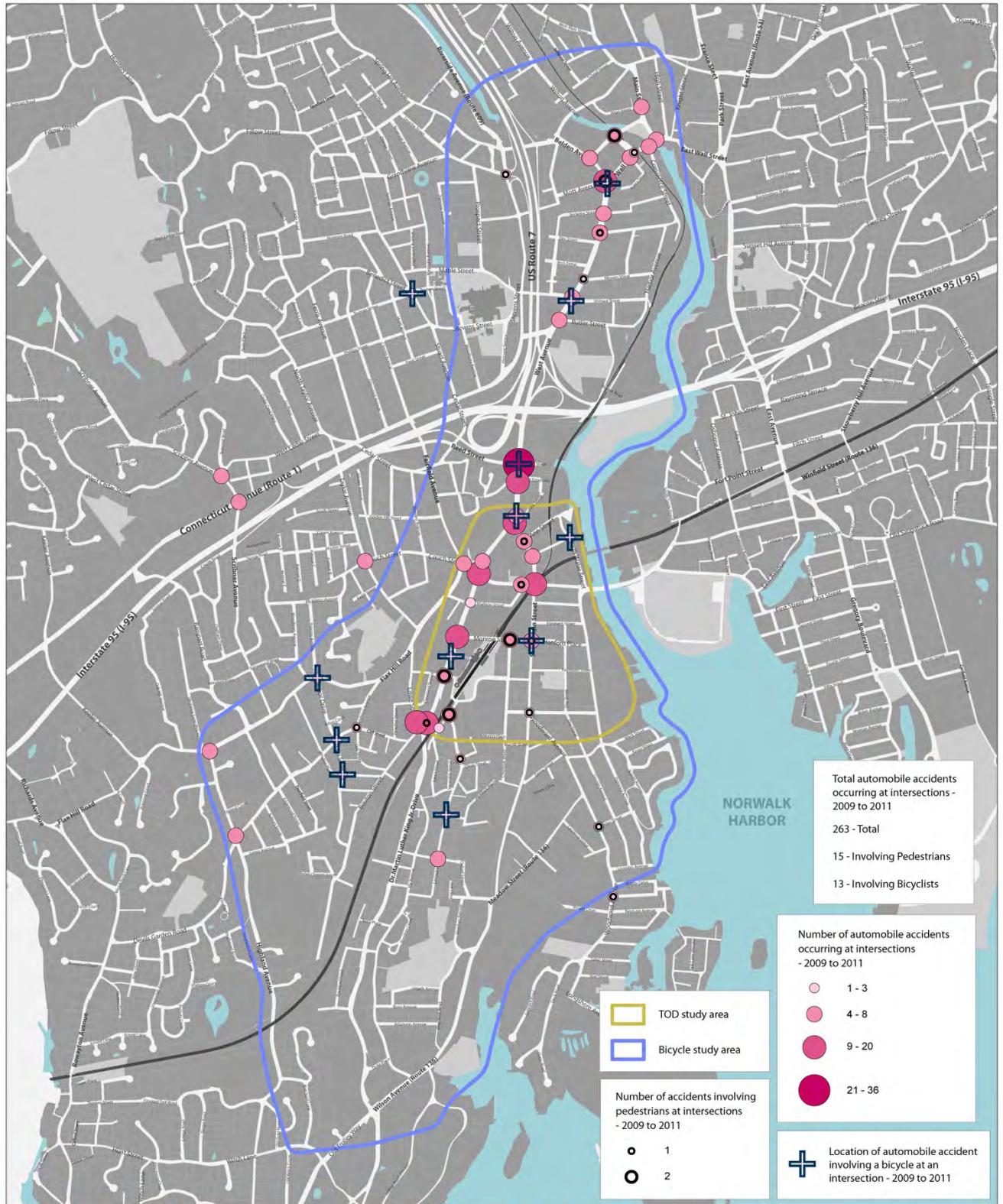
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Figure 7 Auto, Pedestrian and Bicycle Accidents 2009 – 2011



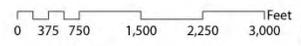
Auto, Ped and Bicycle Accidents - 2009 to 2011

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Utility Infrastructure

To aid the City in coordinating infrastructure improvements, the team generally assessed utilities in the study area to determine if any underground piped utilities or limited underground wired utilities should be replaced in conjunction with the construction of roadway improvements. The team reached out to the local utility providers to identify utilities potentially in need of repair or replacement in the near future due to age or history of problems. Utilities investigated included sanitary sewers, storm sewers, water mains, gas mains, and underground wired utilities.

Within the study area, most streets have overhead electrical, telephone, cable and other communication wires while other more prominent streets (typically with dense commercial development) have underground wired utilities. The team did not assess the condition of overhead utilities and does not propose moving overhead wired utilities underground as the process is prohibitively expensive and the costs are rarely justified by the benefits.

The utility company outreach and general assessment determined that there are no immediate concerns with the current condition of underground utilities. The local telecommunication, electricity and natural gas service providers all indicate that sufficient capacity exists to meet the increased demand as a result of potential development.

While existing utilities are generally in good condition, there may be need to expand or replace utility service at specific locations as development activity occurs due to increased demand that new or larger buildings will place on utility capacities and to the need to upgrade systems or utility connections to comply with new requirements. For example, new development projects will be required to have on-site storm water run-off management that would be constructed by building owners or developers. Elevated intersections and speed table crosswalks may create new low points along the roads that will require additional storm sewer catchments and connections. Water and sanitary sewer flows may see increases in peak demand at spot locations. Further investigation and modeling is needed to determine if the existing water supply distribution system can meet projected demands.



Stormwater

To relieve pressure on aging stormwater systems experiencing increasing demand, many cities are integrating green infrastructure. Green infrastructure helps to manage stormwater by mimicking natural hydrologic functions, particularly stormwater treatment and recharge to groundwater. Additional benefits from the installation of green infrastructure include a reduction in the urban heat island effect, enhanced recreational opportunities, improved quality of life, restoration of ecosystems, improvement in air quality, energy savings, and a general improvement of visual qualities of the urban landscape and environment. Green infrastructure is becoming more widely used for treatment of stormwater to help communities meet municipal separate storm sewer system (MS4) permits, and in combined sewer overflow (CSO) communities to reduce combined sewer overflows.

Urban green infrastructure facilities within street rights of way often include:

- Vegetated bioretention areas/rain gardens

- Permeable pavers
- Porous asphalt or pervious concrete

As the conceptual design identified below in the Recommended Improvements section progress to Preliminary Design stage, the team will identify and coordinate opportunities to integrate green infrastructure with street and utility improvements. In addition, the City can promote other green infrastructure improvements associated with construction of new buildings, such as subsurface storage/infiltration systems, rainwater harvesting systems, and green roofs, that could be constructed on private sites to further improve water quality and reduce stormwater runoff.

3. Complete Streets Toolbox

The Complete Streets Toolbox is a series of traffic calming measures aimed at improving safety and the travel experience for all roadway users and improving transportation choice. The measures are organized into four user categories: vehicles, pedestrians, bicyclists and transit. The team has reviewed the tool box with residents and stakeholders and discussed how these measures have been successful for other districts in Norwalk and in other communities. The team then solicited feedback from residents and stakeholders as to where they could envision certain tools improving conditions in their neighborhoods.

Recommended improvements incorporate many tools from the Complete Streets Toolbox as well as several unique features appropriate for South Norwalk. Each recommendation is designed to calm traffic and improve walkability, bikeability and transit connectivity.

See **Appendix C** for a full description of each tool in the Complete Streets Toolbox.

4. Recommended Improvements

Based on the analysis described in the Existing Conditions and Opportunities section of this report, community and stakeholder input, and local best practices the team developed a series of recommended improvements that would improve the travel experience and safety for all modes of travel throughout the study area.

Recommended Bicycle Network

Norwalk's dense urban form, wide range of land uses and robust transit systems combine to create conditions that are very conducive to effective and efficient bicycle commuting and travel. However, the existing roadway network, with its narrow travel lanes and high volume of relatively fast traffic, present many challenges for bicycle connectivity and safety.

Bicycle travel is further complicated by the limited number of continuous or direct corridors suitable for bicycle travel between South Norwalk and Norwalk Center (and points beyond) and by the presence of barriers to bicycle travel such as grade-separated highways (I-95 and Route 7), two rail lines, the Norwalk River, large, multi-lane intersections and numerous narrow underpasses and bridges.

To study and identify ways to mitigate the issues created by these challenges in the city's street network, the team prepared the *"The Bicycle Network Safety and Engineering Plan, Norwalk, CT"*. This companion study – conducted concurrently with this TOD study – describes, on a street by street basis, the specific, issues and potential design solutions for bicycle improvements in an area of the City that spans from Norwalk Center to Rowayton and from Route 1 to the Norwalk River.

Within the TOD study area, it is proposed that the bicycle infrastructure be integrated with possible roadway and streetscape improvements. To improve north-south connectivity within the TOD study area, the team proposes a multi-use path along MLK Drive that would provide a ten foot wide, two-way, grade-separated and horizontally separated, shared bicycle and pedestrian pathway parallel to the street. This multi-use path would separate vehicular travel from bicycle travel. **Figure 8** is a rendering of recommended bicycle improvements on MLK Drive.

Improvements to other important streets that also facilitate north-south bicycle travel in South Norwalk include new sharrows along North Main Street and South Main Street.

East-west bicycle connectivity within the South Norwalk TOD district will be improved by painting full bicycle lanes on Monroe Street (west of Main Street), by painting sharrows on Washington Street, and by rededicating one or more minor side streets (Ann Street, Marshall Street, Elizabeth Street and Hanford Street) as Shared Streets. A Shared Street, also known as a bicycle boulevard, is a low-volume, slow speed local street where pedestrian and bicycle movement has been prioritized over vehicular movement; physical traffic calming measures would require automobiles to travel at speeds no greater than that of a bicycle (10 to 15 mph) and through truck traffic would be discouraged.



Figure 8 Rendering of Bicycle Improvements on MLK Drive – multi-use path option

Recommended Street Network Improvements

The implementation of appropriate traffic calming measures will allow for the moderation of traffic speeds to promote pedestrian, bicycle and motor vehicle safety.

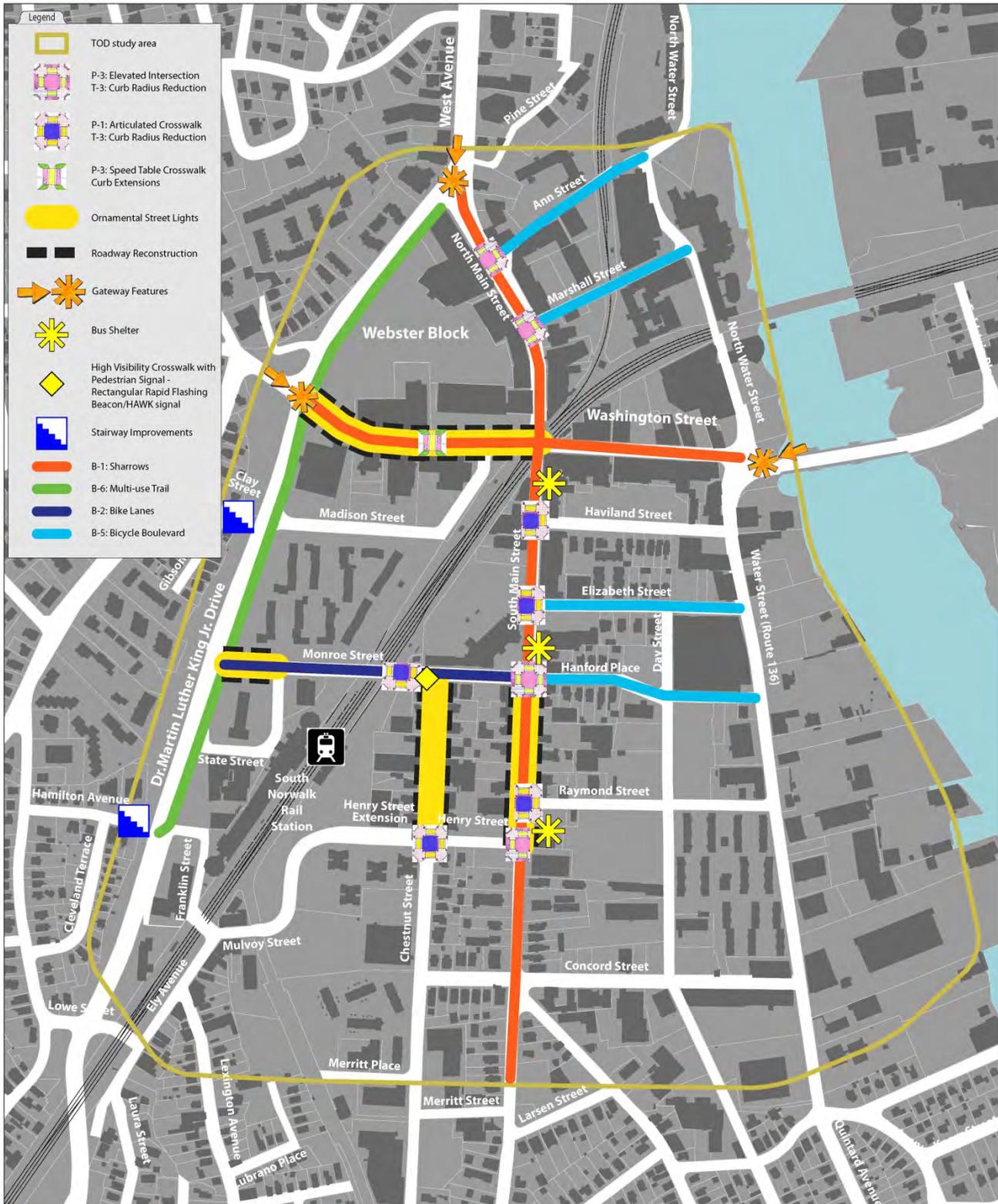
Recommended improvements to the street network in South Norwalk to accommodate new TOD include: 1) traffic calming measures from the Complete Streets Toolbox to moderate traffic speeds and improve safety; 2) aesthetic and place-making improvements to create a sense of place and improve user comfort; 3) lighting and visibility improvements to improve user safety; and, 4) green infrastructure enhancements.

In response to the need to implement safer streets that have the flexibility to meet the needs of multiple users and complement new land uses, the team grouped streets under a new paradigm of design. This set of flexible street standards or typology not only considers traditional factors such as traffic volumes and function of streets within the overall street network, but also considers target vehicle speeds, appropriate traffic calming tools, urban place-making, parking location, and principal users and land uses that the streets will serve.

Each roadway prioritizes certain types of users or modes of travel, including non-motorized travel. The following recommendations observe a hierarchy where streets range from high motor vehicle and transit use to high bicycle and pedestrian use. In this way, the design of streets directly correlates with neighborhood character and activity levels, changing from commercial to residential and from bustling downtown activity to quiet neighborhoods, as appropriate. **Figure 9** identifies the specific locations for recommended roadway improvements within the TOD study area.

Figures 10 and 11 are renderings of recommended street improvements on South Main Street and Monroe Street.

Figure 9 Recommended Roadway Improvements



Recommended Roadway Improvements

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Figure 10 Rendering of Improvements - South Main Street at Monroe Street (looking north)



Figure 11 Rendering of Improvements – Monroe Street at MLK Drive (looking east)

Prioritization of Improvements

Methodology

To guide the City in the next phases of this project, including development of design and construction documents, the team identified the streets within the study area most in need of improvements. To do so, the team considered the overall project goals as well as findings from the Existing Conditions and Opportunities portion of this report. The team then determined the need for improvements in each. Prioritization considerations or factors include:

- Accident history
- Street and sidewalk condition
- Future demand for bike and pedestrian travel
- Proximity to civic buildings, schools, parks, churches and hospitals
- Need to change character
- Need to change perception of personal security
- Proximity to South Norwalk Rail Station and historic district
- How the roadway complements TOD

Each street was assigned a score of 1 to 3 for each consideration based on the team's quantitative or qualitative evaluation of the street network. Those with a low need for improvement received a score of '1' while those with a high need for improvement received a score of '3'. Each consideration was then assigned a weight between '1' and '3', as some factors were deemed of greater import to the community. For example, accident history and the need to improve personal security each were assigned a higher weight than sidewalk condition as safety was determined to be a consideration of greater importance to the community. To confirm alignment with community goals, city staff, stakeholders and members of the community were provided opportunities to comment on assigned weights during the analysis.

Multiplying the raw score (1, 2 or 3) with the weighting factor results in a weighted score for each roadway segment. Weighted scores of all segments were then averaged to determine the score for the entire street in order to rank all streets in the TOD district from highest to lowest priority.

Results

The top 6 streets with the highest weighted scores are those on which improvements will initially be focused. **Table 1** lists all 22 roads in the study area in order of priority. South Main Street, Dr. Martin Luther King Jr. Drive and Chestnut Street received the highest scores, suggesting the greatest need for improvements.

Table 1 Prioritization Table

Street	Multimodal and Safety Considerations (Scores weighted on 3 point scale)																					Average of All Unweighted Scores	Average of All Weighted Scores	Improvement Priority						
	Accident History			Future Demand for Ped Travel			Future Demand for Bike Travel			Proximity to Civic Uses, Schools, Parks, Churches & Hospitals			Need to Change Character			Need to Improve Personal Security			Proximity to SoNo Station & Historic District						Need to Compliment TOD			Street and Sidewalk Condition		
	Score on 3 pt. scale	Weighting Factor	Weighted Score	Score on 3 pt. scale	Weighting Factor	Weighted Score	Score on 3 pt. scale	Weighting Factor	Weighted Score	Score on 3 pt. scale	Weighting Factor	Weighted Score	Score on 3 pt. scale	Weighting Factor	Weighted Score	Score on 3 pt. scale	Weighting Factor	Weighted Score	Score on 3 pt. scale	Weighting Factor	Weighted Score				Score on 3 pt. scale	Weighting Factor	Weighted Score			
South Main St. (north of Henry St.)	2	3	6	3	2	6	2	2	4	3	3	9	3	2	6	2	3	6	3	3	9	3	3	9	2	1	2	2.6	6.3	High
Chestnut Street	2	3	6	2	2	4	1	2	2	3	3	9	3	2	6	3	3	9	3	3	9	3	3	9	3	1	3	2.6	6.3	
Martin Luther King Drive	3	3	9	2	2	4	3	2	6	3	3	9	2	2	4	3	3	9	2	3	6	2	3	6	1	1	1	2.3	6.0	
Washington Street (west of Main St.)	3	3	9	3	2	6	3	2	6	3	3	9	2	2	4	1	3	3	3	3	9	2	2	6	2	1	2	2.4	6.0	
Monroe Street	2	3	6	3	2	6	2	2	4	3	3	9	3	2	6	2	3	6	3	3	9	2	3	6	1	1	1	2.3	5.9	
North Main Street	3	3	9	3	2	6	3	2	6	3	3	9	1	2	2	1	3	3	3	3	9	2	3	6	2	1	2	2.3	5.8	
Henry Street/Mulvoy Street/Henry St. Ext./Franklin St.	1	3	3	2	2	4	2	2	4	3	3	9	2	2	4	3	3	9	3	3	9	2	3	6	2	1	2	2.2	5.6	Medium
Hanford Place	2	3	6	3	2	6	3	2	6	1	3	3	3	2	6	2	3	6	2	3	6	3	3	9	1	1	1	2.2	5.4	
Water Street	1	3	3	2	2	4	3	2	6	2	3	6	3	2	6	2	3	6	2	3	6	3	3	9	2	1	2	2.2	5.3	
Raymond Street	1	3	3	2	2	4	2	2	4	2	3	6	3	2	6	3	3	9	1	3	3	3	3	9	3	1	3	2.2	5.2	
Day Street	1	3	3	1	2	2	1	2	2	2	3	6	3	2	6	3	3	9	2	3	6	3	3	9	3	1	3	2.1	5.1	
Washington Street (east of Main St.)	2	3	6	3	2	6	3	2	6	3	3	9	1	2	2	1	3	3	3	3	9	1	3	3	1	1	1	2.0	5.0	
Ely Avenue	2	3	6	1	2	2	1	2	2	2	3	6	3	2	6	3	3	9	2	3	6	1	3	3	3	1	3	2.0	4.8	
Concord Street	1	3	3	2	2	4	1	2	2	2	3	6	2	2	4	2	3	6	1	3	3	3	3	9	3	1	3	2.0	4.8	
Elizabeth Street	1	3	3	2	2	4	2	2	4	1	3	3	2	2	4	2	3	6	3	3	9	2	3	6	3	1	3	2.0	4.7	
Madison Street	1	3	3	3	2	6	1	2	2	2	3	6	2	2	4	2	3	6	3	3	9	1	3	3	3	1	3	2.0	4.7	
North Water Street	2	3	6	2	2	4	3	2	6	2	3	6	1	2	2	1	3	3	3	3	9	1	3	3	2	1	2	1.9	4.6	
South Main St. (south of Henry St.)	1	3	3	2	2	4	2	2	4	2	3	6	2	2	4	2	3	6	2	3	6	2	3	6	2	1	2	1.9	4.6	Low
State Street	2	3	6	2	2	4	2	2	4	2	3	6	1	2	2	1	3	3	3	3	9	1	3	3	2	1	2	1.8	4.3	
Haviland Street	1	3	3	2	2	4	2	2	4	1	3	3	1	2	2	1	3	3	3	3	9	2	3	6	2	1	2	1.7	4.0	
Marshall Street	2	3	6	2	2	4	1	2	2	2	1	3	3	1	2	2	1	3	3	2	3	6	1	3	1	1	1	1.3	3.3	
Ann Street	2	3	6	1	2	2	2	2	4	1	3	3	1	2	2	1	3	3	2	3	6	1	3	3	1	1	1	1.3	3.3	
Score Legend																														
High Need for Improvement																								3						
																								2						
Low Need for Improvement																								1						

Other planning, design or redevelopment initiatives

There are several other planning or design initiatives in the South Norwalk TOD study area that may lead to new construction or redevelopment of key sites, including:

- Design plans of the reconstruction of the Washington Village public housing development near the intersection of Water Street and Concord Street will ultimately result in 700 units of mixed-income housing in various configurations. The project is being designed and constructed - and is intended to be operated - by a private firm. It is being funded, in part, by the federal “Choice Neighborhoods” program which requires that the replacement housing include both affordable and market rate units.
- The City of Norwalk is in the early stages of planning and designing the reconstruction of the pedestrian plaza located at the intersection of North Main Street and West Washington Street in front of the 500 Washington building. The plaza will include pedestrian amenities, landscaping and new, energy efficient lighting.
- The Norwalk Transit District is preparing conceptual plans for the reconstruction of the South Norwalk Station to improve pedestrian and vehicular access and to facilitate the interchange of passengers among various modes of travel including commuter rail, bus, taxi and passenger vehicles.
- Private sector redevelopment of sites for new transit-oriented development includes a residential development under construction at a site north of Washington Street and west of North Water Street and a major, mixed-use development known as 95/7 at a site bounded by North Water Street, West Avenue, Interstate 95 and the Danbury branch line railroad.

Implementation

Estimated Implementation Costs

The team conducted a rough estimate of costs to implement recommended improvements on each of the top prioritized streets within the TOD study area. The estimate includes (but is not limited to) gateway features, underpass lighting and paint, raised intersections, and articulated crosswalks. In addition, street reconstruction is recommended on Chestnut Street between Monroe Street and Merritt Place and on Mulvoy and Henry Streets. **Table 2** is a conceptual-level estimate of costs of the recommended improvements within the TOD study area by street (or corridor).

The cost estimate in **Table 2** is organized under two headings: 1) First phase of construction; and, 2) Future phase of construction. This phasing of the Recommended Roadway Improvements identified in **Figure 9** and as prioritized in the previous section recognizes that: a) anticipated funds for initial construction is limited; and, b) improvement projects need to be packaged or staged to facilitate efficient construction, to avoid unacceptable delays in emergency responsiveness, and to minimize construction impacts to residents, commuters and businesses.

In addition, some recommended improvements may be installed on a trial or pilot using low-cost materials and temporary systems (see ‘Quick Wins’ section, below).

Table 2 Conceptual Cost Estimate

First Phase of Construction		
<i>Street</i>	<i>Estimated Cost of Initial Phase</i>	<i>Description of Initial Improvements</i>
South Main Street	\$336,500	Elevated Intersection (at Monroe & South Main); Bike sharrows
Martin Luther King, Jr. Drive	\$838,000	Multi-use trail (from Madison St. to Spring St.); Gateway at Washington St. & MLK Drive
Washington Street	\$802,800	Sidewalk/street reconstruction (MLK Dr. to Main St.); Bike sharrows; Elevated crosswalks with curb extensions; Gateway at Water St.
Monroe Street	\$329,400	Bike lanes (MLK Dr. to South Main St.); Sidewalk/street reconstruction & street lights (MLK Dr. to State St.); Crosswalks at Station Dr. (with flashing beacons)
Crosswalks in Flax Hill Neighborhood	\$20,000	Painted crosswalks (2) with lane delineator "bump-outs"
North Main Street	\$176,750	Bike sharrows; Elevated crosswalks with curb extensions (2); Gateway at North Main & West Ave.
Subtotal	\$2,503,450	
	\$375,518	Survey, Design & Construction Engineering
Total	\$2,878,968	

Future Phase of Construction		
<i>Street</i>	<i>Estimated Cost of Future Phase</i>	<i>Description of Future Improvements</i>
South Main Street	\$1,169,000	Sidewalk improvements & street lights (from Monroe to Henry St.); Bus shelters; Elevated intersection (at Henry & South Main); Articulated crosswalks
Martin Luther King, Jr. Drive	\$641,900	Multi-use trail (from Madison St. to Spring St. and from Spring St. to Lowe St.)
Chestnut Street	\$454,000	Sidewalk/street reconstruction & street lights; Articulated crosswalks
Subtotal	\$2,264,900	
	\$339,735	Survey, Design & Construction Engineering
Total	\$2,604,635	

Quick Wins

“Quick Wins” are temporary or interim improvements that can effect traffic calming for relatively low costs (e.g. paint and plastic lane delineators instead of permanent curb extensions). The benefits of Quick Wins include:

- **Save Time:** Safety benefits of project(s) can be achieved sooner.
- **More for Less:** More projects can be implemented for fewer dollars.
- **Reduce Procurements:** Many projects can be constructed by municipal crews.
- **Let Users Adapt:** Users can get accustomed to the countermeasure.
- **Build Support:** Users may be more supportive of a full-cost conversion once they realize the benefits by using the temporary improvement.
- **Trial Installation:** Unanticipated consequences of the countermeasure can be corrected without the need for expensive repairs.
- **Encourage Community Ownership of Project:** Low-cost measures could be beautified/enhanced by local artists creating a unique environment and increasing community ownership.
- **Increase Opportunities for Public-Private Partnerships:** Pop-up public spaces can be designed, constructed and maintained by the private sector.

Examples of pedestrian and bicycle safety improvements or interventions that could be constructed under a Quick Wins program include articulated crosswalks, curb extensions or bulb-outs, lane narrowing or neck-downs, and chicanes. The design team will work with the City, area residents and other stakeholders during the preliminary design stages of this program to further develop or detail Quick Wins and identify specific locations where they might be installed.

Plan Review and Public Involvement

The preparation of this report and the identification of alternatives and recommendations were conducted in close consultation with City officials and with considerable involvement and review by members of the general public. City staff or officials consulted included representatives from the Department of Public Works, the Norwalk Redevelopment Agency, the Norwalk Police Department, the Norwalk Fire Department, the Norwalk Planning Department and the Norwalk Transit District.

Area residents and the community at large had the opportunity to review the initial analysis of conditions, the determination of alternatives and recommendations for both the South Norwalk TOD Pilot Study and the related *“Bicycle Network Safety and Engineering Plan, Norwalk, CT”* through several public meetings and through internet postings.

Table 3 lists public informational meetings held in support of this project. Various products including analyses, concept plans and recommendations were posted on the City’s website at

<http://www.norwalkredevelopmentagency.com/>.

Table 3 Public Meetings

Date/Time	Location	Information Discussed
June 13, 2013, 6:00 P.M.	Norwalk Police Station Community Room	Discuss initial observations and community preferences for pedestrian and bicycle access between SoNo rail station and surrounding neighborhoods.
July 16th, 2013, 7:00 P.M.	Norwalk Police Station Community Room	Review results of bicycle survey and review and discuss issues and opportunities related to bikeability, walkability and Complete Streets.
November 13, 2013, 6:30 P.M.	Stepping Stones Museum for Children	Discuss recommended bike and pedestrian networks and Complete Streets concepts for South Norwalk; review and help prioritize recommended Improvements.

Next Steps

Upon City review and issuance of a Draft Report on the Conceptual Design of the TOD Pilot Study, the report and related map exhibits will be posted on the city website for review and comment by the public. The design team will then revise the report in response to comments and issue a final report. The final report and its recommendations should be reviewed and adopted by the City’s Common Council. Upon adoption of the plan, the Department of Public Works and the Norwalk Redevelopment Agency will authorize the design team to prepare construction plans of the improvements.

The design process will be conducted in three principal phases: 1) Preliminary Design; 2) 65% Final Design and Permits; and, 3) 100% Final Design and Construction Documents. The public and stakeholders will have additional opportunities for review and comment during the design and permit stages through website postings of the adopted plan and through the municipal permit process for public works projects.

The schedule for design is projected to extend through 2014 with phased construction of work anticipated in the spring of 2015. The specific phasing of street construction will be coordinated in consultation with area merchants and businesses to minimize construction impacts.

Appendices:

Appendix A: Norwalk Transit District Bus Routes

Appendix B: Street Condition Assessment Table

Appendix C: Complete Streets Toolbox