



COMPLETE STREETS IN WINCHESTER



COMPLETE STREETS IN WINCHESTER

Complete Streets Prioritization Plan

(MassDOT Complete Streets Funding Program Tier II)

This study was completed by the Metropolitan Area Planning Council (MAPC) in partnership with Toole Design Group and the Town of Winchester. MAPC is Greater Boston's regional planning agency whose mission is to promote smart growth and regional collaboration.

This document was produced with input from the Town of Winchester, including the Engineering Department, Department of Public Works, Planning Department, Town Manager, and local residents.

MAPC would like to particularly thank Beth Rudolph for her guidance, input, and support throughout this process.

Funding for this study was provided by MAPC's Unified Planning Work Program (UPWP), and MassDOT's Complete Streets Funding Program.

June, 2016

Prepared for
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COMPLETE STREETS IN WINCHESTER

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

Municipality: Winchester
 MassDOT District: 4
 Date: 7/6/2016
 Name/Title: Beth Rudolph, PE, Town Engineer

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	Vehicular 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	Cross St/Forest St Traffic Calming Improvements	Pedestrian improvements at 4 intersections: ADA sidewalks and ramps, and roadway narrowing	Yes	4 intersections on/near the Forest & Cross St corridor	230167.97	913080.02	CS Needs Assessment	S6, S13, S17, P2, P3, P8, P9	X	X	X					n/a	\$260,000	\$260,000	\$0	3	August 2016
2	Pond Street at Chesterford Road	Install RRFB, and tactical warning pad at existing crosswalk at trail entrance	No	Intersection	228467.28	912109.26	CS Needs Assessment	S17, B1, P2, P3, P12	X	X	X	X				n/a	\$15,100	\$15,100	\$0	1	August 2016
3	Johnson Rd/Wildwood St (Vinson-O School)	School access improvements: ADA compliant sidewalks and ramps	No	Bigelow Avenue to Cambridge Street	227738.27	911186.12	Safety Audit	P2, P3, P5	X	X	X					n/a	\$183,700	\$0	\$183,700	2	July 2017
4	Johnson Rd Sidewalks (Vinson-O School)	School access improvements: ADA compliant sidewalks and ramps	No	Ridge Street to Berkshire Drive	226450.02	910628.51	Safety Audit	P2, P3, P5	X	X	X					n/a	\$234,360	\$0	\$234,360	2	July 2017
5	Ridge St Sidewalks (Vinson-O School)	School access improvements: ADA compliant sidewalks and ramps	No	Johnson Road to Pepper Hill Drive	226770.65	910503.31	Safety Audit	P2, P3, P5	X	X	X					n/a	\$171,091	\$0	\$171,091	2	July 2017
6	Church Street at Central Street	Pedestrian Improvements: Curb extensions, RRFB, ADA ramps	No	Intersection	229296.78	911151.86	CS Needs Assessment	S13, S17, P2, P3, P8, P12, T1	X	X	X		X			n/a	\$67,300	\$67,300	\$0	1	August 2016
7	Highland Avenue at Stone Avenue	Pedestrian Improvements: RRFB installation at existing crosswalk	No	Intersection	230895.03	912365.27	CS Needs Assessment	S17, P12	X		X					n/a	\$15,000	\$15,000	\$0	1	August 2016
8	Amberwood Drive at Johnson Road	School access improvements: RRFB installation at existing crosswalk	No	Intersection	226979.53	911042.51	CS Needs Assessment	S17, P12	X		X					n/a	\$15,000	\$15,000	\$0	1	August 2016
9	"Your Speed" signs (1)	Install "Your Speed" signs at four (4) locations	Yes	Bacon St, Highland Ave, Loring Ave, Lockeland Rd	229668.61	912642.02	CS Needs Assessment	S5, S17	X		X	X	X			n/a	\$28,000	\$27,600	\$400	1	August 2016
10	"Your Speed" signs (2)	Install "Your Speed" signs at four (4) locations	No	Highland Ave, Main St, Forest St, Grove St	231205.14	913186.02	CS Needs Assessment	S5, S17	X		X	X	X			n/a	\$28,000	\$0	\$28,000	1	September 2017
11	Main Street at Hemingway St (at 955 Main Street)	Pedestrian Improvements: Curb extensions, RRFB, ADA ramps	Yes	Intersection	229285.61	912557.54	CS Needs Assessment	S6, S17, P2, P3, P8, P12	X	X	X					n/a	\$41,700	\$0	\$41,700	1	September 2017
12	Main Street at Sheridan Circle (at 1021 Main St)	Pedestrian Improvements: Curb extensions, RRFB, ADA ramps	Yes	Intersection	229155.88	912774.55	CS Needs Assessment	S6, S17, P2, P3, P8, P12	X	X	X					n/a	\$44,700	\$0	\$44,700	1	September 2017
13	Bacon Street at Mystic Valley Parkway	Traffic calming: Narrow lane width with striping	No	Bacon St btwn E & W intersections w/ MV Parkway	229762.26	910455.76	CS Needs Assessment	S17	X	X	X	X	X	X		n/a	\$10,000	\$0	\$10,000	1	September 2017

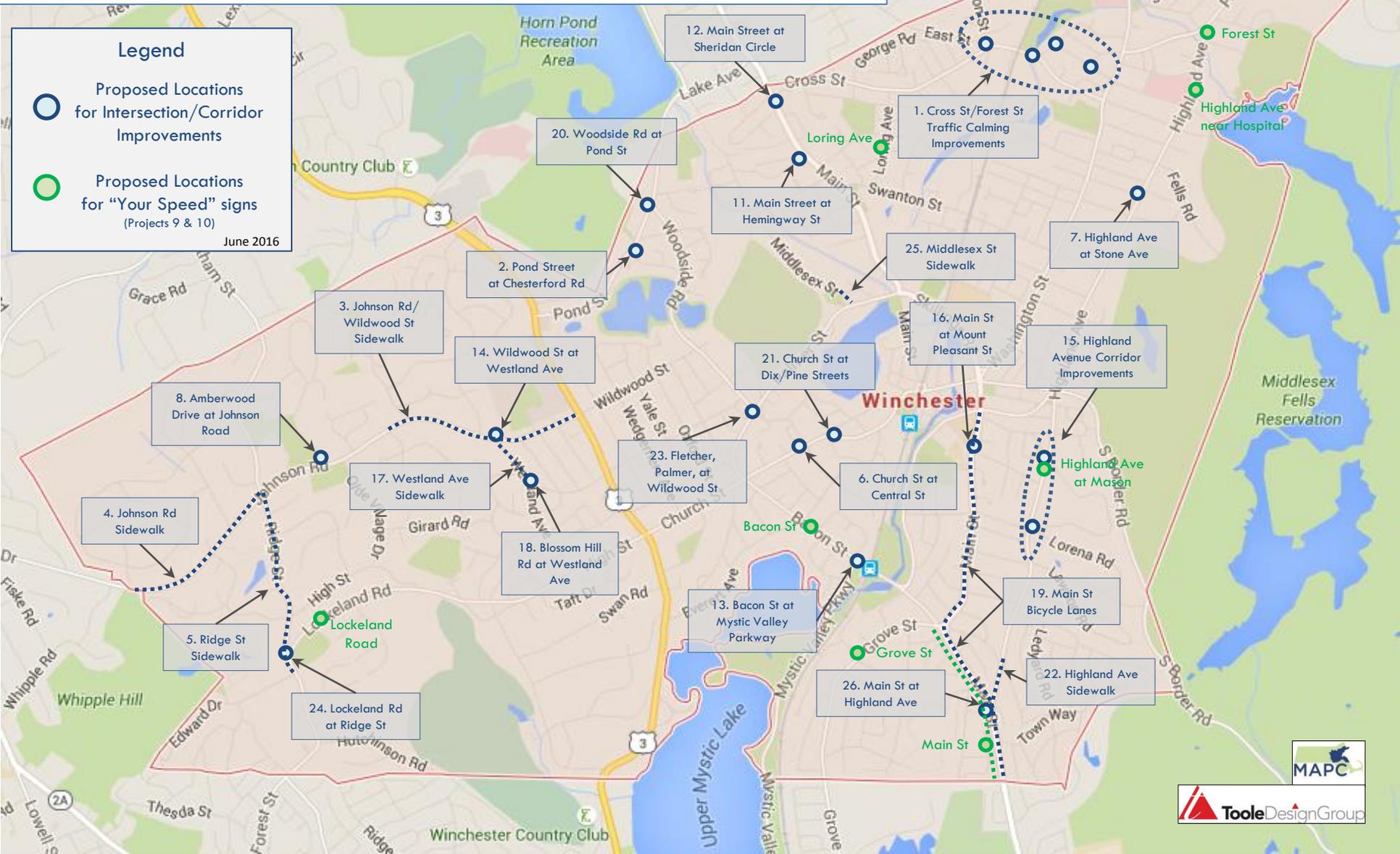
COMPLETE STREETS IN WINCHESTER



Legend

- Proposed Locations for Intersection/Corridor Improvements
- Proposed Locations for "Your Speed" signs (Projects 9 & 10)

June 2016



COMPLETE STREETS IN WINCHESTER

Memorandum: Complete Streets Prioritization Plan Methodology

I | Summary

The Town of Winchester's Complete Streets Prioritization Plan is informed by a process of stakeholder engagement, an analysis of the Town's existing conditions, and application of weighted Evaluation Criteria. Potential project locations were identified through previous public meetings, Town priorities, and MAPC's "Planning for Active Streets Tool (PAST)," a geospatial tool that conducts community-level analyses of transportation network gaps and utility. Once identified, these project sites were visited and evaluated in the field by the project engineering consultant, Toole Design Group. Recommendations and cost estimates for each site were prepared. Finally, the Evaluation Criteria were applied to each project in order to rank the projects and create the Town's Complete Streets Prioritization Plan.

II | Stakeholder Engagement Process

Identification of project locations and proposals was informed by a two-part stakeholder engagement process. First, a Working Group meeting was convened at Winchester Town Hall on April 15, 2016. There were eight Town staff members in attendance, with representatives including the Town Engineer, the Assistant Town Engineer, the Town Planner, the Director of the Department of Public Works, the Town Safety Officer, the Town Manager, and MAPC staff.

The Working Group collaboratively identified 11 priority areas and eight additional areas of concern within the Town. Recommendations were framed based on previous applications for funding through the Safe Routes to School grant program, previous traffic studies, and complaints and suggestions from local residents. The Working Group also decided upon the four Evaluation Criteria used to determine the order of the Prioritization Plan.

The second part of the stakeholder engagement process included a meeting with resident bicycle and pedestrian stakeholders on April 21, 2016. The purpose of this meeting was to identify opportunities to increase connectivity and safety for the Town of Winchester's pedestrians and many cyclists. There are multiple cyclist groups in the Town, including a sport riding group, supporters of the forthcoming Tri-Community Bike Way, and 'Friends of the Fells,' supporters of the local Middlesex Fells reservation. Increasing safety and creating connections near recreational areas and along major commuting corridors were identified as primary interests.

III | Planning Active Streets Tool (PAST)

PAST is designed to map the utility of pedestrian and cyclist infrastructure at the community level. Results of the PAST analysis were used to identify the areas in Winchester demonstrating high demand for bicycle and pedestrian infrastructure.

PAST was used to identify the high, moderate, and low utility roads (as determined by population density, traffic, and proximity to services such as schools, businesses, and transit) as well as the availability of sidewalks for pedestrians. Of major concern are high-utility roads that have no sidewalks. The result was a map of the gaps in sidewalk infrastructure throughout Winchester. PAST was also used to determine roadway utility for cyclists. Using the same criteria (population density, proximity to services, and traffic), Winchester's streets were classified based on lowest, low, moderate, high and highest utility for cyclists and mapped in a comprehensive bike utility map.

IV | Site Visits

Toole Design Group engineers, accompanied by MAPC staff and the Town's Engineer, Planner, Safety Officer and Director of the Department of Public Works, visited proposed project locations in Winchester on May 4, 2016.

This fieldwork provided the consultants with an opportunity to observe the sites, evaluate the concerns posed by cycling advocates and Town staff, note and measure existing conditions, and develop initial suggestions for possible interventions. Toole Design Group consultants then utilized these field notes and feedback from the stakeholder engagement process to create specific recommendations and cost estimates for each project.

A number of additional locations had previously undergone design and review processes as part of previous traffic studies and grants (such as the Town's Safe Routes to School grant proposal), and those designs were included in the Prioritization Plan, if appropriate.

V | Evaluation Criteria

The Evaluation Criteria used to rank projects in the Prioritization Plan was selected by the Working Group at their April 15, 2016 meeting. The selected criteria, weighted equally, include the following categories: Demand, Safety, Constraints, and Stakeholder Input. The tables in Appendix A provide detail on the ranking process for all factors within each of the Evaluation Criteria.

Each of the Evaluation Criteria is weighted equally at 25% each. There were a total of 28 points available for the Demand criterion, 9 total points for Safety, a total of 12 points for Constraints, and a total of 6 points for Stakeholder Input. Each project was evaluated according to the weighting schemes detailed above for each of the Criteria. For each category, total points received by a project was divided by the total points available and multiplied by 25%. These four weighted values were then added together to determine a project's final score and ranking within the Prioritization Plan.

VI | Final Submission

The final ranking from the Evaluation Criteria determined the order of projects on the Prioritization Plan. However, some projects cannot be completed within the timeframe of the Massachusetts Complete Streets Funding Program. Therefore, some lower-ranking projects were submitted for funding from MassDOT, although the Town intends to complete the higher-ranking and unfunded projects with Town funds.

The Prioritization plan was submitted to MassDOT on May 16, 2016, and requests \$400,000 for the following projects:

1. Cross Street/Forest Street Traffic Calming Improvements	\$260,000
2. Pond Street at Chesterford Road	\$15,100
3. Johnson Road/Wildwood Street Sidewalk	no funding requested*
4. Johnson Road Sidewalk	no funding requested*
5. Ridge Street Sidewalk	no funding requested*
6. Church Street at Central Street	\$67,300
7. Highland Avenue at Stone Avenue	\$15,000
8. Amberwood Drive at Johnson Road	\$15,000
9. "Your Speed" signs at 8 locations	\$27,600**

*Due to construction Timeline

**The total cost for this project is \$56,000, and the balance will be funded by the Town

Appendix A

Evaluation Criteria Weighting Scheme: Demand		
Factor	Rank	Description
Bike Utility	0	Lowest Bike Utility
	1	Low Bike Utility
	2	Moderate Bike Utility
	3	High Bike Utility
	4	Highest Bike Utility
Sidewalk Gap	0	No Impact: Sidewalks on 1 or Both Sides
	1	No Sidewalks on a Low Utility Road
	2	No Sidewalks on a Moderate Utility Road
	3	No Sidewalks on a High Utility Road
Strava Heat Map: Current Use	0	No Impact
	1	Some Use (Green)
	2	Moderate Use (Yellow)
	3	High Use (Red)
Proximity to Parks, Trails and Recreation	0	No Impact
	1	Less than 0.75 mi from nearest park, trail or recreational facility
	2	Less than 0.5 mi from nearest park, trail or recreational facility
	3	Less than 0.25 mi from nearest park, trail or recreational facility
Proximity to Transit Stations	0	No Impact
	1	Less than 0.75 mi from nearest transit station
	2	Less than 0.5 mi from nearest transit station
	3	Less than 0.25 mi from nearest transit station
Connected to Complete Streets Projects in Surrounding Communities	0	No Impact
	3	Connects to CS project in neighboring community
Proximity to Schools	0	No Impact
	1	Less than 0.75 mi from nearest school
	2	Less than 0.5 mi from nearest school
	3	Less than 0.25 mi from nearest school
Proximity to Hospital	0	No Impact
	1	Less than 0.75 mi from Winchester Hospital
	2	Less than 0.5 mi from Winchester Hospital
	3	Less than 0.25 mi from Winchester Hospital

Evaluation Criteria Weighting Scheme: Safety		
Factor	Rank	Description
Addresses a Roadway with High Vehicular Speeds	0	No Impact
	1	Low Speeds
	2	Moderate Speeds
	3	High Speeds
Area has High Levels of Pedestrians and Traffic	0	No Impact
	3	High-Traffic Location
Addresses Sight Distance Issues	0	No
	3	Yes

Evaluation Criteria Weighting Scheme: Stakeholder Input		
Factor	Rank	Description
Town Staff Priority	0	No Impact/Low Priority
	1	Moderate Priority
	2	High Priority
	3	Highest Priority
Public Priority	0	No Impact/ Low Priority
	1	Moderate Priority
	2	High Priority
	3	Highest Priority

Evaluation Criteria Weighting Scheme: Constraints		
Factor	Rank	Description
Affordable Projected Design and Construction Costs	0	Construction cost exceeds \$400,000 and no supplemental funds available
	1	Construction cost exceeds \$400,000; supplemental funds available
	2	Affordable construction cost; additional design needed
	3	Affordable construction cost; no additional design needed
Design and Construction can be Completed by June 2017	0	Construction timeline exceeds one year
	3	Construction timeline is within one year
Located within Town Jurisdiction and on Town-Owned Roadways	0	Not located within Town jurisdiction and on Town-owned roadways
	1	Intersects with a roadway not owned by Town; Project requires significant collaboration with other entity
	2	Intersects with a roadway not owned by Town; Project does not require significant collaboration with other entity
	3	Located within Town jurisdiction and on Town-owned roadways
Conflicts with Projects already in the Pipeline	0	Conflicts with project in the pipeline
	1	Collocated with a pre-existing project; significant conflicts expected
	2	Collocated with a pre-existing project; no significant conflicts expected
	3	No conflict



COMPLETE STREETS IN WINCHESTER

Project Location	Project Proposal	Rank	DEMAND			SAFETY			CONSTRAINTS			STAKEHOLDER INPUT		
			Points	Total	Score	Points	Total	Score	Points	Total	Score	Points	Total	Score
Cross St/Forest St Traffic Calming Improvements <i>Forest Street at Cross Street</i> <i>Forest Street at Brookside Road</i> <i>Forest Street at Clematis Road</i> <i>Holton Street at Cross Street</i>	Intersection Improvements at 4 locations <i>New sidewalks, ADA-compliant ramps, new pavement markings</i> <i>Realign intersection; new sidewalks; ADA-compliant ramps</i> <i>Realign intersection; new sidewalks; ADA-compliant ramps</i> <i>Realign intersection; new sidewalks; ADA-compliant ramps</i>	0.84	10	28	0.09	9	9	0.25	12	12	0.25	6	6	0.25
Pond Street at Chesterford Road	Install RRFB, tactical warning pad at trail entrance	0.78	13	28	0.12	9	9	0.25	12	12	0.25	4	6	0.17
Johnson Rd/Wildwood St (Bigelow Av - Cambridge St)	Sidewalk improvements; ADA-compliant ramps	0.78	13	28	0.12	9	9	0.25	12	12	0.25	4	6	0.17
Johnson Road (Ridge Street to Berkshire Drive)	Sidewalk improvements; ADA-compliant ramps	0.78	13	28	0.12	9	9	0.25	12	12	0.25	4	6	0.17
Ridge Street (Johnson Road to Pepper Hill Drive)	Sidewalk improvements; ADA-compliant ramps	0.78	13	28	0.12	9	9	0.25	12	12	0.25	4	6	0.17
Church Street at Central Street	Curb extensions, RRFB, crosswalks, ADA ramps, pavement markings	0.76	10	28	0.09	9	9	0.25	12	12	0.25	4	6	0.17
Highland Avenue at Stone Avenue	Install RRFB	0.76	10	28	0.09	9	9	0.25	12	12	0.25	4	6	0.17
Amberwood Drive at Johnson Road	Install RRFB	0.76	10	28	0.09	9	9	0.25	12	12	0.25	4	6	0.17
Install 'Your Speed' Signs at 8 Locations <i>Bacon Street</i> <i>Highland Avenue near Winchester Hospital</i> <i>Loring Avenue</i> <i>Lockeland Road</i> <i>Highland Avenue at Mason Street</i> <i>Main Street from Medford Line to Symmes Corner</i> <i>Forest Street near Highland Avenue</i> <i>Grove Street</i>	"Your Speed" signs at 8 locations	0.74	24	28	0.21	6	9	0.17	9	12	0.19	4	6	0.17
Main Street at Hemingway Street (at 955 Main Street)	Curb extensions, RRFB, ADA-compliant ramps	0.71	5	28	0.04	9	9	0.25	12	12	0.25	4	6	0.17
Main Street at Sheridan Circle (at 1021 Main Street)	Curb extensions, RRFB, ADA-compliant ramps, relocate catch basin	0.69	3	28	0.03	9	9	0.25	12	12	0.25	4	6	0.17
Bacon Street at Mystic Valley Parkway	Install 'Your Speed' signs, painted buffer	0.68	15	28	0.13	6	9	0.17	10	12	0.21	4	6	0.17
Wildwood Street at Westland Avenue	Tighten intersection, install sidewalks, crosswalks, ADA-compliant ramps	0.65	11	28	0.10	5	9	0.14	12	12	0.25	4	6	0.17
Highland Avenue Corridor Improvements (Mason St & Prospect St)	Curb extensions, crosswalk, 'Your Speed' signs, ADA-compliant ramps; optical speed bar pavement markings	0.65	7	28	0.06	6	9	0.17	12	12	0.25	4	6	0.17
Main Street at Mount Pleasant Street (McCall Middle School)	Curb extensions, ADA-compliant ramps, relocate catch basin and ADA-accessible parking	0.64	9	28	0.08	5	9	0.14	12	12	0.25	4	6	0.17
Westland Avenue from Blossom Hill Rd to Wildwood St (Ambrose & Vinson-Owen School)	New sidewalks	0.62	7	28	0.06	5	9	0.14	12	12	0.25	4	6	0.17
Blossom Hill Road at Westland Avenue	Curb extensions, crosswalk, sidewalks, ADA-compliant ramps	0.62	7	28	0.06	5	9	0.14	12	12	0.25	4	6	0.17
Main Street Bicycle Lanes (Medford Line to Town Center)	Stripe bicycle lanes and on-street parking lanes	0.61	12	28	0.11	3	9	0.08	12	12	0.25	4	6	0.17
Woodside Road at Pond Street	Reconstruct curbs, new crosswalk, stop bar, and ADA ramps	0.57	13	28	0.12	3	9	0.08	12	12	0.25	3	6	0.13
Church Street at Dix and Pine Streets	Realign intersection; new sidewalks; ADA-compliant ramps	0.57	11	28	0.10	5	9	0.14	12	12	0.25	2	6	0.08
Highland Avenue Sidewalk (Everell Ave to Main St)	New sidewalks	0.57	10	28	0.09	3	9	0.08	11	12	0.23	4	6	0.17
Fletcher, Palmer, and Wildwood Street Intersection	ADA-compliant ramps	0.57	12	28	0.11	3	9	0.08	10	12	0.21	4	6	0.17
Lockeland Road at Ridge Street	Realign intersection, new sidewalks, crosswalk and ADA ramps	0.56	9	28	0.08	6	9	0.17	9	12	0.19	3	6	0.13
Middlesex Street from Lake Street to Fairfield Place	New sidewalks, ADA-compliant ramps	0.48	9	28	0.08	3	9	0.08	11	12	0.23	2	6	0.08
Main Street at Highland Avenue	Realign intersection; new sidewalks; ADA-compliant ramps	0.36	10	28	0.09	3	9	0.08	9	12	0.19	0	6	0.00



Project 1. Cross Street/Forest Street Traffic Calming Improvements (1 of 4)

Forest Street at Cross Street

Proposed Project:

- Install new sidewalks
- Reconstruct Ramps to be ADA-compliant
- Install new signage
- Install new pavement markings

Cost Estimate: \$45,000

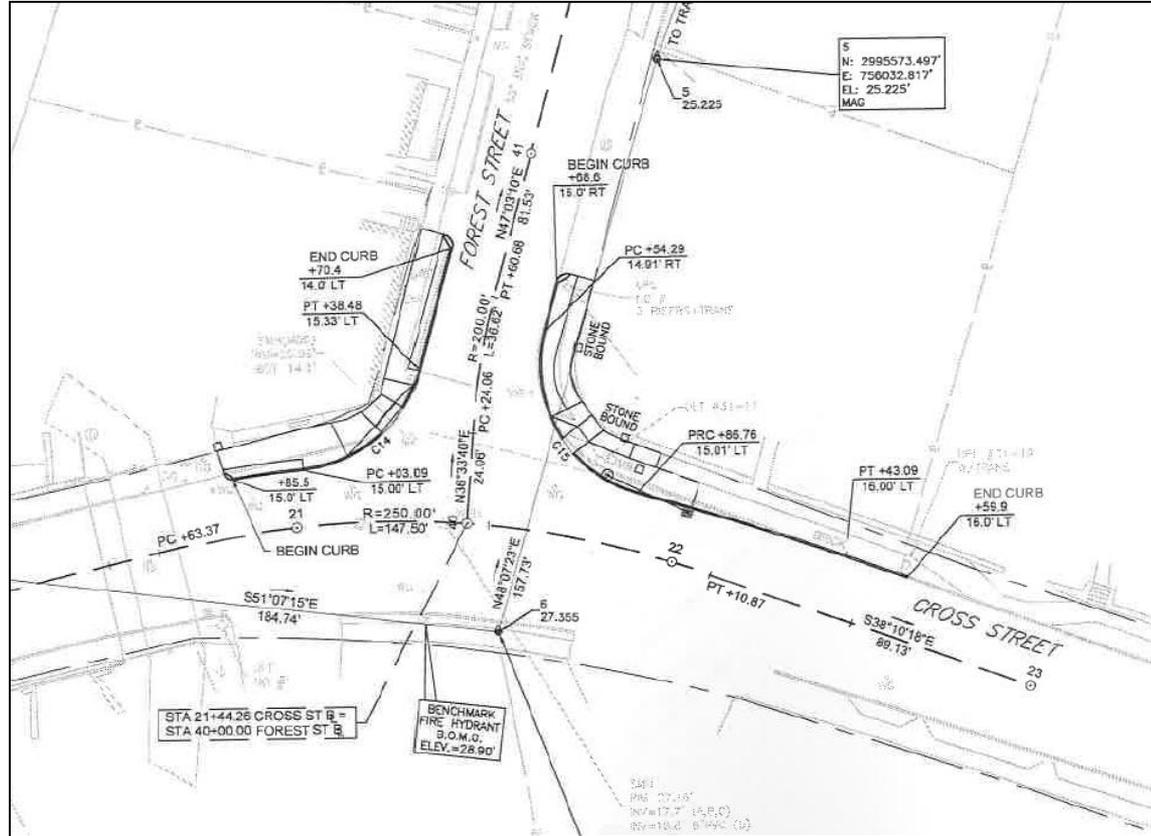
Construction Timeline: 30 days

Additional Design/Study Needed: No

Existing Conditions



Conceptual Plan, designed by VHB (2014)





Project 1. Cross Street/Forest Street Traffic Calming Improvements (3 of 4) Forest Street at Clematis Road

Proposed Project:

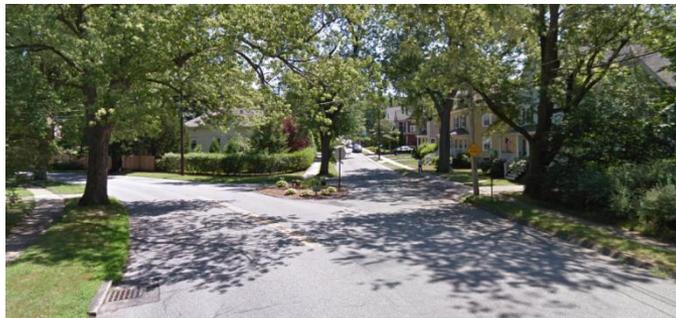
- Realign intersection
- Install new sidewalks
- Reconstruct Ramps to be ADA-compliant
- Install new signage

Cost Estimate: \$85,000

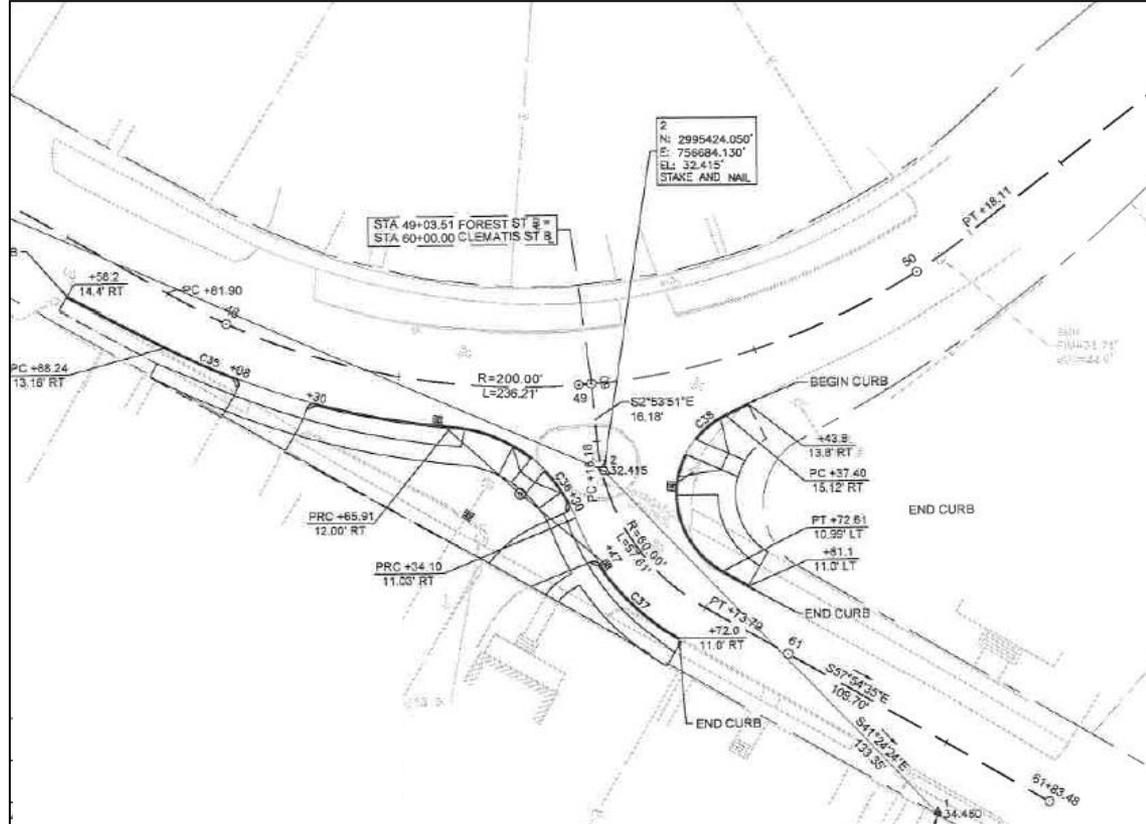
Construction Timeline: 30 days

Additional Design/Study Needed: No

Existing Conditions



Conceptual Plan, designed by VHB (2014)





Project 2. Pond Street at Chesterford Road

Proposed Project:

- Install Rectangular Rapid Flashing Beacon (RRFB) to improve vehicular yielding;
- Install tactile warning pad in front of Rail Trail entrance.
- **Cost Estimate:** \$15,100
 - RRFB: \$15,000
 - Warning pad: \$100
- **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



Proposed
Rectangular Rapid
Flashing Beacon
(Double-sided)

Concept, Cost and Construction Estimate are presented for discussion purposes only.



Project 3. Johnson Rd/Wildwood St Sidewalk (Bigelow Ave to Cambridge St) (Vinson-Owen School)

Proposed Project:

- Reconstruct Sidewalk on Johnson Road/Wildwood Street between Bigelow Avenue and Cambridge Street
- Reconstruct Sidewalks to be ADA-compliant with curbing
- Reconstruct Ramps to be ADA-compliant
- Install new signage

Cost Estimate: \$183,700 (Winchester DPW estimate)

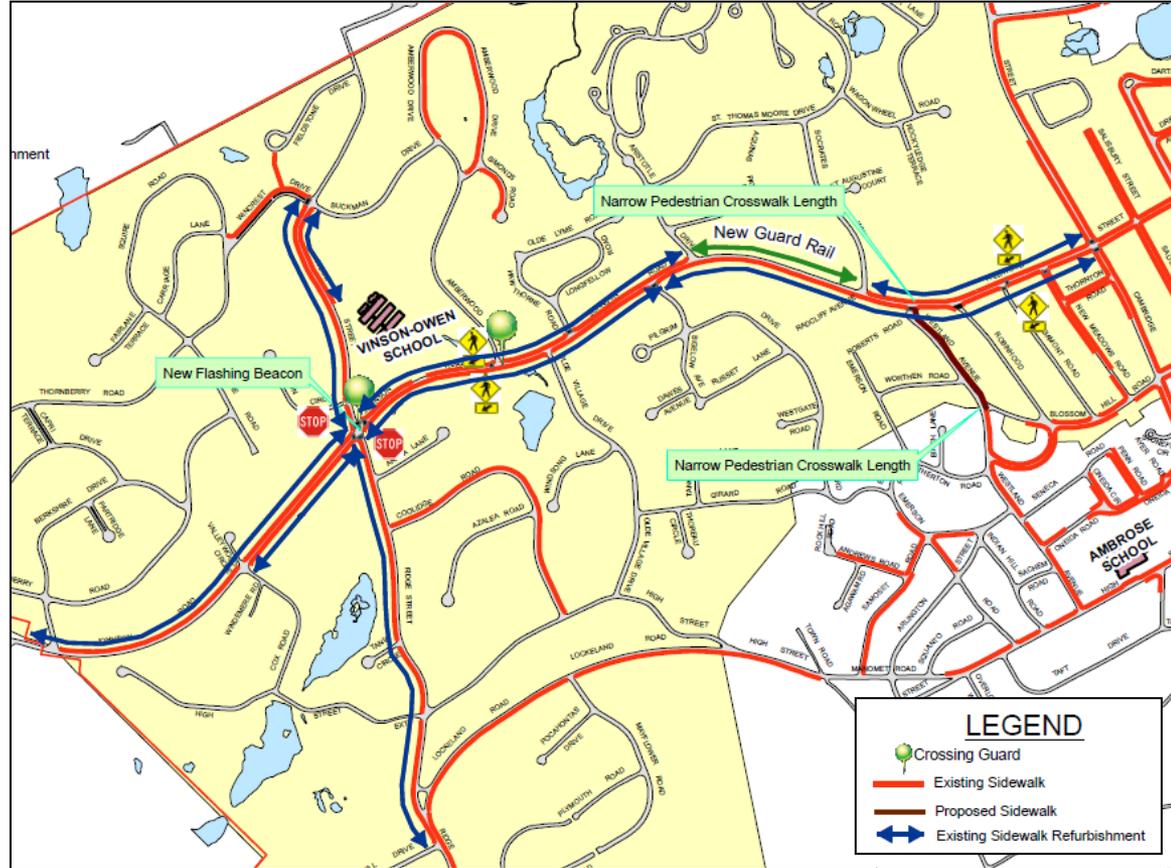
Construction Timeline: 3 months

Additional Design/Study Needed: No

Existing Conditions on Johnson Road:



Conceptual Plan (2013 Safe Routes to School Application)





Project 4. Johnson Road Sidewalk (Ridge Street to Berkshire Drive) (Vinson-Owen School)

Proposed Project:

- Reconstruct Sidewalk on Johnson Road between Ridge Street and Berkshire Drive
- Reconstruct Sidewalks to be ADA-compliant with curbing
- Reconstruct Ramps to be ADA-compliant
- Install new signage

Cost Estimate: \$234,360 (Winchester DPW estimate)

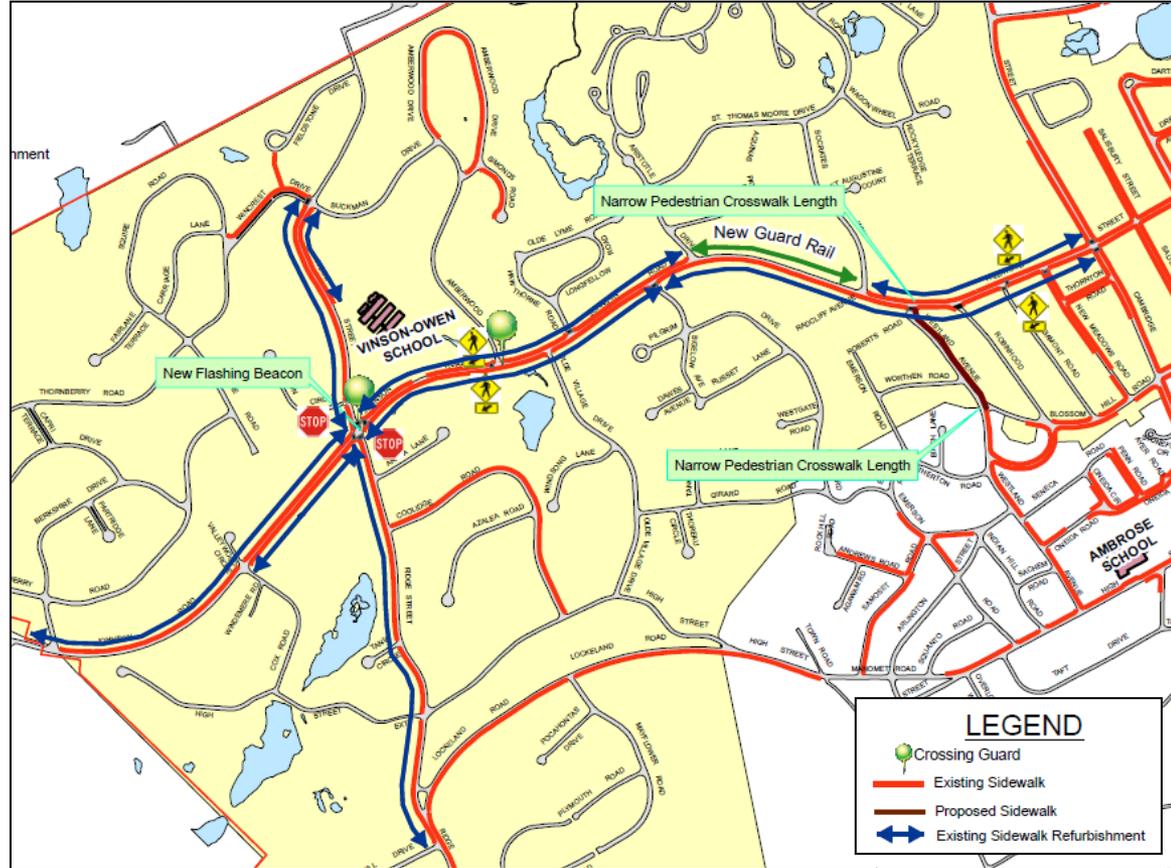
Construction Timeline: 3 months

Additional Design/Study Needed: No

Existing Conditions on Johnson Road:



Conceptual Plan (2013 Safe Routes to School Application)





Project 5. Ridge Street Sidewalk (Johnson Road to Pepper Hill Drive) (Vinson-Owen School)

Proposed Project:

- Reconstruct Sidewalk on Ridge Street between Johnson Road and Pepper Hill Drive
- Reconstruct Sidewalks to be ADA-compliant with curbing
- Reconstruct Ramps to be ADA-compliant
- Install new signage

Cost Estimate: \$171,091 (Winchester DPW estimate)

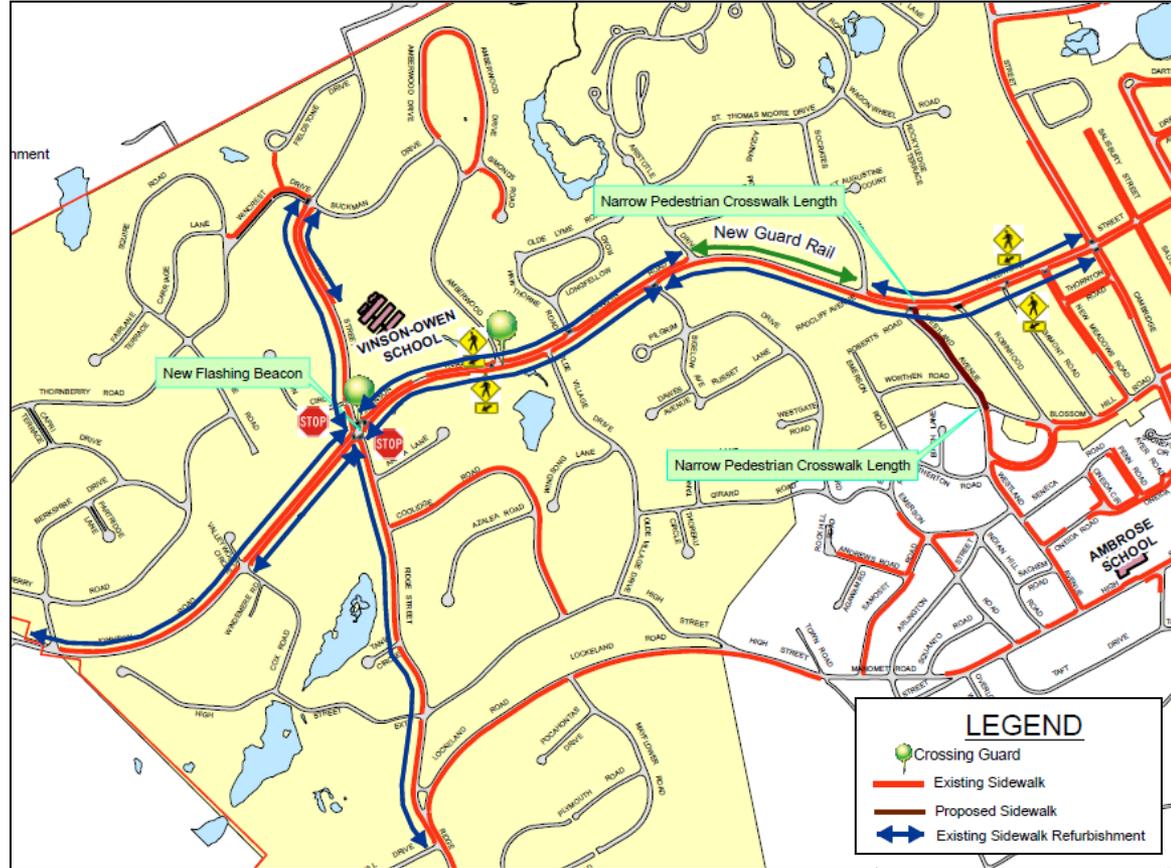
Construction Timeline: 3 months

Additional Design/Study Needed: No

Existing Conditions on Johnson Road:



Conceptual Plan (2013 Safe Routes to School Application)





Project 6. Church Street at Central Street

Proposed Project:

- Construct curb extensions on both ends of the existing western crosswalk across Church Street to shorten crossing distance and increase pedestrian visibility;
- Install Rectangular Rapid Flashing Beacon (RRFB) on both ends of western crosswalk across Church Street to improve vehicular yielding;
- Install crosswalks with ADA-compliant ramps across Lewis Road, Wildwood Street and Central Street;
- Install hatched pavement markings along north side of Church Street between western Church Street crosswalk and Wildwood Street;
- Reconstruct ADA-compliant ramps.
- **Cost Estimate:** \$67,300
 - RRFB: \$15,000
 - Pavement Markings: \$2,300
 - ADA Ramps: \$30,000
 - Curb Extensions: \$20,000
- **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



- Proposed Crosswalks and Curb Ramps (with Tactile Warning Strips)
- Proposed Hatching
- Proposed Tactile Warning Strips
- Proposed Rectangular Rapid Flashing Beacons
- Proposed Crosswalk and Curb Ramps (with Tactile Warning Strips)

Proposed Curb Extensions

Concept, Cost and Construction Estimate are presented for discussion purposes only.





Project 7. Highland Avenue at Stone Avenue

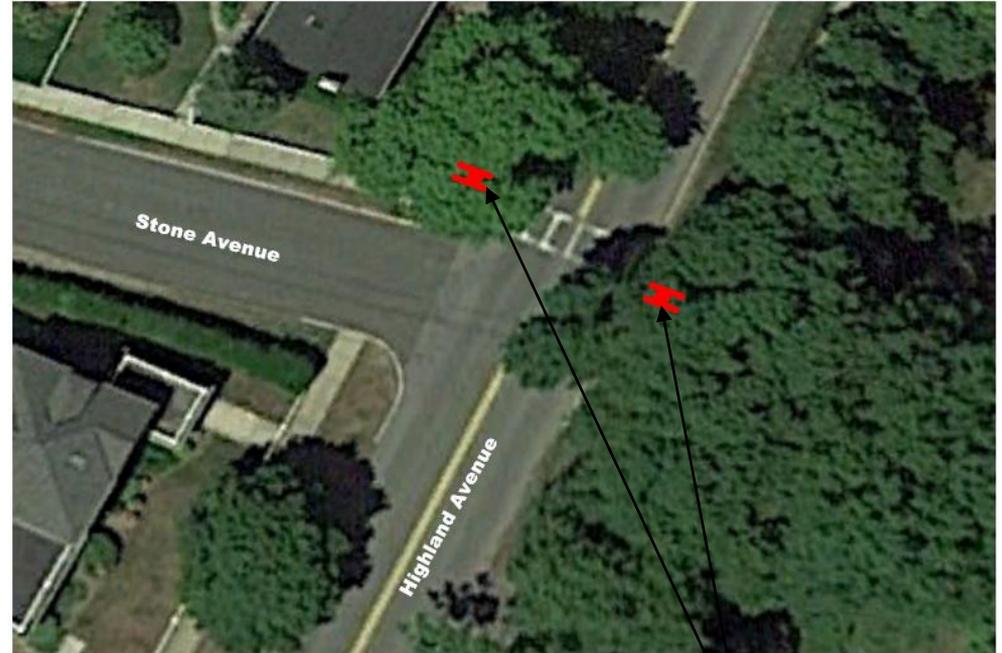
Proposed Project:

- Install Rectangular Rapid Flashing Beacon (RRFB) to improve vehicular yielding.
- **Cost Estimate:** \$15,000
- **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



Concept, Cost and Construction Estimate are presented for discussion purposes only.

Proposed
Rectangular Rapid
Flashing Beacon
(Double-sided)



Project 8. Amberwood Drive at Johnson Road

Proposed Project:

- Install Rectangular Rapid Flashing Beacon (RRFB) to improve vehicular yielding.
- **Cost Estimate:** \$15,000
- **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



Proposed
Rectangular Rapid
Flashing Beacon
(Double-sided)

Concept, Cost and Construction Estimate are presented for discussion purposes only.



Projects 9 & 10. Install “Your Speed” signs at 8 Locations

Proposed Project:

- Install “Your Speed” signs at 7 locations:
 - Bacon Street
 - Highland Ave at Mason Street
 - Loring Avenue
 - Lockeland Road
 - Highland Avenue near Winchester Hospital
 - Main Street between Medford Line and Symmes Corner
 - Forest Street before Highland Avenue
 - Grove Street

Cost Estimate: \$56,000 (assuming one sign in each direction x 8 locations)

Construction Timeline: 30 days

Additional Design/Study Needed: Preferred sign design and exact locations for signs need to be identified

Example



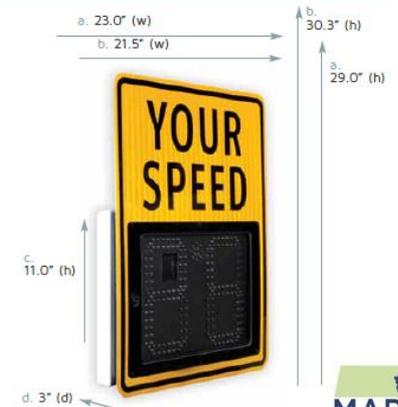
Examples



Specifications:

Dimensions:

- a. Sign size with full “Your Speed” sign plate:
23.0” (w) x 29.0” (h)
 - b. Sign size with foldable “Your Speed” sign plate:
21.5” (w) x 30.3” (h)
 - c. Digit height: 11.0”
 - d. Sign depth: 3.0”
- Sign weight: 21.0 lbs with AC Power
Protective aluminum casing thickness: 0.25”
Range: Up to 300-400 ft
Power supply: AC Power (standard),
Battery or Solar Power Optional
Operating temperature: -40°F to 185°F





Project 11. Main Street at Hemingway Street (at 955 Main Street)

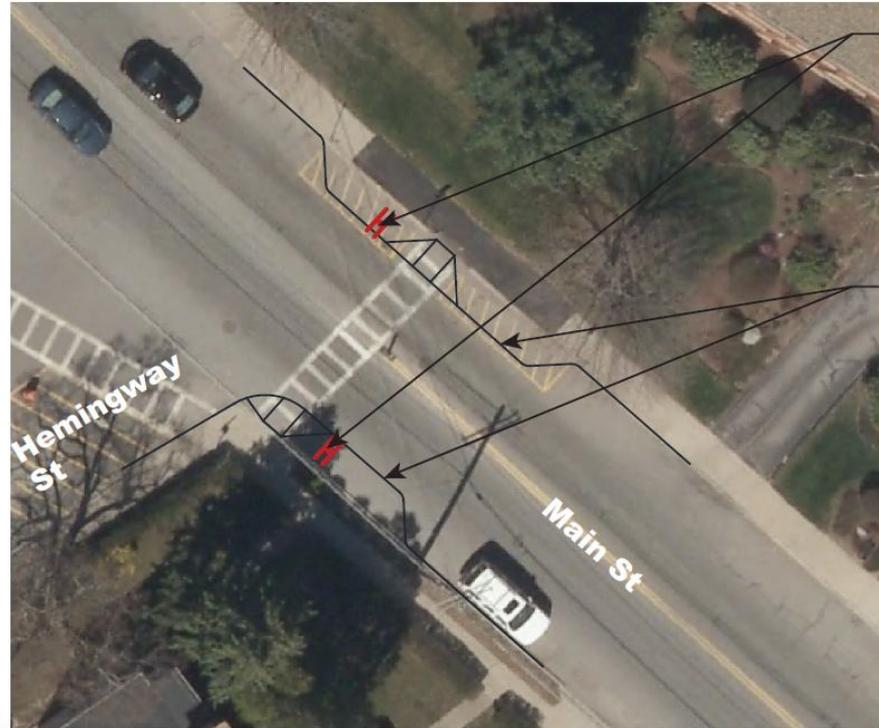
Proposed Project:

- Construct curb extensions on both ends of the existing crosswalk across Main Street to shorten crossing distance and increase pedestrian visibility;
- Install Rectangular Rapid Flashing Beacon (RRFB) to improve vehicular yielding;
- Reconstruct ADA-compliant ramps.
- **Cost Estimate:** \$41,700
 - RRFB: \$15,000
 - Pavement Markings: \$700
 - ADA Ramps: \$6,000
 - Curb Extensions: \$20,000
- **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



Proposed
Rectangular
Rapid Flashing
Beacons

Proposed
Curb
Extensions

Concept, Cost and Construction Estimate are presented for discussion purposes only.



Project 12. Main Street at Sheridan Circle (at 1021 Main Street)

Proposed Project:

- Construct curb extensions on both ends of the existing crosswalk across Main Street to shorten crossing distance and increase pedestrian visibility;
- Install Rectangular Rapid Flashing Beacon (RRFB) to improve vehicular yielding;
- Relocate catch basin on west side of Main Street crosswalk;
- Reconstruct ADA-compliant ramps.
- **Cost Estimate:** \$44,700
 - RRFB: \$15,000
 - Pavement Markings: \$700
 - Relocate Catch Basin: \$3,000
 - ADA Ramps: \$6,000
 - Curb Extensions: \$20,000
- **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



Proposed Curb Extension

Proposed RRFBs

Proposed Curb Extension

Existing telephone poles block pedestrians from drivers' view



Project 13. Bacon Street at Mystic Valley Parkway

Proposed Project:

- Install 2-foot painted buffer between on-street parking and Bacon Street travel lanes.
- **Cost Estimate:** \$10,000
 - Pavement Markings: \$10,000
- **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



- Proposed Dynamic Speed Feedback Sign
- Proposed Crosswalk Improvements, to include Bulb-outs, Done by Others
- Potential Cross Section for Bacon (includes 2' Painted Buffer between Parking and Travel Lanes)
- Proposed Dynamic Speed Feedback Sign
- Tri-community Bikeway





Project 14. Wildwood Street at Westland Avenue (Ambrose & Vinson-Owen School)

Proposed Project:

- Reconstruct curbs on both sides of Westland Avenue approach at Wildwood Street intersection to tighten intersection, shorten crossing distance across Westland Avenue and lower vehicle turning speeds;
- Install new crosswalk across realigned Westland Avenue approach;
- Install new stop bar for realigned Westland Avenue approach;
- Install sidewalk along northbound direction of Westland Avenue to connect with existing sidewalk provided along Wildwood Street;
- Reconstruct ADA-compliant ramps.
- **Cost Estimate:** \$57,000
 - Pavement Markings: \$1,000
 - ADA Ramps: \$6,000
 - Curb Extensions: \$50,000
- **Construction Timeline:** 60 days

Existing Conditions:



Conceptual Plan:



Proposed Curb Realignment to Tighten Intersection

Proposed Shortened Crosswalk with Curb Ramps and Tactile Warning Strips

Proposed Relocated Stop Line and Centerline

Proposed Curb Realignment to Tighten Intersection

Proposed Sidewalk to Connect to Existing on Wildwood Street

Concept, Cost and Construction Estimate are presented for discussion purposes only.

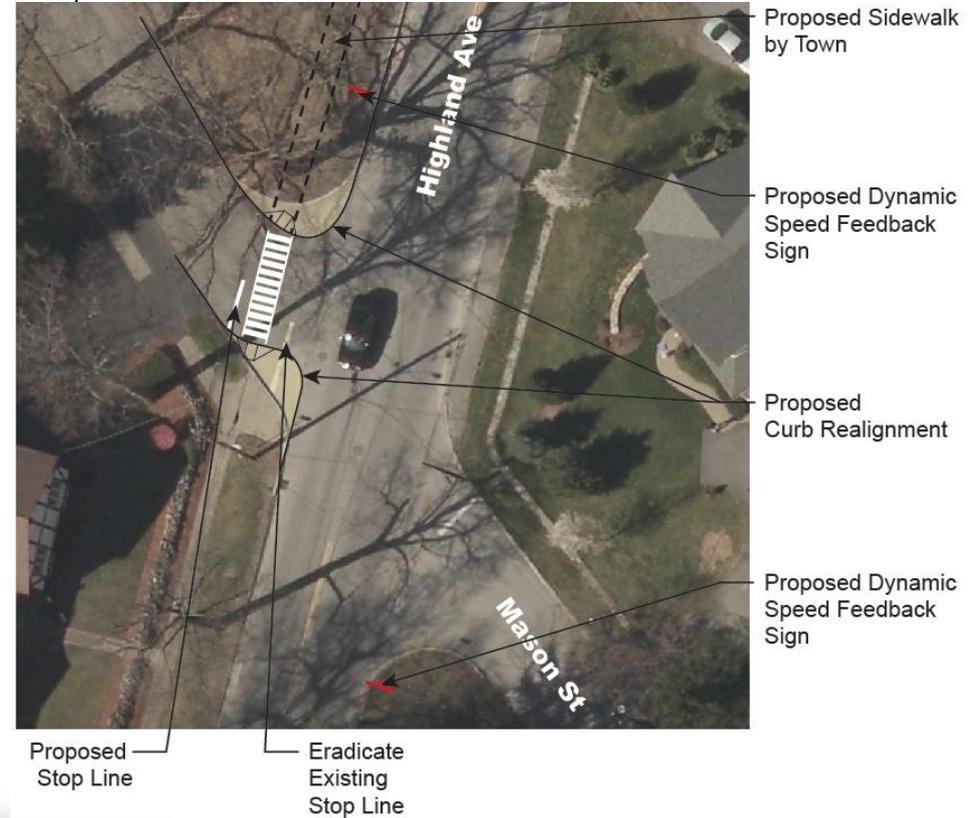


Project 15. Highland Avenue Corridor Improvements (1 of 2)

Proposed Project:

- Construct curb extensions on both sides of Mason Street southeast bound approach Highland Avenue to tighten and realign intersection;
- Install new crosswalk across realigned Mason Street southeast bound approach;
- Construct ADA-compliant ramps.
- **Cost Estimate:** \$37,000
 - Pavement Markings: \$700
 - ADA Ramps: \$6,000
 - Curb Extensions: \$30,000
 - Signage: \$300
- **Construction Timeline:** 30 days

Conceptual Plan:



Existing Conditions:



Concept, Cost and Construction Estimate are presented for discussion purposes only.



Project 15. Highland Avenue Corridor Improvements (2 of 2)

Proposed Project:

- Install Optical Speed Bars along Highland Avenue in the northbound direction, south of Prospect Street to lower vehicle speeds approaching the Highland Avenue and Prospect Street intersection.
- **Cost Estimate:** \$1,000
 - Pavement Markings: \$1,000
- **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



Proposed Optical Speed Bars based on FHWA Guidelines (Chapter 7)

Concept, Cost and Construction Estimate are presented for discussion purposes only.



Project 16. Main Street at Mt. Pleasant Street (McCall Middle School)

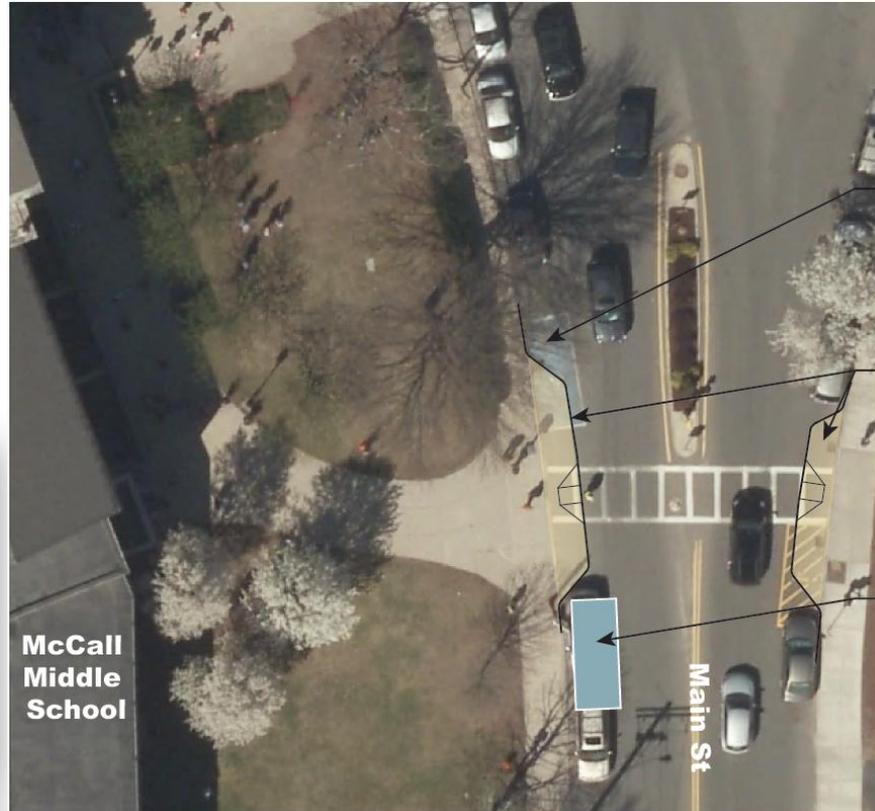
Proposed Project:

- Construct curb extensions on both ends of the existing crosswalk across Main Street to shorten crossing distance and increase pedestrian visibility;
 - Relocate catch basins on east side of Main Street crosswalk;
 - Relocate existing ADA accessible parking space south to other side of existing crosswalk;
 - Reconstruct ADA-compliant ramps.
- **Cost Estimate:** \$32,800
 - Pavement Markings: \$800
 - ADA Ramps: \$6,000
 - Curb Extensions: \$20,000
 - Relocate Catch Basins: \$6,000
 - **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



Concept, Cost and Construction Estimate are presented for discussion purposes only.



Project 17. Westland Avenue from Blossom Hill Road to Wildwood Street (Ambrose & Vinson-Owen School)

Proposed Project:

- Construct new concrete sidewalk along east side of Westland Avenue between Blossom Hill Road and Wildwood Street to connect the existing sidewalks.
- **Cost Estimate:** \$150,000
- **Construction Timeline:** 90 days

Existing Conditions:



Conceptual Plan:



Concept, Cost and Construction Estimate are presented for discussion purposes only.

Proposed Sidewalk



Project 18. Blossom Hill Road at Westland Avenue (Ambrose & Vinson-Owen School)

Proposed Project:

- Construct curb extensions on both sides of Blossom Hill Road approach at Westland Avenue to tighten and realign intersection;
 - Install new crosswalk across realigned Blossom Hill Road approach;
 - Install new stop bar and stop sign for realigned Blossom Hill Road approach;
 - Install sidewalk along northbound direction of Westland Avenue to connect with existing sidewalk provided along Westland Avenue south of Blossom Hill Road;
 - Construct ADA-compliant ramps.
- **Cost Estimate:** \$76,500
 - Pavement Markings: \$500
 - ADA Ramps: \$6,000
 - Curb Extensions: \$40,000
 - Loam and Seed: \$30,000
 - **Construction Timeline:** 60 days

Existing Conditions:



Conceptual Plan:



Proposed Curb Realignment to Tighten Intersection

Proposed Sidewalk to Connect to Existing

Proposed Stop Sign and Stop Line

Proposed Crosswalk with Curb Ramps and Tactile Warning Strips

Proposed Curb Realignment to Tighten Intersection

Concept, Cost and Construction Estimate are presented for discussion purposes only.



Project 19. Main Street Bicycle Lanes (Medford Line to Town Center)

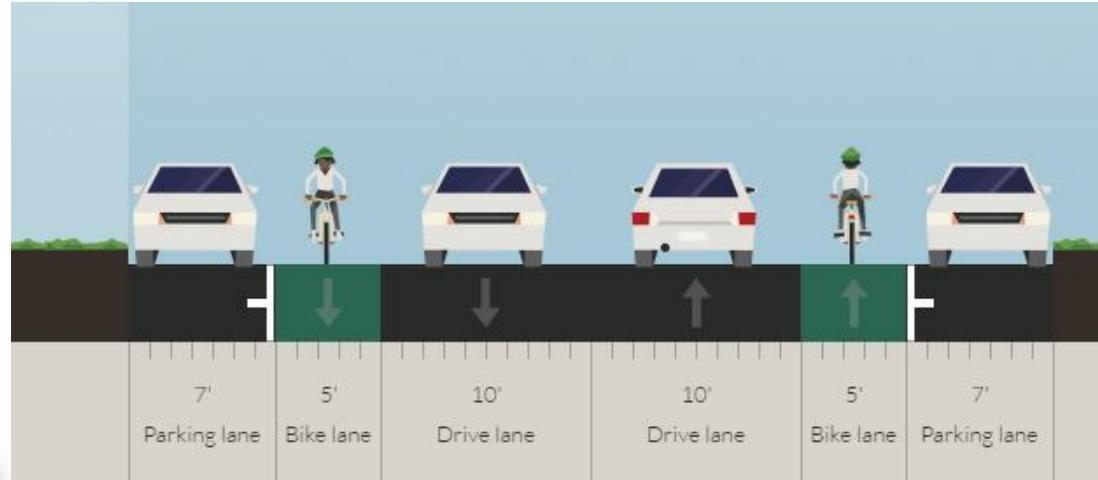
Proposed Project:

- Install bicycle lanes on Main Street – 5-foot bicycle lanes by narrowing the existing travel lanes to 10-foot travel lanes, narrowed locations may consider share lane markings;
- Install on-street parking lanes along both sides of Main Street – 7-foot parallel parking lane to formalize existing on-street parking.
- **Cost Estimate:** \$70,000
- Bicycle lanes: approximately \$50,000 per mile (approximately 1-mile corridor), including associated signage and pavement markings (with on-street parking), contingency for box widening at narrowed locations.
- **Construction Timeline:** 60 days

Existing Conditions:



Conceptual Plan:



Concept, Cost and Construction Estimate are presented for discussion purposes only.



Project 20. Woodside Road at Pond Street

Proposed Project:

- Reconstruct curbs on both sides of Woodside Road approach at Pond Street intersection to tighten intersection, shorten crossing distance across Woodside Road and lower vehicle turning speeds;
- Install new crosswalk across realigned Woodside Road approach;
- Install new stop bar for realigned Woodside Road approach;
- Construct ADA-compliant ramps.
- **Cost Estimate:** \$37,000
 - Pavement Markings: \$1,000
 - ADA Ramps: \$6,000
 - Curb Realignments: \$30,000
- **Construction Timeline:** 30 days

Existing Conditions:



Conceptual Plan:



Proposed Curb Realignment to Tighten Intersection

Proposed Shortened Crosswalk with Curb Ramps and Tactile Warning Strips

Proposed Relocated Stop Line

Proposed Curb Realignment to Tighten Intersection

Concept, Cost and Construction Estimate are presented for discussion purposes only.



Project 21. Church Street at Dix and Pine Streets

Proposed Project:

- Realign intersection
- Install new sidewalks
- Reconstruct Ramps to be ADA-compliant
- Install new signage

Cost Estimate: \$66,000 (FST estimate plus 10%)

Construction Timeline: 30 days

Additional Design/Study Needed: Needs final design and approval

Existing Conditions



Conceptual Plan, designed by FST (2014)





Project 22. Highland Ave Sidewalks (Everell Road to Main Street)

Proposed Project:

- Install new sidewalks

Cost Estimate: \$33,000 (Winchester DPW estimate)

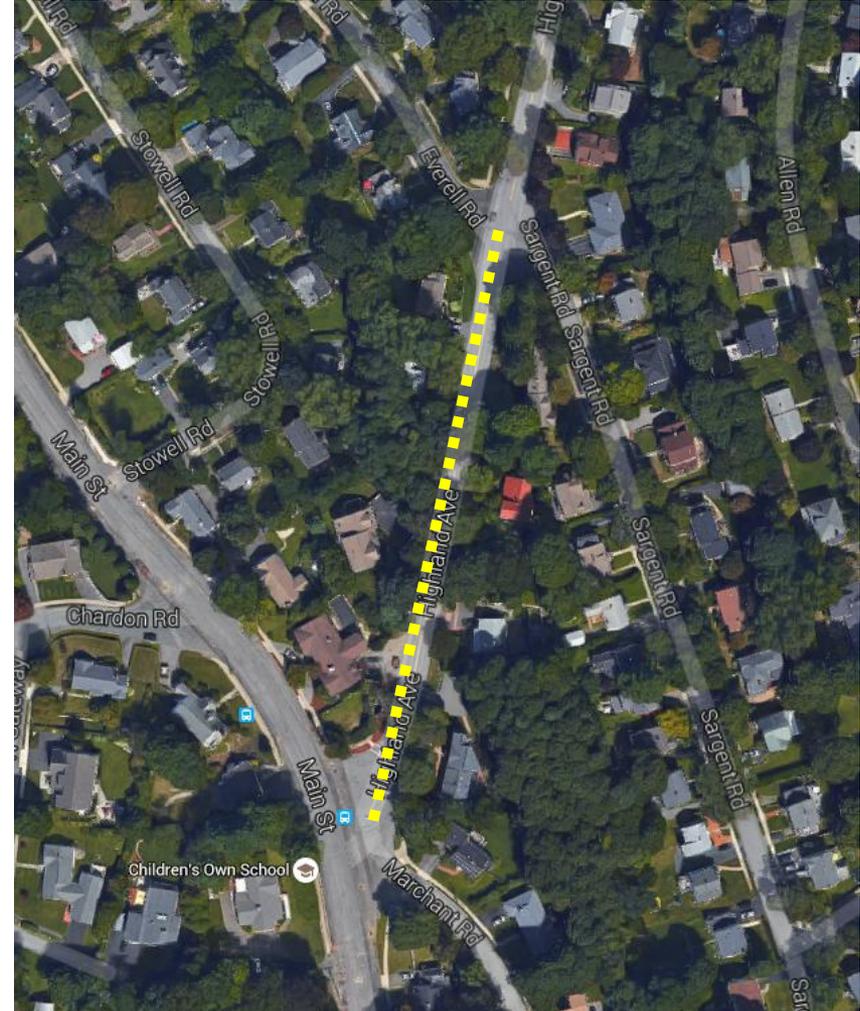
Construction Timeline: 30 days

Additional Design/Study Needed: No

Existing Conditions



Existing Conditions





Project 23. Fletcher, Palmer, & Wildwood Street Intersection

Proposed Project:

- Reconstruct Ramps to be ADA-compliant

Cost Estimate: \$16,000 (Winchester DPW estimate)

Construction Timeline: 30 days

Additional Design/Study Needed: No

Existing Conditions



Existing Conditions





Project 24. Lockeland Road at Ridge Street

Proposed Project:

- Realign Ridge Street and Lockeland Road intersection, removing Lockeland Road segment south of northern Ridge Street intersection;
- Construct sidewalk extension connecting to existing sidewalk along east side of Lockeland Road;
- Install crosswalk across Ridge Street, south of Lockeland Road intersection;
- Construct ADA-compliant ramps.
- **Cost Estimate:** \$67,000
 - Pavement Markings: \$1,000
 - ADA Ramps: \$6,000
 - Sidewalk: \$25,000
 - Decommission of Lockeland: \$35,000
- **Construction Timeline:** 120 days

Existing Conditions:



Conceptual Plan:



Concept, Cost and Construction Estimate are presented for discussion purposes only.



Project 25. Middlesex Street Sidewalk (Lake Street to Fairfield Place)

Proposed Project:

- Install new sidewalks
- Construct Ramps to be ADA-compliant

Cost Estimate: \$40,000 (Winchester DPW estimate)

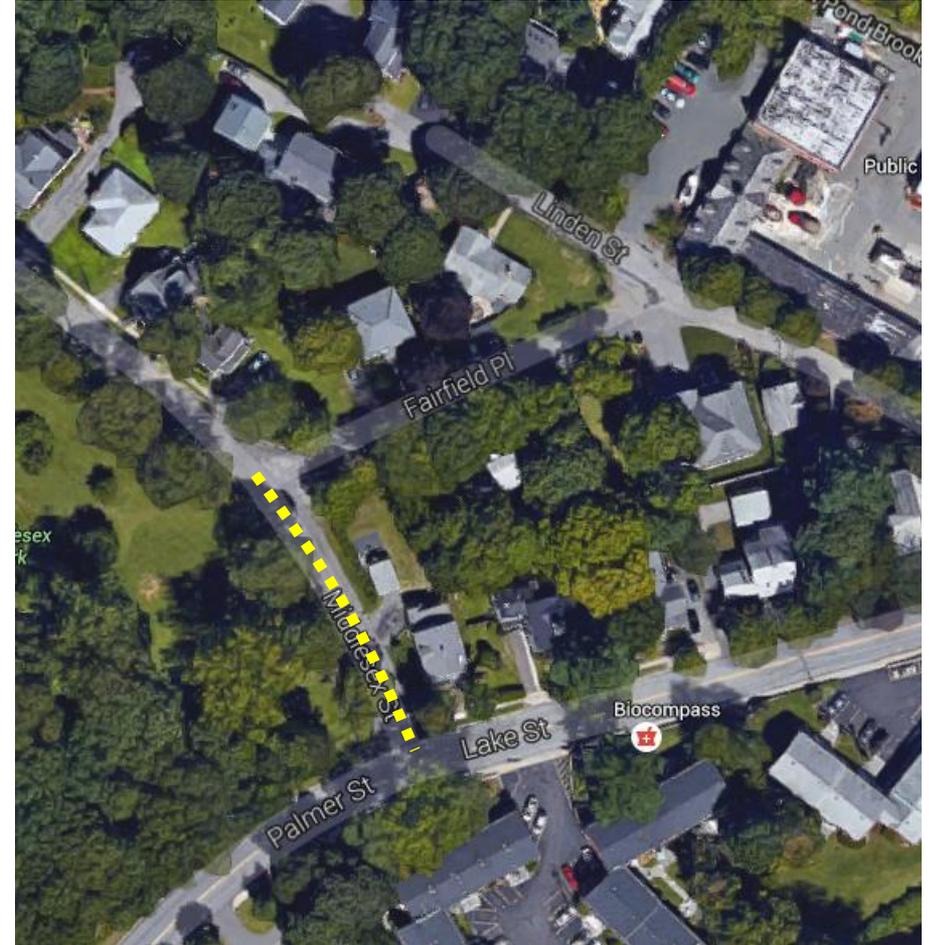
Construction Timeline: 30 days

Additional Design/Study Needed: No

Existing Conditions



Existing Conditions





Project 26. Main Street at Highland Avenue

Proposed Project:

- Realign intersection
- Install new sidewalks
- Reconstruct Ramps to be ADA-compliant
- Install new signage

Cost Estimate: \$75,000 (VHB estimate plus 15%)

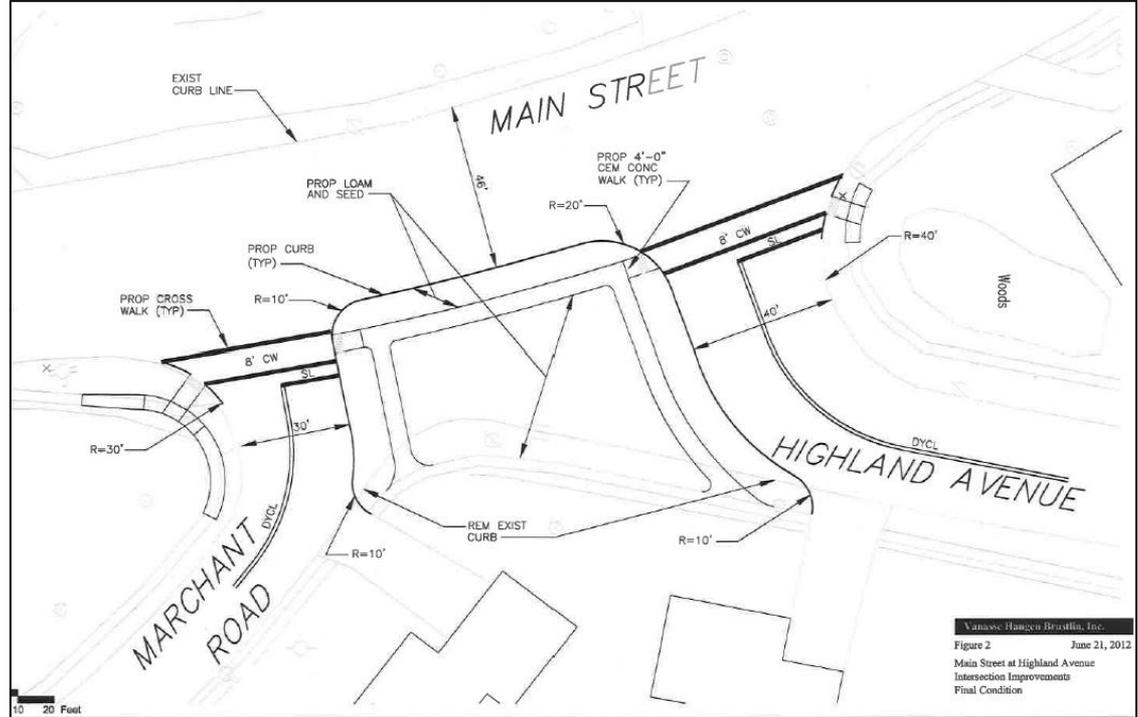
Construction Timeline: 30 days

Additional Design/Study Needed: Needs final design and approval

Existing Conditions



Conceptual Plan, designed by VHB (2012)





Unranked. Shore Road Corridor

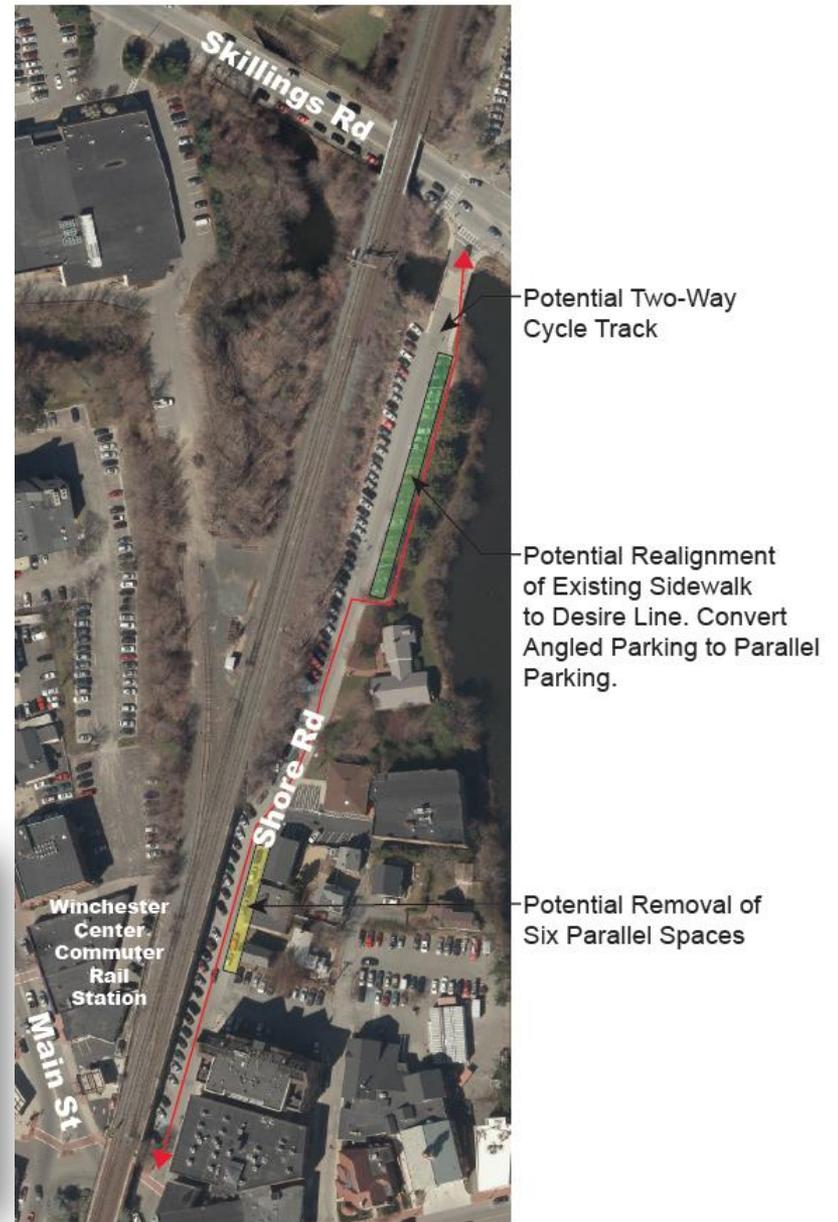
Proposed Project:

- Construct a two-way cycle track along the Shore Road corridor;
- Push out angled parking and convert parallel parking to allow space for two-way cycle track and align with desire line;
- Remove six parallel spaces.
- **Cost Estimate:** \$58,000
 - Two-way cycle track: \$30,000
 - Curb Realignment: \$20,000
 - Pavement Markings for Parking: \$2,000
 - Loam and Seed: \$6,000
- **Construction Timeline:** 160 days

Existing Conditions:



Conceptual Plan:



Concept, Cost and Construction Estimate are presented for discussion purposes only.



Unranked. Johnson Road from Lexington Town Line to Ridge Street

Proposed Project:

- Install bicycle lanes on Johnson Road – 5-foot bicycle lanes by narrowing the existing travel lanes to 10-foot travel lanes;
- Along the frontage of the tennis courts, consideration can be made to providing shared lane markings (sharrows) and “Bicycle May Use Full Lane” signage for this short segment of roadway if there is a desire to maintain on-street parking.
- **Cost Estimate:** \$20,000
- Bicycle lanes: approximately \$40,000 per mile (approximately 0.5-mile corridor), including associated signage and pavement markings (no parking).
- **Construction Timeline:** 45 days

Existing Conditions:



Conceptual Plan:



Concept, Cost and Construction Estimate are presented for discussion purposes only.





Unranked. Church Street at the Commons

Proposed Project:

- Reinstall existing crosswalk utilizing red and white crosswalk pavement markings similar to Town Center crosswalks.
- **Cost Estimate:** \$3,300
- **Construction Timeline:** 30 days

Existing Conditions:



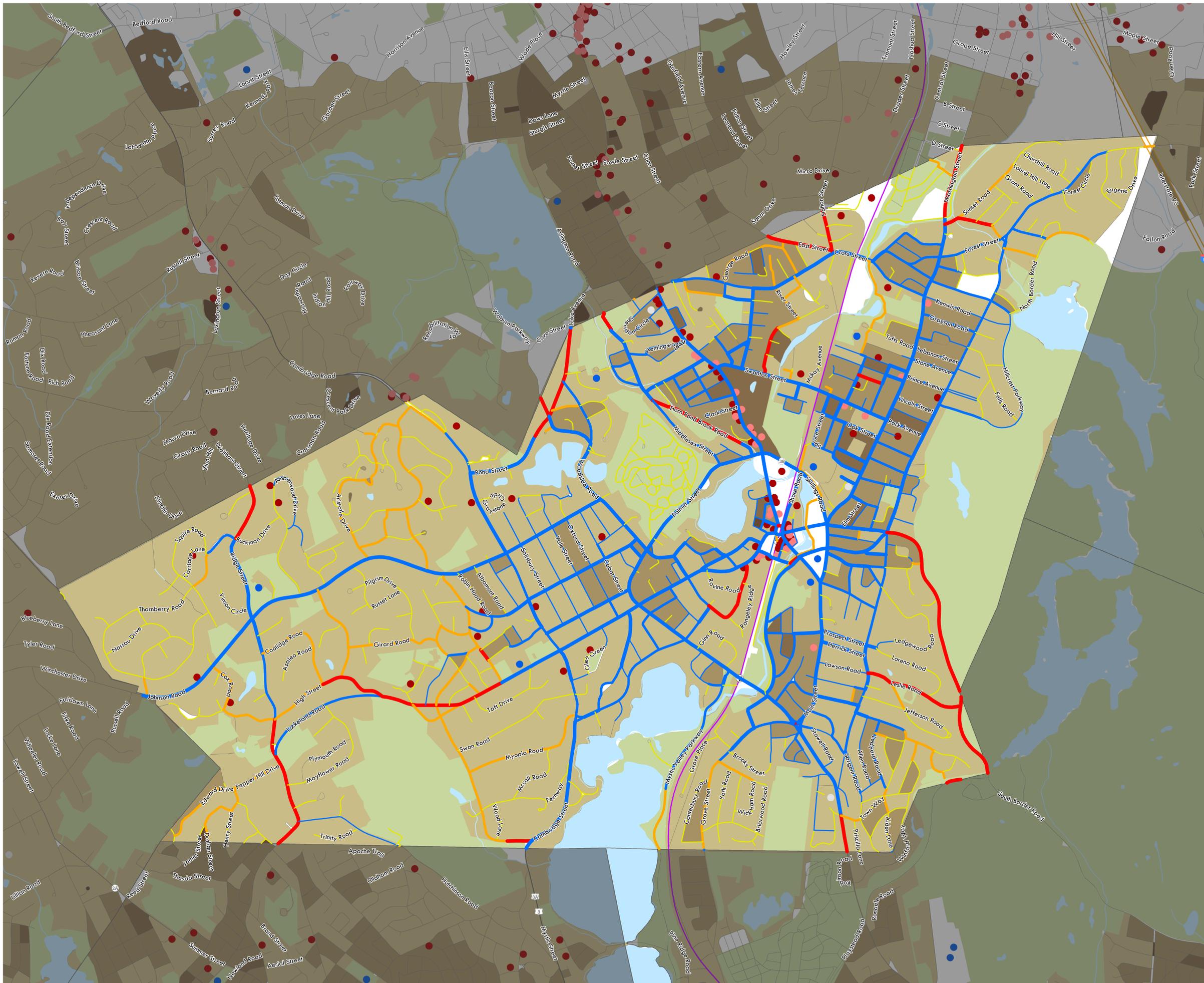
Conceptual Plan:



Concept, Cost and Construction Estimate are presented for discussion purposes only.

Proposed crosswalk

Winchester Utility Scores Sidewalk Gap



Sidewalk

1 or 2 Sides — —

None — —

Utility

High — —

Moderate — —

Low — —

● Restaurants

● Retail Businesses

Schools

● Public

● Other

Ⓣ Commuter Rail Stations

— Operational

Census Blocks (2010)

Residents per Acre

■ 10 or fewer

■ 10 to 20

■ 20 to 35

■ More than 35

— Rivers and Streams

+ Water Bodies

+ Open Space

0 0.15 0.3 0.6 Miles

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

Produced by:
Metropolitan Area Planning Council
60 Temple Place, Boston, MA 02111 | (617) 933-0700

Data Sources:
Metropolitan Area Planning Council (MAPC)
Massachusetts Geographic Information System (MassGIS)
Massachusetts Department of Transportation (MassDOT)
Massachusetts Bay Transit Authority (MBTA)
Census 2010



Winchester Utility Scores

Bike Utility

Bike Utility

-  Lowest
-  Low
-  Moderate
-  High
-  Highest

Census Blocks (2010)

Residents per Acre

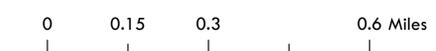
-  10 or fewer
-  10 to 20
-  20 to 35
-  More than 35

-  Restaurants
-  Retail Businesses

Schools

-  Public
-  Other
-  Commuter Rail Stations

-  Operational
-  Rivers and Streams
-  Water Bodies
-  Open Space



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