

Complete Streets Needs Assessment



Prepared for:
Town of Norwell

Prepared by:
Stantec Consulting Ltd.

February 3, 2017

Sign-off Sheet

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Executive Summary

This Complete Streets Needs Assessment was conducted as part of the development of the Town of Norwell's Prioritization Plan. The Prioritization Plan is a targeted investment strategy to improve safety, mobility and/or accessibility. It has identified the street, infrastructure, cost estimate and timeline for Norwell's desired Complete Street improvement.

As part of the needs assessment, Stantec has conducted numerous site visits to assess the existing conditions of the critical roadways. The assessment included noting speed limits, measuring roadway and shoulder widths and recording the availability and width of sidewalks. In addition, Stantec graded the conditions of the existing pavement and sidewalk condition along all critical roadways.

A Network Gap analysis was conducted to identify gaps within the pedestrian or bicycle network. These gaps can provide barriers to walking and bicycling between areas. Projects that help "fill in" these gaps could be given priority as they will help create a town wide network of pedestrian and bicycle accommodation. The Network Gap analysis was conducted using the Town provided GIS database layers. The pedestrian and bicycle accommodations were verified on the critical roadways during our field visits. Of the 68.9 miles of public roadways within the Town of Norwell, there are only 14.4 miles of sidewalk. The most significant aspect of the lack of this deficiency is that many collector and arterial roadways that are heavily trafficked do not contain sidewalks.

Stantec has developed a list of potential projects based on the Town's identification of desired projects as well as additional projects identified based through our Network Gap Analysis and the field observations. The listing of projects has been evaluated to create a prioritized listing. The listing have been ranked based on a multitude of criteria, such as proximity to schools, roadway volumes etc. Order of magnitude cost estimates for each project were developed. A summary Table of the prioritized projects is shown in Table EX-1 on the following page.

Table EX-1 – Prioritization Plan

Rank	Project Name	Project Description	Project Limits	Total Estimated Project Cost
1	Main Street (Route 123) Pedestrian Improvement 1	New Sidewalk and Vertical Granite Curbing to Control Speed	South Street to Town Hall	\$521,000
2	Main Street (Route 123) Pedestrian Improvement 2	New Sidewalk and Vertical Granite Curbing to Control Speed	Town Hall to West Street	\$741,000
3	South Street Pedestrian Crossing Improvement	Installation of Rectangular Rapid Flashing Beacon	South Street at Norwell High School Driveway	\$30,000
4	Main Street (Route 123) Pedestrian Improvement 3	New Sidewalk	Dover Street to Scituate Town Line	\$515,000
5	Town Center Improvements	Roadway and Sidewalk Improvements	Main Street - West St to Dover St West Street - Main St to Dover St River Street - Main St to Forest St Dover Street - River St to Main St	\$1,700,000
6	Main Street Pedestrian Crossing Improvement	Installation of Rectangular Rapid Flashing Beacon	Main Street, 350 ft east of Central Street	\$30,000
7	Circuit Street	New Sidewalk	Main Street to Pleasant Street	\$135,000
8	Prospect Street	New Sidewalk	Jacobs Lane to Main Street	\$290,000
9	Old Oaken Bucket Road	Sidewalk	Central to Mt Blue	\$170,000
10	Main Street Speed Control	Installation of Radar Speed Feedback ("Your Speed") Signs	Spot locations, near Winter Street, near Dover Street	\$20,000
11	Grove Street/ Norwell Avenue Pedestrian Improvement	New Sidewalk	School Street to Old Oaken Bucket Road	\$482,000
12	Central Street	New Sidewalk	Old Oaken Bucket Road to Main Street	\$320,000
13	Forest Street Speed Control	Installation of Radar Speed Feedback ("Your Speed") Signs	Both Ends	\$20,000
14	Pond Street	New Sidewalk	Rockland Town Line to Washington Street	\$185,000
15	Prospect Street	New Sidewalk	Grove Street to Jacobs Lane	\$250,000
16	River Street	New Sidewalk	Forest Street to Route 3	\$655,000
17	Winter Street Safety Improvements	Signing Improvements	Main Street to Town Line	\$10,000
18	Lincoln Street	New Sidewalk	Grove Street to Main Street	\$335,000
19	Grove Street Pedestrian Improvement 1	New Sidewalk	Wilder Road to Prospect Street	\$344,000
20	Grove Street Pedestrian Improvement 2	New Sidewalk	Prospect Street to School Street	\$353,000
21	South Street Sidewalk	New Sidewalk	Norwell High School to the South Shore YMCA (Hanover)	\$500,000

COMPLETE STREETS NEEDS ASSESSMENT

Introduction
February 3, 2017

1.0 INTRODUCTION

Complete Streets are designed and operated to provide safety and accessibility for all the users of our roadways, trails and transit systems. These users include pedestrians, bicyclists, transit riders, motorists, and drivers of commercial and emergency vehicles of all ages and abilities.

Complete Streets principles contribute toward the safety, health, economic viability, and quality of life in a community by providing accessible and efficient connections between home, school, work, recreation and retail destinations.

This Complete Street Prioritization Plan is a targeted investment strategy to improve safety, mobility and/or accessibility. It has identified the street, infrastructure, cost estimate and timeline for Norwell's desired Complete Street improvement.

1.1 PUBLIC MEETINGS

The Norwell Complete Streets Committee has met on numerous occasions during the process of developing the Prioritization Plan. These meetings were posted and were open to the public. In addition, a special meeting was held on the evening of November 10, 2016 to present the draft plan and to solicit feedback. A number of Town residents attended the meeting and provided recommendations, which were included into this final plan.

2.0 PREVIOUS STUDIES

Prior to beginning the prioritization plan, Stantec reviewed previous studies and planning documents provided to us. The following is a brief summary of the previous studies that were reviewed, as well as information that is important to this Complete Streets prioritization plan.

2.1 TOWN OF NORWELL COMPLETE STREETS POLICY

On February 10, 2016, the Town of Norwell Selectmen voted to adopt a Complete Streets Policy. The policy was accepted by MassDOT with a score of 87.2. The policy is included in the Appendix.



COMPLETE STREETS NEEDS ASSESSMENT

PREVIOUS studies
February 3, 2017

2.2 NORWELL MASTER PLAN 2005-2025

As identified in the Town of Norwell Master Plan, primary transportation related concerns are congestion on Route 53, speeding on the principal east-west roads (Main Street, Grove Street, Old Oak Bucket Road and Pleasant Street); and unsafe conditions for pedestrians and bicyclists.

The following elements were identified in the proposed action plan.

- Promote access to and improvement of regional public transportation through participation in the South Shore Coalition.
- Mitigate traffic congestion on Route 53 by rezoning and proposing common regulatory strategies through the Route 53 Corridor Master Plan.
- Preserve the character of Route 123/ Main Street through inclusion in MassHighway's (now MassDOT) Community Roads Program
- Implement enforcement and traffic calming strategies to reduce speeding and to enhance safety on identified routes through the town.
- Provide safe pedestrians and bicycle paths on busy roadways.
- Adopt a public works asset management system to support a program of regular road maintenance and improvements.

2.3 NORWELL PATHWAY COMMITTEE PUBLIC OPINION SURVEY

The Norwell Pathway Committee Public Opinion Survey was conducted to determine the preferences of Town residents. The survey showed that residents are primarily in favor of adding sidewalks or pathways along Main Street, Grove Street, River Street, Norwell Avenue and Old Oaken Bucket Road. Suggested destinations from the survey included the following locations.

Suggested Destinations

- Wompatuck State Park
- Jacobs Pond
- Cole School
- Vinal School
- Norwell High School/Public Library
- Middle School
- Town Hall
- Norwell Center/ James Library
- North River Landing at Bridge Street



COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.0 EXISTING ROADWAY NETWORK

Norwell has 68.9 miles of public roadways. Route 3 and Route 53 are state-owned roadways while the rest are owned and maintained by the Town of Norwell. For the development of the needs assessment, all roadway segments that were classified as arterial or collector were reviewed. In addition, during a meeting with the Town Planner, additional roadway segments were identified as critical roadway segments that provide significant connections. Below is a listing of all of the critical roadway segments that were reviewed, as well as the functional classification for each one.

Critical Roadway Segments

- Main Street (Route 123)
- Route 53
- Route 228
- High Street
- Grove Street
- Norwell Avenue
- Central Street
- Prospect Street
- School Street
- Summer Street
- Winter Street
- South Street
- Pleasant Street
- Forest Street
- Circuit Street
- River Street
- Lincoln Street
- Bridge Street
- Old Oaken Bucket Rd

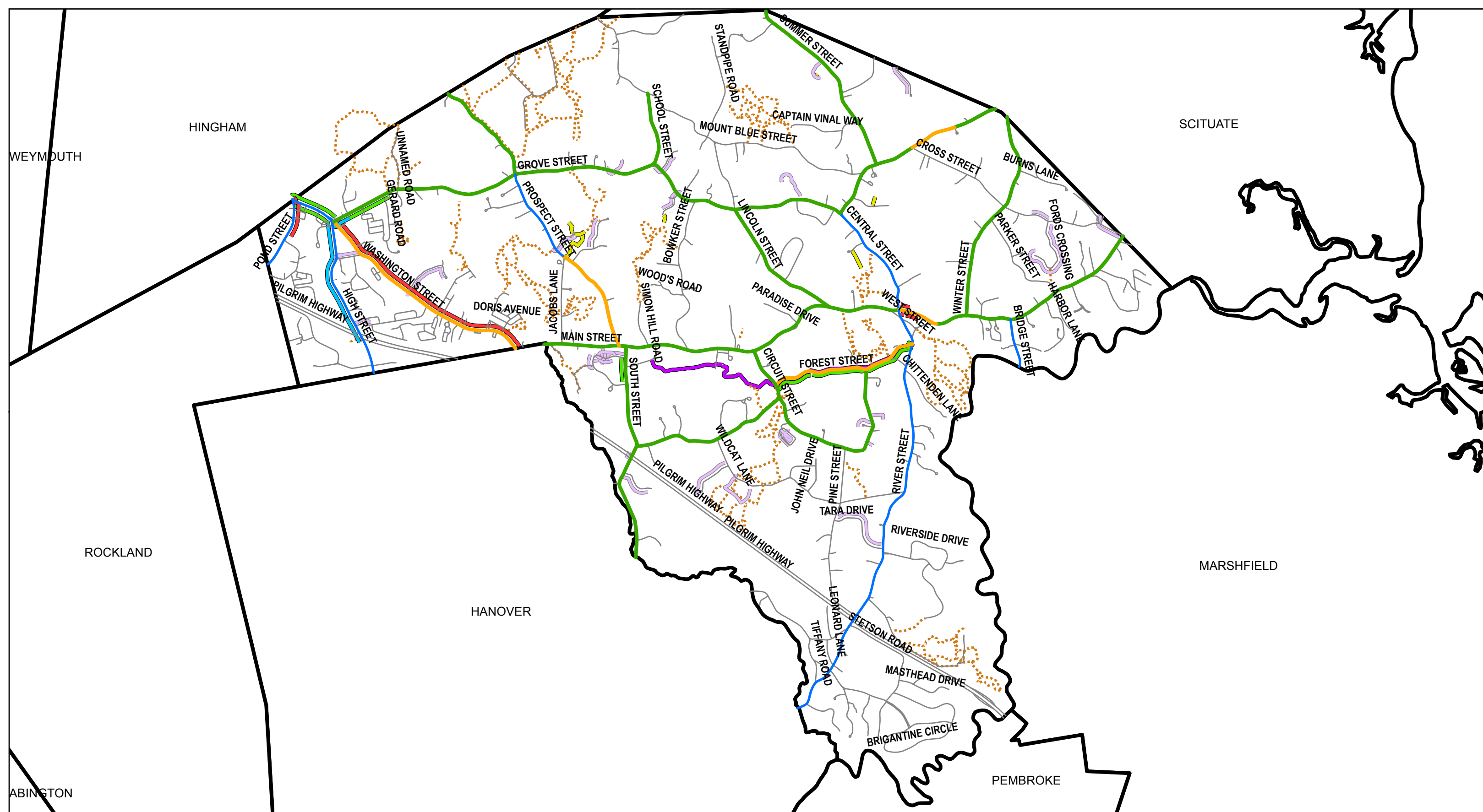
Classification

Principal Arterial
Minor Arterial
Minor Arterial
Minor Arterial
Minor Arterial
Minor Arterial
Minor Arterial
Major Collector
Major Collector
Major Collector
Local
Major Collector
Local
Local
Local
Minor Arterial
Local
Major Collector
Major Collector

Stantec conducted a site visit on Monday July 25, 2016 to assess the existing conditions of the critical roadways. The assessment included noting speed limits, measuring roadway and shoulder widths and recording the availability and width of sidewalks. In addition, Stantec graded the conditions of the existing pavement and sidewalk along all critical roadways.

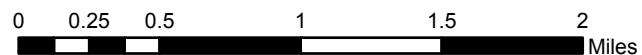
Figure 1 on the following page shows a graphic representation of the roadway and sidewalk conditions.





Norwell, MA
Complete Streets Prioritization

Figure 1
Existing Conditions Assessment
August 2016



Legend

Pavements

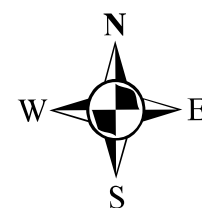
- Poor Condition
- Fair Condition
- Good Condition
- Non-Study Streets

Sidewalks

- Poor Condition
- Fair Condition
- Good Condition
- Non-Study Sidewalks

Prioritization Elements

- Trails
- Pathways
- Easements



COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

A detailed description of each road way segment is included on the following pages. During the field assessment, some roadways were being paved. Therefore, final pavement markings may not be accounted for.

3.1 MAIN STREET (ROUTE 123) – FROM HANOVER TOWN LINE TO SOUTH STREET



Main Street Eastbound (Route 123) Facing South Street

Roadway Width	27 ft
Shoulders/Bike Lanes	None – Recently Paved
Sidewalks	None
Right-of-way width	59 ft based on MassGIS
Posted Speed	Not Posted
Average Daily Traffic	20,100 vpd
Destinations:	Norwell High School
Notes:	Recently Paved



COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.2 MAIN STREET (ROUTE 123) – FROM SOUTH STREET TO TOWN HALL



Main Street Eastbound (Route 123)

Roadway Width	29 ft
Shoulders/Bike Lanes	None – Recently Paved
Sidewalks	None
Right-of-way width	60 ft based on GIS
Posted Speed	40 mph
Average Daily Traffic	15,500 vpd
Destinations	High School, Middle School, Town Hall



COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.3 MAIN STREET (ROUTE 123) – FROM TOWN HALL TO CENTRAL STREET



Main Street Eastbound (Route 123)

Roadway Width	28 ft
Shoulders/Bike Lanes	None – Recently Paved
Sidewalks	None
Right-of-way width	60 ft based on GIS
Posted Speed	35 mph
Average Daily Traffic	11,400 vpd
Destinations	Town Hall, Town Center



COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.4 MAIN STREET (ROUTE 123) – FROM CENTRAL STREET TO DOVER STREET



Main Street Westbound (Route 123) Facing Central Street

Roadway Width	38 ft
Shoulders/Bike Lanes	7 ft
Sidewalks	5 ft
Right-of-way width	60 ft
Posted Speed	Not Posted
Average Daily Traffic	9,600 vpd
Obstructions:	Driveways for retail may be issue for sidewalk construction.

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.5 MAIN STREET (ROUTE 123) – FROM DOVER STREET TO SCITUATE TOWN LINE



Main Street Southbound (Route 123) Facing Dover Street

Roadway Width	29 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	25 mph
Average Daily Traffic	10,700 vpd

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.6 POND STREET – FROM ROCKLAND TOWNLINE TO WASHINGTON STREET



Pond Street Southbound Facing Rockland Town line

Roadway Width	40 ft
Shoulders/Bike Lanes	7 ft
Sidewalks	5 ft
Right-of-way width	51 ft
Posted Speed	35 mph
Average Daily Traffic	15,000 vpd

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.7 WASHINGTON STREET – FROM HINGHAM TOWN LINE TO GROVE STREET



Washington Street Northbound Facing Hingham Town line

Roadway Width	56 ft
Shoulders/Bike Lanes	4 ft
Sidewalks	6 ft
Right-of-way width	60 ft
Posted Speed	35 mph
Average Daily Traffic	15,500 vpd
Obstructions:	Numerous Retail Plazas

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.8 WASHINGTON STREET – FROM GROVE STREET TO HANOVER TOWNLINE



Washington Street Northbound Facing Grove Street

Roadway Width	31 ft
Shoulders/Bike Lanes	2 ft
Sidewalks	5 ft
Right-of-way width	60 ft
Posted Speed	35 mph
Average Daily Traffic	18,300 vpd



COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.9 CIRCUIT STREET – FROM PLEASANT STREET TO FOREST STREET



Circuit Street Southbound Facing Pleasant Street

Roadway Width	24 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	40 ft
Posted Speed	30 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.10 HIGH STREET – FROM HANOVER TOWN LINE TO WASHINGTON STREET



High Street Southbound Facing Hanover Town line

Roadway Width	24 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	5 ft
Right-of-way width	52 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.11 GROVE STREET – FROM WASHINGTON STREET TO BAY PATH LANE



Grove Street Eastbound Facing Bay Path Lane

Roadway Width	48 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	6 ft
Right-of-way width	62 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.12 GROVE STREET – BAY PATH LANE TO WILDER ROAD



Grove Street Westbound Facing Bay Path Lane

Roadway Width	27 ft
Shoulders/Bike Lanes	None
Sidewalks	6 ft
Right-of-way width	60 ft
Posted Speed	Not Posted
Average Daily Traffic	Not Available
Notes:	Recently Paved

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.13 GROVE STREET – FROM WILDER ROAD TO SCHOOL STREET



Grove Street

Roadway Width	26 ft
Shoulders/Bike Lanes	None – Recently Paved
Sidewalks	None
Right-of-way width	56 ft
Posted Speed	Not Posted
Average Daily Traffic	Not Available
Notes:	Recently Paved

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.14 GROVE STREET – FROM SCHOOL STREET TO LINCOLN STREET



Grove Street Westbound Facing School Street

Roadway Width	27 ft
Shoulders/Bike Lanes	None – Recently Paved
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available
Notes:	Recently Paved

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.15 NORWELL AVENUE – FROM LINCOLN STREET TO OLD OAKEN BUCKET ROAD



Norwell Avenue Eastbound Facing Old Oaken Bucket Road

Roadway Width	26 ft
Shoulders/Bike Lanes	None – Recently Paved
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available
Notes:	Recently Paved

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.16 CENTRAL STREET – FROM OLD OAKEN BUCKET ROAD TO MAIN STREET



Central Street Southbound Facing Main Street

Roadway Width	27 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	20 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

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3.17 PROSPECT STREET – FROM HINGHAM TOWN LINE TO GROVE STREET



Prospect Street

Roadway Width	22 ft
Shoulders/Bike Lanes	None
Sidewalks	None
Right-of-way width	47 ft
Posted Speed	30 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.18 PROSPECT STREET – FROM GROVE STREET TO JACOBS LANE



Prospect Street Southbound Facing Jacobs Lane

Roadway Width	23 ft
Shoulders/Bike Lanes	None
Sidewalks	None
Right-of-way width	47 ft
Posted Speed	Not Posted
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.19 PROSPECT STREET – FROM JACOBS LANE TO MAIN STREET



Prospect Street Southbound Facing Jacobs Lane

Roadway Width	22 ft
Shoulders/Bike Lanes	None
Sidewalks	None
Right-of-way width	49 ft
Posted Speed	Not Posted
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.20 SCHOOL STREET – FROM MT BLUE STREET TO GROVE STREET



School Street

Roadway Width	26 ft
Shoulders/Bike Lanes	None
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	Not Posted
Average Daily Traffic	Not Available
Notes:	Recently Paved

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.21 SUMMER STREET – FROM SCITUATE TOWN LINE TO OLD OAKEN BUCKET ROAD



Summer Street

Roadway Width	21 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.22 WINTER STREET – FROM MAIN STREET TO SCITUATE TOWN LINE



Winter Street

Roadway Width	26 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.23 SOUTH STREET – FROM MAIN STREET TO NORWELL HIGH SCHOOL



South Street Facing Southbound near Norwell High School

Roadway Width	24 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	6 ft
Right-of-way width	46 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available
Notes	Sidewalk under construction

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.24 SOUTH STREET – FROM NORWELL HIGH SCHOOL TO HANOVER TOWNLINE



South Street

Roadway Width	24 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	40 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.25 PLEASANT STREET – FROM SOUTH STREET TO CIRCUIT STREET



Pleasant Street Eastbound

Roadway Width	23 ft
Shoulders/Bike Lanes	None – Recently Paved
Sidewalks	None
Right-of-way width	46 ft
Posted Speed	Not Posted
Average Daily Traffic	Not Available
Obstructions:	Localized Pothole Repair/Shimming

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.26 FOREST STREET – FROM CIRCUIT STREET TO RIVER STREET



Forest Street Eastbound Facing River Street

Roadway Width	22 ft
Shoulders/Bike Lanes	None
Sidewalks	5 ft
Right-of-way width	50 ft
Posted Speed	30 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.27 CIRCUIT STREET – FROM MAIN STREET TO PLEASANT STREET



Circuit Street Northbound Facing Main Street

Roadway Width	24 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	30 mph
Average Daily Traffic	Not Available
Notes:	Bike Path goes through @ Forest St Intersection-

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.28 RIVER STREET – FROM MAIN STREET TO FOREST STREET



River Street Northbound Facing Main Street

Roadway Width	28 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	Not Posted
Average Daily Traffic	6,300 vpd
Obstructions:	No sidewalks, but easily constructible

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.29 RIVER STREET – FROM FOREST STREET TO ROUTE 3



River Street Northbound Facing Forest Street

Roadway Width	27 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	40 mph
Average Daily Traffic	6,300 vpd

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.30 RIVER STREET – FROM ROUTE 3 TO HANOVER TOWN LINE



River Street Northbound Facing Route 3

Roadway Width	26 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	51 ft
Posted Speed	35 mph
Average Daily Traffic	6,300 vpd
Obstructions:	Wide shoulder right after bridge overpass

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.31 LINCOLN STREET – FROM GROVE STREET TO MAIN STREET



Lincoln Street

Roadway Width	23 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	30 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.32 BRIDGE STREET – FROM MAIN STREET TO MARSHFIELD TOWN LINE



Bridge Street

Roadway Width	26 ft
Shoulders/Bike Lanes	1 ft
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	35 mph
Average Daily Traffic	3,000 vpd
Obstructions:	Previously Crack sealed

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.33 MOUNT BLUE STREET



Mount Blue Street Westbound

Roadway Width	24 ft
Shoulders/Bike Lanes	None
Sidewalks	None
Posted Speed	25-30 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.34 OLD OAKEN BUCKET ROAD – FROM MT BLUE STREET TO CENTRAL STREET



Old Oaken Bucket Road Eastbound Facing Mt Blue Street

Roadway Width	24 ft
Shoulders/Bike Lanes	None = Recently Paved
Sidewalks	None
Right-of-way width	51 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available
Destinations:	School Zone

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.35 OLD OAKEN BUCKET ROAD – FROM CROSS STREET TO CRANBERRY LANE



Old Oaken Bucket Road Eastbound Facing Cranberry Lane

Roadway Width	24 ft
Shoulders/Bike Lanes	None
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available
Obstructions:	Previously Micro surfaced

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

3.36 OLD OAKEN BUCKET ROAD – FROM CRANBERRY LANE TO SCITUATE TOWNLINE



Old Oaken Bucket Road

Roadway Width	26 ft
Shoulders/Bike Lanes	None
Sidewalks	None
Right-of-way width	50 ft
Posted Speed	35 mph
Average Daily Traffic	Not Available

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

SAFETY ANALYSIS

Crash data from MassDOT was reviewed for the entire Town. The data was reviewed for a 3-year period from 2012 through 2014, the most recent years for which data is available. Based on the MassDOT crash history data, all crashes within the town boundaries are shown on the crash location map in Figure 2.

Town wide, there were a total of 540 crashes during the three-year period of 2012-2014. The highest concentration of the crashes occurs along Washington Street. The second highest concentration occurs along Main Street. There were a total of 3 fatal crashes, one on Main Street, one on Winter Street and one on River Street.

During the three-year period, a total of two pedestrian crashes were reported. Both resulted in injuries. One of the pedestrian crashes occurred at a driveway on Church Street and one occurred on Washington Street.

The roadway with the highest number of crashes is Washington Street with an average of 38 crashes per year. Main Street experienced the second highest yearly crash count with 25 crashes per year. Pond Street experienced 19 crashes per year. Grove Street experienced 10 crashes per year. All of the other Town wide roadways averaged less than 10 crashes per year.

What is more indicative of safety problems is the roadway segment crash rate. Segment crash rates were calculated for all corridors where traffic volumes were available. These were then compared to average crash rates for similar federal roadway classifications in Massachusetts. As shown in Table 1, the crash rate on Washington Street is similar to the average statewide crash rate for a Minor Arterial. Main Street, River Street and Pond Street have lower than average crash rates.

There is no reliable or available volume data to calculate the crash rates on the other roadways. However, the large number of crashes on a relatively short section of Pond Street indicates that this roadway segment likely exceeds the state average crash rate for each respective roadway classification.

The Town of Norwell Police Department has recently provided a report to the Town of Norwell Selectmen, identifying the highest crash locations and types over the last year. The top two highest crash intersections are both on Washington Street. These reports are located in the Appendix.



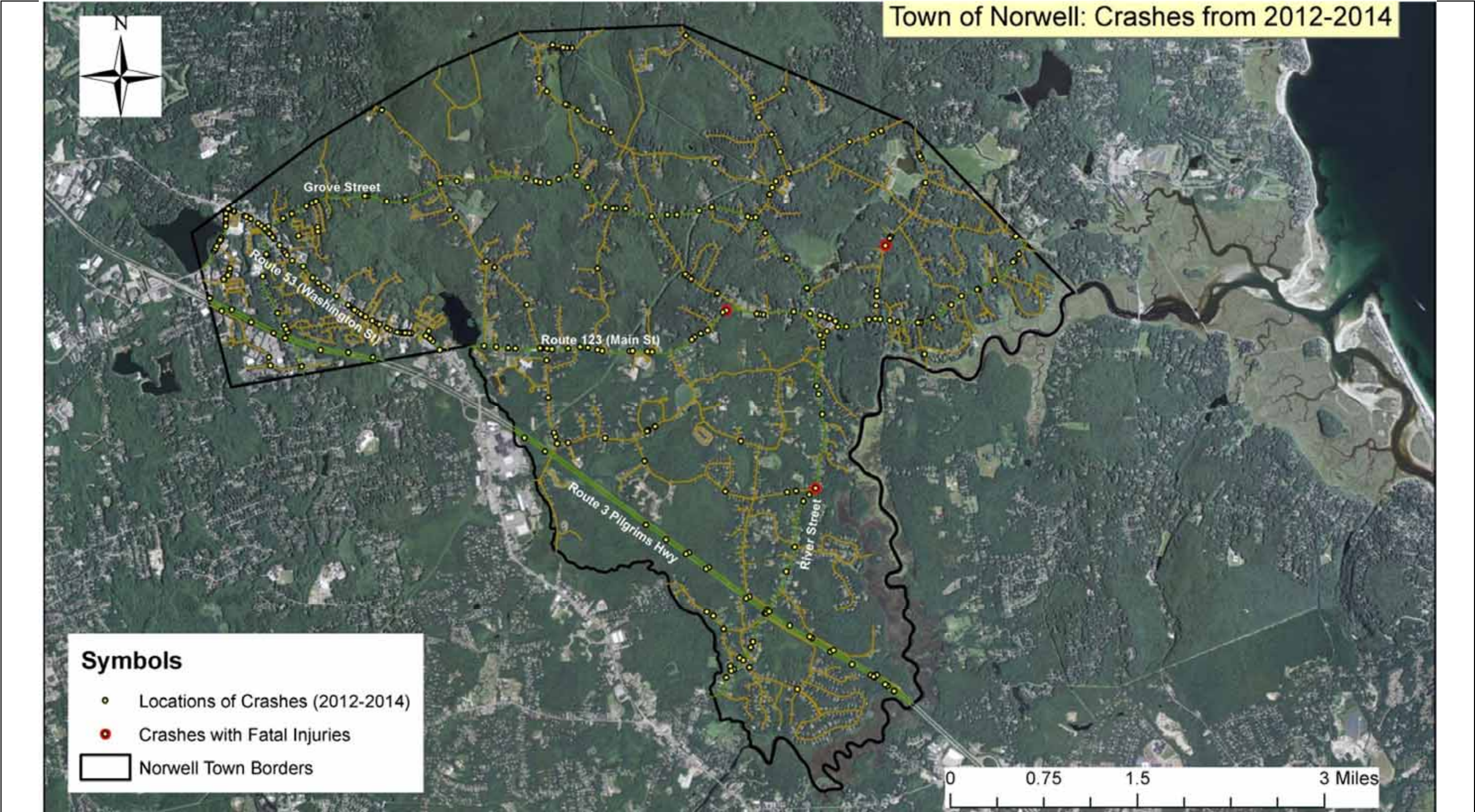


Figure 2 Crash Location Map

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK
February 3, 2017

Table 1 – Crashes on Town Roadways

	Main Street	Grove Street	Washington Street	River Street	Winter Street	Prospect Street	South Street	High Street	Pleasant Street	Forest Street	Summer Street	Old Oaken Bucket Road	Pond Street
Segment Length (mi)	4.89	3.38	2.15	3.4	1.71	2.44	1.73	1.29	1.24	1.16	1.51	1.56	0.56
Classification	Principal Arterial	Minor Arterial	Minor Arterial	Minor Arterial	Local	Major Collector	Major Collector	Minor Arterial	Local	Local	Major Collector	Major Collector	Minor Arterial
Year													
2012	14	6	27	3	3	4	3	3	0	0	3	6	9
2013	31	17	45	9	6	7	5	7	4	0	4	1	26
<u>2014</u>	<u>30</u>	<u>7</u>	<u>41</u>	<u>16</u>	<u>2</u>	<u>7</u>	<u>1</u>	<u>18</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>22</u>
Total	75	30	113	28	11	18	9	28	5	0	8	9	57
Average per year	25	10	37.67	9.33	3.67	6	3	9.33	1.67	0	2.67	3	19
Crash Rate	0.7		3.2	1.21									
Average Crash Rate	3.49	3.65	3.65	3.65	2.01	3.63	3.63	3.65	2.01	2.01	3.63	3.63	3.65
Severity													
Property Damage													
Only	51	22	65	18	7	11	4	18	3	0	6	3	37
Non-Fatal Injury	18	8	40	8	3	7	4	10	2	0	2	6	17
Fatal Injury	1	0	0	1	1	0	0	0	0	0	0	0	0
<u>Not Reported</u>	<u>5</u>	<u>0</u>	<u>8</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>
Total	75	30	113	28	11	18	9	28	5	0	8	9	57
Type of Accident													
Single Vehicle	23	10	14	14	10	6	4	1	5	0	4	6	3
Head-On	3	1	2	1	0	2	0	0	0	0	1	2	2
Angle	12	7	30	2	0	10	3	6	0	0	2	0	22
Rear-End	31	5	56	6	1	0	1	18	0	0	0	1	25
Rear-to Rear	1	1	2	0	0	0	0	0	0	0	0	0	0
Sideswipe	4	5	6	2	0	0	0	1	0	0	1	0	5
Pedestrian/Bicyclist	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Not Reported</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	75	30	113	28	11	18	9	28	5	0	8	9	57

COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017

Winter Street was identified as a concern by the Complete Streets committee. Winter Street currently has a posted speed limit of 35 mph. This residential roadway has numerous horizontal curves and in many areas has vegetation close to the edge of the roadway, limiting visibility and increasing the potential for crashes.

Advisory chevron signs indicating the curves are shown in two locations facing northbound vehicles and two locations facing southbound vehicles. These locations feature two chevrons signs. In addition, a Curve Warning sign is located in the corridor for facing northbound vehicles.

A review of the crash data shows that 10 of the 11 crashes on Winter Street were single vehicle, off-the road type crashes, including one fatal crash. This indicates that drivers are likely traveling too fast around curves, or are unaware of the sharpness of the curve.

Stantec also reviewed the existing curves along Winter Street to determine the design speed that should be associated with the radius of each curve. The curves were measured using orthophotos, and no super elevation was assumed. Three of the curves are adequate for 25 mph; two of the curves are adequate for 30 mph. These are less than the posted speed limit of 35 mph.

Figure 3 shows a graphic of the locations of the Winter Street crashes as well as the speeds that the curves are adequate for.

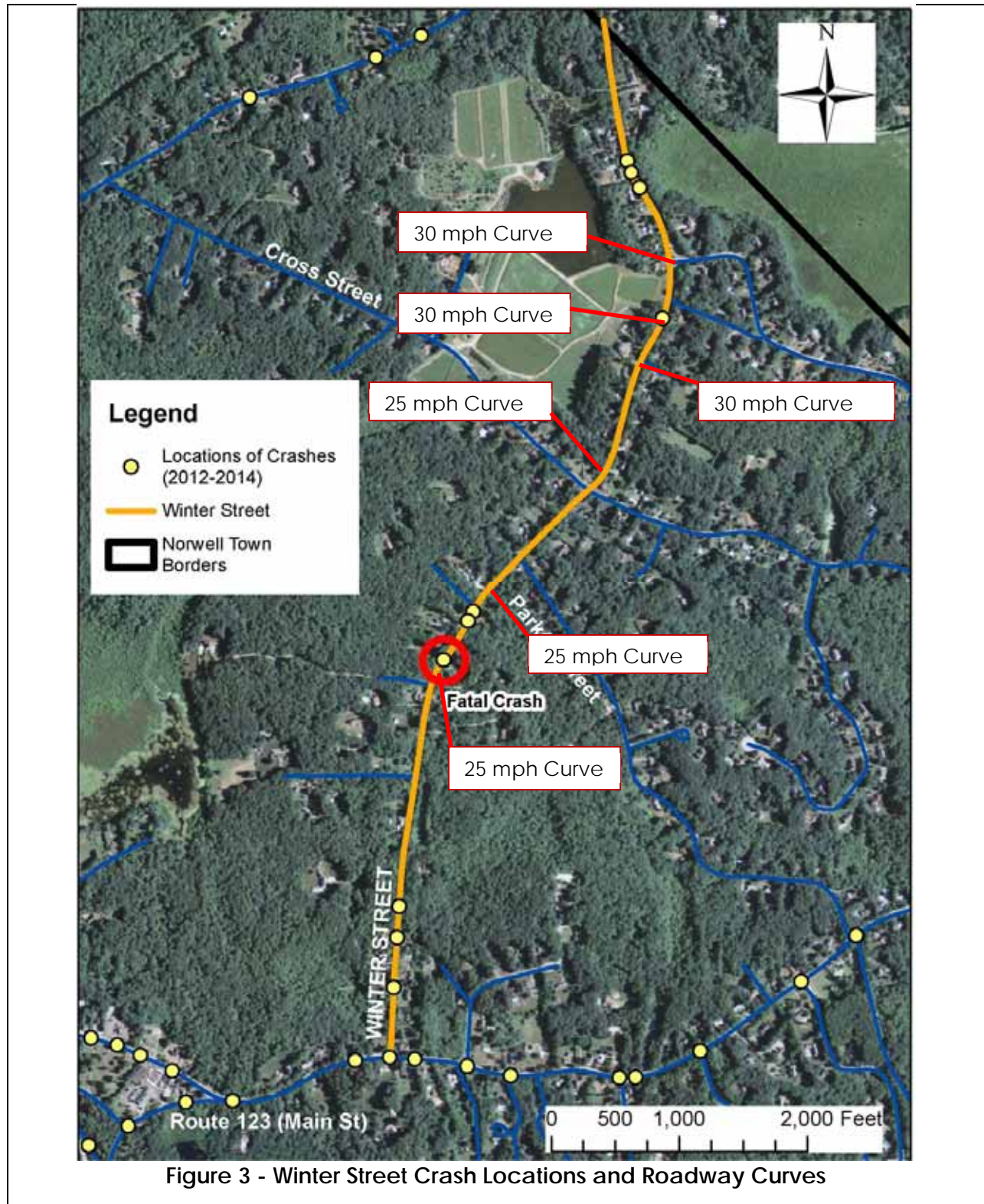
Potential Safety Improvements are identified in the potential projects section of this report.



COMPLETE STREETS NEEDS ASSESSMENT

EXISTING ROADWAY NETWORK

February 3, 2017



COMPLETE STREETS NEEDS ASSESSMENT

NETWORK GAP ANALYSIS

February 3, 2017

4.0 NETWORK GAP ANALYSIS

A Network Gap analysis was conducted to identify gaps within the pedestrian or bicycle network. These gaps can provide barriers to walking and bicycling between areas. Projects that help “fill in” these gaps could be given priority as they will help create a town-wide network of pedestrian and bicycle accommodations.

The Network Gap analysis was conducted using the Town provided GIS database layers. The pedestrian and bicycle accommodations were verified on the critical roadways during our field visits.

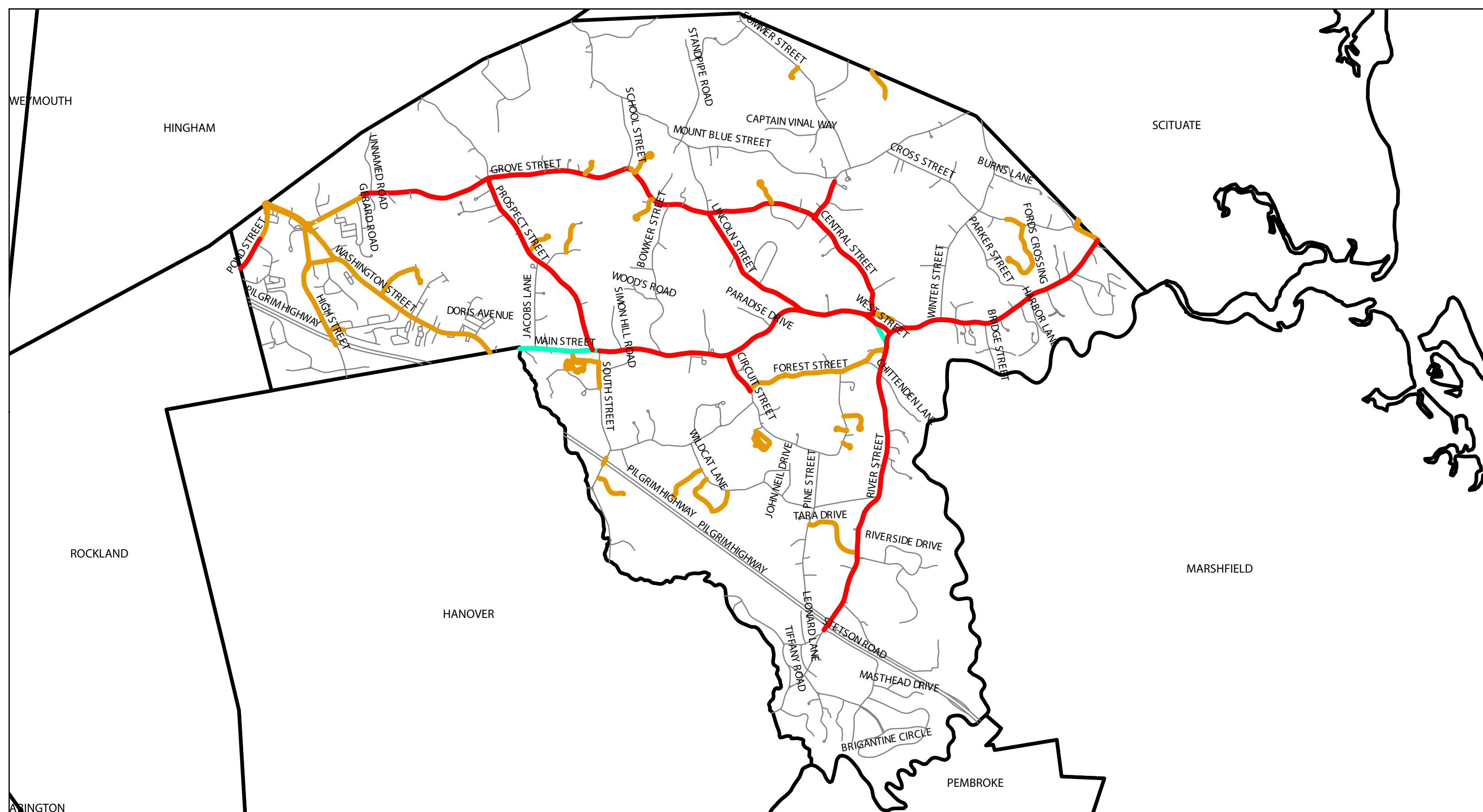
Figure 4 shows the existing town-wide roadway network as well as the existing pedestrian accommodations. The existing pedestrian accommodations consist of sidewalks as well as a multi-use path. Walking trails are also provided within individual parks. The walking trails do not provide “Complete Streets” however; they are destinations and connection that link to existing sidewalks and/or multi-use paths.

As shown in Figure 4, there are very few of the roadways that currently contain any pedestrian accommodations. Of the 68.9 miles of public roadways within the Town of Norwell, there are only 14.4 miles of sidewalk. The most significant aspect of the lack of this deficiency is that many collector and arterial roadways that are heavily trafficked do not contain sidewalks. Sidewalks on the major roadways are critical both from a safety standpoint and from a pedestrian experience standpoint for ease of travel. Sidewalks reduce the likelihood of pedestrian-related crashes. In addition, pedestrians oftentimes do not feel secure walking along a busy roadway without a sidewalk.

No roadways within the Town feature specific bicycling accommodations.

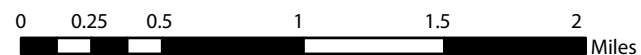
Figure 5 shows the existing town-wide roadway network, the existing pedestrian accommodations and the proposed sidewalks that are listed in the following section.





Norwell, MA Complete Streets Prioritization

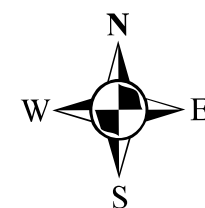
Figure 5
Future Proposed Sidewalk Network
August 2016



Legend

Sidewalks

- Existing Sidewalk Network: 14.4 miles
- Upcoming Sidewalk Network: 0.8 miles
- Future Sidewalk Network: 15.1 miles



COMPLETE STREETS NEEDS ASSESSMENT

ACTIVE TRANSPORTATION NETWORK UTILITY SCORES

February 3, 2017

5.0 ACTIVE TRANSPORTATION NETWORK UTILITY SCORES

The Metropolitan Area Planning Commission (MAPC) has developed the Local Access Tool, which quantifies the active transportation utility for a stretch of roadway. This measure provides a robust, quantitative estimate of current or potential roadway utility for walkers and bikers. The active transportation network utility score for each segment of roadway indicates how useful that street segment is for connecting residents with schools, shops, restaurants, parks, and transit stations.

These scores were researched in order to compare the relative demand for walking and biking. Therefore, the scores are being used to compare roadways within Norwell to other roadways in Norwell.

These scores are quantified using the following methodology.

1. Trip Generation: Number of trips of each type beginning and ending in each block.
2. Trip Distribution: Number of trips going that occur between each origin and destination block to each other block.
3. Mode Choice: Number of trips that might be made by walking or biking.
4. Route Assignment: Routes were assigned based on shortest network distance between the origin and destination census blocks. The network includes all surface roadways, regardless of whether or not they currently have a sidewalk or bike facility. The trips assigned to each segment were summed up for each trip type and mode to produce eight trip/mode specific Local Access Scores. The raw scores were rescaled to a range of 0 to 100, weighted and then combined into composite scores by mode.

5.1 LOCAL ACCESS SCORE: WALKING

The Walking Local Access Scores emphasize shorter trips from home to local destinations. People are very likely to walk to destinations that are within a half of a mile of their homes. They are less likely to walk to destinations that are further away, and are very unlikely to walk more than 2 miles to their destination. The model used to create the scores accounts for this behavior.

As shown on the figures and quantified in Table 2, the streets with the highest Walking Access Scores include Main Street, Washington Street, Grove Street, Bridge Street and the section of South Street from Main Street to the High School. The scores shown in Table 2 were utilized in the prioritization rankings. Higher scores show a higher need within the Town.



COMPLETE STREETS NEEDS ASSESSMENT

ACTIVE TRANSPORTATION NETWORK UTILITY SCORES
February 3, 2017

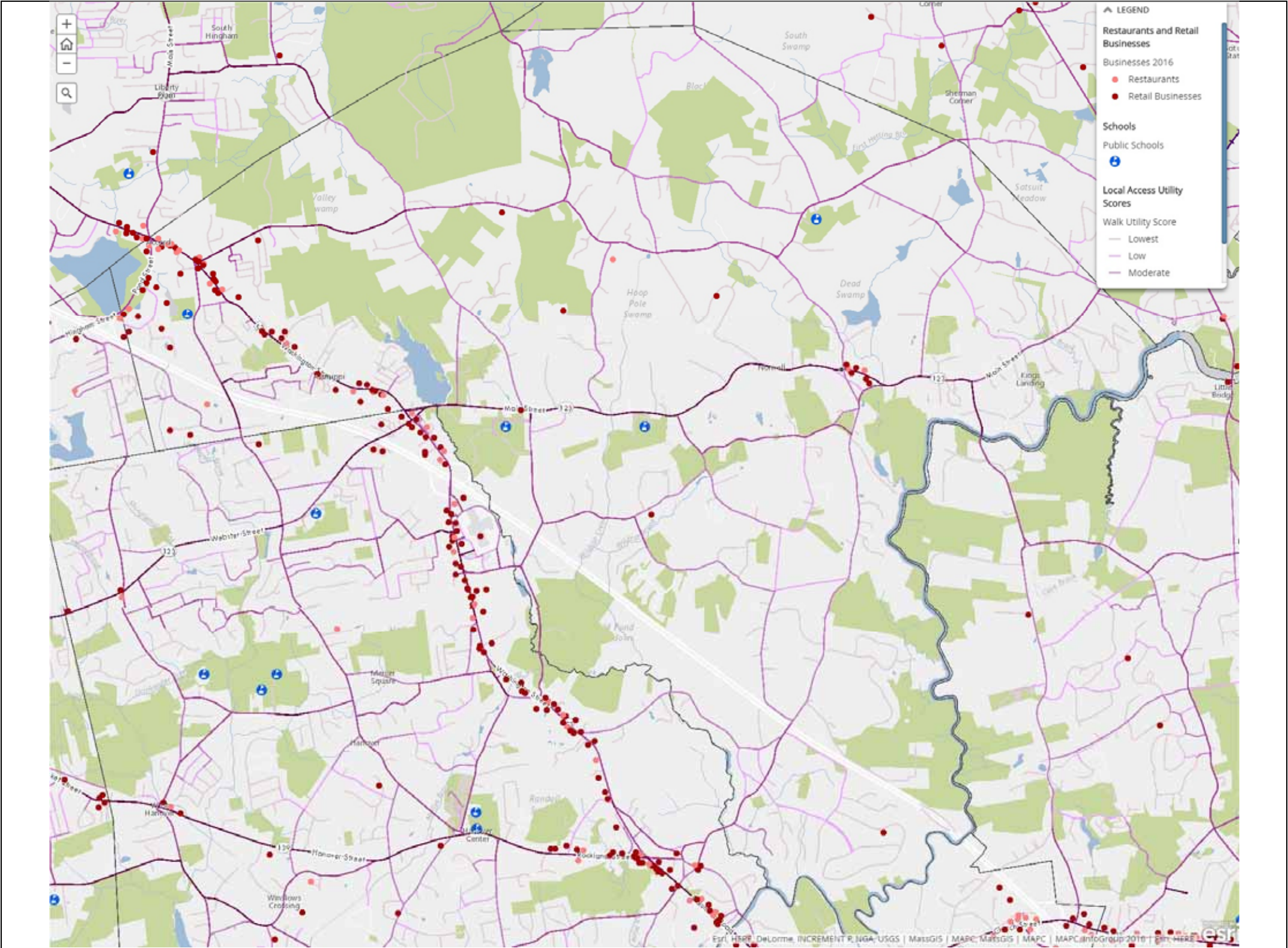


Figure 6 - Local Access Utility – Walking

COMPLETE STREETS NEEDS ASSESSMENT

ACTIVE TRANSPORTATION NETWORK UTILITY SCORES

February 3, 2017

5.2 LOCAL ACCESS SCORE: BICYCLE

The Bicycle Local Access Scores emphasize longer trips than for the Walking Local Access Scores, since people are generally willing to bike further than they are willing to walk. As shown on the figures and quantified in Table 2, the streets with the highest Bicycle Access Scores include Main Street, River Street, Washington Street, Bridge Street and the section of South Street from Main Street to the Norwell High School. The scores shown in Table 2 were utilized in the prioritization rankings.

Table 2 - Walking and Bicycle Local Access Scores

Critical Roadway	Segment	Walking Score	Bicycle Score
Main Street (Route 123)	Hanover Town Line to South Street	2.40	2.30
	South Street to Town Hall	1.37	1.79
	Town Hall to Central Street	1.31	2.35
	Central Street to Dover Street	1.36	4.99
	Dover Street to Scituate Town Line	1.55	2.71
Pond Street	Rockland Town Line to Washington Street	0.62	0.24
Route 53	Hingham Town Line to Grove Street	3.70	1.82
	Grove Street to Hanover Town Line	3.70	1.82
High Street	Hanover Town Line to Washington Street	0.24	0.15
Grove Street	Washington Street to Bay Path Lane	1.72	0.58
	Bay Path Lane to Wilder Road	1.04	0.35
	Wilder Road to School Street	0.52	0.53
	School Street to Lincoln Street	0.31	0.90
Norwell Avenue	Lincoln Street to Old Oaken Bucket Road	0.31	0.00
Central Street	Old Oaken Bucket Road to Main Street	0.08	1.47
Prospect Street	Hingham Town Line to Grove Street	0.14	2.65
	Grove Street to Jacobs Lane	0.14	0.01
	Jacobs Lane to Main Street	0.03	0.00
School Street	Mt. Blue Street to Grove Street	0.22	0.30
Summer Street	Scituate Town Line to Old Oaken Bucket Road00.	0.05	0.01
Winter Street	Main Street to Scituate Town Line	0.06	0.01
South Street	Main Street to Norwell High School	2.77	1.23
	Norwell High School to Hanover Town Line	0.25	0.96
Pleasant Street	South Street to Circuit Street	0.34	0.21
Forest Street	Circuit Street to River Street	0.29	0.67
Circuit Street	Pleasant Street to Forest Street	0.28	1.19
	Main Street to Pleasant Street	0.28	1.19
River Street	Main Street to Forest Street	0.03	2.35
	Forest Street to Route 3	0.03	0.00
	Route 3 to Hanover Town Line	0.33	1.77
Lincoln Street	Grove Street to Main Street	0.10	1.48
Bridge Street	Main Street to Marshfield Town Line	1.28	9.12
Mount Blue Street		0.34	1.48
Old Oaken Bucket Rd	Mt Blue Street to Central Street	0.20	1.17
	Cross Street to Scituate Town Line	0.18	0.30

Source: Local Access MAPC



COMPLETE STREETS NEEDS ASSESSMENT

ACTIVE TRANSPORTATION NETWORK UTILITY SCORES
February 3, 2017

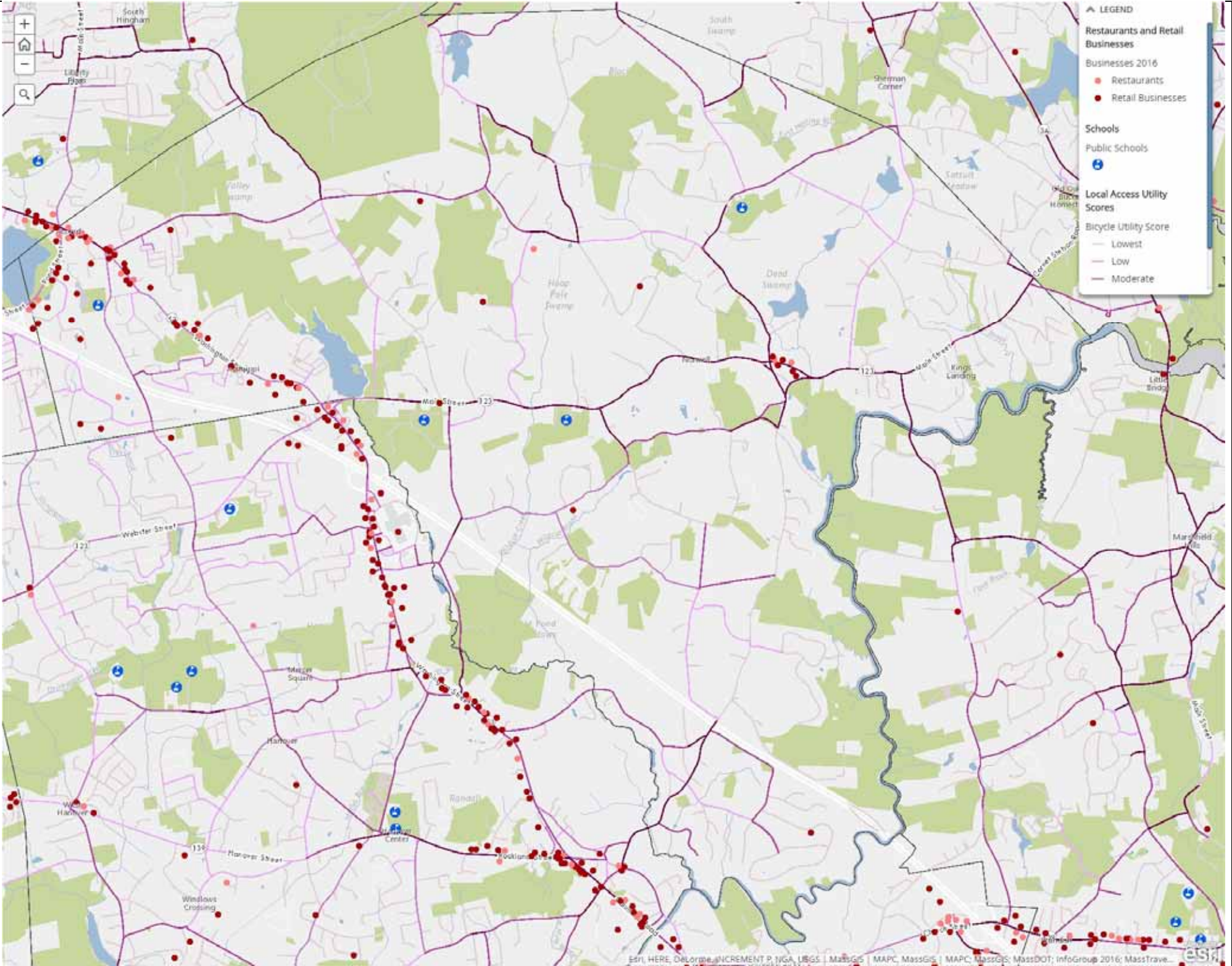


Figure 7 - Local Access Utility - Bicycle

COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

February 3, 2017

6.0 POTENTIAL PROJECTS

Stantec has developed a list of potential projects based on the Town's identification of desired projects as well as additional projects identified based on the Network Gap Analysis and the field observations. The listing of projects has been evaluated to create a prioritized listing. The listing have been ranked based on a multitude of criteria, such as proximity to schools, roadway volumes etc. A detailed listing of rankings and criteria is included in the Appendix.

Order of magnitude cost estimates for each project were developed. Cost estimates were developed based on unit costs. Breakdowns of the cost estimates for each project are included in the Appendix.

6.1 MAIN STREET PEDESTRIAN ACCOMODATION 1 – SOUTH STREET TO TOWN HALL

Limits:

- Main Street from South Street to Town Hall

Project Lengths: 4,800 ft

Estimated Cost: \$521,000

Improvements: New Sidewalk and Vertical Granite Curbing

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation. Nor does it provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment experiences relatively fast travel speeds (posted 40 mph) and relatively high volumes (15,500 vehicles per day).

Since Main Street is one of the higher volume and higher speed roadways in Town, there is a strong desire to separate pedestrians from the vehicle traffic. In addition, Main Street provides connections to key destinations, such as the Norwell High School and Town Hall. Additionally, a portion of high school students attend after school activities at the Town Hall.

Although the MassGIS parcel data layer information indicates that 60 feet of right-of-way is available, existing stone walls indicated that 50 feet of right-of way is more likely. Therefore, our concept utilizes a 50-foot cross section.

Proposed Improvements

A sidewalk is proposed on the southern side of Main Street. A six-foot-wide sidewalk is recommended on one side of the roadway, along with a grass buffer. Due to the high speeds and volumes on Main Street, vertical granite curbing is proposed along the sidewalk side of the roadway. This configuration is illustrated in Figure 8 below. The proposed sidewalk and granite curbing will provide improved pedestrian mobility and improved safety. In addition, it will



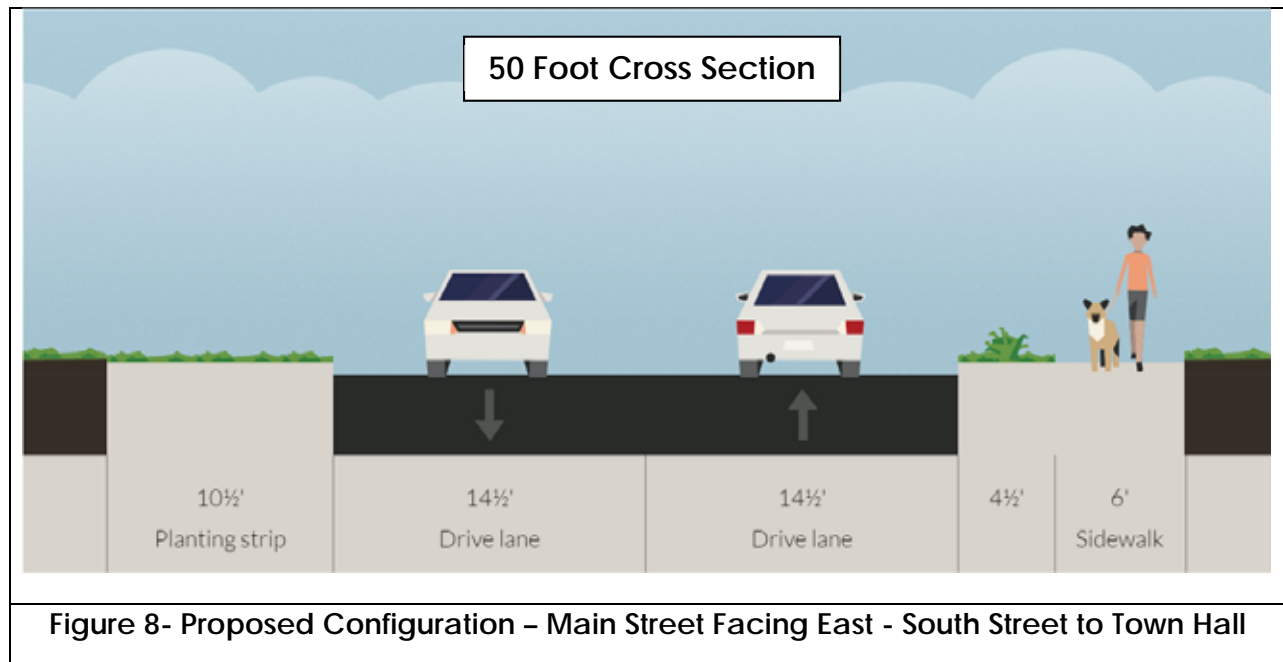
COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

February 3, 2017

provide a pedestrian connection between Norwell High School, Middle School and the Town Hall.

Bicycle mobility is not improved with the proposed improvement. In order to improve bicycle mobility, the roadway would need to be widened, or the sidewalk would need to be widened to 10 feet to become a shared use path. This would likely require additional right-of-way or would impact existing stone walls along the corridor. It should be noted that the graphic below shows a 29-foot-wide roadway. However, this dimension also includes approximately 1 1/2 feet of curbing.



COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

February 3, 2017

6.2 MAIN STREET PEDESTRIAN ACCOMODATION 2 – TOWN HALL TO WEST STREET

Limits:

- Main Street from Town Hall to West Street

Project Lengths: 6,800 ft

Estimated Cost: \$741,000

Improvements: New Sidewalk and Vertical Granite Curbing

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation. Nor does it provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment experiences relatively fast travel speeds, posted at 40 mph, and relatively high volumes, 15,500 vehicles per day.

Since Main Street is one of the higher volume and higher speed roadways in Town, there is a strong desire to separate pedestrians from the vehicle traffic. In addition, Main Street provides connections to key destinations, such as the Norwell High School and Town Hall.

Although the GIS parcel data layer information indicates that 60 feet of right-of-way is available, existing stone walls indicated that 50 feet of right-of way is more likely. Therefore, our concept utilizes a 50 foot cross section.

Proposed Improvements

A sidewalk is proposed on the southern side of Main Street. A six-foot-wide sidewalk is recommended on one side of the roadway, along with a grass buffer. Due to the high speeds and volumes on Main Street, vertical granite curbing is proposed along the sidewalk side of the roadway. This configuration is illustrated in Figure 9 below. The proposed sidewalk and granite curbing will provide improved pedestrian mobility and improved safety.

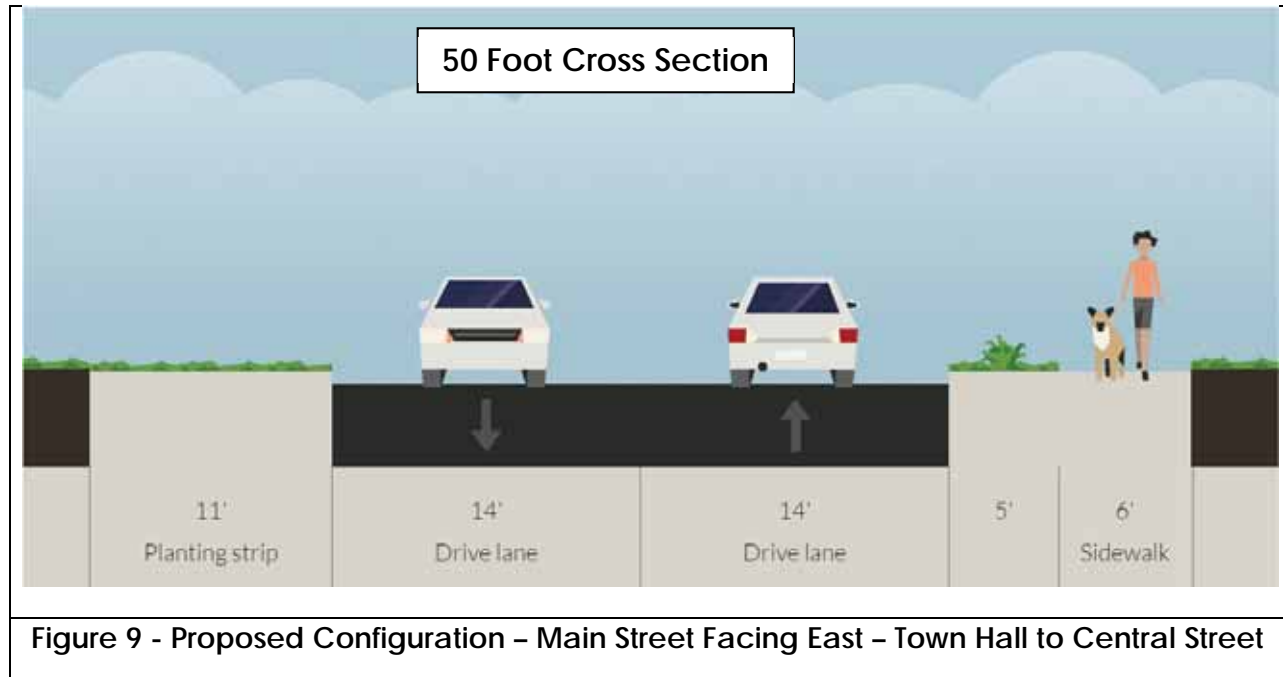
Bicycle mobility is not improved with the proposed improvement. In order to improve bicycle mobility, the roadway would need to be widened, or the sidewalk would need to be widened to 10 feet to become a shared use path. This would require additional right-of-way and would impact existing stone walls along the corridor. It should be noted that the graphic below shows a 28-foot-wide roadway. However, this dimension also includes approximately 1 1/2 feet of curbing.



COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

February 3, 2017



COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

February 3, 2017

6.3 SOUTH STREET PEDESTRIAN CROSSING

Limits:

- South Street at Norwell High School

Estimated Cost: \$30,000

Improvements: Rectangular Rapid Flashing Beacon

Complete Streets Needs Met: Safety, Pedestrian Mobility

To improve the existing pedestrian crossing on South Street a Rectangular Rapid Flashing Beacon (RRFB) is proposed at this location. The RRFB will help facilitate high school students walking to and from the Norwell High School and crossing South Street.

A Rectangular Rapid Flashing Beacon is an alternative to a traditional beacon installation. RRFBs are user-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. RRFBs use an irregular flash pattern that is similar to emergency flashers on police vehicles.

An official FHWA-sponsored experimental implementation and evaluation conducted in St. Petersburg, Florida found that RRFBs at pedestrian crosswalks are dramatically more effective at increasing driver yielding rates to pedestrians than traditional overhead beacons.

The lights are typically post mounted on both sides of the roadway and face both directions for added visibility. These systems are warning systems only. All laws and regulations regarding crosswalk use still apply.



Rectangular Rapid Flashing Beacon

COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

February 3, 2017

6.4 MAIN STREET PEDESTRIAN ACCOMODATION 3 – DOVER STREET TO SCITUATE TOWN LINE

Limits:

- Main Street from Hanover Town Line to Central Street

Project Lengths: 9,003 ft

Estimated Cost: \$515,000

Improvements: New Sidewalk and Vertical Granite Curbing

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment has a posted speed limit of 35 mph and relatively high volumes, 11,400 vehicles per day.

Proposed Improvements

A six-foot-wide sidewalk is proposed on the southern side of Main Street, separated by a grass buffer. Due to the high speeds and volumes on Main Street, vertical granite curbing is proposed along the sidewalk side of the roadway. This configuration is illustrated in Figure 10 below. The proposed sidewalk and granite curbing will improve pedestrian mobility and improve safety.

Bicycle mobility is not improved with the proposed improvement. In order to improve bicycle mobility, the roadway would need to be widened, or the sidewalk would need to be widened to 10 feet to become a shared use path. This would require additional right-of-way. It should be noted that the graphic below shows a 29-foot-wide roadway. However, this dimension also includes approximately 1 1/2 feet of curbing.

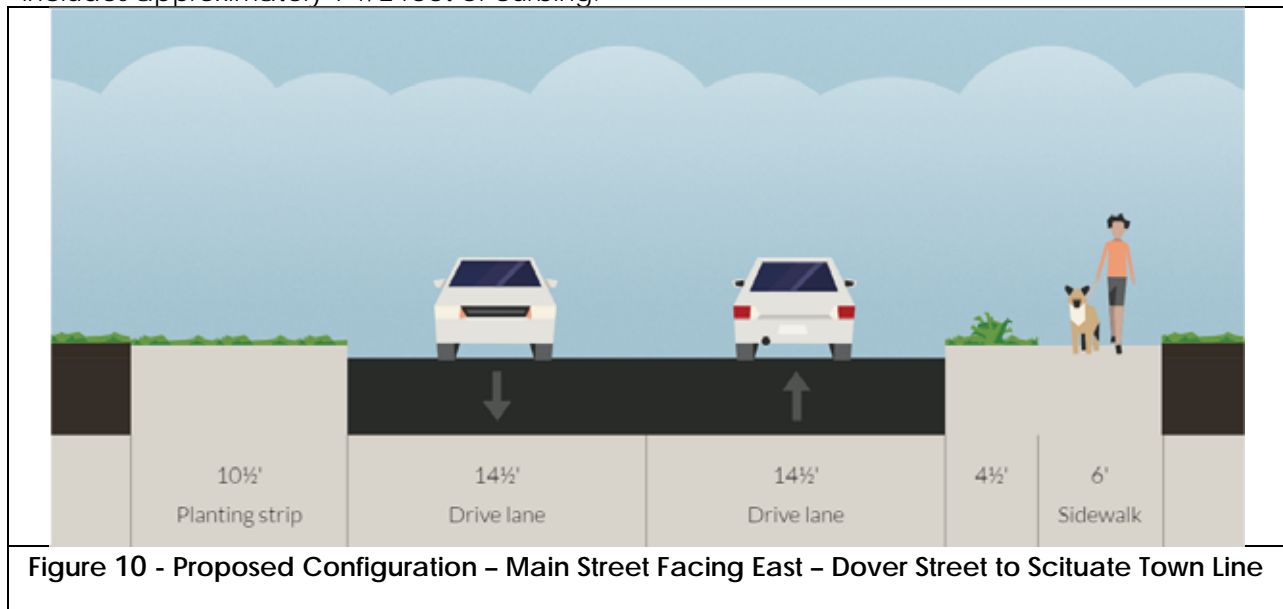


Figure 10 - Proposed Configuration – Main Street Facing East – Dover Street to Scituate Town Line

COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

February 3, 2017

6.5 TOWN CENTER IMPROVEMENTS

Limits:

- Main Street from West Street to Dover Street
- River Street from Main Street to Forest Street
- West Street from Main Street to Forest Street
- Dover Street from West Street to Main Street

Project Lengths: 6,472 ft

Estimated Cost: \$1,700,000

Improvements: Intersection and Roadway Reconstruction, New Sidewalk and Vertical Granite Curbing

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

The Town of Norwell has previously identified the need for roadway improvements at the Town Center Area. Concept level plans were developed and dated March 2, 2015. A copy of these plans is included in the Appendix. The project limits consist of Main Street from West Street to Dover Street and River Street from Main Street to Forest Street.

Although two options were identified, the Town prefers Option 1, which includes a six-foot-wide concrete sidewalk along the southern side of Main Street from West Street to Dover Street and along the northern side of Main Street from River Street to opposite Dover Street. Brick pavers and parallel parking is provided in front of Shields General Store. The intersection of Main Street/River Street will be reconfigured, with the southern side of the intersection narrowed. The roadway width and lane widths vary. Shoulder widths are not identified.

A sidewalk is proposed along the west side of River Street from Main Street to Forest Street. The lane configuration on River Street will consist of two 12' lanes, with no shoulders or bike lanes.

A 6-foot-wide concrete sidewalk is proposed along the north side of West Street from Main Street to Forest Street, and along the north side of Dover Street from West Street to Main Street. Dover Street is proposed to be realigned with River Street.

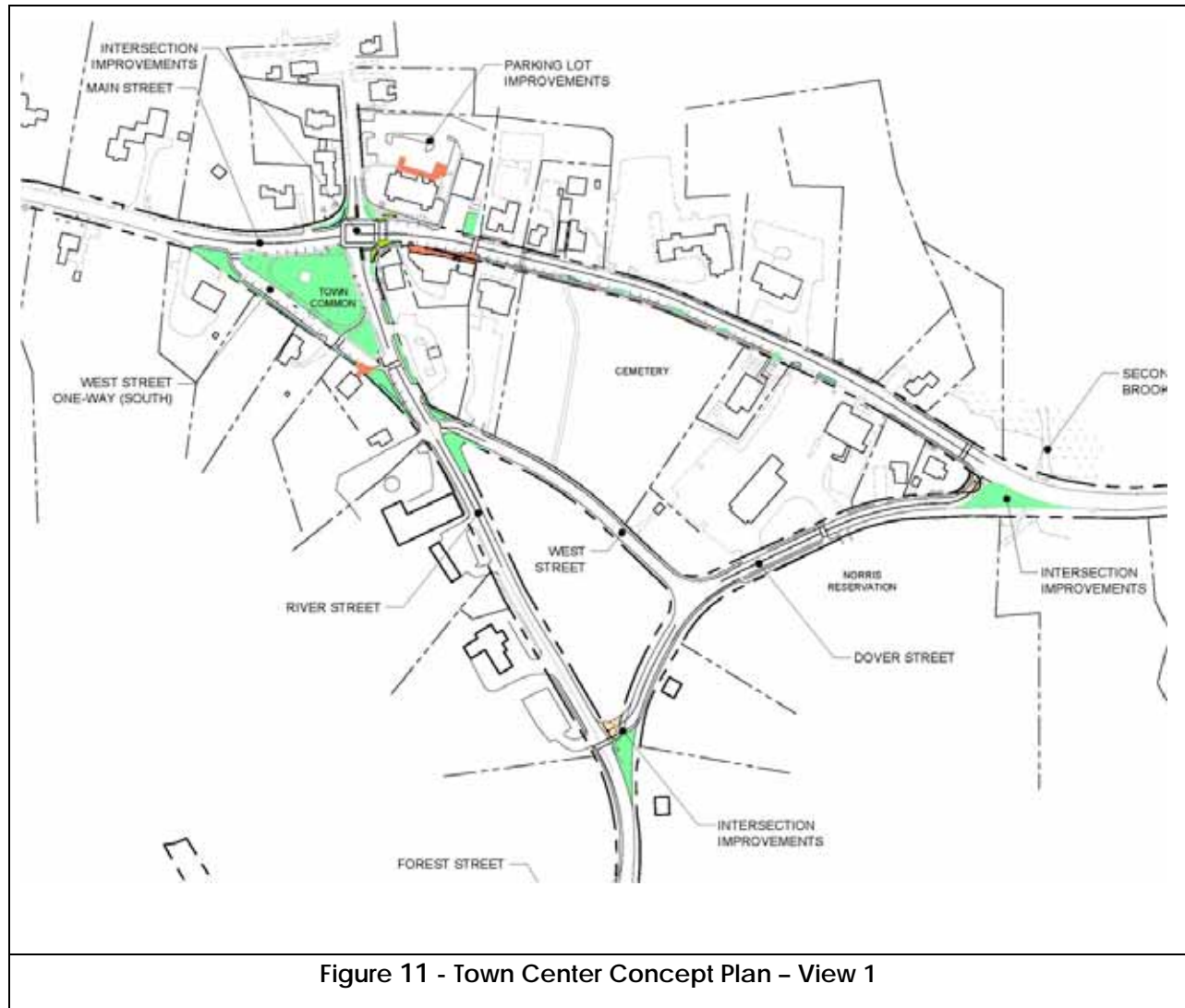
The proposed improvements are consistent with the Complete Streets program and contain the following elements of eligible Complete Streets infrastructure.



COMPLETE STREETS NEEDS ASSESSMENT

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COMPLETE STREETS NEEDS ASSESSMENT

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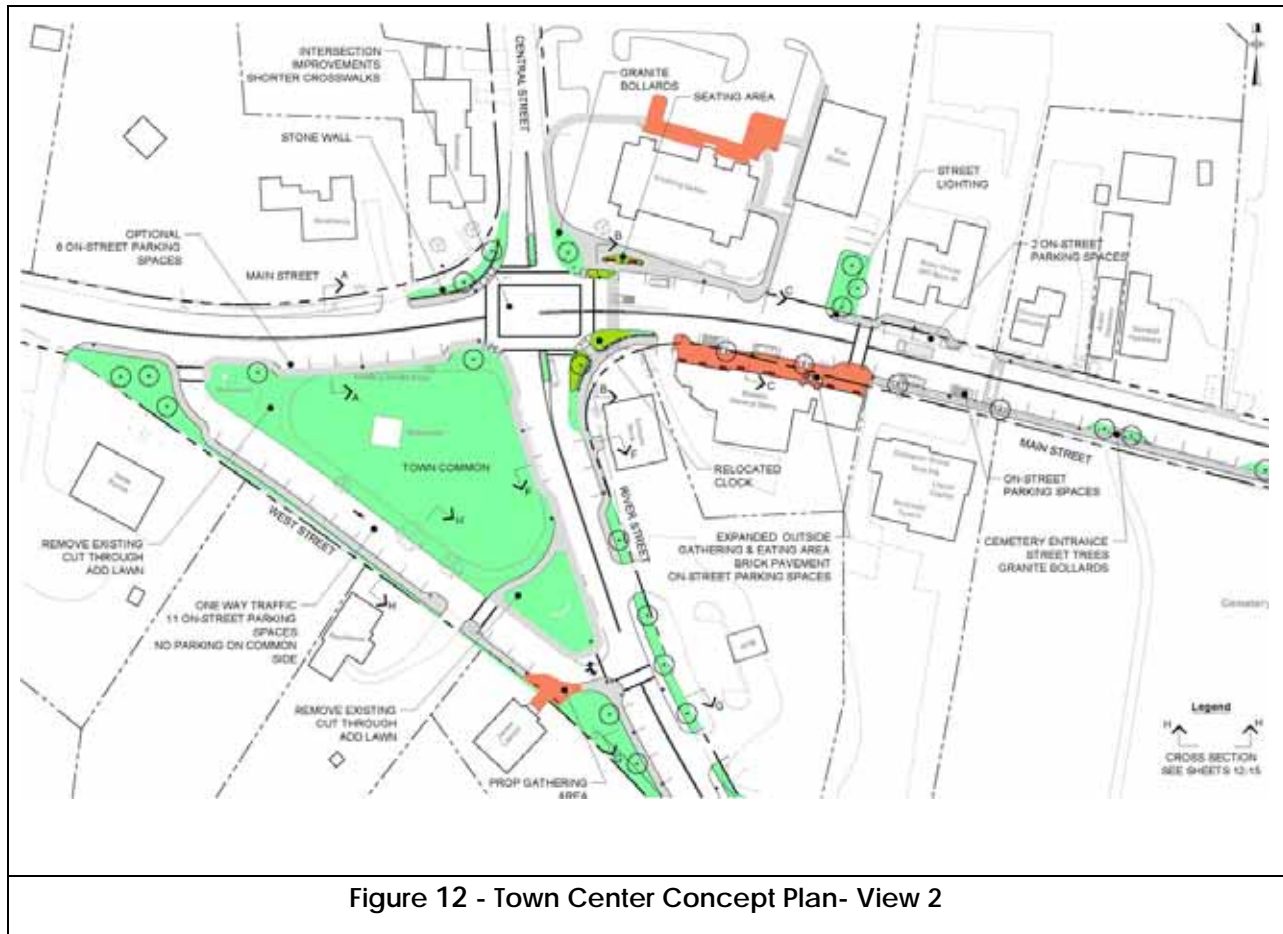


Figure 12 - Town Center Concept Plan- View 2

COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

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6.6 MAIN STREET PEDESTRIAN CROSSING

Limits:

- Main Street - 350 Feet east of Central Street

Estimated Cost: \$30,000

Improvements: Rectangular Rapid Flashing Beacon

Complete Streets Needs Met: Safety, Pedestrian Mobility

To improve the existing pedestrian crossing on Main Street a Rectangular Rapid Flashing Beacon is proposed at this location.

A Rectangular Rapid Flashing Beacon is an alternative to a traditional beacon installation. RRFBs are user-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. RRFBs use an irregular flash pattern that is similar to emergency flashers on police vehicles.

An official FHWA-sponsored experimental implementation and evaluation conducted in St. Petersburg, Florida found that RRFBs at pedestrian crosswalks are dramatically more effective at increasing driver yielding rates to pedestrians than traditional overhead beacons.



Main Street Crossing



Rectangular Rapid Flashing Beacon

The lights are typically post mounted on both sides of the roadway and face both directions for added visibility. These systems are warning systems only. All laws and regulations regarding crosswalk use still apply.

COMPLETE STREETS NEEDS ASSESSMENT

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6.7 CIRCUIT STREET PEDESTRIAN ACCOMODATION

Limits:

- Circuit Street from Main Street to Pleasant Street

Project Lengths: 1,665 ft

Estimated Cost: \$135,000

Improvements: New Sidewalk

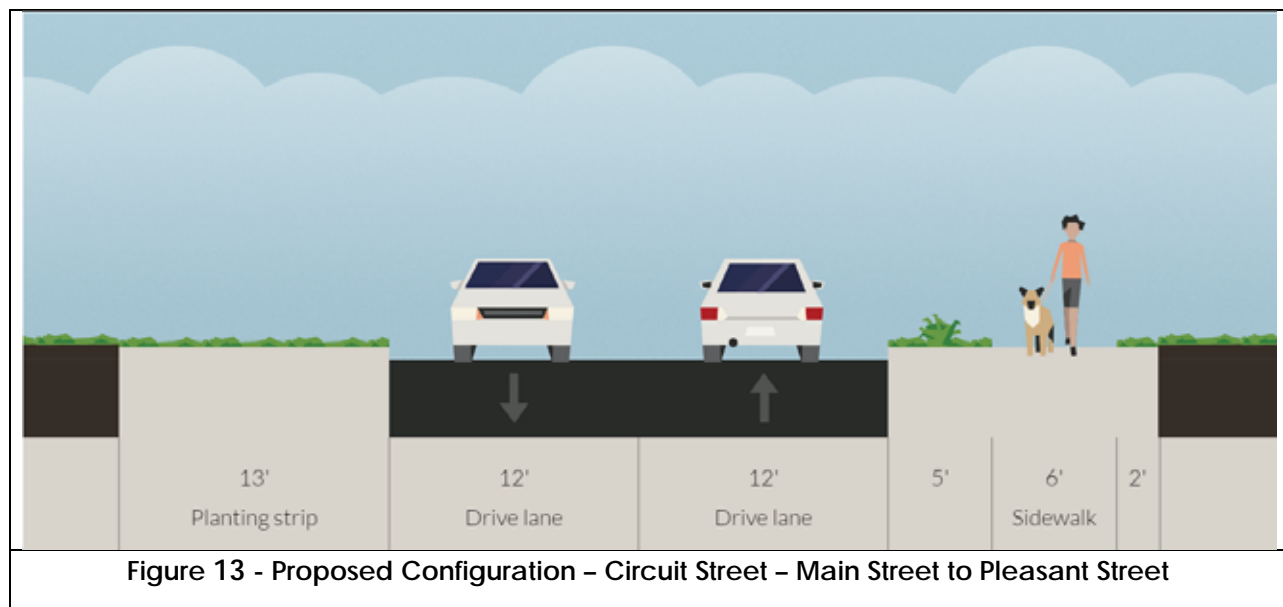
Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment has a posted speed limit of 30 mph. Based on the GIS parcel data layer information, there appears to be 50 feet of right-of-way available.

Proposed Improvements

A six-foot-wide sidewalk is proposed on Circuit Street, separated by a grass buffer. This configuration is illustrated in Figure 13 below. The proposed sidewalk will improve pedestrian mobility. The cost estimate for Circuit Street does not include granite curbing.

Bicycle mobility is not improved with the proposed improvement. In order to improve bicycle mobility, the roadway would need to be widened, or the sidewalk would need to be widened to 10 feet to become a shared use path.



COMPLETE STREETS NEEDS ASSESSMENT

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6.8 PROSPECT STREET PEDESTRIAN ACCOMODATION 1

Limits:

- Prospect Street from Jacobs Lane to Main Street

Project Lengths: 4,490 ft

Estimated Cost: \$250,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. The roadway is narrow (22 feet wide).

Based on the GIS parcel data layer information, there appears to be 49 feet of right of way available. A sidewalk should be added to one side of Prospect Street. A six foot wide sidewalk can be added along with a grass buffer. This will provide improved pedestrian accommodation, but will not improve bicycle accommodations.

Proposed Improvements

A six foot wide sidewalk is proposed on Prospect Street, separated by a grass buffer. The proposed sidewalk will improve pedestrian mobility. The cost estimate for Prospect Street does not include granite curbing.

Bicycle mobility is not improved with the proposed improvement. In order to improve bicycle mobility, the roadway would need to be widened, or the sidewalk would need to be widened to 10 feet (to become a shared use path.) This would require additional right-of-way.



COMPLETE STREETS NEEDS ASSESSMENT

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February 3, 2017

6.9 OLD OAKEN BUCKET ROAD PEDESTRIAN ACCOMODATION

Limits:

- Old Oaken Bucket Road from Central Street to Mt Blue Street

Project Lengths: 1,965 ft

Estimated Cost: \$170,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment has a posted speed limit of 35 mph. Based on the GIS parcel data layer information, there appears to be 50 feet of right of way available.

Proposed Improvements

A six foot wide sidewalk is proposed on Old Oaken Bucket Road, separated by a grass buffer. This configuration is illustrated in Figure 14 below. The proposed sidewalk will improve pedestrian mobility. The cost estimate for Old Oaken Bucket Road does not include granite curbing.

Bicycle mobility is not improved with the proposed improvement. In order to improve bicycle mobility, the roadway would need to be widened, or the sidewalk would need to be widened to 10 feet (to become a shared use path.)

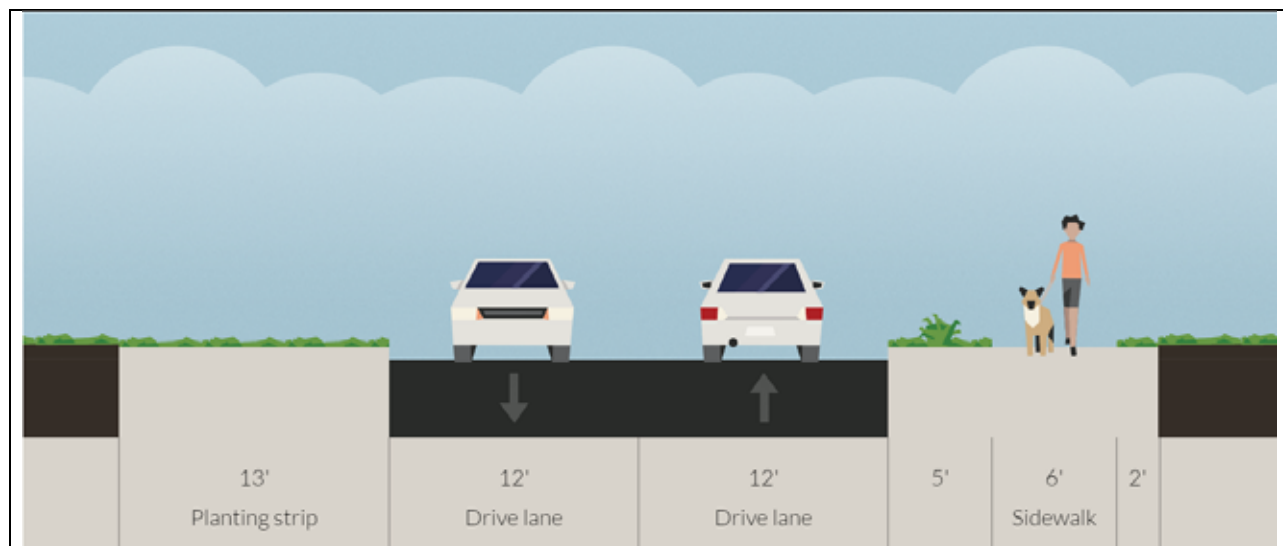


Figure 14 - Proposed Configuration - Old Oaken Bucket Road - Central Street to Mt. Blue Street

COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

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6.10 MAIN STREET RADAR FEEDBACK SPEED SIGNS

Limits:

- Near Dover Street and Near Winter Street

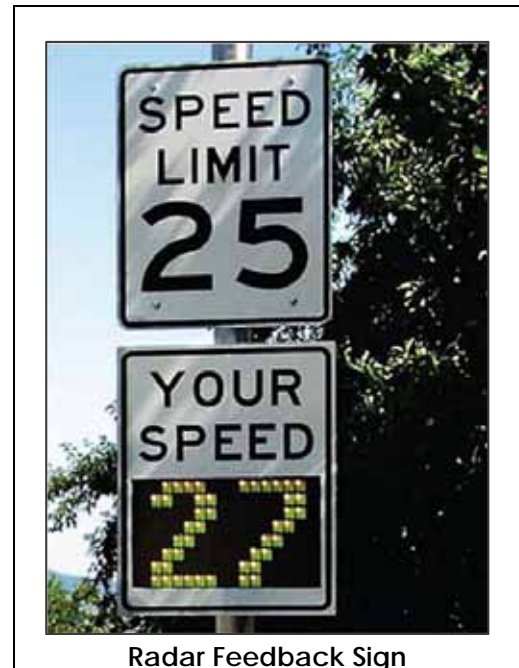
Estimated Cost: \$20,000

Improvements: Radar Feedback Speed Signs

Complete Streets Needs Met: Safety

Excessive speeding is a significant concern along Main Street in Norwell. To discourage speeding, Radar Feedback Speed Signs are proposed on Main Street.

The Town of Norwell Police Department was contacted to determine the optimal locations for the Radar Feedback Speed Signs. Based on this discussion, it was determined that one sign should be located near Dover Street while another sign should be located near Winter Street. An example of a Radar Feedback Sign is shown to the right. These can be installed to run on Solar Power, eliminating the need to trench conduit to an electric source.



COMPLETE STREETS NEEDS ASSESSMENT

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6.11 GROVE STREET/NORWELL AVENUE PEDESTRIAN ACCOMODATION

Limits:

- Grove Street/Norwell Avenue from School Street to Old Oaken Bucket Road

Project Lengths: 7,920 ft

Estimated Cost: \$482,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment has a posted speed limit of 35 mph. Based on the GIS parcel data layer information, there appears to be 50 feet of right of way available.

Proposed Improvements

A six foot wide sidewalk is proposed on Grove Street/Norwell Avenue, separated by a grass buffer. This configuration is illustrated in Figure 15 below. The proposed sidewalk will improve pedestrian mobility. The cost estimate for Old Oaken Bucket Road does not include granite curbing.

Bicycle mobility is not improved with the proposed improvement. In order to improve bicycle mobility, the roadway would need to be widened, or the sidewalk would need to be widened to 10 feet (to become a shared use path.)

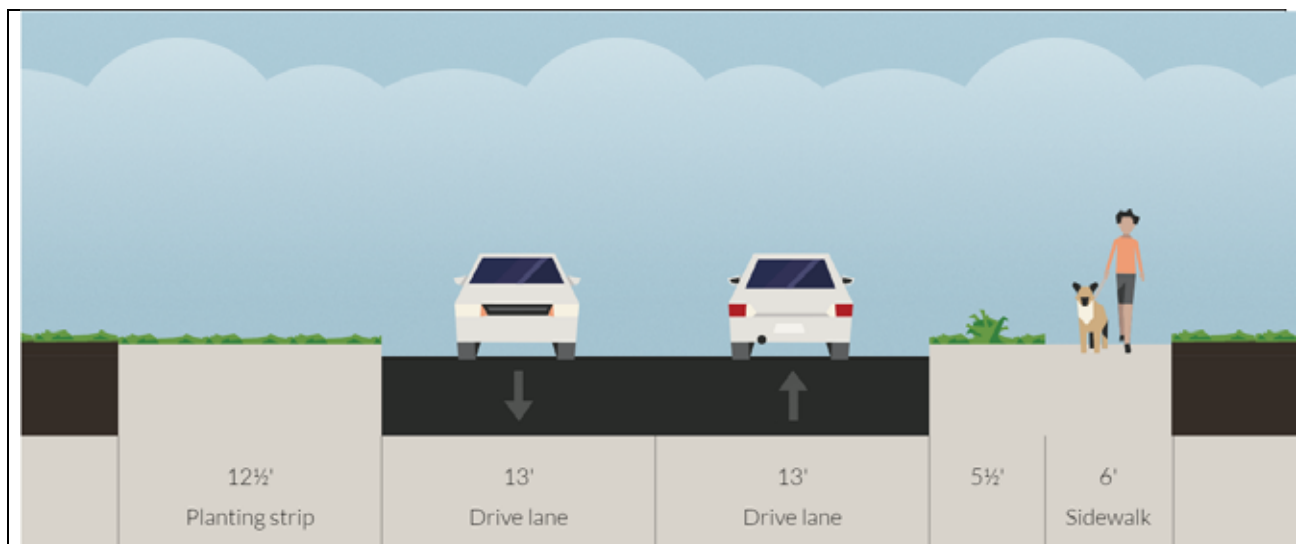


Figure 15 - Proposed Configuration – Old Oaken Bucket Road – Central Street to Mt. Blue Street

COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

February 3, 2017

6.12 CENTRAL STREET PEDESTRIAN ACCOMODATION

Limits:

- Central Street from Old Oaken Bucket Road to Main Street

Project Lengths: 5,114 ft

Estimated Cost: \$320,000

Improvements: New Sidewalk

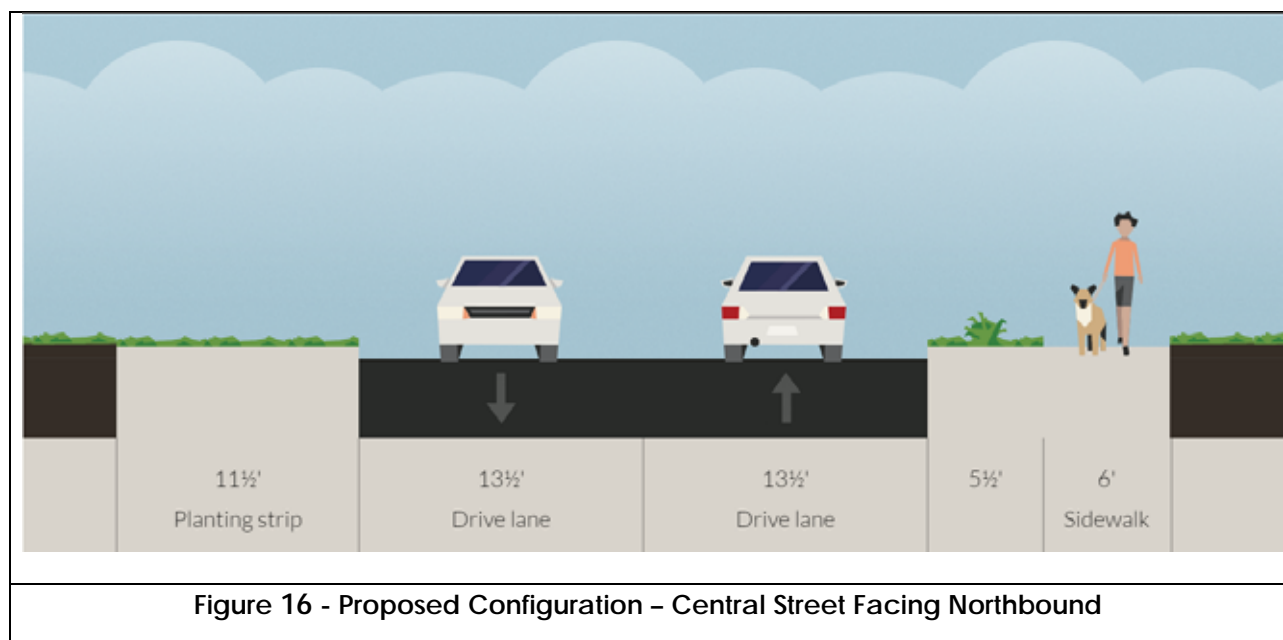
Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment has a posted speed limit of 20 mph. Based on the GIS parcel data layer information, there appears to be 50 feet of right of way available.

Proposed Improvements

A six foot wide sidewalk is proposed on the eastern side of Central Street, separated by a grass buffer. This configuration is illustrated in Figure 16 below. The proposed sidewalk will improve pedestrian mobility. The cost estimate for Central Street does not include granite curbing.

Bicycle mobility is not improved with the proposed improvement. In order to improve bicycle mobility, the roadway would need to be widened, or the sidewalk would need to be widened to 10 feet (to become a shared use path.)



COMPLETE STREETS NEEDS ASSESSMENT

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6.13 FOREST STREET RADAR FEEDBACK SPEED SIGNS

Limits:

- Both ends of Forest Street

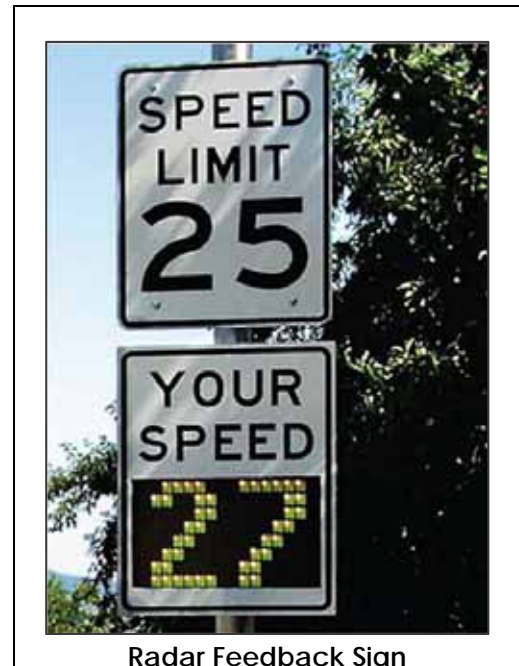
Estimated Cost: \$20,000

Improvements: Radar Feedback Speed Signs

Complete Streets Needs Met: Safety

Excessive speeding is a significant concern along Forest Street in Norwell. To discourage speeding, Radar Feedback Speed Signs are proposed on Forest Street.

The Town of Norwell Police Department was contacted to determine the optimal locations for the Radar Feedback Speed Signs. Based on this discussion, it was determined that one sign should be located near each end of Forest Street. These can be installed to run on Solar Power, eliminating the need to trench conduit to an electric source.



COMPLETE STREETS NEEDS ASSESSMENT

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6.14 POND STREET PEDESTRIAN ACCOMODATION

Limits:

- Pond Street from Rockland Town Line to Accord Park Drive

Project Lengths: 1,140

Estimated Cost: \$185,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway only has a sidewalk along the northern section, near Washington Street. There are wide shoulders, adequate for bicycling. This roadway segment has a posted speed limit of 35 mph. Based on the GIS parcel data layer information, there appears to be 50 feet of right of way available.

There is a segment of sidewalk on the northern part of Pond Street between Accord Park Drive and Washington Street.

With a 50 foot cross section, there would be there is approximately 5 feet of available space on either side of the street to construct a sidewalk. A sidewalk should be added to the eastern side of Pond Street from the existing sidewalk to the Town line.

Proposed Improvements

A five foot wide sidewalk is proposed on the eastern side of Pond Street, adjacent to the roadway. The proposed sidewalk will improve pedestrian mobility and connect to an existing sidewalk on the northern section of Pond Street.



COMPLETE STREETS NEEDS ASSESSMENT

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February 3, 2017

6.15 PROSPECT STREET PEDESTRIAN ACCOMODATION 2

Limits:

- Prospect Street from Grove Street to Jacobs Lane

Project Lengths: 3,934 ft

Estimated Cost: \$250,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. The roadway is narrow (23 feet wide). Based on the GIS parcel data layer information, there appears to be 47 feet of right of way available.

Proposed Improvements

A six foot wide sidewalk is proposed on Prospect Street, separated by a grass buffer. The proposed sidewalk will improve pedestrian mobility. The cost estimate for Prospect Street does not include granite curbing.

6.16 RIVER STREET PEDESTRIAN ACCOMODATION 1

Limits:

- River Street from Forest Street to Route 3

Project Lengths: 12,034 ft

Estimated Cost: \$655,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. The roadway width is 26 ft wide. This roadway segment has a posted speed limit of 35 mph. Based on the GIS parcel data layer information, there appears to be 51 feet of right of way available.

Proposed Improvements

A six foot wide sidewalk is proposed on River Street, separated by a grass buffer. The proposed sidewalk will improve pedestrian mobility. The cost estimate for River Street does not include granite curbing.



COMPLETE STREETS NEEDS ASSESSMENT

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February 3, 2017

6.17 WINTER STREET SAFETY IMPROVEMENTS

Limits:

- Winters Street from Main Street to Town Line

Project Lengths: 8,817 ft

Estimated Cost: \$10,000

Improvements: Signage

Complete Streets Needs Met: Safety

As identified in the review of the crash reports on Winter Street, 10 of the 11 crashes on Winter Street were single vehicle, off- the road type crashes, including one fatal crash. This indicates that drivers are likely traveling too fast around curves, or are unaware of the sharpness of the curve.

Therefore, we proposed additional signage along Winter Street to warn drivers of the sharp roadway curvature. At the five substandard roadway curves, we recommend installing three W1-8 "chevron" signs in each direction as well as a W1-2 "Curve" sign and advisory speed limit signs.

This improvement would consist of a total of 30 W1-8 signs and 10 W1-2 and W13-1 signs. In addition, we recommend the Town police department to conduct a speed study to determine if the speed limit on Winter Street could be lowered.



W1-8 Sign



W1-2 Sign



W13-1p

COMPLETE STREETS NEEDS ASSESSMENT

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6.18 LINCOLN STREET PEDESTRIAN ACCOMODATION

Limits:

- Lincoln Street from Grove Street to Main Street

Project Lengths: 5,756 ft

Estimated Cost: \$335,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment has a posted speed limit of 30 mph.

Based on the GIS parcel data layer information, there appears to be 50 feet of right of way available.

Proposed Improvements

A six foot wide sidewalk is proposed on Lincoln Street, separated by a grass buffer. The proposed sidewalk will improve pedestrian mobility. The cost estimate for Lincoln Street does not include granite curbing.

6.19 GROVE STREET PEDESTRIAN ACCOMODATION 1

Limits:

- Grove Street from Wilder Road to Prospect Street

Project Lengths: 5,600 ft

Estimated Cost: \$344,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. There is no posted speed limit. Based on the GIS parcel data layer information, there appears to be 56 feet of right of way available.

Proposed Improvements

A six foot wide sidewalk is proposed on Grove Street, separated by a grass buffer. The proposed sidewalk will improve pedestrian mobility. The cost estimate for Grove Street does not include granite curbing.



COMPLETE STREETS NEEDS ASSESSMENT

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6.20 GROVE STREET PEDESTRIAN ACCOMODATION 2

Limits:

- Grove Street from Prospect Street to School Street

Project Lengths: 5,808 ft

Estimated Cost: \$353,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment has a posted speed limit of 35 mph. Based on the GIS parcel data layer information, there appears to be 50 feet of right of way available.

Proposed Improvements

A six foot wide sidewalk is proposed on Grove Street, separated by a grass buffer. The proposed sidewalk will improve pedestrian mobility. The cost estimate for Grove Street does not include granite curbing.



COMPLETE STREETS NEEDS ASSESSMENT

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February 3, 2017

6.21 SOUTH STREET SIDEWALK

Limits:

- South Street from Norwell High School to YMCA

Project Lengths: 5,200 ft

Estimated Cost: \$500,000

Improvements: New Sidewalk

Complete Streets Needs Met: Safety, Pedestrian Mobility, ADA Accessibility

Currently, this section of roadway does not provide pedestrian accommodation, and does not provide accommodations for bicyclists beyond sharing the travel lanes with motor vehicle traffic. This roadway segment has a posted speed limit of 35 mph. Based on the GIS parcel data layer information, there appears to be 40 feet of right of way available.

The North and South Rivers Watershed association has proposed trail that extends from Main Street, behind the Norwell High School and toward South Street. There is a gap within the trail system that would require users to walk along South Street. Figure 17 shows the proposed trail. There is still a significant amount of planning required on this trail. However, when completed it would provide about 2 miles of walking trail connecting the YMCA to the high school and to the South Shore Natural Science Center.

Proposed Improvements

A five foot wide sidewalk is proposed on South Street. The proposed sidewalk will improve pedestrian mobility along South Street, provide a connection to the proposed NSRWA walking trail and provide a pedestrian connection between the Norwell High School and the YMCA in Hanover.

Near the Route 3 Bridge, retaining walls may be necessary to accommodate the sidewalk. The cost estimate for South Street is preliminary, additional research will be required to give a more detailed cost estimate. The cost estimate for South Street does not include granite curbing and does not include retaining walls.



Figure 17 - Proposed Trail System

COMPLETE STREETS NEEDS ASSESSMENT

POTENTIAL PROJECTS

February 3, 2017

6.22 WASHINGTON STREET/ GROVE STREET PEDESTRIAN IMPROVEMENTS

Limits:

- Intersection of Washington Street/ Grove Street

Estimated Cost: \$35,000

Improvements: New Crosswalk, New Ramps, New Signal Equipment.

Since this intersection is owned by the Commonwealth of Massachusetts, funding from the MassDOT Complete Streets funding program should not be spent at this location.

The intersection of Washington Street/ Grove Street currently has crosswalks across 3 of the 4 intersection legs. There is no crosswalk across the northern leg of Washington Street. This missing crosswalk makes navigating the intersection difficult for pedestrians; this difficulty is compounded since there is no sidewalk on the eastern side of High Street. Therefore in order to walk across the northern leg of the intersection, pedestrians at the northeastern corner of the intersection need to cross three legs of the intersection or a total of 5 crosswalk segments when considering the crossing of the free right turns.

The proposed improvements consist of installing a new crosswalk across the northern leg of the intersection. This improvement would consist of the following changes to the intersection.

- Installation of the new crosswalk markings
- Addition of two new pedestrian signal posts, signal heads and pedestrian push buttons.
- Installation of electrical conduit and wiring to accommodate pedestrian signals.
- Installation of new pedestrian wheelchair ramps.
- Replacement of existing wire loop detectors on the Washington Street southbound approach.

Although not required, we recommend replacing the existing pedestrian signal faces with countdown pedestrian signal faces and replacing the existing push buttons with Accessible Pedestrian Signals.



COMPLETE STREETS NEEDS ASSESSMENT

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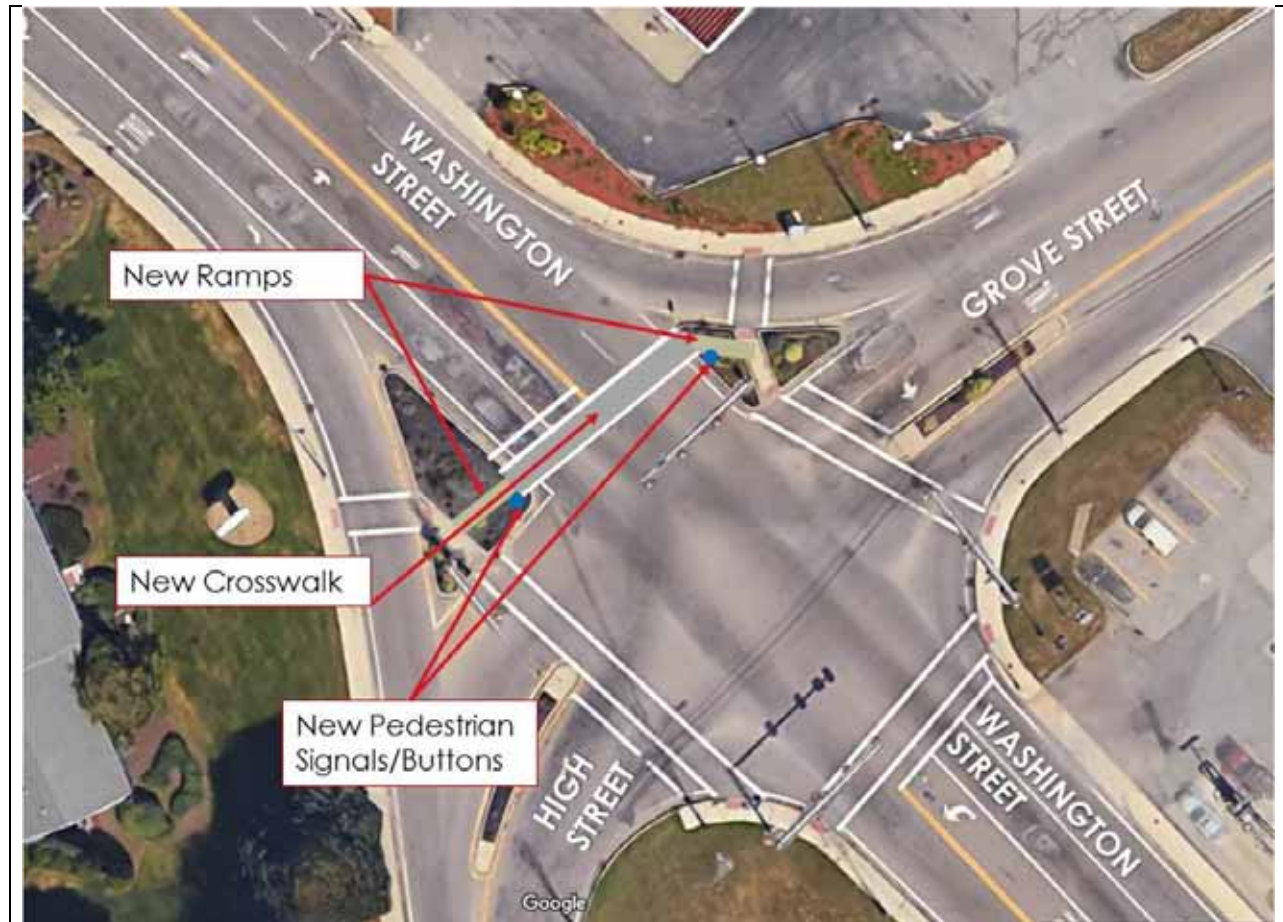


Figure 18 - Proposed Configuration – Washington Street/ Grove Street Pedestrian Improvements

The estimated cost of the intersection improvements is approximately \$20,000. If all of the existing pedestrian signal faces were replaced with countdown pedestrian signal faces and the existing push buttons replaced with Accessible Pedestrian Signals, the total cost of the improvements would be approximately \$35,000.

COMPLETE STREETS NEEDS ASSESSMENT

PRIORITIZATION PLAN

February 3, 2017

7.0 PRIORITIZATION PLAN

For the evaluation, we have used a Weighted Evaluation Criteria plus Cost Level method. This method groups projects into cost levels after ranking projects based on weighted evaluation criteria. We have developed three lists at different funding levels, consisting of low cost improvements (under \$50,000), mid-cost improvement (\$50,000-\$300,000) and higher cost improvements (over \$300,000).

The process of prioritizing projects involved evaluation criteria tailored to addressing issues/needs and accomplishing goals desired by the Town of Norwell. Each project was scored based on the improvement/ impact for each criterion. The criterion that Stantec used consists of the following elements.

- Safety Benefits (addresses high crash location),
- Pedestrian Improvements
- Bicycle Mobility
- Transit Operations (School Buses Only)
- Vehicular Operations Improvements
- Freight Operations Improvements
- Compatibility with local or regional goals
- Degree of public stakeholder support
- Plan progress
- Anticipated Project Schedule
- Cost Estimate
- Impacts to Right-of-way
- Impacts to Environmental/ Cultural/ Historical resources.

The spreadsheet used for the development of the ranking is included in the Appendix. The ranking spreadsheet was developed in the same format of as that of the MassDOT Prioritization Template. The results of the ranking spreadsheet were then imported into the MassDOT prioritization template. Because of the format of the complete streets prioritization template, the Town Center Project is shown in the template as 4 separate projects, each consisting of one of the 4 roadways involved in the project. The complete listing of the projects is shown in Table 3.



COMPLETE STREETS NEEDS ASSESSMENT

PRIORITIZATION PLAN

February 3, 2017

Table 3 – Prioritization Plan

Rank	Project Name	Project Description	Project Limits	Total Estimated Project Cost
1	Main Street (Route 123) Pedestrian Improvement 1	New Sidewalk and Vertical Granite Curbing to Control Speed	South Street to Town Hall	\$521,000
2	Main Street (Route 123) Pedestrian Improvement 2	New Sidewalk and Vertical Granite Curbing to Control Speed	Town Hall to West Street	\$741,000
3	South Street Pedestrian Crossing Improvement	Installation of Rectangular Rapid Flashing Beacon	South Street at Norwell High School Driveway	\$30,000
4	Main Street (Route 123) Pedestrian Improvement 3	New Sidewalk	Dover Street to Scituate Town Line	\$515,000
5	Town Center Improvements	Roadway and Sidewalk Improvements	Main Street - West St to Dover St West Street - Main St to Dover St River Street - Main St to Forest St Dover Street - River St to Main St	\$1,700,000
6	Main Street Pedestrian Crossing Improvement	Installation of Rectangular Rapid Flashing Beacon	Main Street, 350 ft east of Central Street	\$30,000
7	Circuit Street	New Sidewalk	Main Street to Pleasant Street	\$135,000
8	Prospect Street	New Sidewalk	Jacobs Lane to Main Street	\$290,000
9	Old Oaken Bucket Road	Sidewalk	Central to Mt Blue	\$170,000
10	Main Street Speed Control	Installation of Radar Speed Feedback ("Your Speed") Signs	Spot locations, near Winter Street, near Dover Street	\$20,000
11	Grove Street/ Norwell Avenue Pedestrian Improvement	New Sidewalk	School Street to Old Oaken Bucket Road	\$482,000
12	Central Street	New Sidewalk	Old Oaken Bucket Road to Main Street	\$320,000
13	Forest Street Speed Control	Installation of Radar Speed Feedback ("Your Speed") Signs	Both Ends	\$20,000
14	Pond Street	New Sidewalk	Rockland Town Line to Washington Street	\$185,000
15	Prospect Street	New Sidewalk	Grove Street to Jacobs Lane	\$250,000
16	River Street	New Sidewalk	Forest Street to Route 3	\$655,000
17	Winter Street Safety Improvements	Signing Improvements	Main Street to Town Line	\$10,000
18	Lincoln Street	New Sidewalk	Grove Street to Main Street	\$335,000
19	Grove Street Pedestrian Improvement 1	New Sidewalk	Wilder Road to Prospect Street	\$344,000
20	Grove Street Pedestrian Improvement 2	New Sidewalk	Prospect Street to School Street	\$353,000
21	South Street Sidewalk	New Sidewalk	Norwell High School to the South Shore YMCA (Hanover)	\$500,000



COMPLETE STREETS NEEDS ASSESSMENT

PRIORITIZATION PLAN

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For Planning Purposes, the improvements have been separated based on the anticipated construction cost. The Improvements have been separated based on Low Cost Improvements (under \$50,000, Mid Cost Improvements (\$50,000-\$300,000 and High Cost Improvements, over \$300,000.funding levels.

Low Cost Improvements (Under \$50,000)

Low cost improvements, consisting of projects with an estimated construction cost of \$50,000 or less include the following five projects listed in Table 4.

Table 4 – Low Cost Improvements (Under 50,000)

Project Name	Project Description	Project Limits	Total Estimated Project Cost
South Street Pedestrian Crossing Improvement	Installation of Rectangular Rapid Flashing Beacon	South Street at Norwell High School Driveway	\$30,000
Main Street Pedestrian Crossing Improvement	Installation of Rectangular Rapid Flashing Beacon	Main Street, 350 ft east of Central Street	\$30,000
Main Street Speed Control	Installation of Radar Speed Feedback ("Your Speed") Signs	Spot locations, near Winter Street, near Dover Street	\$20,000
Forest Street Speed Control	Installation of Radar Speed Feedback ("Your Speed") Signs	Both Ends	\$20,000
Winter Street Safety Improvements	Signing Improvements	Main Street to Town Line	\$10,000

Mid Cost Improvements (\$50,000-\$300,000)

Mid-cost improvements, consisting of projects with an estimated construction cost of \$50,000 to \$300,000 include the following six projects listed in Table 5.

Table 5 – Mid Cost Improvements (\$50,000- \$300,000)

Project Name	Project Description	Project Limits	Total Estimated Project Cost
Circuit Street	New Sidewalk	Main Street to Pleasant Street	\$135,000
Prospect Street	New Sidewalk	Jacobs Lane to Main Street	\$290,000
Old Oaken Bucket Road	Sidewalk	Central to Mt Blue	\$170,000
Pond Street	New Sidewalk	Rockland Town Line to Washington Street	\$185,000
Prospect Street	New Sidewalk	Grove Street to Jacobs Lane	\$250,000
Winter Street Safety Improvements	Signing Improvements	Main Street to Town Line	\$10,000



COMPLETE STREETS NEEDS ASSESSMENT

PRIORITIZATION PLAN
February 3, 2017

Higher Cost Improvements (over \$300,000)

Mid-cost improvements, consisting of projects with an estimated construction cost of \$50,000 to \$300,000 include the following eleven projects listed in Table 6.

Table 6 – Higher Cost Improvements (Over \$300,000)

Project Name	Project Description	Project Limits	Total Estimated Project Cost
Main Street (Route 123) Pedestrian Improvement 1	New Sidewalk and Vertical Granite Curbing to Control Speed	South Street to Town Hall	\$521,000
Main Street (Route 123) Pedestrian Improvement 2	New Sidewalk and Vertical Granite Curbing to Control Speed	Town Hall to West Street	\$741,000
Main Street (Route 123) Pedestrian Improvement 3	New Sidewalk	Dover Street to Scituate Town Line	\$515,000
Town Center Improvements	Roadway and Sidewalk Improvements	Main Street - West St to Dover St West Street - Main St to Dover St River Street - Main St to Forest St Dover Street - River St to Main St	\$1,700,000
Grove Street/ Norwell Avenue Pedestrian Improvement	New Sidewalk	School Street to Old Oaken Bucket Road	\$482,000
Central Street	New Sidewalk	Old Oaken Bucket Road to Main Street	\$320,000
River Street	New Sidewalk	Forest Street to Route 3	\$655,000
Lincoln Street	New Sidewalk	Grove Street to Main Street	\$335,000
Grove Street Pedestrian Improvement 1	New Sidewalk	Wilder Road to Prospect Street	\$344,000
Grove Street Pedestrian Improvement 2	New Sidewalk	Prospect Street to School Street	\$353,000
South Street Sidewalk	New Sidewalk	Norwell High School to the South Shore YMCA (Hanover)	\$500,000

APPENDIX

COMPLETE STREETS NEEDS ASSESSMENT

Appendix A
November 30, 2016

Appendix A

A.1 COMPLETE STREETS PRIORITIZATION PLAN



MassDOT Complete Streets Funding Program Project Prioritization Plan (Revised 3/31/16)

Municipality: Norwell
MassDOT District: 5
Date: 2/3/2017
Name/Title: Alan Cloutier / Stantec

Project Details			EJ	Complete Streets Location			Project Origin and Type		Complete Streets Needs						Complete Streets Funding Request			Construction Schedule			
Rank	Project Name	Project Description	Environmental Justice Population	Project Limits	Project Start Location: X,Y Coordinates (MA State Plane meter)	Project End Location: X,Y Coordinates (MA State Plane meter)	Complete Streets Project Origin (planning documentation or supporting analysis)	Complete Streets Project Type (refer to the Eligible Projects Worksheet)	Safety	ADA Accessibility	Pedestrian Mobility	Bicycle Mobility	Transit Operations and Access	Vehicle Operations	Freight Operations	Will this project be in Coordination with other Communities? (list, if applicable)	Total Estimated Project Cost	Complete Streets Funding Requested	Other Funding Source(s) and Amount (if applicable)	Anticipated Construction Duration (number of months)	Desired Construction Start Date (month/year)
1	Main Street (Route 123) Pedestrian Improvement 1	New Sidewalk on a critical roadway where there is a significant sidewalk gap. Vertical Granite Curbing to protect pedestrians. Sidewalk will provide Pedestrian Mobility and provide a connection to the High School, Middle School and Town Hall. Sidewalk will also improve pedestrian safety.	No	South Street to Town Hall	254963, 878829	256362, 878780	Complete Streets Needs Assessment	S14, P2, P3, P5	X	X	X					NO	\$521,000	400,000 (Year 1)	Chapter 90 \$121,000	6	Summer 2017
2	Main Street (Route 123) Pedestrian Improvement 2	New Sidewalk on a critical roadway where there is a significant sidewalk gap. Vertical Granite Curbing to protect pedestrians. Coupled with previous project, will connect High School, Middle School and Town Hall to the Town Center. Sidewalk will provide Pedestrian Mobility. Sidewalk will also improve pedestrian safety.	No	Town Hall to West Street	256362, 878780	258230, 879283	Complete Streets Needs Assessment	S14, P2, P3, P5		X	X	X				NO	\$741,000	400,000 (Year 2)		6	Spring 2018
3	South Street Pedestrian Crossing Improvement	Installation of Rectangular Rapid Flashing Beacon near the entrance to the High School to facilitate pedestrians crossing the roadway at a critical location.	No	South Street at Norwell High School Driveway	254973, 878354	254973, 878354	Complete Streets Needs Assessment	P12		X	X					NO	\$30,000			3	
4	Main Street (Route 123) Pedestrian Improvement 3	New Sidewalk on a critical roadway where currently isn't any and Vertical Granite Curbing to protect pedestrians. Sidewalk will provide Pedestrian Mobility. Sidewalk will also improve pedestrian safety.	No	Dover Street to Scituate Town Line	258843, 879105	261161, 880194	Complete Streets Needs Assessment	P2, P3, P5		X	X	X				NO	\$515,000			6	
5	Town Center Improvements 1 (Main Street)	Roadway and Sidewalk Improvements consisting of intersection realignments, addition of new sidewalks, and reconfiguration of parking. Project involves 4 roadways. For this list they are shown as 4 separate projects to list Start and End Coordinates.	No	Main Street - West Street to Dover Street	258230, 879283	258843, 879105	Concept Plans	S3, S6, P2, P3, P5		X	X	X				NO	\$600,000			24	
6	Town Center Improvements 2 (West Street)	Roadway and Sidewalk Improvements consisting of intersection realignments, addition of new sidewalks, and reconfiguration of parking. Project involves 4 roadways. For this list they are shown as 4 separate projects to list Start and End Coordinates.	No	West Street - Main Street to Dover Street	258270, 879273	258573, 879040	Concept Plans	S3, S6, P2, P3, P5		X	X	X				NO	\$350,000			24	



MassDOT Complete Streets Funding Program Project Prioritization Plan (Revised 3/31/16)

Municipality		Date		Project Details										Complete Streets Funding Request				Construction Schedule							
Norwell		2/3/2017		EJ														Anticipated Construction Duration (number of months)		Desired Construction Start Date (month/year)					
MassDOT District 5		Alan Cloutier / Stantec										Complete Streets Location				Complete Streets Needs				Complete Streets Funding Request		Construction Schedule			
Norwell		2/3/2017		EJ												Complete Streets Funding Request				Construction Schedule					
MassDOT District 5		Alan Cloutier / Stantec										Complete Streets Location				Complete Streets Needs				Complete Streets Funding Request		Construction Schedule			
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MassDOT District 5		Alan Cloutier / Stantec										Complete Streets Location													



MassDOT Complete Streets Funding Program Project Prioritization Plan (Revised 3/31/16)

Municipality
MassDOT District 5

Norwell
5

Date
2/3/2017

Name/Title
Alan Cloutier / Stantec

Project Details			EJ	Complete Streets Location			Project Origin and Type		Complete Streets Needs							Complete Streets Funding Request			Construction Schedule		
Rank	Project Name	Project Description	Environmental Justice Population	Project Limits	Project Start Location: X,Y Coordinates (MA State Plane meter)	Project End Location: X,Y Coordinates (MA State Plane meter)	Complete Streets Project Origin (planning documentation or supporting analysis)	Complete Streets Project Type (refer to the Eligible Projects Worksheet)	Safety	ADA Accessibility	Pedestrian Mobility	Bicycle Mobility	Transit Operations and Access	Vehicle Operations	Freight Operations	Will this project be in Coordination with other Communities? (list, if applicable)	Total Estimated Project Cost	Complete Streets Funding Requested	Other Funding Source(s) and Amount (if applicable)	Anticipated Construction Duration (number of months)	Desired Construction Start Date (month/year)
16	Forest Street Speed Control	Installation of Radar Speed Feedback ("Your Speed") Signs to reduce Speeds on Forest Street	No	Both Ends	257122, 878460	258170, 878645	Complete Streets Needs Assessment S5		X							NO	\$20,000			3	
17	Pond Street	New Sidewalk on a critical roadway where currently isn't any. Sidewalk will provide Pedestrian Mobility. Sidewalk will also improve pedestrian safety.		Rockland Town Line to Washington Street	250499, 879842	250695, 880124	Complete Streets Needs Assessment P2, P3, P5		X	X	X						\$185,000			6	
18	Prospect Street	New Sidewalk on a critical roadway where currently isn't any. Sidewalk will provide Pedestrian Mobility. Sidewalk will also improve pedestrian safety.	No	Grove Street to Jacobs Lane	254191, 879933	253580, 880963	Complete Streets Needs Assessment P2, P3, P5		X	X	X					NO	\$250,000			6	
19	River Street	New Sidewalk on a critical roadway where currently isn't any. Sidewalk will provide Pedestrian Mobility. Sidewalk will also improve pedestrian safety.	No	Forest Street to Route 3	258530, 878854	257785, 875423	Complete Streets Needs Assessment P2, P3, P5		X	X	X					NO	\$655,000			6	
20	Winter Street Safety Improvements	Signing Improvements to improve safety by warning drivers of roadway curves.	No	Main Street to Town Line	259220, 879225	259713, 881678	Complete Streets Needs Assessment S0		X							NO	\$10,000			1	
21	Lincoln Street	New Sidewalk on a critical roadway where currently isn't any. Sidewalk will provide Pedestrian Mobility. Sidewalk will also improve pedestrian safety.	No	Grove Street to Main Street	256321, 880518	257458, 879326	Complete Streets Needs Assessment P2, P3, P5		X	X	X					NO	\$335,000			6	
22	Grove Street Pedestrian Improvement 1	New Sidewalk on a critical roadway where currently isn't any. Sidewalk will provide Pedestrian Mobility. Sidewalk will also improve pedestrian safety.	No	Wilder Road to Prospect Street	251994, 880734	253582, 880967	Complete Streets Needs Assessment P2, P3, P5		X	X	X					NO	\$344,000			6	
23	Grove Street Pedestrian Improvement 2	New Sidewalk on a critical roadway where currently isn't any. Sidewalk will provide Pedestrian Mobility. Sidewalk will also improve pedestrian safety.	No	Prospect Street to School Street	253582, 880967	255306, 881082	Complete Streets Needs Assessment P2, P3, P5		X	X	X					NO	\$353,000			6	
24	South Street Sidewalk	New Sidewalk on a critical roadway where currently isn't any. Will provide a pedestrian connection between the High School and the YMCA. Sidewalk will provide Pedestrian Mobility. Sidewalk will also improve pedestrian safety.	No	Norwell High School to the South Shore YMCA (Hanover)	254636, 877087	254972, 878354	Complete Streets Needs Assessment P2, P3, P5		X	X	X					YES, Hanover	\$500,000			6	

Appendix B

B.1 PROJECT RANKING DATA

Rank	Project Name	Project Description	Project Limits	Total Estimated Project Cost	Complete Streets Funding Requested	Other Funding Sources(s) and Amount (if applicable)	Anticipated Construction Duration (number of months)	Desired Construction Start Date (month/year)	Weighting			0.005				E =C+D	F	G
									Project Length	Cost/Mile	Roadway Volume	MAPC Walk Score	Added Pedestrian Improvements	NET WALK SCORE	MAPC Bicycle Score			
																20		
1	Main Street (Boulevard) Pedestrian Improvement 1	New Sidewalk on critical roadway where there is significant sidewalk gaps. Vertical Granite Curbings to protect pedestrians. Sidewalk will provide a connection to the High School, Middle School and Town Hall. Sidewalk will also improve pedestrian safety.	South Street to Town Hall	\$521,000	400,000 (Year 1)	Chaplin-90 \$121,000	6	Spring 2017	4,800	573,100	15,500	1.37	2	2.74	1.79	0		
2	Main Street (Boulevard) Pedestrian Improvement 2	New Sidewalk on a critical roadway where there is a significant sidewalk gap. Vertical Granite Curbings to protect pedestrians. Coupled with granite curbings to protect pedestrians. Sidewalk will provide a connection to the Town Hall in West Street.	Town Hall to West Street	\$741,000	400,000 (Year 2)		6	Spring 2018	6,800	575,365	11,400	1.31	2	2.62	2.35	0		
3	South Street Pedestrian Crossing Improvement	Installation of Rectangular Rapid Flashing Beacon near the entrance to the High School. Sidewalk will provide a connection to the Town Hall in West Street.	South Street at Norwalk High School Driveway	\$30,000			3				5,000	2.77	2	5.54	1.23	0		
4	Main Street (Boulevard) Pedestrian Improvement 3	New Sidewalk on a critical roadway where currently left turn and vertical granite curbings to protect pedestrians. Sidewalk will provide pedestrian safety.	Dover Street to Schulte Town line	\$515,000			6		9,003	302,033	10,700	1.55	2	3.1	2.71	0		
5	Town Center Improvements 1 (Main Street)	Roadway and Sidewalk Improvements consisting of intersection redesign, addition of new sidewalks, and reconfiguration of parking. Project involves 4 roadways. For this it they are shown as 4 separate projects to list Start and End Coordinates.	Main Street - West Street to Dover Street	\$600,000			24		1,980	1,600,000	9,600	1.36	2	2.72	4.99	0		
6	Town Center Improvements 2 (West Street)	Roadway and Sidewalk Improvements consisting of intersection redesign, addition of new sidewalks, and reconfiguration of parking. Project involves 4 roadways. For this it they are shown as 4 separate projects to list Start and End Coordinates.	River Street/Main Street to Forest Street	\$350,000			24		1,550	1,192,258	3,000	0.03	2	0.06	2.35	0		
7	Town Center Improvements 3 (Dover Street)	Roadway and Sidewalk Improvements consisting of intersection redesign, addition of new sidewalks, and reconfiguration of parking. Project involves 4 roadways. For this it they are shown as 4 separate projects to list Start and End Coordinates.	Dover Street	\$350,000			24		1,320	1,400,000	3,000	0.23	2	0.46	3.32	0		
8	Town Center Improvements 4 (Forest Street)	Roadway and Sidewalk Improvements consisting of intersection redesign, addition of new sidewalks, and reconfiguration of parking. Project involves 4 roadways. For this it they are shown as 4 separate projects to list Start and End Coordinates.	West Street - Main Street to Dover Street	\$400,000			24		1,284	1,644,860	6,300	0.01	2	0.02	1.17	0		
9	Main Street Pedestrian Crossing Improvement	Installation of Rectangular Rapid Flashing Beacon to facilitate pedestrian crossing the roadway at a critical location at the Town Center.	Main Street, 350 ft east of Central Street	\$30,000			3				9,600	1.36	2	2.72	4.99	0		
10	Central Street	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Main Street to Pleasant Street	\$135,000			6		1,665	428,108	2,000	0.28	2	0.56	1.19	0		
11	Prospect Street	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Main Street to Main Street	\$290,000			6		4,490	341,024	4,000	0.03	2	0.06	0	0		
12	Old Oakum Budder Road	New Sidewalk on a critical roadway where currently no turny. Provides a connection to the West Elementary School. Sidewalk will provide pedestrian safety.	School Street to Old Oakum Budder Road	\$170,000			6		7,920	113,333	5,000	0.31	2	0.62	0	0		
13	Main Street Speed Control	Installation of Radar Speed Feedback ("Your Speed") signs to reduce speeds on Main Street.	Central to MI Blue	\$20,000			6		1,965	53,740	2,000	0.2	2	0.4	1.17	0		
14	Grove Street	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Spot location, near Winter Street, near Dover Street	\$482,000			3				9,400	1.36	0	0	4.99	0		
15	Central Street	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Old Oakum Budder Road to Main Street	\$320,000			6		5,114	330,387	6,000	0.08	2	0.16	1.47	0		
16	Forest Street Speed Control	Installation of Radar Speed Feedback ("Your Speed") signs to reduce speeds on Forest Street.	Both Ends	\$20,000			3				3,000		0	0	0	0		
17	Pond Street	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Recycled Town line to Washington Street	\$185,000			6		1,140	856,842	18,300	0.62	2	1.24	0.24	0		
18	Prospect Street	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Grove Street to Locust Lane	\$250,000			6		3,934	335,536	4,000	0.14	2	0.28	0.01	0		
19	River Street	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Fores Street to Route 3	\$655,000			6		12,034	287,386	6,300	0.03	2	0.06	0	0		
20	Winter Street Safety Improvements	Signage improvements to improve safety by warning drivers of roadway curves.	Main Street to Town line	\$10,000			1		8,877	5,988	2,000	0.06	0	0	0.01	0		
21	Lincoln Street	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Grove Street to Main Street	\$335,000			6		5,756	307,297	3,000	0.1	2	0.2	1.48	0		
22	Grove Street Pedestrian Improvement 1	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Winter Road to Prospect Street	\$344,000			6		5,600	324,343	5,000	0.52	2	1.04	0.53	0		
23	Grove Street Pedestrian Improvement 2	New Sidewalk on a critical roadway where currently no turny. Sidewalk will provide pedestrian safety.	Prospect Street to School Street	\$353,000			6		5,808	320,909	5,000	0.31	2	0.62	0.9	0		
24	South Street Sidewalk	New Sidewalk on a critical roadway where currently no turny. Will provide a pocket bike connection between the High School and the THCA. Sidewalk will provide pedestrian safety.	Norwalk High School to the South Shore THCA (Norwalk)	\$500,000			6		5,200	507,492	5,000	0.25	2	0.5	0.96	0		

Appendix C

C.1 TOWN OF NORWELL COMPLETE STREETS POLICY

Effective Date	2.10.16
Expiration Date	None
Town Meeting Vote to Adopt Policy	5.13.15
Date Last Revised - Board of Selectmen Vote	2.10.16

TOWN OF NORWELL COMPLETE STREETS POLICY

WHEREAS, Stated goals in the Norwell Master Plan are to provide pedestrian and bicycle access along existing roadways and utilize traffic calming strategies to make roadways safer; and

WHEREAS, Complete Streets is an approach to community transportation using design principles to ensure the safety, comfort, and accessibility for users of all ages, abilities, and income levels and for all the users of our streets, trails and transit systems, including pedestrians, bicyclists, transit riders, motorists, users of wheelchairs and other power-driven mobility devices, commercial and emergency vehicles; and

WHEREAS, Complete Streets can reduce congestion by providing safe travel choices that encourage non-motorized transportation options, increasing the overall capacity of the transportation network as well as decreasing consumer transportation costs and overall carbon footprint; and

WHEREAS, Complete Streets support economic growth and community stability by providing accessible and efficient connections between home, school, work, recreation and retail destinations by improving the pedestrian and vehicular environments throughout communities; and

WHEREAS, Complete Streets enhance safe walking and bicycling options for school-age children, in recognition of the objectives of the national Safe Routes to School program and Physical Activity Guidelines; and

WHEREAS, Complete Streets can help reduce crashes and injuries and their costs.

NOW, THEREFORE, the Board of Selectmen adopts this Complete Streets Policy.

Vision and Purpose:

The purpose of the Town of Norwell's Complete Streets Policy is to accommodate all road users by creating a roadway network that meets the needs of individuals utilizing a variety of transportation modes. It is the intent of the Town of Norwell to formalize the plan, design, operation, and maintenance of streets so that they are safe for users of all ages, all abilities and all income levels as a matter of routine. This Policy directs decision-makers to consistently plan, design, construct, and maintain streets to accommodate all anticipated users including, but not limited to pedestrians, bicyclists, motorists, emergency vehicles, school buses, transit and freight and commercial vehicles.

Core Commitment:

The Town recognizes that all roadway projects (including new construction, maintenance and reconstruction) are potential opportunities to apply Complete Streets design principles. The Town will, to the maximum extent practical, design, construct, maintain, and operate streets to provide for a comprehensive and integrated network of facilities for people of all ages and abilities.

Complete Streets design recommendations will be incorporated into all publicly and privately funded projects, as appropriate, including: new transportation infrastructure and street design projects requiring funding or approval by the Town of Norwell, projects funded by the State and Federal government (including but not limited to Chapter 90 funds, city improvement grants, Transportation Improvement Program (TIP), MassWorks Infrastructure Program, Community Development Block Grants (CDBG), Capital Funding and other state and federal funds for street and infrastructure design), and privately funded subdivision developments. In addition, to the extent practical, state-owned roadways will comply with the Complete Streets Policy, including the design, construction, and maintenance of such roadways within Town boundaries.

Exclusions:

These transportation infrastructure projects may be excluded from review upon approval by the Complete Streets Working Group, where documentation and data indicate that any of the following apply:

1. Roadways where specific users are prohibited by law, such as interstate freeways or pedestrian malls. An effort will be made, in these cases, for accommodations elsewhere.
2. Cost or impacts of accommodation are excessively disproportionate to the need or probable future use.
3. Other Town policies, regulations, or requirements contradict or preclude implementation of Complete Streets principles.

In addition, Town Departments, in consultation with a Complete Streets Working Group (described below), will use best judgment regarding the desirability and feasibility of applying Complete Streets principles for routine roadway maintenance and projects, such as repaving, restriping, and so forth.

Best Practices:

The Town of Norwell Complete Streets Policy will focus on developing a connected, integrated network that serves all road users. Complete Streets will be integrated into policies, planning, and design of all types of public and private projects, including new construction, reconstruction, rehabilitation, repair, and maintenance of transportation facilities on streets and redevelopment projects. As practicable, recommendations from the Complete Streets Working Group for incorporating complete streets elements will occur in projects' beginning stages prior to design.

Complete Streets principles include the development and implementation of projects in a context-sensitive manner in which project implementation is sensitive to the community's physical, economic, and social setting. The context-sensitive approach to process and design includes a range of goals by giving significant consideration to stakeholder and community values. It includes goals related to livability with greater participation of those affected in order to gain project consensus. The overall goal of this approach is to preserve and enhance scenic, aesthetic, historical, and environmental resources while improving or maintaining safety, mobility, and infrastructure conditions.

Implementation of the Town of Norwell Complete Streets Policy will be carried out cooperatively within all relevant departments in the Town of Norwell and, to the greatest extent possible, among private developers, and state, regional, and federal agencies.

The Town of Norwell recognizes that "complete streets" may be achieved through single elements incorporated into a particular project or incrementally through a series of smaller improvements or maintenance activities over time.

The latest design guidance, standards, and recommendations available will be used in the implementation of Complete Streets, including the most up-to-date versions of:

- The Massachusetts Department of Transportation Project Design and Development Guidebook
- Pioneer Valley Planning Commission's Healthy Community Design Toolkit
- The United States Department of Transportation Federal Highway Administration's Manual on Uniform Traffic Control Devices
- The Architectural Access Board (AAB) 521CMR Rules and Regulations
- ASHTO Standards
- Documents and plans created for the Town of Norwell, including but not limited to:
 - Master Plan
 - Sidewalk and Pedestrian Infrastructure Inventory
 - Town Center Design Plan
 - Open Space and Pathways Plans
 - Sidewalk Prioritization Plan (fut.)

Implementation:

The Town shall make complete streets practices a routine part of everyday operations, shall approach every transportation project and program as an opportunity to improve streets and the transportation network for all users, and shall work in coordination with other departments, agencies, and jurisdictions to achieve complete streets.

The Town shall form a Complete Streets Working Group to implement the Complete Streets initiative. The working group will be a multidisciplinary team and members will include representation from: Pathway Committee, Board of Selectmen, Highway Department, Planning Board, Department of Recreation and other committees, departments or organizations as appropriate. The group shall elect a chair, vice chair and clerk to organize and run meetings.

Key responsibilities of the Complete Streets Working Group will be to:

1. Increase communication and forge partnerships among the various stakeholders.
2. Ensuring the implementation of the Complete Streets Policy and, where necessary, alter existing practices and overcoming barriers that may act as impediments to implementation.
3. Regularly update and solicit feedback on potential projects with the general public to ensure that the perspectives of the community are considered and incorporated, as appropriate.
4. Work to integrate Complete Streets principles in all new planning documents, as applicable (master plans, open space and recreation plan, etc.), laws, procedures, rules, regulations, guidelines, programs, and templates and make recommendations for zoning and subdivision codes.

The Town will secure training for the Complete Streets Working Group, pertinent Town staff and decision-makers on both the technical content of Complete Streets principles and best practices, as well as community engagement methods for implementing the Complete Streets Policy. Training may be accomplished through workshops and other appropriate means.

The Town will utilize inter-department coordination to promote the most responsible and efficient use of resources for activities within the public way.

The Town will develop a Prioritization Plan for Complete Streets projects. This Plan will build on the town's comprehensive inventory of pedestrian and bicycle facility infrastructure, highlight gaps in our sidewalk/pathway/bikeway network, and prioritize Complete Streets projects that will enhance the overall network.

The Town will evaluate projects, as appropriate, within the Capital Improvement Plan to encourage implementation of this Policy.

The Town will seek out appropriate sources of funding and grants for implementation of Complete Streets policies.

Evaluation of Effectiveness:

The Complete Streets Working Group will develop performance measures to periodically assess the rate, success, and effectiveness of implementing the Complete Streets Policy. The group will determine the frequency of assessment and utilize appropriate metrics for analyzing the success of this policy. These metrics may include the total number of new bicycle lanes, the linear feet of new pedestrian accommodation, number of retrofitted pedestrian facilities or amenities, number of intersection improvements made to improve Level of Service (LOS) and safety for vehicles, pedestrians and bicyclists, rate of crashes by mode, rate of children walking or bicycling to school, and/or number of trips by mode. These metrics will be compiled into a report by the working group and presented as needed, but no less than annually.

COMPLETE STREETS NEEDS ASSESSMENT

Appendix D
November 30, 2016

Appendix D

D.1 TOWN CENTER PLAN

TOWN OF NORWELL, MASSACHUSETTS

TOWN CENTER IMPROVEMENT PROJECT

Concept Plans

March 2, 2015



BOARD OF SELECTMEN

ELLEN ALLEN, CHAIRMAN
JASON BROWN, VICE CHAIR
DAVID DeCOSTE, CLERK

PLANNING DEPARTMENT
CHRIS DHORIO, TOWN PLANNER



LOCATION MAP
NOT TO SCALE

PLAN INDEX

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET & INDEX
2	OVERALL EXISTING CONDITIONS PLAN
3	OVERALL CONCEPT PLAN
4	MAIN STREET GENERAL PLAN - OPTION 1
5	MAIN STREET GENERAL PLAN - OPTION 2
6	SHIELDS GENERAL STORE - OPTION 1
7	SHIELDS GENERAL STORE - OPTION 2
8	MAIN STREET GENERAL PLAN 2
9	MAIN & DOVER STREET GENERAL PLAN 3
10	MAIN STREET GENERAL PLAN 4
11	RIVER STREET GENERAL PLAN 5
12 - 15	ROADWAY CROSS SECTIONS
16	MATERIALS BOARD
17-18	PERSPECTIVE RENDERINGS

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Substrate Data:

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CHIEF OF POLICE

DESCRIPTION

BETA Group, Inc.
Engineers • Planners • Landscape Architects
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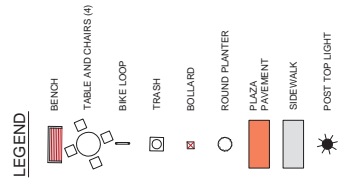
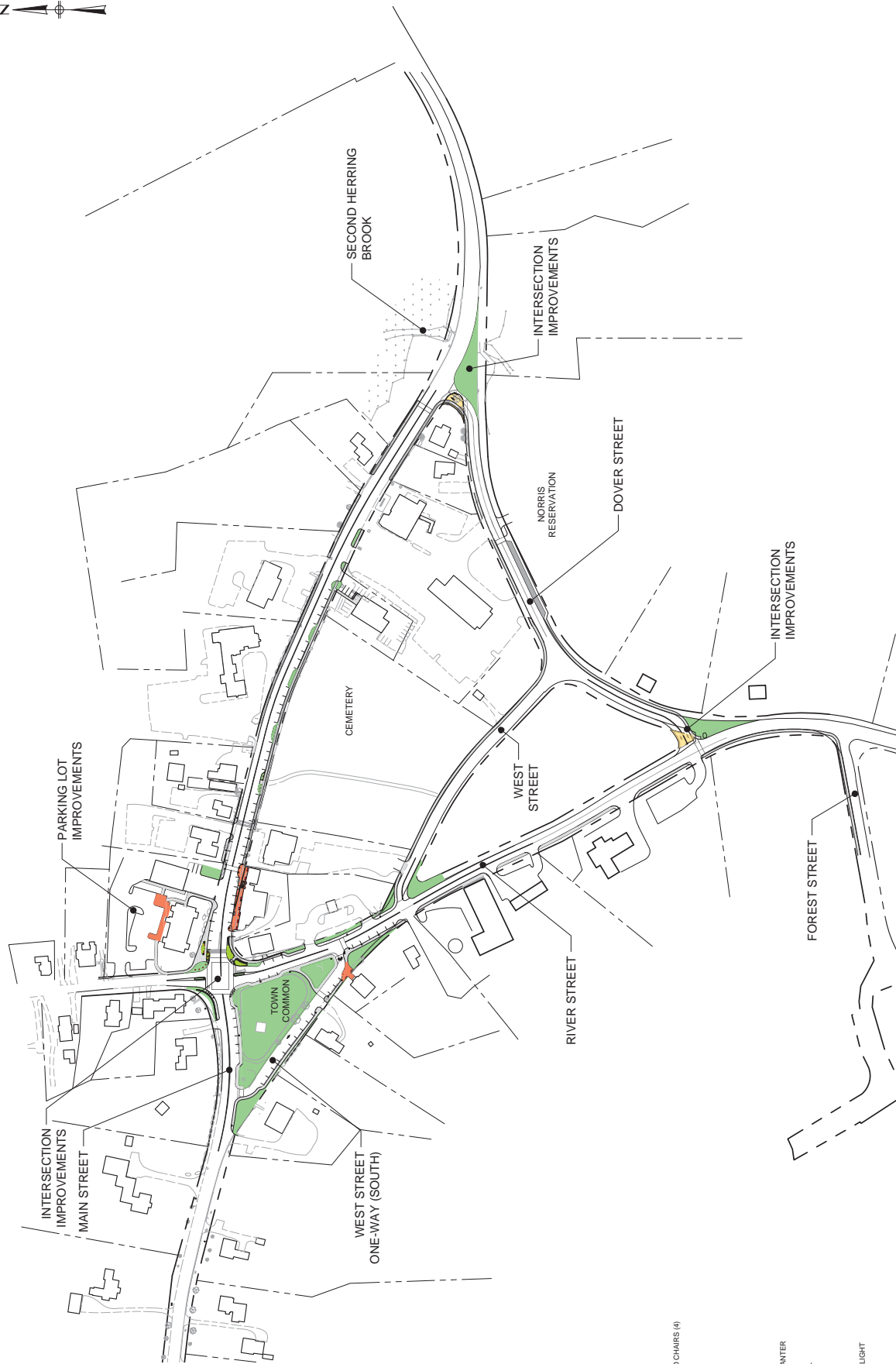
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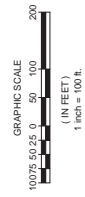
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Town Center Improvement - CONCEPT PLANS
OVERALL EXISTING
CONDITIONS PLAN
Norwell, Massachusetts

ISSUE DATE: March 2, 2015 2 of 18

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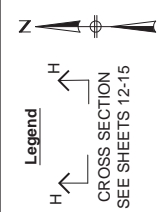
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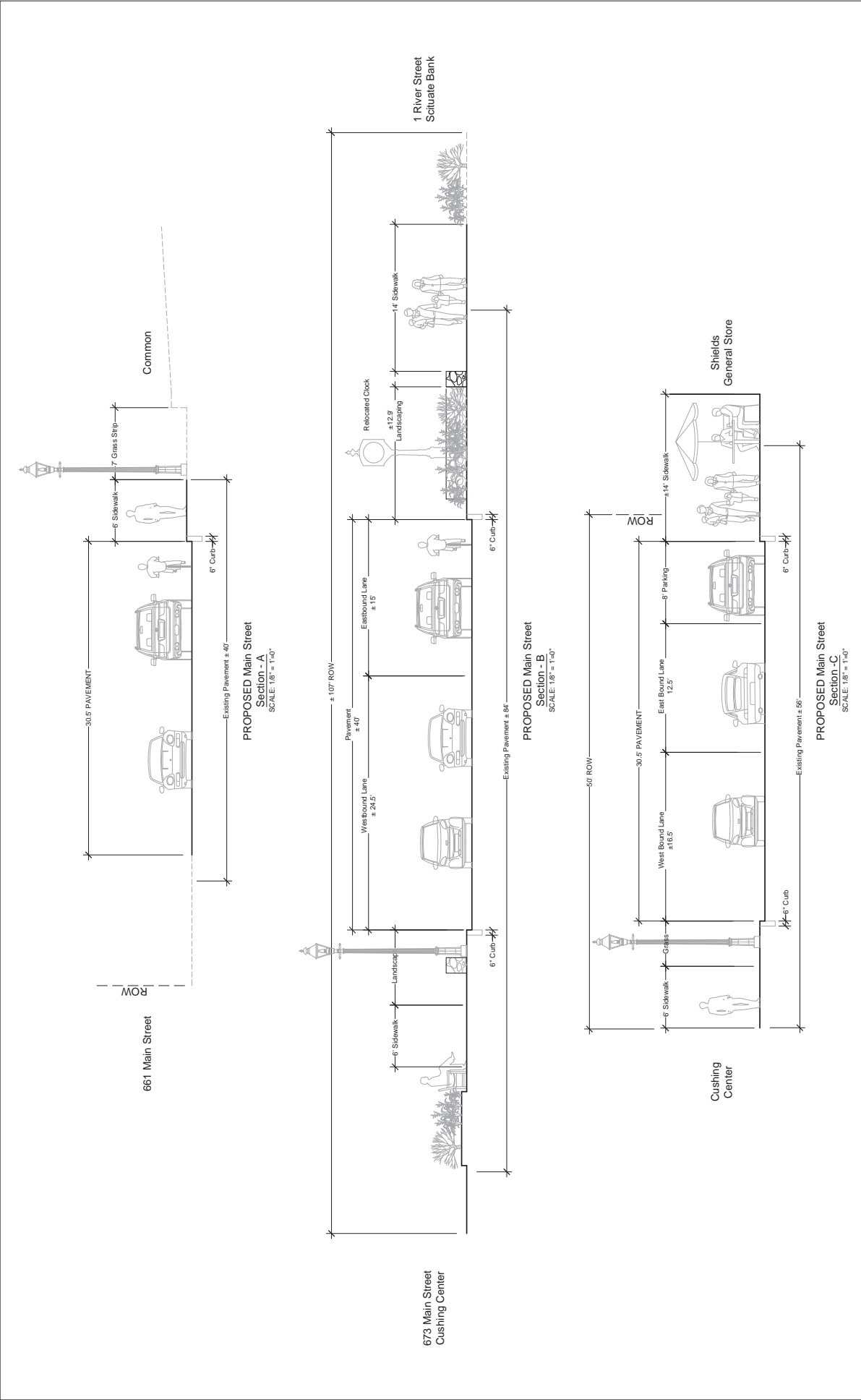
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Norwell, Massachusetts

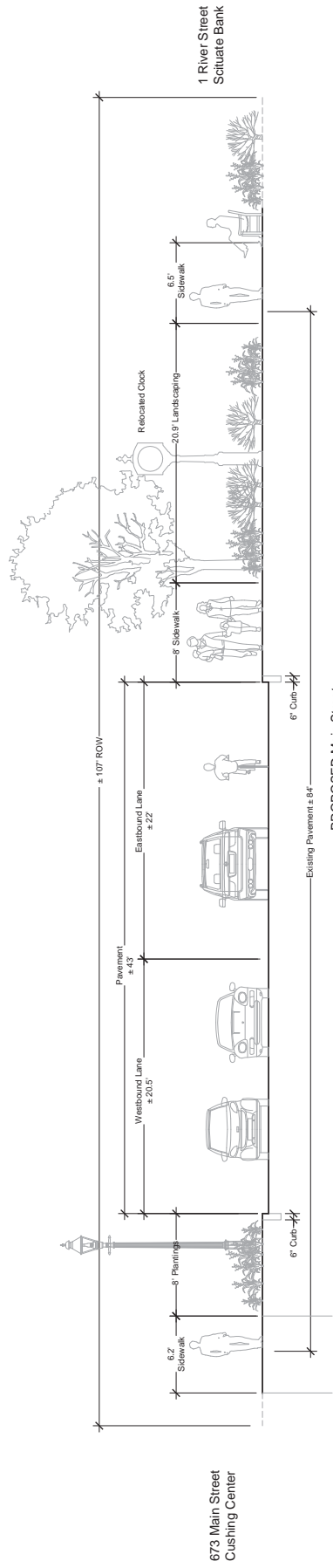
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PLOT DATE: _____ Mar. 02, 2015 9:45am
ISSUE DATE _____ March 2, 2015
SHEET _____ 3 of 18



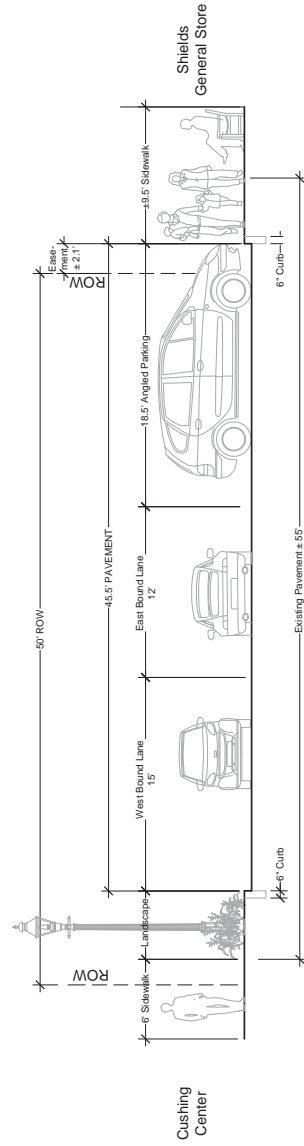
BETA Group, Inc. Engineers & Planners • Landscape Architects 315 Norwell Pike South Norwell, MA 02062 Phone: 800.877.8424 Fax: 800.877.8424		Town Center Improvement - CONCEPT PLANS MAIN STREET GENERAL PLAN - 2 Norwell, Massachusetts	JOB #673 PLOT DATE: Nov 02 2015 10:00am ISSUE DATE: March 2, 2015 SHEET 8 of 18																				
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SHEET										12 of 18									
Town Center Improvement - CONCEPT PLANS										CROSS SECTIONS									
Norwell, Massachusetts																			
SCALE										315 Norwood Park South Norwood, MA 02062 781.531.1892 enr@beta-group.com									
BETA Group, Inc. Engineering, Planning, Landscape Architecture Lincoln, RI - Norwood, MA - Hartford, CT																			
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PROPOSED Main Street
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PROPOSED Main Street
Section - C1 OPTION
SCALE: 1/8" = 1'-0"

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SCALE:

SCALE-

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Town Center Improvement - CONCEPT PLANS

CROSS SECTIONS

Norwell, Massachusetts

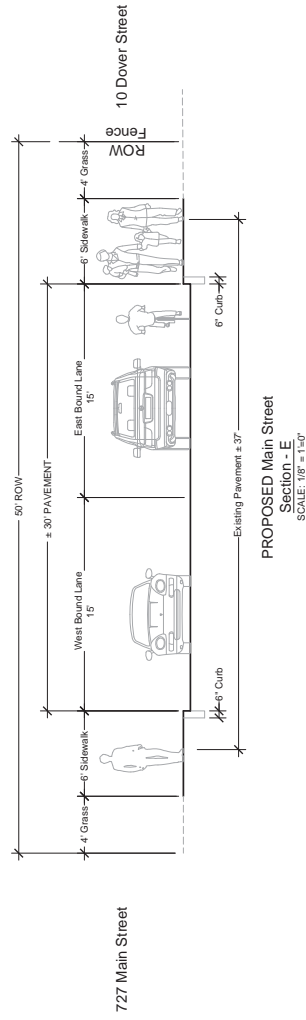
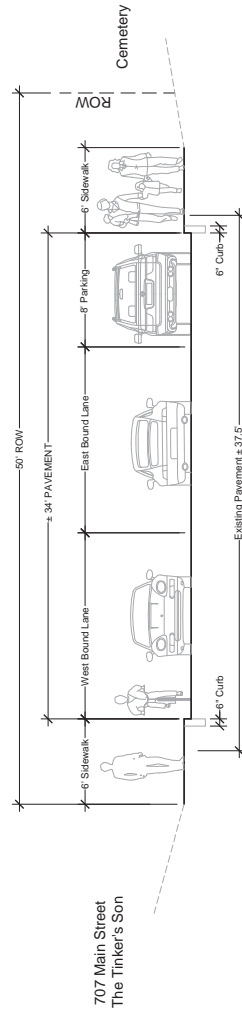
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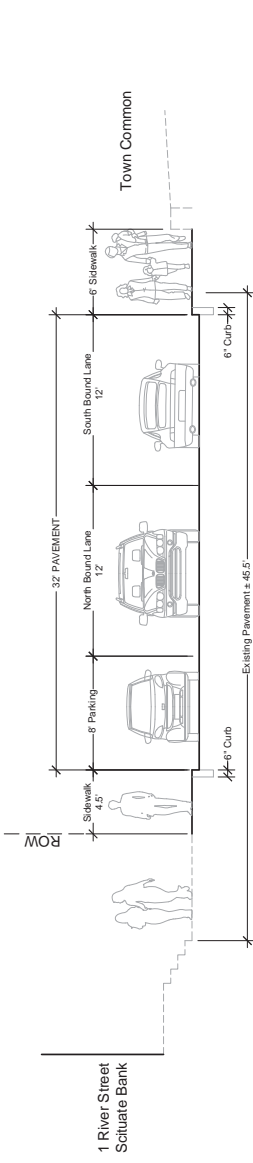
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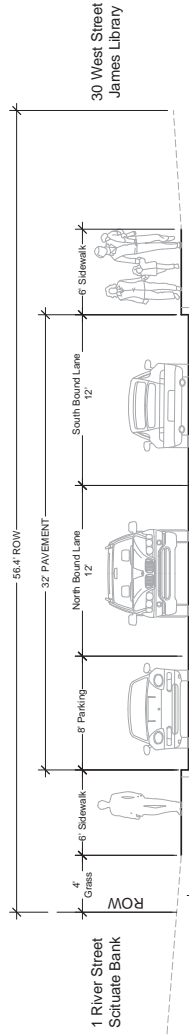
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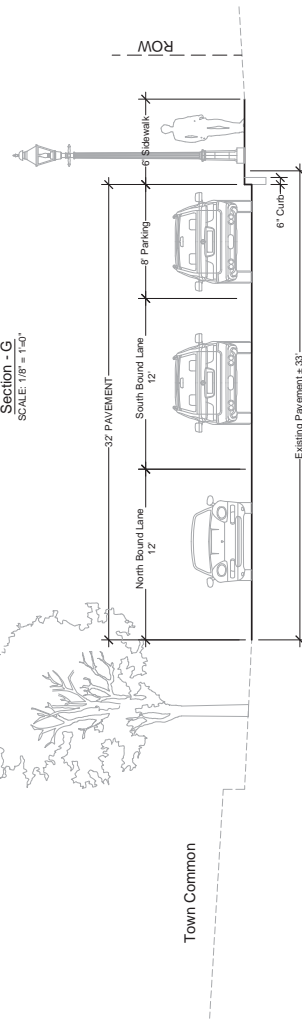
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PROPOSED River Street
Section - F
SCALE: 1/8" = 1'-0"



PROPOSED River Street
Section - G
SCALE: 1/8" = 1'-0"



PROPOSED West Street
Section - H
SCALE: 1/8" = 1'-0"

JOB: 4673 PLOT DATE: Mar 02, 2019 14:00pm ISSUE DATE: March 1, 2019 SHEET: 15 of 18		SCALE:		315 Norwell Park South Norwell, MA 02062 Tel: 781.531.1922 Email: info@betagroup.com		BETA Group, Inc. Engineers & Planners & Landscape Architects 315 Norwell Park South Norwell, MA 02062		Town Center Improvement - CONCEPT PLANS CROSS SECTIONS Norwell, Massachusetts	
REVISIONS		CHECKED BY:		SCALE:		1/8" = 1'-0"		15 of 18	



View 1



View 3



View 2



View 4

JOB				Town Center Improvement - CONCEPT PLANS				PERSPECTIVES				Norwell, Massachusetts			
4673				SCALE				315 Norwell Park South Norwell, MA 02062 351.150.1500 www.beta-group.com				DATE OF EXPIRATION: NONE (OR CHANGED TO FUTURE DATE)			
PLOT DATE: Mar 12, 2019 10:29am				BETA Group, Inc.				Engineers & Planners • Landscape Architects				315 Norwell Park South Norwell, MA 02062 351.150.1500 www.beta-group.com			
ISSUE DATE: March 1, 2018				REVISIONS				DESCRIPTION				DATE			
SHEET 17 of 18				NUMBER				DATE				ISSUE DATE			

Appendix E

E.1 TOWN OF NORWELL CRASH INFORMATION



Norwell Police Department

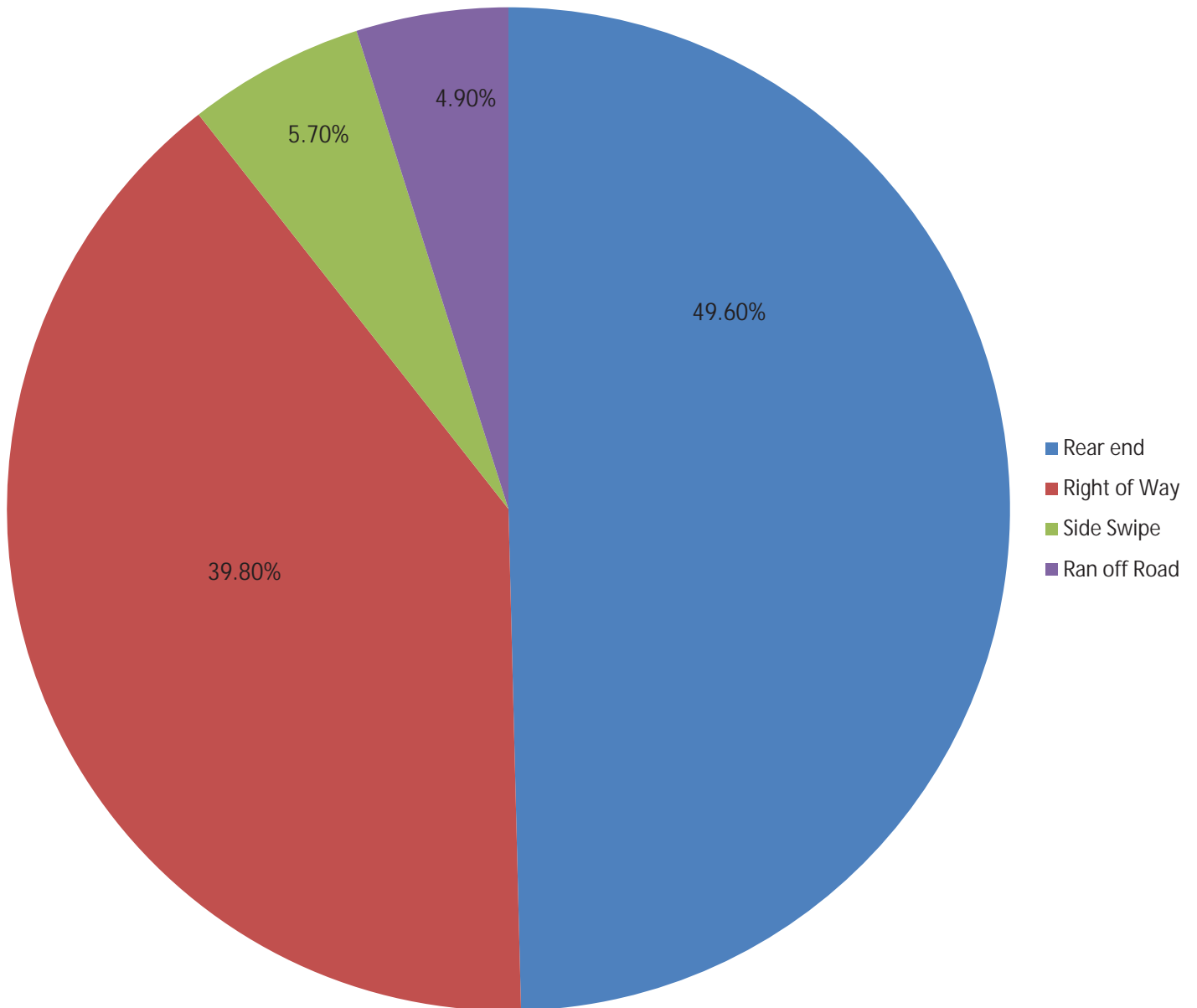
300A Washington Street
Norwell, MA 02061

Theodore J. Ross
Chief of Police

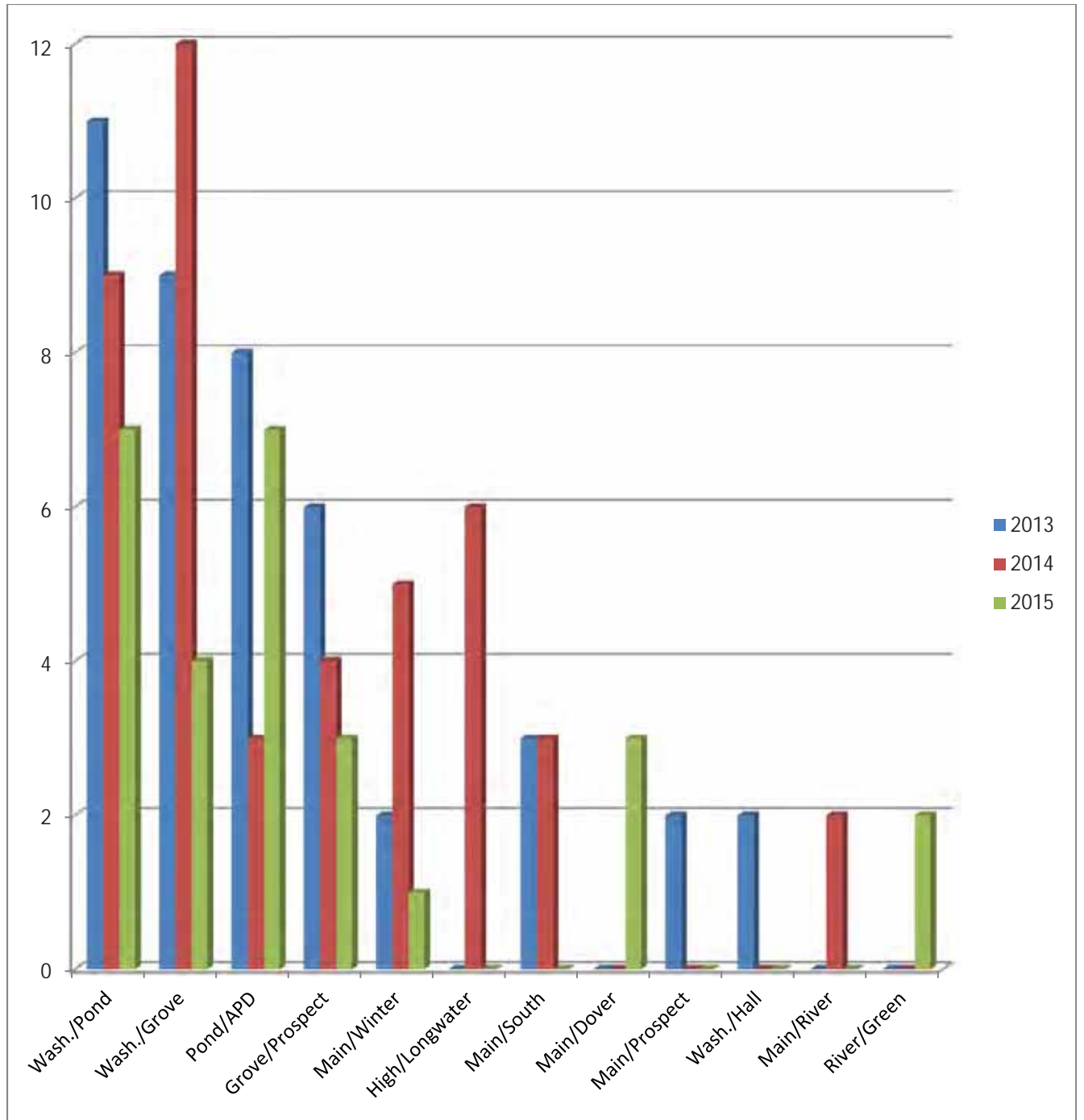
Telephone (781) 659-7979
Fax (781) 659-2496

Carol Brzuszek
Deputy Chief

123 Motor Vehicle Crashes/Causes 2013-2015



Motor Vehicle Crashes @ Intersections: 2013-2015



Appendix F

F.1 COST ESTIMATES

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

MAIN STREET- 4800'
SOUTH STREET TO TOWN HALL

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	5	\$1,000.00	\$5,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	5	\$1,750.00	\$8,750.00
120.1	UNCLASSIFIED EXCAVATION	CY	933	\$30.00	\$27,990.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE	CY	461	\$58.26	\$26,857.86
702.	HOT MIX ASPHALT WALK SURFACE	TON	486	\$182.77	\$88,826.22
702.1	HOT MIX ASPHALT DRIVEWAY	TON	177	\$188.83	\$33,422.91
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	100	\$77.40	\$7,740.00
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	25	\$75.00	\$1,875.00
734.	SIGN REMOVED AND RESET	EA	16	\$200.00	\$3,200.00
751.	LOAM BORROW	CY	290	\$35.00	\$10,150.00
765.	SEEDING	SY	290	\$1.97	\$571.30
	Granite Curbing		4,800	\$45.00	\$216,000.00
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	320	\$2.00	\$640.00
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$453,023.29
15% CONTINGENCY					\$67,953.49
					\$520,976.78
SAY				\$521,000	

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

MAIN STREET- 6800'
TOWN HALL TO WEST STREET- 50' RoW

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	8	\$1,000.00	\$8,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	8	\$1,750.00	\$14,000.00
120.1	UNCLASSIFIED EXCAVATION	CY	1,350	\$30.00	\$40,500.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	665	\$58.26	\$38,742.90
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	690	\$182.77	\$126,111.30
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	275	\$188.83	\$51,928.25
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	100	\$77.40	\$7,740.00
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	90	\$75.00	\$6,750.00
734.	SIGN REMOVED AND RESET	EA	30	\$200.00	\$6,000.00
751.	LOAM BORROW	CY	410	\$35.00	\$14,350.00
765.	SEEDING	SY	410	\$1.97	\$807.70
	GRANITE CURBING	LF	6,800	\$45.00	\$306,000.00
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	300	\$2.00	\$600.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$643,530.15
15% CONTINGENCY					\$96,529.52
					\$740,059.67
SAY				\$741,000	

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

MAIN STREET- 9003'
DOVER STREET TO SCITUATE TOWNLINE

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	10	\$1,000.00	\$10,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	10	\$1,750.00	\$17,500.00
120.1	UNCLASSIFIED EXCAVATION	CY	1,743	\$30.00	\$52,290.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	860	\$58.26	\$50,103.60
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	884	\$182.77	\$161,568.68
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	365	\$188.83	\$68,922.95
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	417	\$77.40	\$32,275.80
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	60	\$75.00	\$4,500.00
734.	SIGN REMOVED AND RESET	EA	25	\$200.00	\$5,000.00
751.	LOAM BORROW	CY	527	\$35.00	\$18,445.00
765.	SEEDING	SY	527	\$1.97	\$1,038.19
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	1,300	\$2.00	\$2,600.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$446,244.22
15% CONTINGENCY					\$66,936.63
					\$513,180.85
				SAY	\$514,000

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

CENTRAL STREET- 5114'
OLD OAKEN STREET TO MAIN STREET

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	10	\$1,000.00	\$10,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	10	\$1,750.00	\$17,500.00
120.1	UNCLASSIFIED EXCAVATION	CY	1,043	\$30.00	\$31,290.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	515	\$58.26	\$30,003.90
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	504	\$182.77	\$92,116.08
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	255	\$188.83	\$48,151.65
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	67	\$77.40	\$5,185.80
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	60	\$75.00	\$4,500.00
734.	SIGN REMOVED AND RESET	EA	25	\$200.00	\$5,000.00
751.	LOAM BORROW	CY	300	\$35.00	\$10,500.00
765.	SEEDING	SY	300	\$1.97	\$591.00
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	200	\$2.00	\$400.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$277,238.43
15% CONTINGENCY					\$41,585.76
					\$318,824.19
				SAY	\$319,000

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

CIRCUIT STREET- 1665'
MAIN STREET TO PLEASANT STREET

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	5	\$1,000.00	\$5,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	5	\$1,750.00	\$8,750.00
120.1	UNCLASSIFIED EXCAVATION	CY	331	\$30.00	\$9,930.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	163	\$58.26	\$9,496.38
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	165	\$182.77	\$30,157.05
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	73	\$188.83	\$13,784.59
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	83	\$77.40	\$6,424.20
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	60	\$75.00	\$4,500.00
734.	SIGN REMOVED AND RESET	EA	15	\$200.00	\$3,000.00
751.	LOAM BORROW	CY	98	\$35.00	\$3,430.00
765.	SEEDING	SY	98	\$1.97	\$193.06
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	200	\$2.00	\$400.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$117,065.28
15% CONTINGENCY					\$17,559.79
					\$134,625.07
				SAY	\$135,000

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

LINCOLN STREET- 5756'
MAIN STREET TO GROVE STREET

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	10	\$1,000.00	\$10,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	10	\$1,750.00	\$17,500.00
120.1	UNCLASSIFIED EXCAVATION	CY	1,123	\$30.00	\$33,690.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	555	\$58.26	\$32,334.30
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	588	\$182.77	\$107,468.76
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	210	\$188.83	\$39,654.30
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	83	\$77.40	\$6,424.20
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	60	\$75.00	\$4,500.00
734.	SIGN REMOVED AND RESET	EA	20	\$200.00	\$4,000.00
751.	LOAM BORROW	CY	350	\$35.00	\$12,250.00
765.	SEEDING	SY	350	\$1.97	\$689.50
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	200	\$2.00	\$400.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$290,911.06
15% CONTINGENCY					\$43,636.66
					\$334,547.72
SAY				\$335,000	

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

OLD OAKEN STREET - 1965'
CENTRAL STREET TO MOUNT BLUE BOULEVARD

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	10	\$1,000.00	\$10,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	10	\$1,750.00	\$17,500.00
120.1	UNCLASSIFIED EXCAVATION	CY	391	\$30.00	\$11,730.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	192	\$58.26	\$11,185.92
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	191	\$182.77	\$34,909.07
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	91	\$188.83	\$17,183.53
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	100	\$77.40	\$7,740.00
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	60	\$75.00	\$4,500.00
734.	SIGN REMOVED AND RESET	EA	20	\$200.00	\$4,000.00
751.	LOAM BORROW	CY	114	\$35.00	\$3,990.00
765.	SEEDING	SY	114	\$1.97	\$224.58
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	300	\$2.00	\$600.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$145,563.10
15% CONTINGENCY					\$21,834.47
					\$167,397.57
SAY				\$168,000	

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

POND STREET - 2969'
WASHINGTON STREET TO ROCKLAND TOWNLINE

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	2	\$1,000.00	\$2,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	2	\$1,750.00	\$3,500.00
120.1	UNCLASSIFIED EXCAVATION	CY	560	\$30.00	\$16,800.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	277	\$58.26	\$16,138.02
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	303	\$182.77	\$55,379.31
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	91	\$188.83	\$17,183.53
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	133	\$77.40	\$10,294.20
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	60	\$75.00	\$4,500.00
734.	SIGN REMOVED AND RESET	EA	25	\$200.00	\$5,000.00
751.	LOAM BORROW	CY	180	\$35.00	\$6,300.00
765.	SEEDING	SY	180	\$1.97	\$354.60
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	200	\$2.00	\$400.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$159,849.66
15% CONTINGENCY					\$23,977.45
					\$183,827.11
				SAY	\$184,000

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

PROSPECT STREET - 4490'
MAIN STREET TO ACOBS LANE

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	10	\$1,000.00	\$10,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	10	\$1,750.00	\$17,500.00
120.1	UNCLASSIFIED EXCAVATION	CY	916	\$30.00	\$27,480.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	451	\$58.26	\$26,275.26
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	438	\$182.77	\$80,053.26
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	228	\$188.83	\$43,053.24
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	100	\$77.40	\$7,740.00
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	60	\$75.00	\$4,500.00
734.	SIGN REMOVED AND RESET	EA	20	\$200.00	\$4,000.00
751.	LOAM BORROW	CY	261	\$35.00	\$9,135.00
765.	SEEDING	SY	261	\$1.97	\$514.17
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	200	\$2.00	\$400.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$252,650.93
15% CONTINGENCY					\$37,897.64
					\$290,548.57
				SAY	\$291,000

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

PROSPECT STREET - 3934'
GROVE STREET TO ACOBS LANE

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	12	\$1,000.00	\$12,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	12	\$1,750.00	\$21,000.00
120.1	UNCLASSIFIED EXCAVATION	CY	741	\$30.00	\$22,230.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	367	\$58.26	\$21,381.42
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	416	\$182.77	\$76,032.32
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	100	\$188.83	\$18,883.00
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	67	\$77.40	\$5,185.80
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	60	\$75.00	\$4,500.00
734.	SIGN REMOVED AND RESET	EA	20	\$200.00	\$4,000.00
751.	LOAM BORROW	CY	248	\$35.00	\$8,680.00
765.	SEEDING	SY	248	\$1.97	\$488.56
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	200	\$2.00	\$400.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$216,781.10
15% CONTINGENCY					\$32,517.17
					\$249,298.27
				SAY	\$250,000

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

RIVER STREET - 12034'
FOREST STREET TO PILGRIM HIGHWAY (ROUTE 3)

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	15	\$1,000.00	\$15,000.00
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	15	\$1,750.00	\$26,250.00
120.1	UNCLASSIFIED EXCAVATION	CY	2,324	\$30.00	\$69,720.00
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE- 4"	CY	1,148	\$58.26	\$66,882.48
702.	HOT MIX ASPHALT WALK SURFACE- 3"	TON	1,227	\$182.77	\$224,258.79
702.1	HOT MIX ASPHALT DRIVEWAY- 4"	TON	420	\$188.83	\$79,308.60
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	267	\$77.40	\$20,665.80
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	120	\$75.00	\$9,000.00
734.	SIGN REMOVED AND RESET	EA	40	\$200.00	\$8,000.00
751.	LOAM BORROW	CY	731	\$35.00	\$25,585.00
765.	SEEDING	SY	731	\$1.97	\$1,440.07
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	200	\$2.00	\$400.00
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$22,000.00
					\$568,510.74
15% CONTINGENCY					\$85,276.61
					\$653,787.35
				SAY	\$654,000

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

NOVEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

GROVE STREET- 5600'
WILDER ROAD TO PROSPECT STREET

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	10	\$1,000.00	\$9,918.09
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	10	\$1,750.00	\$17,356.65
120.1	UNCLASSIFIED EXCAVATION	CY	1,110	\$30.00	\$33,287.58
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE	CY	548	\$58.26	\$31,924.98
702.	HOT MIX ASPHALT WALK SURFACE	TON	567	\$182.77	\$103,552.13
702.1	HOT MIX ASPHALT DRIVEWAY	TON	226	\$188.83	\$42,606.94
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	83	\$77.40	\$6,429.15
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	74	\$75.00	\$5,578.92
734.	SIGN REMOVED AND RESET	EA	25	\$200.00	\$4,959.04
751.	LOAM BORROW	CY	337	\$35.00	\$11,802.52
765.	SEEDING	SY	337	\$1.97	\$664.31
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	248	\$2.00	\$495.90
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$27,274.74
					\$295,850.98
15% CONTINGENCY					\$44,377.65
					\$340,228.62
SAY				\$341,000	

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

GROVE STREET- 7920'
SCHOOL STREET TO CENTRAL STREET

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	14	\$1,000.00	\$14,027.01
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	14	\$1,750.00	\$24,547.27
120.1	UNCLASSIFIED EXCAVATION	CY	1,569	\$30.00	\$47,078.15
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE	CY	775	\$58.26	\$45,151.05
702.	HOT MIX ASPHALT WALK SURFACE	TON	801	\$182.77	\$146,452.30
702.1	HOT MIX ASPHALT DRIVEWAY	TON	319	\$188.83	\$60,258.38
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	117	\$77.40	\$9,092.66
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	105	\$75.00	\$7,890.19
734.	SIGN REMOVED AND RESET	EA	35	\$200.00	\$7,013.50
751.	LOAM BORROW	CY	477	\$35.00	\$16,692.14
765.	SEEDING	SY	477	\$1.97	\$939.53
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	351	\$2.00	\$701.35
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	2	\$22,000.00	\$38,574.27
					\$418,417.81
15% CONTINGENCY					\$62,762.67
					\$481,180.48
SAY				\$482,000	

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]

SEPTEMBER 2016

PRELIMINARY ESTIMATE
ENGINEERS ESTIMATE OF QUANTITIES
3" MILL AND ASPHALT OVERLAY WITH SIDEWALK RECONSTRUCTION
NORWELL, MASSACHUSETTS

GROVE STREET- 5808'
PROSPECT STREET TO SCHOOL STREET

PREPARED BY: STANTEC

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA	10	\$1,000.00	\$10,286.47
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA	10	\$1,750.00	\$18,001.33
120.1	UNCLASSIFIED EXCAVATION	CY	1,151	\$30.00	\$34,523.98
170.62	FINE GRADING AND COMPACTING	SY		\$3.00	\$0.00
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE	CY	568	\$58.26	\$33,110.77
702.	HOT MIX ASPHALT WALK SURFACE	TON	588	\$182.77	\$107,398.35
702.1	HOT MIX ASPHALT DRIVEWAY	TON	234	\$188.83	\$44,189.48
701.2	CEMENT CONCRETE WHEELCHAIR RAMP	SY	86	\$77.40	\$6,667.95
701.25	REPAIRS TO BACK OF SIDEWALK	MHRS	77	\$75.00	\$5,786.14
734.	SIGN REMOVED AND RESET	EA	26	\$200.00	\$5,143.24
751.	LOAM BORROW	CY	350	\$35.00	\$12,240.90
765.	SEEDING	SY	350	\$1.97	\$688.99
865.1	CROSS WALKS AND STOP LINES REFLC. (THERMOPLASTIC)	SF	257	\$2.00	\$514.32
X	STONE WALL REMOVAL/ETC.				
999.001	POLICE DETAIL	LS	1	\$22,000.00	\$28,287.80
					\$306,839.73
15% CONTINGENCY					\$46,025.96
					\$352,865.68
				SAY	\$353,000

UNIT PRICES BASED ON MASSDOT WEBSITE FOR DISTRICT 5 [SEPTEMBER 2016]