

North/South Bicycle Network Plan

Guidelines and
Recommendations for
Melrose, Massachusetts

July 4, 2018

Melrose



Ped/Bike

**Melrose Pedestrian & Bicycle
Advisory Committee**

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<https://melrosepedbike.wordpress.com/n-s-bicycle-network-plan/>

Link to online version of this plan

The Melrose Pedestrian and Bicycle Advisory Committee (Ped-Bike Committee) is pleased to submit recommendations for North-South bikeway routes in coordination with the Melrose Engineering department.

Introduction

The City of Melrose has received a Complete Streets Tier 3 Grant from the Massachusetts Department of Transportation (MassDOT). Projects proposed for year one funding included a North-South Bikeway, which was funded at \$23,000 and proposed start date of 2018.

This project is described in the Plan as:

New bike lanes, shared bike lanes, and/or neighborhood greenways to create a comprehensive north-south bicycling route from Franklin Street to West Wyoming Avenue and on Main Street from West Wyoming north to the Wakefield line. Bicycle infrastructure exists at the limits of this project (or is proposed elsewhere in the Prioritization Plan) that would be connected by the installation of these bicycle improvements.

While the City was waiting for MassDOT's decision in November 2017, City Engineer Elena Proakis Ellis invited the Ped-Bike Committee to provide feedback on the proposed routes along with recommendations for wayfinding signage.

The Committee's recommendations are similar to the City's. We propose minor changes and add a third route, resulting in three options: a low stress route, a business route, and a commuter route. In addition, the Committee recommends specific roadway treatments that will enhance cyclist safety and encourage residents who may be uncomfortable riding in the streets to give it a try. Finally, the plan provides signage and wayfinding recommendations.

We look forward to discussing this further with the City and expanding bicycle infrastructure as part of larger street renovation projects, in addition to specific grant-funded projects.

North-South Bike Route

The project submitted by the City to MassDOT comprised two routes, one from the Stoneham border on Franklin Street to W. Wyoming. The other along Main Street from the Wakefield border south to Wyoming. The project, priced at \$25,000, was not connected to a roadway construction project and is intended to involve low-cost improvements such as roadway painting and signage.

The year one project is bounded on the south by W. Wyoming Ave. The City intends to address streets south of Wyoming in a Main Street Roadway Road Diet project in 2021. In addition, the City, members of the Committee and the state legislative delegation are part of discussions with the MBTA and City of Malden on street improvements to improve cyclist safety on Banks Place toward the Oak Grove MBTA station.

Road Treatments

The Ped-Bike Committee is committed to improving conditions for pedestrians and cyclists of all ages and abilities. To this end, we seek to advance a range of options from low stress to those suitable for confident cyclists. The number of people who currently cycle in or through Melrose represents a small percentage of the potential number of cyclists. The conventional bike lane consisting of white paint and a bicycle icon may not be enough to make many people feel safe sharing the road with three-ton motorized vehicles. Therefore, the Committee recommends treatments separating cyclists from vehicles as being the most preferred wherever practicable, with the least preferred being sharrows, as noted below:

Road treatments, from highest to lowest preference

- Off-road path
- Separated bike lanes:
 - Elevated bike lane, typically at grade with sidewalk
 - Bike lane separated by concrete/cement barrier
 - Buffered lane at grade with bollard or post separation
 - Lane at grade with road with painted buffer
 - Parking-protected bike lane, in which parking spots are moved out from curb, creating a lane for bicycles separated from traffic.
- Contraflow or left-sided bike lane on one-way streets.
- Conventional bike lane along curb or between parked cars and traffic
- Sharrows

While street widths and budgets clearly constrain the treatment options, the Committee recommends the City design the routes with this hierarchy in mind.

In the descriptions of the routes that follow the Committee recommends some of these options as pilot or demonstration projects.

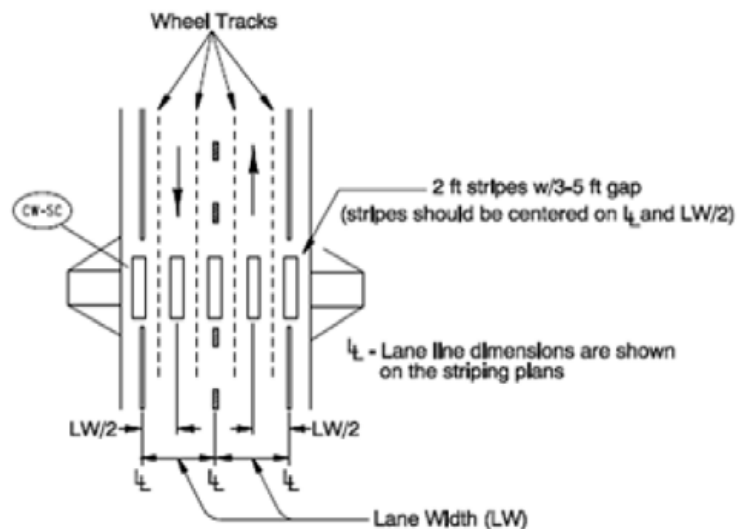
Improvements for Everyone

To increase the benefit of these proposed North-South investments for all roadway users, the design concepts in this plan include proposals to improve safety for people walking, driving, and riding the bus, in addition to safety, access, and wayfinding improvements for people riding bikes.

For each proposed route, there are accompanying details showing proposed configurations using paint, signage, and safe-hit posts. In some locations new or realigned crosswalks may require ADA curb ramps to be installed, and a few raised crosswalks and speed humps are proposed for

consideration, but there are no other changes to hardscape, curbs, medians, or other raised roadway features proposed. By limiting the proposal to paint, signage and safe-hit posts, this proposal seeks to create as much value as possible, over the largest area, with minimal funding.

Throughout the plan, upgraded crosswalk striping shows yield teeth in advance of the crossings, and “continental crosswalks.” This is a style of crosswalk that is painted without transverse lines, and in a staggered fashion, aligned with the vehicle lanes so that vehicle tires travel through the gaps, not over the paint. This will keep the crosswalks brighter and in better condition for a longer duration. To improve the visibility of pedestrians, a handful of parking spaces are proposed for removal to “daylight” crosswalk at locations where they are currently blocked from view.



SFMTA Crosswalk Guidelines - www.sfbetterstreets.org/wp-content/uploads/2016/01/SFMTA-CrosswalkGuidelines-5-29-14.pdf

Green paint is proposed throughout the designs where bicycle routes cross high volume or unexpected vehicle path (for example at certain driveways or where the bicycle route requires bikes to turn across higher volume roads). Green paint also serves as a wayfinding feature to help cyclists stay on the route as it jogs between different streets, and alerts motorists to the presence of cyclists, especially at intersections where bikes may benefit from demarcated space to approach and wait to advance (e.g. short “lead-in bike lanes” and “bike boxes”).

The improvements in this plan should be considered a “Phase I” round. The proposals in this Phase I plan are likely to exceed the funding available through the initial MassDOT Complete Streets grant. The Melrose Pedestrian and Bicycle Advisory Committee is pursuing additional funding through available grants, with a special focus on improving safety and access for children, seniors, and people accessing transit and commercial districts on foot.

Once implemented, these low-cost improvements will be monitored for performance, and adjustments could be made as necessary to ensure safety and comfort for people walking,



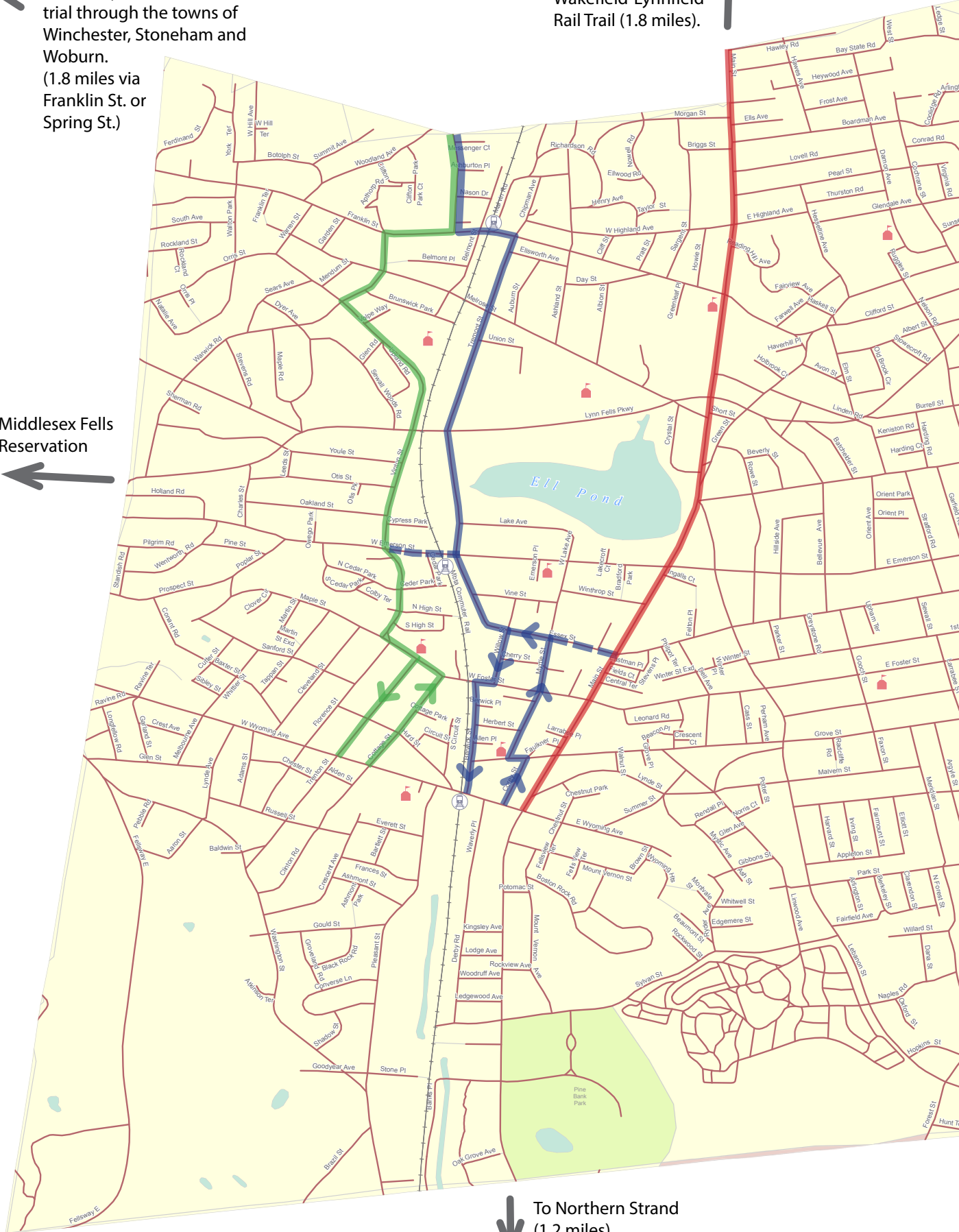
bicycling, using transit, and driving. These improvements are intrinsically temporary in nature, as paint, signage, and safe-hit posts could be removed easily; however, future work to create raised islands, redesigned curbs, and other permanent features can be pursued, based on these design concepts, as planned citywide roadway projects or additional grant funding become available.

To the Tri-Community Greenway, a multi-use trail through the towns of Winchester, Stoneham and Woburn. (1.8 miles via Franklin St. or Spring St.)

To multi-use Wakefield-Lynnfield Rail Trail (1.8 miles).





Middlesex Fells Reservation

To Northern Strand (1.2 miles)



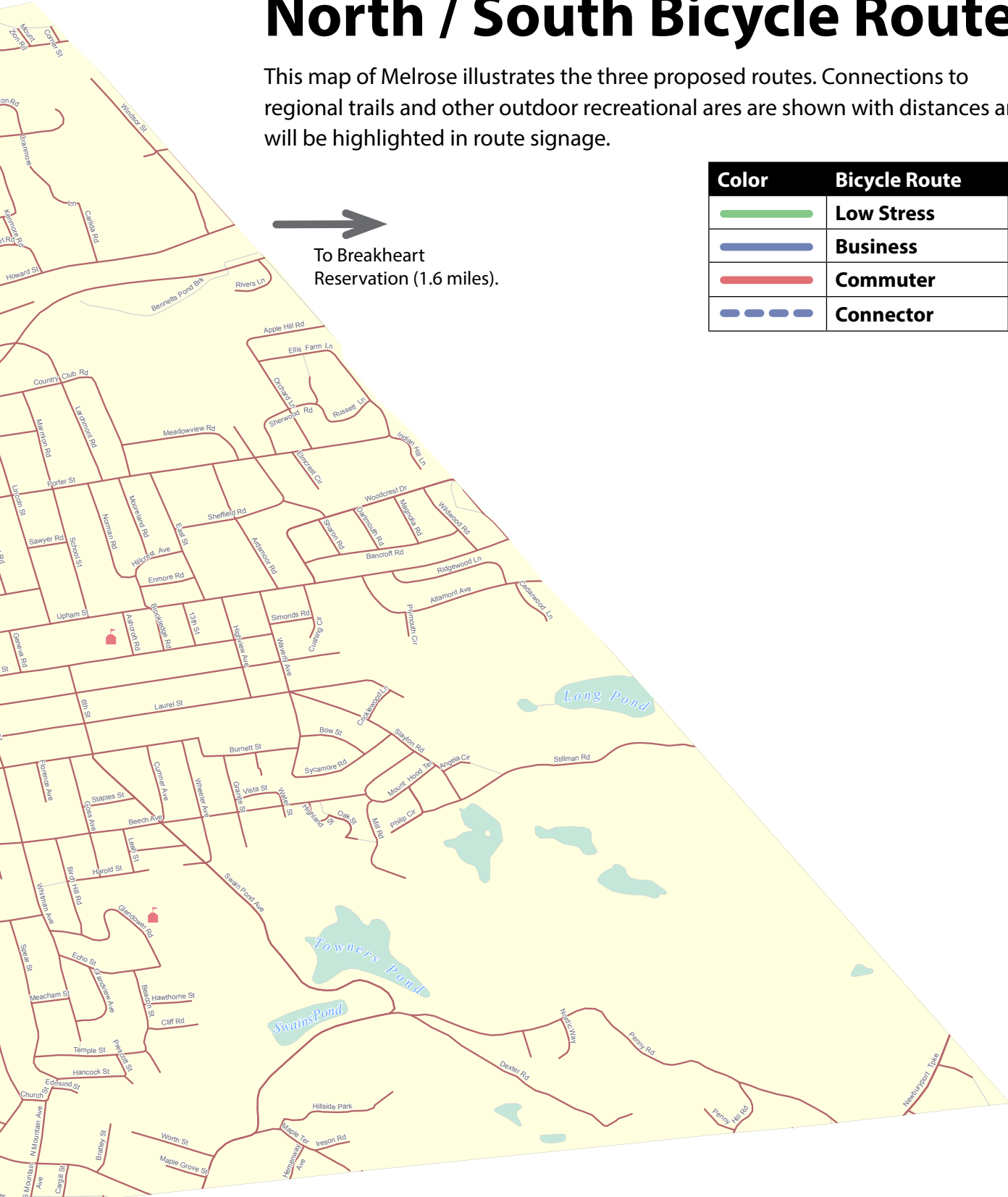
North / South Bicycle Routes

This map of Melrose illustrates the three proposed routes. Connections to regional trails and other outdoor recreational areas are shown with distances and will be highlighted in route signage.

Color	Bicycle Route
	Low Stress
	Business
	Commuter
	Connector

→ To Breakheart Reservation (1.6 miles).

↓ To Northern Strand (.9 miles)

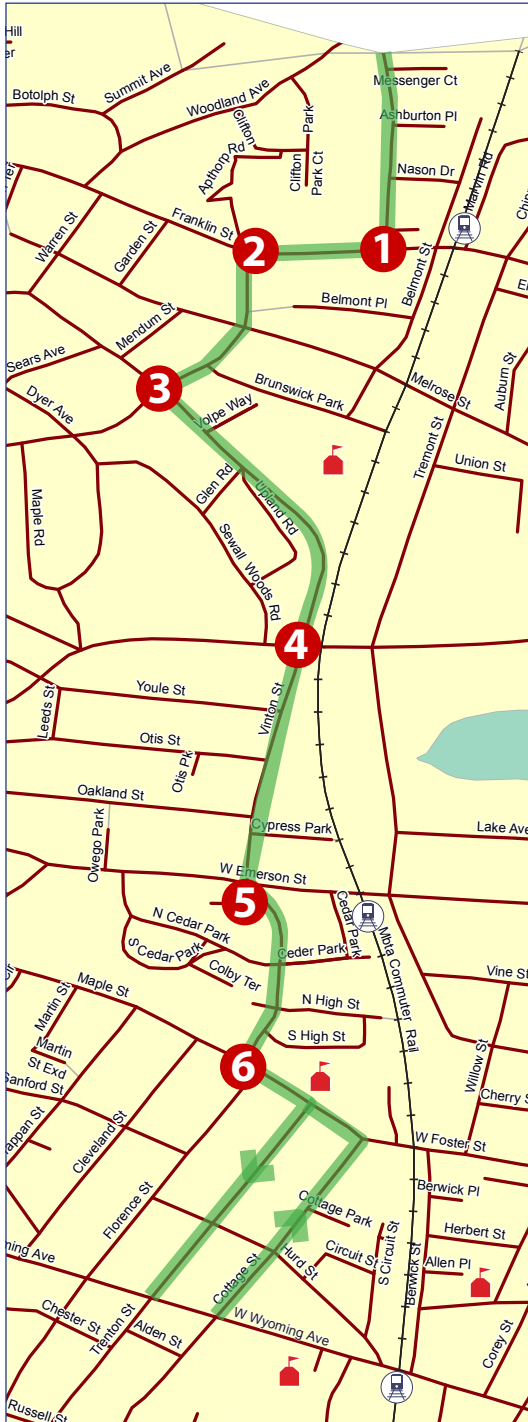


Low Stress Route

DESCRIPTION

The “Low-Stress” route runs between the Wakefield line in the north to W. Wyoming Avenue in the south. The route is designed to provide access to a number of key locations. The route relies primarily on low-volume streets with widths that can easily accommodate both bicyclists and vehicular traffic¹. Those traveling north to Wakefield via Greenwood eventually reach the Greenwood train station and Main Street. Plans are currently being developed for an off-road trail that would begin across from the Galvin Middle School in Wakefield and travel through Lynnfield.

Traveling in the southbound direction, the route uses Greenwood Street from the Wakefield border to Franklin Street. Greenwood provides direct access to the MBTA’s Highlands Station as well as the Franklin Street business district. Turning right from Greenwood to Franklin the route then makes a quick left on to Vinton Street and continues onto Vinton where it makes a left turn at the intersection with Warwick Rd and Orris St. Vinton provides access to both sides of the Roosevelt School. The route continues across the light at Lynn Fells Parkway to W. Emerson. At this point there is access to the West Emerson business district, the MBTA Cedar Park train station and Farmer’s Market. The route continues along Vinton to Foster Street to the Gooch Playground where it turns left and then right on to Trenton Street to West Wyoming. As Trenton is one-way southbound, the northbound route from W. Wyoming uses Cottage St. to W. Foster with a right turn on to Vinton.



¹ The Massachusetts Area Planning Council identifies a very similar alignment to this plan’s low-stress route as part of the regional [LandLine](#), a vision for a seamless regional active transportation network. See the [north suburban network map](#) for more details.”

WAYFINDING

With numerous turns and intersections it is recommended that wayfinding signs be attached to existing poles or signs wherever possible. Signs should include both wayfinding directional signs for the route itself and signs for key destinations along the route. Sharrows, bike lanes, roadway shoulders, and other roadway striping could be used:

- To help cyclists navigate the route, especially turns along the route and turns onto the route from cross streets; and,
- To reinforce the presence of cyclists along Greenwood, Franklin and West Foster where volumes are somewhat higher than on the rest of the route. Initial wayfinding recommendations are included in Figures 1 – 6; however, additional community and merchant outreach may be desired to ensure appropriate destinations and wayfinding signage locations are included.

CRITICAL LOCATIONS

Maintaining a safe, comfortable, continuous route

While the majority of streets chosen provide a fairly direct, but low-volume route designed to be comfortable for cyclists of all ages and abilities, there are several critical locations along this route. Riding along, and crossing, higher volume and wider streets requires careful design to maintain a comfortable and safe riding environment. The improvements proposed at these critical locations are illustrated in Figures 1 – 6.

Low-cost treatments

The designs shown depict configurations using paint and safe-hit posts. Green-backed

bike boxes, turn boxes, sharrows, and median refuges are shown at select locations where special attention should be drawn to the presence of cyclists—to ensure both motorists and cyclists safely navigate these critical locations. While no changes to existing stop and yield signage is proposed, the route could consider “swapping”.

Maximizing value / monitoring performance

Many of the proposed striping improvements are designed to improve pedestrian safety as well, such as median refuges, narrowed travel lanes, yield markings, and other paint-based treatments. Allowing some modification of paint-based treatments over a defined time period will ensure the designs can be real-world test and updates to respond to any performance issues. The Melrose Pedestrian and Bicycle Advocacy Committee should conduct assessments of these improvements, record bicycle counts, and collect feedback from the community to understand how these improvements are performing. The committee will recommend adjustments and conduct educational outreach to ensure the project is as successful and respectful of community concerns as possible.

Future hardscape and signal upgrades

Pending the demonstrated performance of the designs and the availability of future funding, some of the ideas shown could be further improved by converting painted areas, such as median islands, into raised concrete features. Crossings and intersections where vehicle speeds are of concern should be considered as candidates for raised crosswalks and raised intersections, to help vehicles observe safer speeds and yield to pedestrian and bicycle

users appropriately. Speed humps along some longer segments of road, such as along Vinton between Roosevelt School and Lynn Fells, along Trenton, and other locations, could also be explored if adjacent residents are supportive of this traffic calming measure. Using physical features such as these may be preferable to additional striping and signage, to avoid too much visual clutter. In some circumstances, signal hardware upgrades, including flashing beacons, flashing stop lights, or even new signals could be studied, if traffic and safety concerns warrant.

1 Figure 1 - Traffic speeds at Franklin and Greenwood are relatively slow due to the rail road crossing, the volume of traffic, and the sidewalk widening and striping improvements recently implemented; however, bicycle movements from southbound Greenwood onto Franklin may be challenging for less confident riders. There is adequate width on Greenwood Street to accommodate bike lanes in both directions. A bike box with lead-in green lane will help alert motorists to the presence of turning bicyclists, and provide space for an eastbound cyclist to queue up for the left turn onto Franklin. Northbound left turns onto Greenwood can be improved by providing a bicycle turn box in the southern shoulder on Franklin, allowing cyclists to queue until there is a gap in east-west and southbound traffic.

2 Figure 2 - The southbound left turn onto Vinton from Franklin will require cyclists to negotiate heavy volumes on eastbound Franklin. There have been concerns raised for some time regarding pedestrian safety at this intersection, particularly for students crossing to walk to the Roosevelt School. Installation of a raised crosswalk or raised intersection, possible signalization, and other traffic control devices being considered to mitigate

these concerns should take cyclist safety into account as the proposed high-visibility road striping, bicycle-specific features, etc.

3 Figure 3 - The southbound left turn to continue on Vinton faces traffic coming down a large hill on Warwick. Warning, such as flashing lights and signage, should be provided to these vehicles to observe the speed limit and watch for cyclists. Cautionary warning should be provided to cyclists as well. Providing a green-backed sharrow in the intersection to show the preferred path for cyclists making this left turn to continue south on Vinton will help cyclists know where to go, and alert motorists approaching the intersection from all directions to the potential presence of turning cyclists. If possible, a raised intersection at this location would help slow the approach of vehicles in all directions, and help ensure vehicles come to a stop before the recommended continental crosswalks. There is space to provide bicycle lanes on the continuation of Vinton, which will both narrow the travel lanes for vehicles and provide separated space for cyclists. Including a green lead in to the southbound bike lane will help position cyclists in this lane and ensure motorists to not encroach on the bike lane. A green-backed sharrow in the northbound direction after the right turn will provide similar wayfinding and motorist awareness benefits.

4 Figure 4 - The approach along Vinton to Lynn Fells can continue to provide bicycle lanes to narrow the travel lane for vehicles and provide separated space for cyclists. After the curve passed the MBTA rail right-of-way, the curb-to-curb width narrows and the downhill/southbound bicycle lane ends, becoming a shared lane. A climbing lane remains in the uphill/northbound direction. The traffic lights at Vinton and Lynn Fells are triggered by

approaching vehicles arriving on either side of Vinton but not by bicycles. Cyclists must currently use the pedestrian crossing lights when there are no vehicles arriving in the north or southbound direction. DCR should prioritize installation of bicycle-triggered signals for north-south bound bicycles. In addition, green bike boxes and lead in bike lanes at this intersection will help alert motorists to the presence of cyclists, and help cyclists position themselves to turn onto Lynn Fells, which is a primary bicycle route artery to reach the Middlesex Fells/Medford and Melrose Middle and High Schools, Main Street shopping center, and Ell pond/recreational areas. There is ample space below the MBTA rail overpass to provide buffered bicycle lanes. People driving in this short segment of road very often attempt to create two lanes. However, no right turns on red are allowed at either intersection, and buffered bicycle lanes will greatly increase the safety of bicyclists traveling through these intersections, as well as encourage more organized vehicle travel through the intersections.

5 Figure 5 - The angle of the Vinton/West Emerson intersection has poor sightlines in all directions. Green-backed bicycle entry/exit lanes and sharrows in the intersection will help cyclists situate themselves more safely in the intersection, and alert motorists to

their presence. Especially on the southern leg of Vinton, targeted striping as shown in the illustration will help coordinate movements and demonstrate priority for cyclists and the more vulnerable roadway users moving through this Y-shaped approach. The painted median refuge in the intersection and edge lines will help position motorists safely through the intersection, and provides space for cyclists to find refuge mid-crossing so that they can negotiate the traffic along Emerson, which does not have a stop sign, crossing traffic in one direction at a time. In this illustration, the western crosswalk is realigned to be shorter and more squared-off with Vinton. A new curb ramp may be required to allow for this improvement, so it may be necessary to delay the realignment until funding is available for that hardscape project.

6 Figure 6 - The turn from Vinton to West Foster/Maple occurs at another offset intersection with poor sightline. Traffic volumes tend to be lower than at West Emerson, however, green-backed sharrows through the intersection will help alert motorists to the presence of turning cyclists, and help cyclists safely navigate along the route, making the connection onto West Foster and then, with the help of the wayfinding signage, connect onto Trenton to complete the route down to Wyoming.



Figure 1

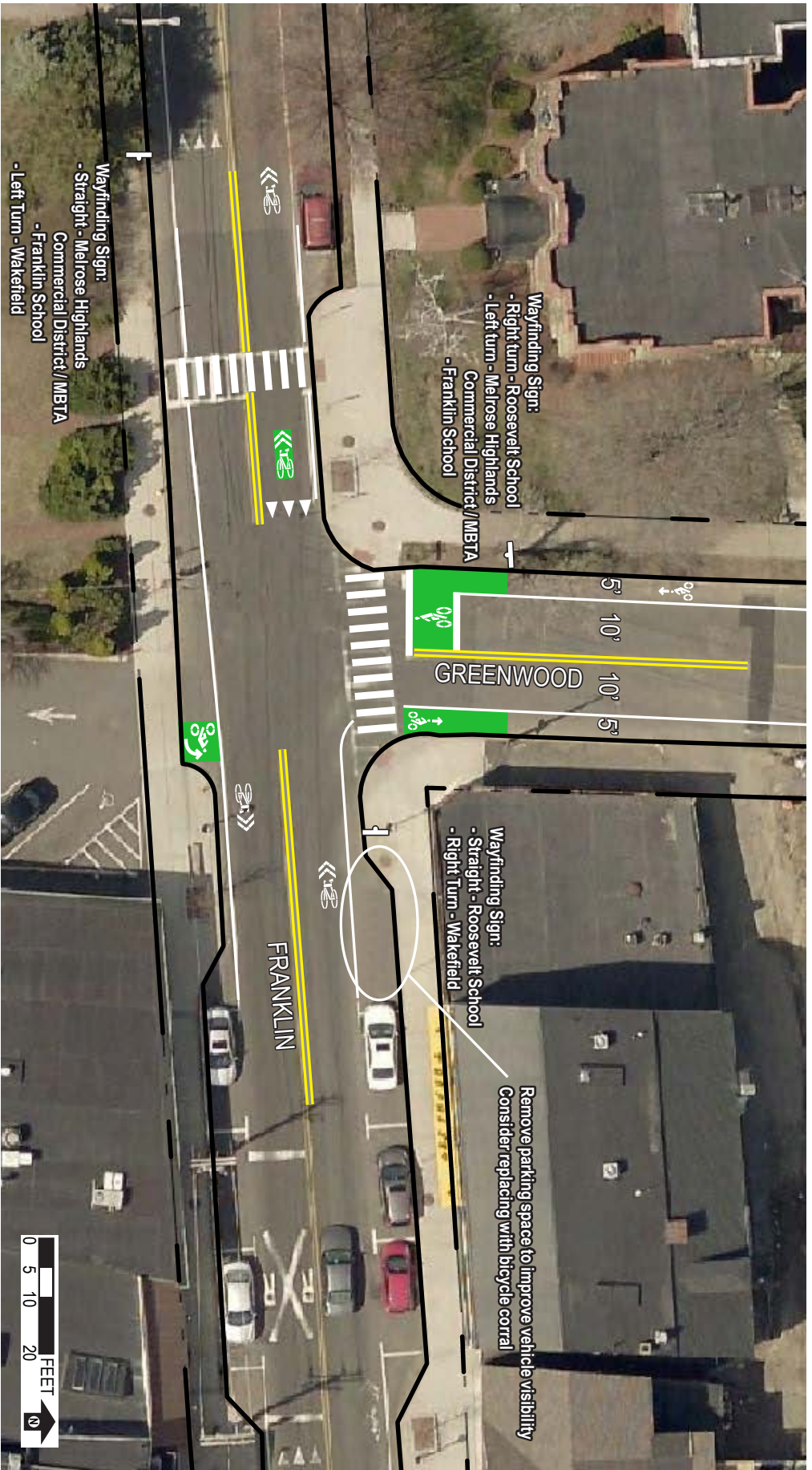


Figure 2

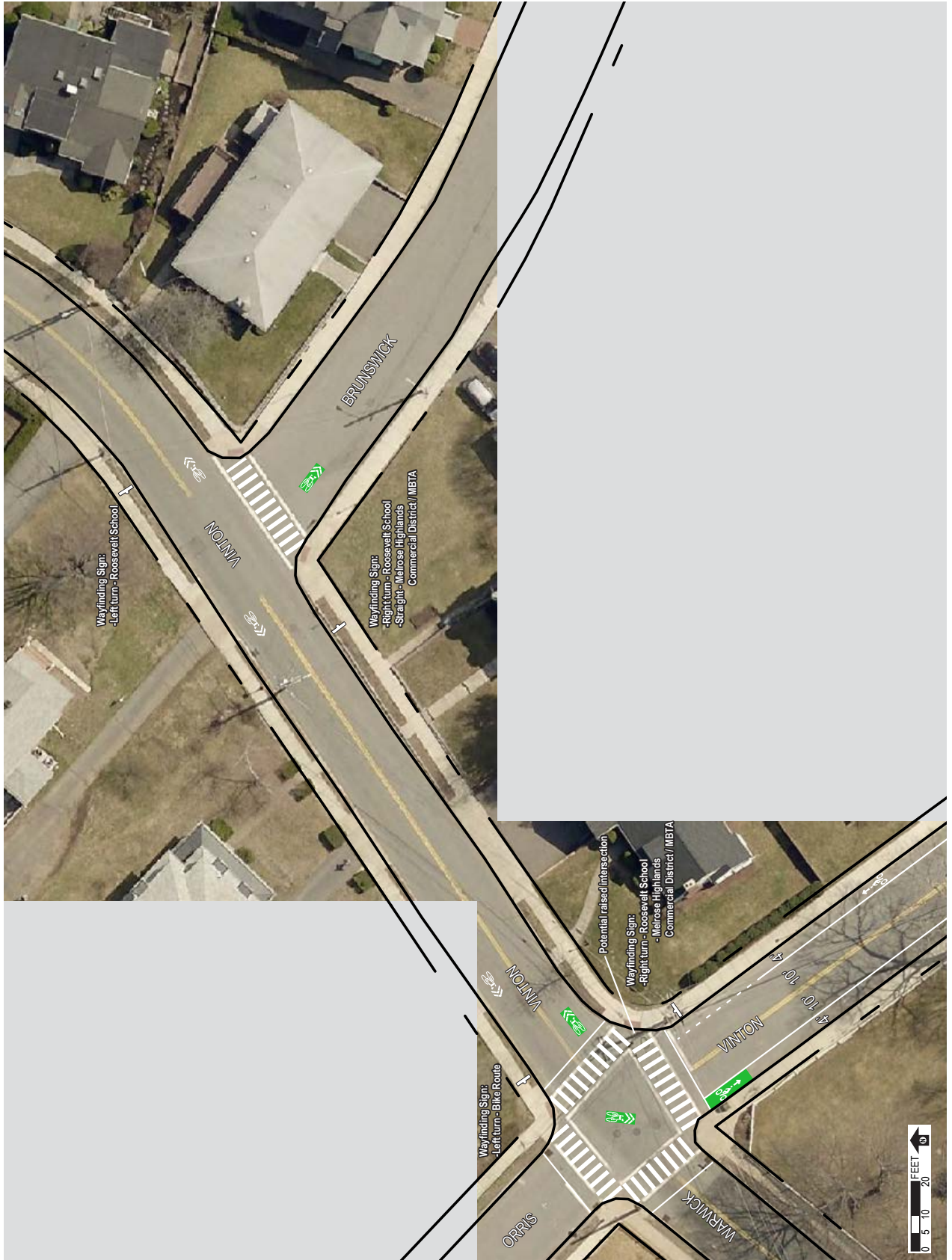


Figure 3



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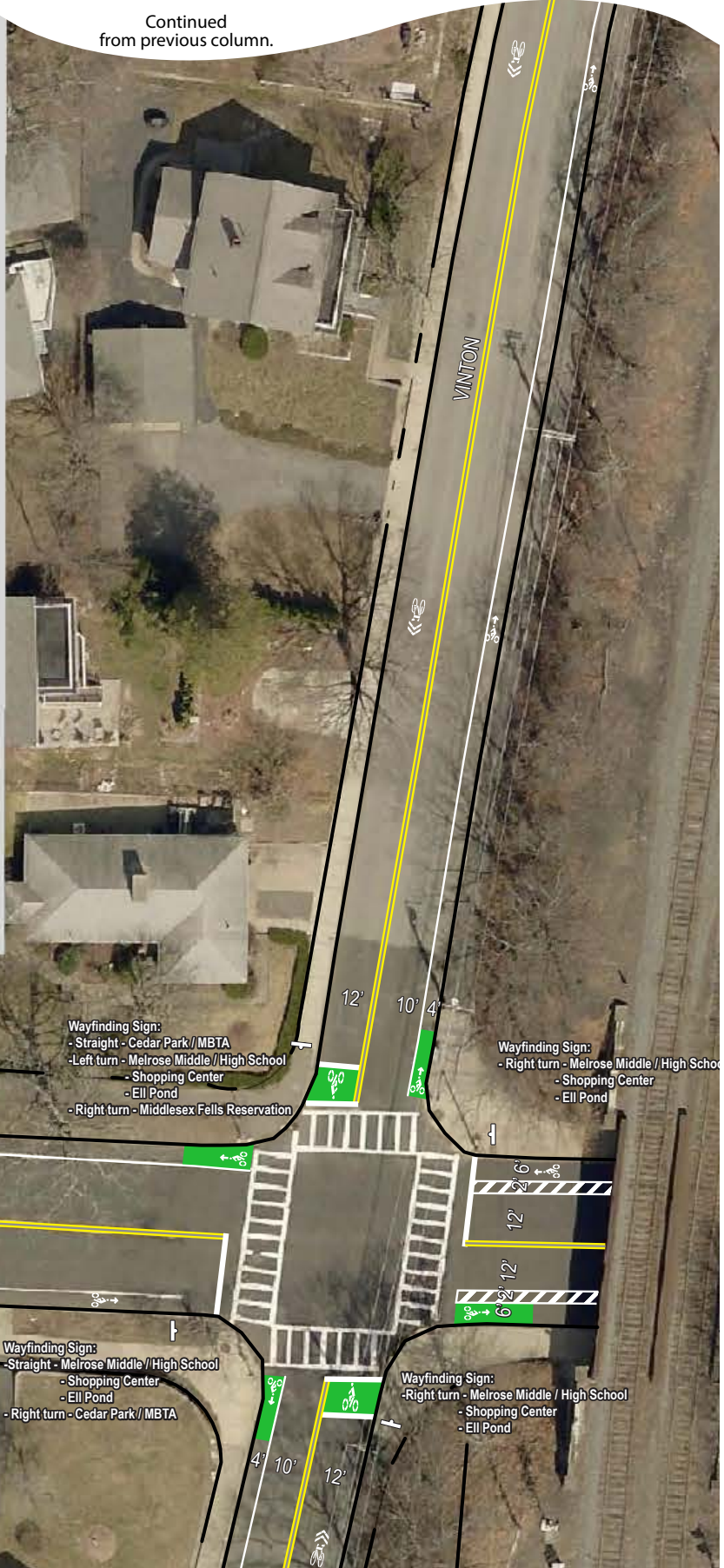


Figure 4

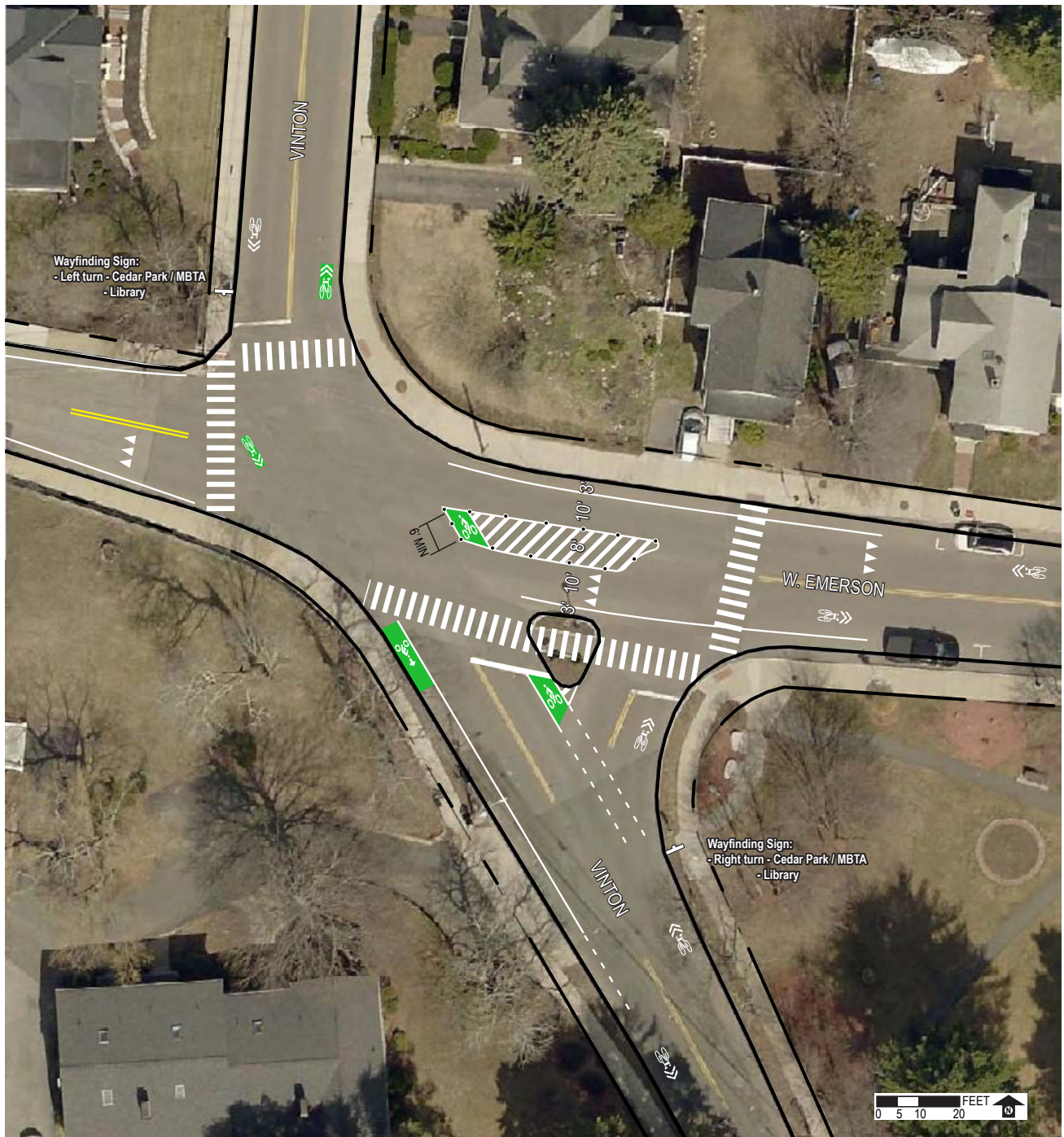


Figure 5

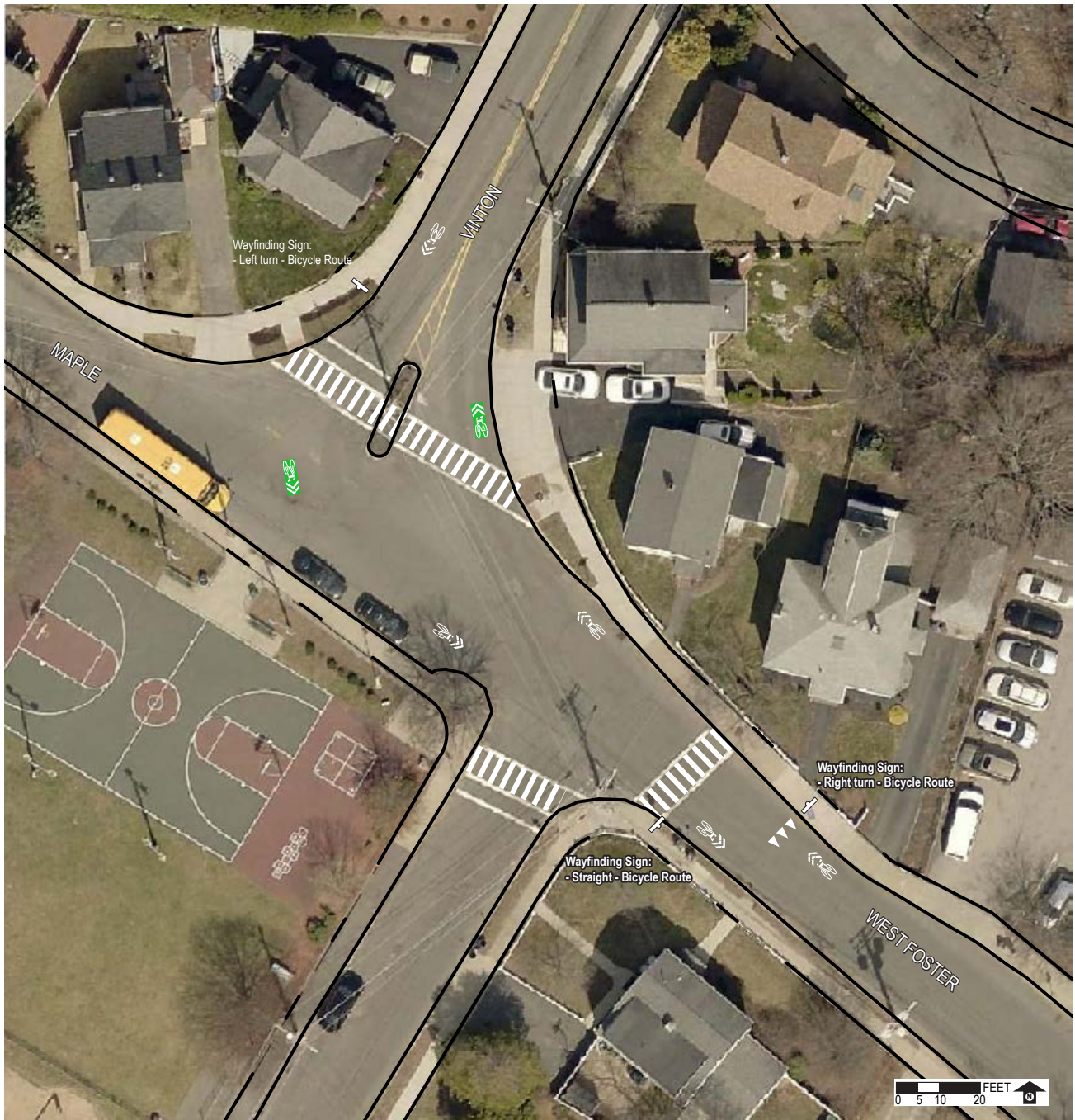


Figure 6

Business Route

DESCRIPTION

The business route was proposed in the City's Complete Streets application. It connects key locations in the City, provides relatively quick access to the downtown business district and takes advantage of bicycle lanes and sharrows recently implemented. The Business Route, like the Low-Stress Route, uses Greenwood Street at its northern end, providing access to Wakefield in the northbound direction and the Highlands MBTA Station. From Greenwood the route turns left on to Franklin, providing access to the business district, and then right on to Tremont St. It continues along Tremont Street across the four-way intersection at Melrose Street. Bicyclists headed to the Middle School, High School and athletic fields can turn on to Melrose Street, which is proposed to undergo pedestrian and cycling improvements under a Complete Streets project. The route continues along Tremont St. to Lynn Fells Parkway with a striped bicycle lane available in the southbound direction. The tennis courts and athletic fields at the Knoll can be accessed from the Lynn Fells Parkway intersection, and from which there is access to Middlesex Fells and Stoneham to the west, and Saugus to the east. There have also been proposals for improving pedestrian access around Ell Pond. Such improvements could include a bicycle path between Lake Street and Lynn Fells Parkway. These would be a great addition to the business route, but are not part of this plan's immediately proposed on-street improvements. The route continues to West Emerson, again with a southbound bike lane. Access to local businesses, the Cedar Park MBTA Station, the Farmer's Market, and the Melrose library is available via West Emerson.



The route continues across West Emerson to Essex Street and then turns right on to Willow Street. Both Essex and Willow have existing sharrows. At this point the southbound route continues on to Willow. The southbound route then continues with a right turn on to West Foster St. and left turn on to Berwick Place (one-way southbound) to W. Wyoming. A left turn on to W. Foster provides a short trip to the downtown business district. The northbound route from W. Wyoming uses Corey Street (one-way northbound) to a left on Grove Street, providing access to St. Mary's School and church. The route then makes a right on Myrtle Street, which parallels Main St and provides access to downtown businesses and government buildings. At Essex Street northbound cyclists turn left on to Essex Street and rejoin the route at the W. Emerson St. Alternatively, northbound cyclists can continue along Myrtle to West Emerson to access the Melrose library and then cross on to Lake Street (one-way north/westbound), rejoining the route at Tremont.

WAYFINDING

With numerous turns and intersections it is recommended that wayfinding signs be attached to existing poles or signs wherever possible. Signs should include both wayfinding directional signs for the route itself and signs for key destinations along the route. Sharrows and green paint can be used to reinforce the presence of cyclists streets where volumes are somewhat higher than on the rest of the route, and in locations where the route makes turns that are not necessarily intuitive. Good signage for civic and commercial/transit destinations is important and should be coordinated with improvements proposed under the Complete Streets program on Melrose St.

CRITICAL LOCATIONS

(See the low-stress route, Figure 2) The southbound left turn from Greenwood to Franklin will require cyclists to negotiate heavy volumes on Franklin. While traffic in this section is generally slow, a green bike box on southbound Greenwood at the intersection will help cyclists position themselves in a safer location.

Figure 1 - The turn onto southbound Tremont is a simple right, but the northbound left turn is more complicated to execute because Franklin traffic does not have a stop sign. A green bike box and dashed guideline through the intersection will help cyclists position themselves safely and alert motorists to their potential presence. There is space to include two four-foot wide bike lanes along the curb and 11' foot travel lanes, on this segment of Tremont, which will allow cyclists to have space to approach/exit the intersection, an additional safety improvement. Further south, some cyclists have noted that the southbound bicycle lane on Tremont crosses a large number of commercial driveways, which along with the presence of commercial vehicles, is a concern. Green paint at conflict zones and intersections where vehicles turn on and off Tremont, can help mitigate this issue. In the long term, the City may consider working with some of the owners along Tremont Street to better channel their entering and exiting traffic into fewer, consolidated curb cuts. This would improve motorist safety as well. Please note that similar recommendations to improve the commercial corridor along Tremont Street appeared in the 2013 [Metropolitan Area Planning Council \(MAPC\) Commuter Rail Corridor Plan](#).¹

¹ Now that roadway improvements along Tremont Street have been completed the Pedestrian and Cycling Advisory Committee recommends that the City take a second look at some of the streetscape improvement recommendations in the plan.

Figure 2 - Tremont and Melrose is a four-way stop controlled intersection. Because of the presence of large and commercial vehicles on Tremont, and the important connection to the middle and high schools via Melrose, this intersection features green paint and bike boxes, as well as partial lead-in bike lanes, to help cyclists approach and navigate through the intersection.

Figure 3 - Tremont at Lynn Fells Parkway is a major intersection and bike network connection point. Lynn Fells is a DCR roadway, and connects under the MBTA commuter rail tracks. Coordination among associated agencies is recommended to add buffered bike lanes as shown in Figure 3, along with bike boxes in both directions. Tremont Street features the same treatments as shown at Melrose St, with green paint and lead-in lanes, to help cyclists position themselves, travel through the intersection, and altering motorists to their potential presence.

Figure 4 - Lake St is a potential alternate route connecting the library to Tremont and avoiding the intersection of Tremont and West Emerson.

Figure 5 - The intersection of Tremont/West Emerson/Essex St can be hazardous for all road users because eastbound traffic does not stop due to the three-way stop sign. Additional signing and pavement markings should be considered here to enhance safety of cyclists, pedestrians and motorists. The designs proposed in Figure 5 include painted median refuges at the intersection, and dashed guidelines along Tremont through the intersection. These will allow pedestrians and bicyclists to more safely cross West Emerson, with a place to pause between directions of traffic. At the adjacent MBTA rail crossing, the same median islands and a potential raised

crossing, due to the high pedestrian volumes associated with the commuter rail, Cedar Park, and the farmer's market.

Figure 6 and 7 - Essex features the existing sharrows and edge line to narrow the travel lanes and encourage slower driving. Green-backed sharrows are used where the route crosses the entrance to the senior housing development, and at the turn onto Willow, to help cyclists stay on the route as it jogs. Speed humps are proposed on Willow to slow vehicles, which some residents have reported as bypass traffic avoiding perceived delay on Main Street. Lower vehicle speeds would benefit cyclists, pedestrians, and other motorists.

Figure 8 - The route jogs from Willow right onto West Foster, and then left onto Berwick. Because Berwick is one way with head-in parking, it presents a potential hazard to cyclists. There is adequate space for an 11-foot travel lane, 5-foot bike lane, and 8-foot parking lane. This would position cyclists safely away from the "door zone" of parked vehicles (and on the passenger side, which is safer because frequently only the driver exits the vehicle), and away from vehicles backing out of the head in parking. A section of bike lane along West Foster helps to make the connection, and brings cyclists to a "bike crossing" parallel to the crosswalk onto Berwick. A green lead-in lane and hashed zones on Berwick help position drivers in the travel lane.

Figure 9 - Berwick provides a good connection to St. Mary's School via Herbert; as part of the northbound route, a raised intersection at Myrtle and Herbert would help calm traffic traveling through this intersection, and improve the safety of the crosswalks.

Figure 10 - (now Berwick/W. Wyoming/Corey) The bike lane on Berwick ends in advance of the intersection so cyclists can move into the left or right-turn only lanes. A dashed guideline through the intersection shows how cyclists and motorists should travel around a median island and raised speed table at the crosswalk on West Wyoming. A raised crosswalk and median island is proposed at West Wyoming and Waverly as well. These improvements will help calm traffic, improve pedestrian and cyclist visibility, and improve overall safety on this very busy corridor. The center double yellow line flares to create a median refuge to help cyclists turning from West Wyoming onto northbound Corey. Corey is wide enough for a right side bike lane, because there is no parking allowed on that side of the street.

Figure 11 - (now Grove/Corey/Myrtle/Berwick) The northbound bike route turns from Corey onto Grove, but traffic does not have a stop sign on Grove. A bike box and dashed guideline help position cyclists while waiting for a gap, and while traveling through the intersection. A lead-in guideline gives cyclists a wayfinding cue to turn right onto Myrtle, and a hashed buffer makes the crosswalk safer for people walking between St. Mary's and the park.

Figure 12 - A raised intersection at Myrtle and Cherry would help calm traffic traveling through this intersection, and improve the safety of the crosswalks.

Figure 13 - A dashed guideline would help cyclists follow the northbound bike route, turning onto westbound Essex. Wayfinding signage indicates the direction of the route, and the option to continue on Myrtle to reach the library.

Figure 14 - The intersection of West Emerson and Myrtle is a two-way stop. There is a mid-block crosswalk between the Universal Unitarian Church/Melrose Montessori pre-school and the library. Consolidating the crosswalks at West Emerson and adding stop signs, if the intersection should meet the warrants, would greatly improve pedestrian, cyclist, and motorist safety, and improve access to the public library. Lake St provides a calm, one-way route to connect cyclists from the library back to the northbound route along Tremont.



Figure 1

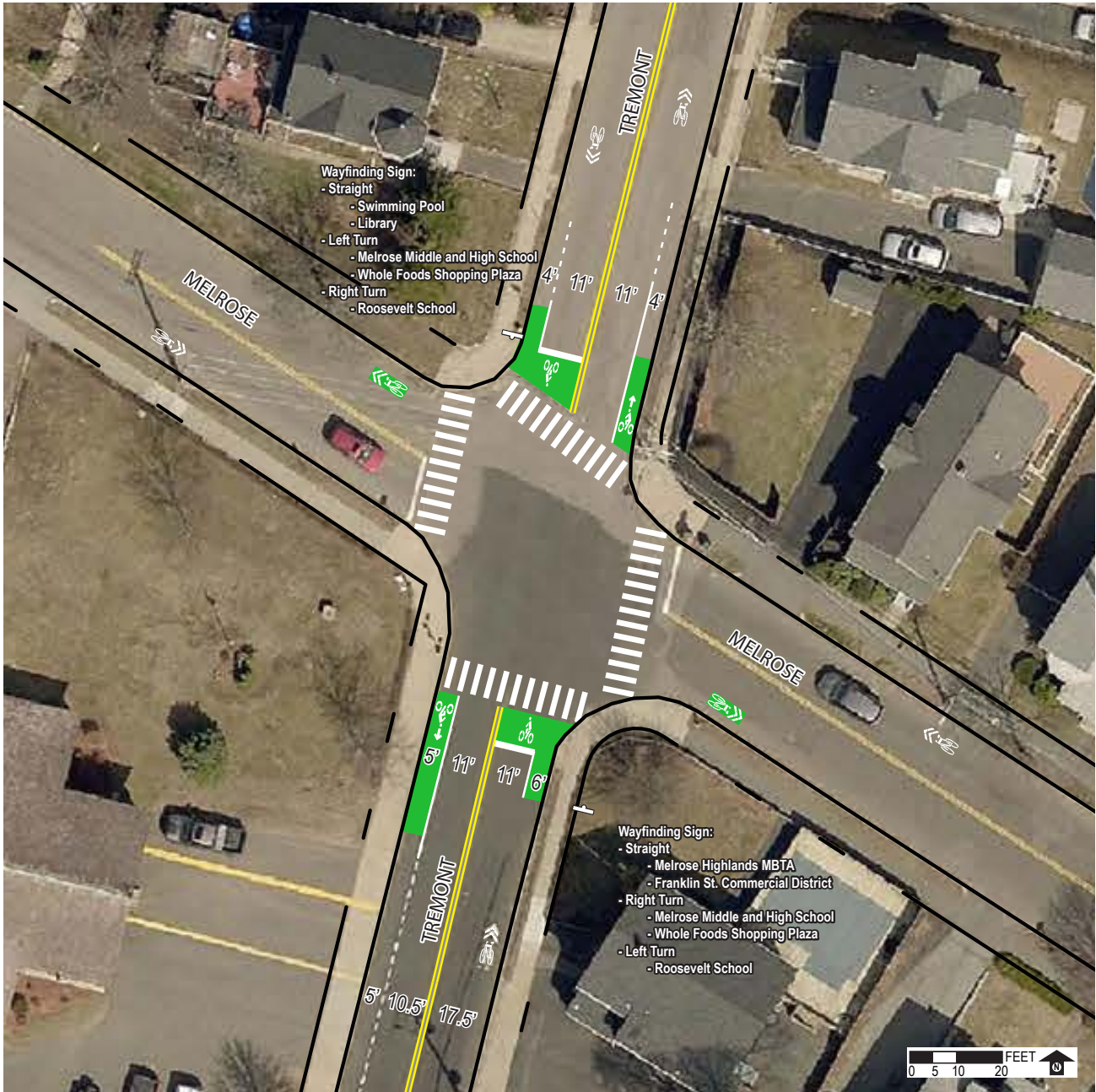


Figure 2

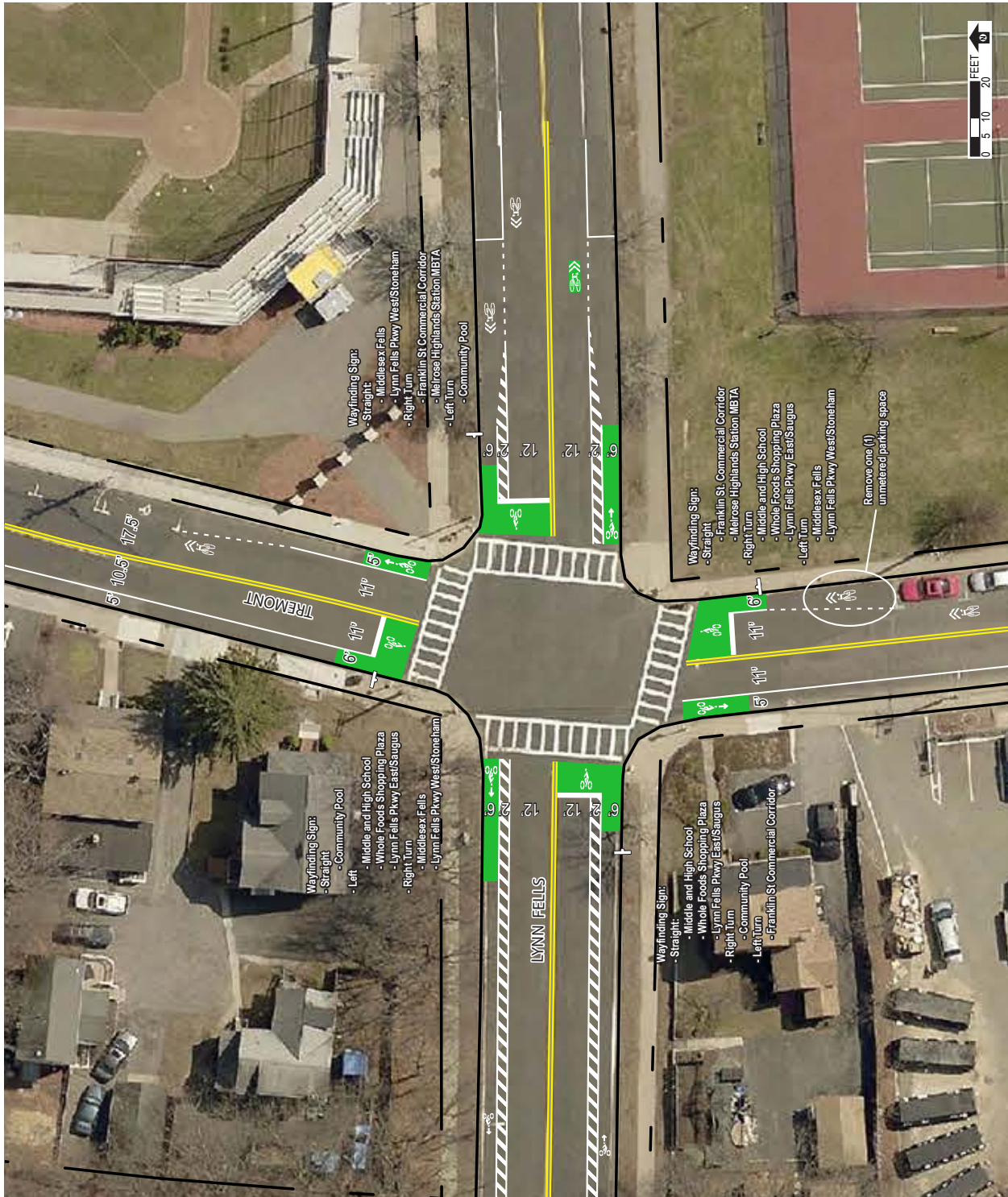


Figure 3



Figure 4

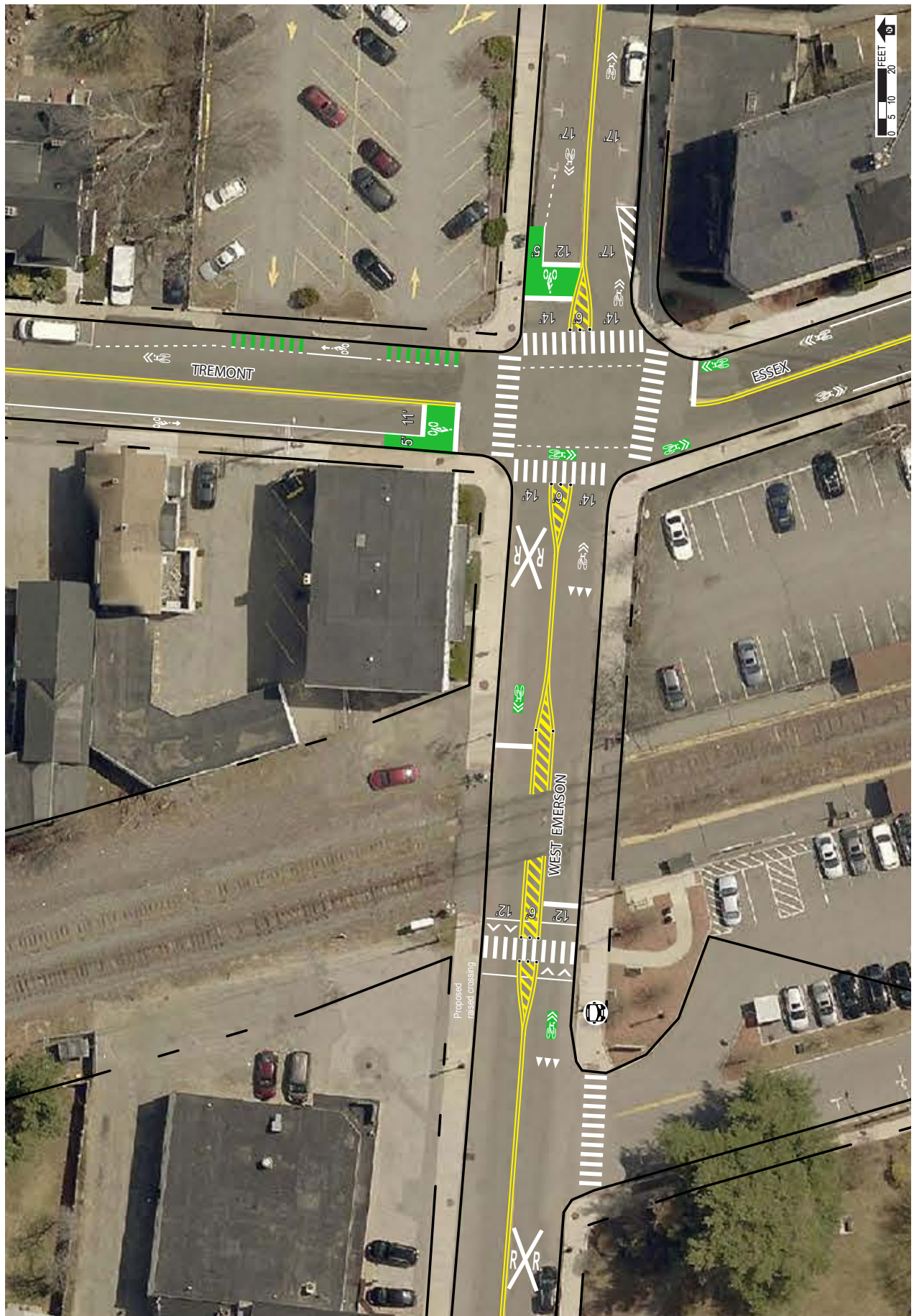


Figure 5

Figure 6





Figure 7

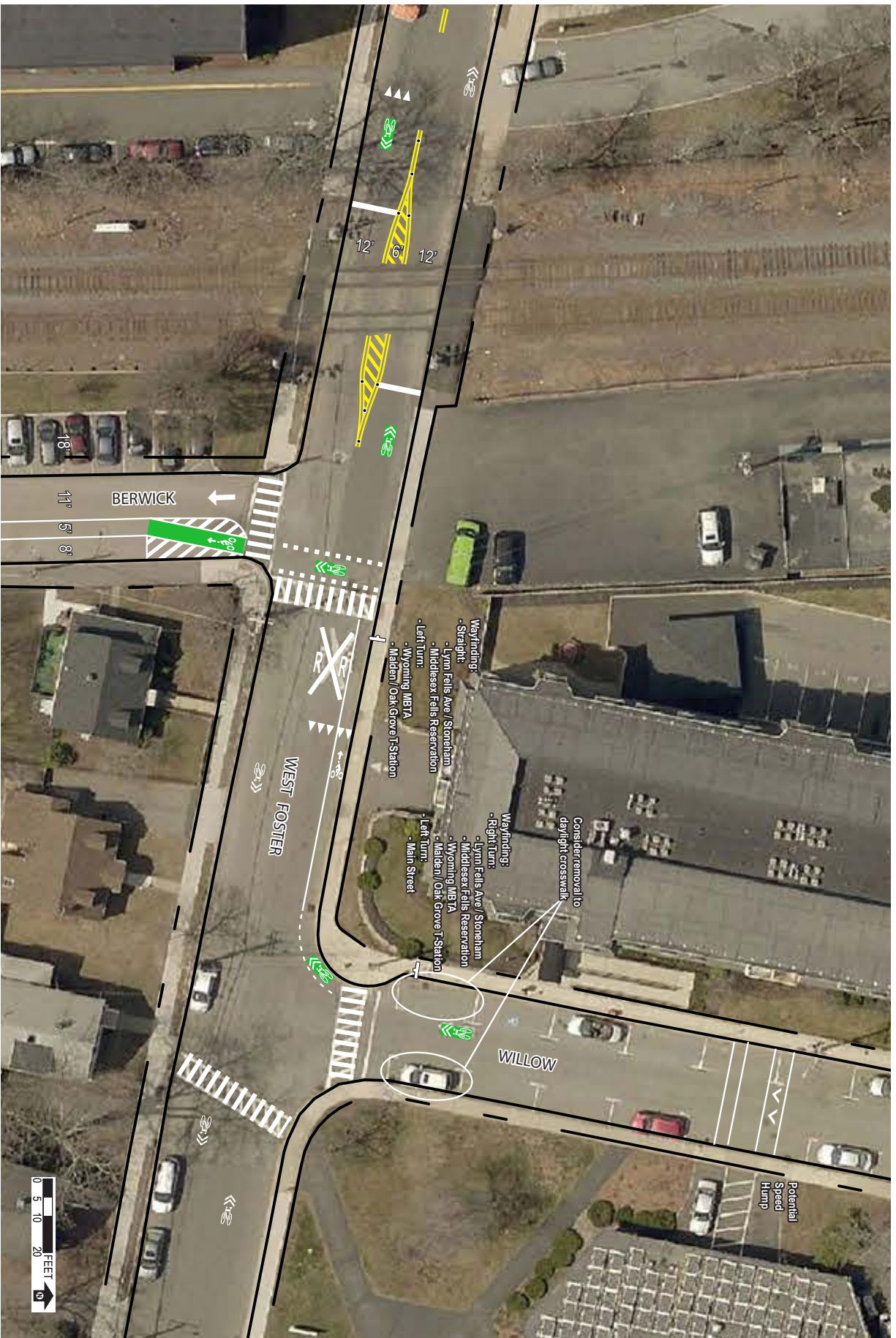


Figure 8



Figure 9



Figure 10



Figure 11



Figure 12



Figure 13

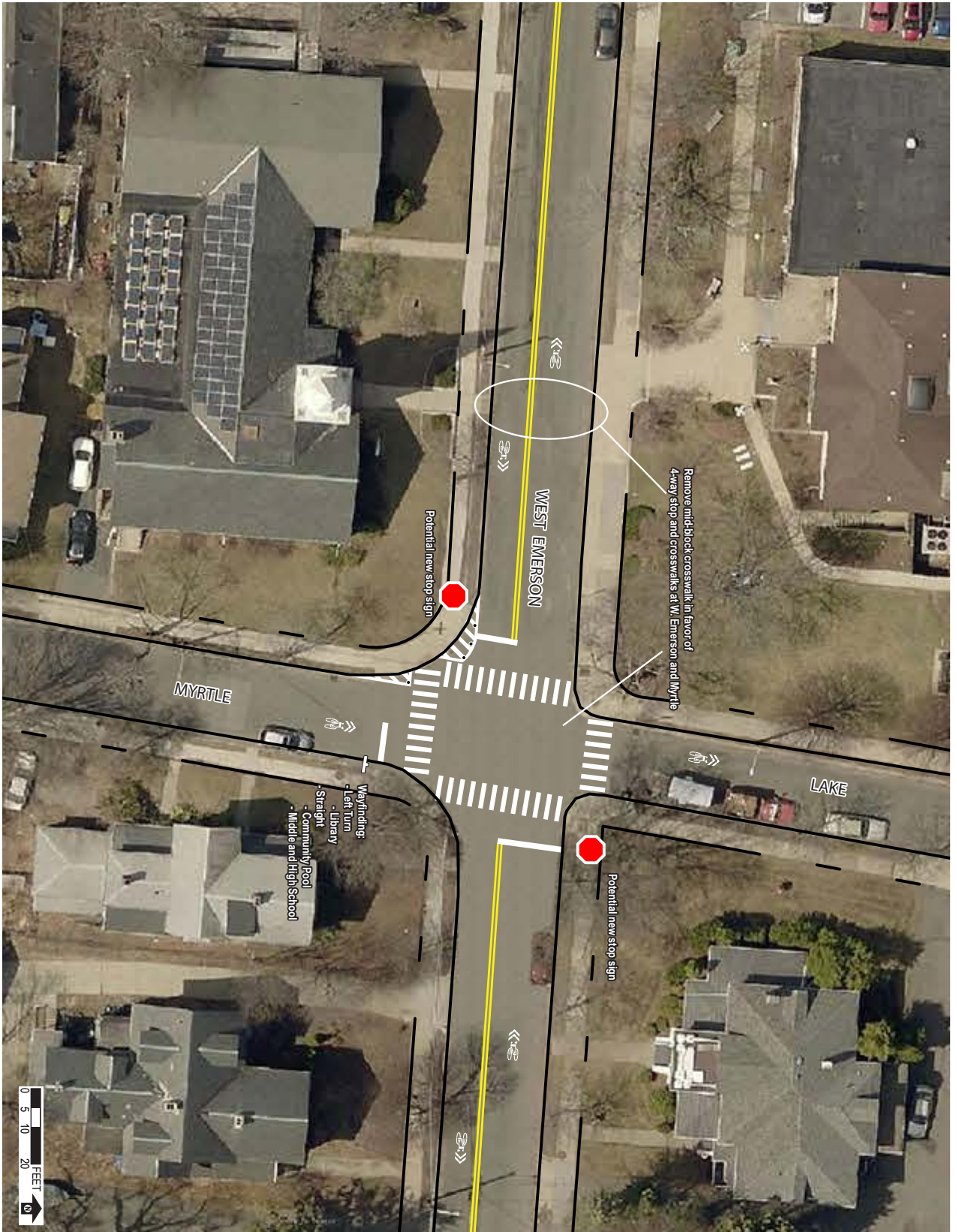


Figure 14

Commuter Route

DESCRIPTION



The commuter route follows Main Street from the Wakefield line to Wyoming Street. Main Street provides access to most of the employment, commercial and transportation destinations in Melrose, including the Franklin Square, Lynn Fells Parkway, downtown business districts, Melrose-Wakefield hospital and its many satellite offices, the Middle/High School complex and key public buildings.

Bicycle commuters and other experienced cyclists already use Main Street heavily. However, many parts of the corridor are uncomfortable for more casual cyclists, and the entire corridor could be safer for people driving, walking and bicycling. The city's highest crash location is on Main Street, at the intersection with Lynn Fells.

As noted in the introduction the City has proposed a project under the Complete Streets program to create a more bicycle and pedestrian-friendly corridor along Main Street south of Wyoming. While the full project will take several years and significant capital dollars, current widths could accommodate bike lanes in the short-term to provide space and a more comfortable ride for cyclists, so pending available funding, this should be considered. With parking at a premium and ridership on the Orange Line, improved bicycle access to Oak Grove is important to meeting consumer demand and contributing to a healthy population, while reducing traffic volumes and parking demand.

PARKING

Parking is in high demand on Main Street. However, the City has studied parking downtown and concluded there is an ample supply of on- and off-street parking for businesses, including both customers and merchant employees; a merchant parking program exists for businesses whose employees drive to work. In light of the sensitivity of parking downtown, this plan recommends very little parking removal overall as part of the Main Street route. Proposals for parking removal are limited to locations where only a few spaces would be removed on a block, and only if the benefits are directly related to safety improvements for people walking, bicycling and driving. In addition, the paint and signage proposals in this plan are easy to reverse if they have adverse impacts, so no parking removals should be considered permanent as part of this Phase I plan. Regardless, this plan recommends that all proposals for parking removal on Main Street be subject to community outreach and discussion with merchants before the City moves forward with implementation.

WAYFINDING

Wayfinding for cyclists will help connect commuters to more of Melrose's businesses and other attractions just off the Main Street corridor. Recommendations for bicycle route signage are provided, but additional coordination to develop a comprehensive downtown wayfinding and branding campaign could provide broader benefits to the Main St and surrounding commercial district.

CRITICAL LOCATIONS

Figure 1 - North of Wyoming, the proposed improvements include labeling the northbound bus stop with stenciled text on the roadway to discourage vehicle parking and stopping, and including sharrows to direct cyclists through this curbside space that will typically be free of traffic, which is a benefit to both cyclists and drivers. This configuration of shared bus stop/through bicycle sharrow is recommended throughout the Main Street Corridor. A dashed edge line helps cyclists cross the very wide intersection with Lynde and alerts motorists traveling to and from Lynde to watch for cyclists. North of Lynde, a wide or buffered bike lane with safe hit posts can be accommodated if parking is removed from the east side of the street; this block face currently includes space for about seven vehicles, over a distance of more than 350 feet. Only three of these spots front on businesses, while the rest front the narrow peninsula between Main and Lynde. Southbound, a bike box gives cyclists a place to cue for the traffic light, and allows them to get out of the way of right turning vehicles to minimize the chance of right hooks. Currently, there is no turn on red and the bike box will help enforce this, which will improve safety for all road users.

Figures 2-8 - A typical design is proposed for the intersections of Main and Grove, Foster, Upham/Essex, and Emerson: the bus stops feature a typical commuter corridor design of a separated bus pullout/bike through zone, with a bike box allowing cyclists to pull in front of vehicles to protect from right hooks, or position themselves for left turns from the travel lane.

Figure 2 - At Main and Grove, the northbound buffered bike lane drops away for the bus stop/sharrow lane. For northbound cyclists turning left onto Grove, a two-stage queue box is provided as an alternative, against the island in the northeast corner. No turn on red signs should be added here, for consistency throughout the Main St corridor.

Figure 3 - One parking space should be removed on the northbound approach to mid-block crosswalk before Foster, similar to the configuration on the southbound side; this daylighting will provide better visibility of people entering the cross walk. A bike corral could be installed at this location to provide user parking, while maintaining good visibility of the crosswalk. At Main and Foster, no turn on red signs should be added, for consistency throughout the Main St corridor.

Figure 4 - One parking space should be removed on the northbound approach to the bus stop before Upham. This will provide better access for the bus and allow cyclists access to the bike box more easily. North of Upham, a buffered bike lane provides a safe transition out of the intersection; westbound, the bike lane should be dashed along Essex for the first 20 feet and hashed zones should narrow the roadway, better reflecting vehicle paths onto Essex.

Figure 5 - The segment of Main Street adjacent to the fire station should have sharrows and yield teeth on either side of the mid-block crosswalk.

Figure 6 - The mid-block crosswalk north of Winthrop is a good candidate for a speed table or raised crosswalk pilot, to help calm speeds on this segment of the corridor.

Figure 7 - At Main and Foster, no turn on red signs should be added, for consistency throughout the Main St corridor.

Figure 8 - A new mid-block crosswalk to access Ell Pond is another good candidate for a speed table or raised crosswalk pilot, to help calm speeds on this segment of the corridor and improve pedestrian access to this unique open space near downtown.

Figures 9-11 - Main Street between Ell Pond and Green Street can be greatly improved for people riding bikes. A similar bus stop/sharrow configuration allows bicyclists to get out of the mixed flow of the main travel lanes. northbound, a dashed guideline will help position cyclists through the between Lebanon/Porter and Green; green-backed sharrows will alert motorists to the potential presence of cyclists; a partial bike lane along the east side of Main Street and the continuation of a dashed guideline will help improve safety for cyclists continuing northbound on Main Street as they cross the shallow right turn onto Green Street. Southbound, a curbside buffered bike lane provides ample separation for cyclists, while a standard lane is provided between Green and Porter.

Figure 12-16 - Main Street from Lynn Fells Parkway¹ to Franklin remains a difficult location for all road users. Reconfiguring this segment of the corridor will provide major benefits to traffic operations and safety, and improve access and safety for people walking, biking, and riding the bus. This segment is close to the middle and high school, Ell Pond, Melrose Housing Authority and senior apartments, the Franklin school, recreation fields, and popular commercial destinations

¹ Improvements involving Lynn Fells require the cooperation of the Department of Conservation and Recreation (DCR), which owns the road.

like Whole Foods and Walgreens, among many other valued local businesses. It is possible, over time, to create a much more pedestrian-friendly environment that supports healthy lifestyles, by starting with the street design and then working with the land owners to consider site upgrades that improve connections for people choosing to walk or bike to their tenants' businesses. As part of these upgrades, improvements to stormwater management through low-impact development (LID) landscaping could provide improved drainage as well as aesthetic benefits to the district, encouraging more people to travel by foot or bike. The location of driveways and presence of heavy traffic along Main Street north of Lynn Fells is another impediment to people driving, biking, and walking. This could be addressed through consolidation of the access to the Whole Foods place aligned with the current Walgreen driveway to create a typical, four-way, signalized intersection.

The roadway width through this segment allows space for two 11-foot travel lanes, one 10-foot center turn lane, and two 5-foot bike lanes. This configuration of lanes provides separation for cyclists, and provides better organization for vehicles queuing to turn into and out of the commercial parking lots and businesses on either side of Main Street. By providing a center turn lane, vehicles waiting to make left turns will not block vehicles in the through lanes, which will in turn not need to weave out of their travel lanes to pass. This will protect people driving, biking and walking, and vehicle movements will be more predictable and visibility will improve for all users.

The intersection of Main and Lynn Fells has more recorded crashes than any other location in Melrose. The primary improvement at this intersection is the reconfiguration of turn

lanes from Main St onto Lynn Fells: making both center turn lanes left turn only, and allowing through and right turns on green from the outside lanes (via the existing no turn on red), provides much greatly simplified operations through this intersection. Currently, southbound vehicles are often obstructed by left turning vehicles, and swerve dangerously into the existing right turn only lane. By directing through travel to the outside lane, share with right turns, cross intersection alignment will be greatly improved and vehicle delay will decrease. Most importantly, safety and predictability at this intersection will increase. In addition, the configuration allows bike lanes to continue all the way up to and through the intersection. Green paint and dashed lanes provide additional awareness of these bike lanes, and the bike boxes allow bikes to more easily make the left turns onto Lynn Fells from the left turn lanes, and get in front of right turning vehicles, to reduce the risk of right hooks. Dashed guidelines through the intersection provide improved safety for cyclists, and alert turning vehicles to their potential presence.

Just south of Lynn Fells, the intersection of Melrose/Short and Main Street feature the bus stop and sharrow through zone proposed throughout the corridor. To accommodate the lane reconfiguration at Main and Lynn Fells, five parking spaces are removed on the west side of Main between Lynn Fells and Melrose. As drop-off space for the pre-school at this location is important for their operations, this plan proposes modifications for Melrose St: An offset double yellow stripe allows a larger westbound lane, accommodating a wider, striped parking and drop-off zone adjacent to the pre-school. This location has an added bonus of much less traffic than exists on Main Street, making access to children in carseats on the driver's side of vehicles safer and

more convenient for parents and caregivers. Additional outreach coordination with the pre-school will be necessary to ensure adequate accommodations are made, without sacrificing the important overall safety and operational benefits of reconfiguring Main and Lynn Fells.

North of Lynn Fells, the bus stops are located on top of the bike lanes. While this is not ideal in typical scenarios, bus headways are not frequent enough to warrant concern of significant conflicts with bikes or other vehicles, as operations under current configurations already block bicycle and vehicle through travel. The presence of the center turn lane in this proposal allows vehicles to safely pass stopped buses, if necessary (or example, if loading a disabled passenger or someone with a stroller, etc.). The existing mid-block crosswalk just north of Linden can be greatly improved with painted median refuges and safe-hit posts; a raised crosswalk or speed table would also help calm traffic speeds and provide a safer crossing. One parking space in front of the service station and five in front of Walgreens need to be removed to accommodate the reconfiguration of this block, but ample free parking exists in the lots on both sides of the street, so this removal should have no impact on access to area businesses.

The existing mid-block crosswalk in front of the Melrose Housing Authority can be improved with a raised crosswalk or speed table to help calm traffic speeds and provide a safer crossing. North of this crosswalk, parking for businesses and for access to the Lincoln School is more heavily utilized. The safest

configuration that preserves this parking is a "climbing lane" for bicycles in the northbound direction, with a shared lane configuration that connects to the bike lane southbound. Dashed guidelines through the intersection provide improved safety for cyclists, and alert turning vehicles to their potential presence.

Figure 17-20 - North of Franklin, the roadway is too narrow to accommodate bike lanes with parking on both sides of the street and 11-foot wide travel lanes; the safer option is maintaining a sharrow to keep cyclists from getting too close to the door zone of parked vehicles. Pedestrian and traffic calming improvements could be implemented at the crosswalks, through introduction of raised crosswalks and/or raised intersections. Speeding is a significant issue in this block of Main Street; as vehicles enter Melrose from Wakefield, speed tables would help reduce speed and increase attentiveness as motorists approach the higher volume pedestrian segments of Main Street.

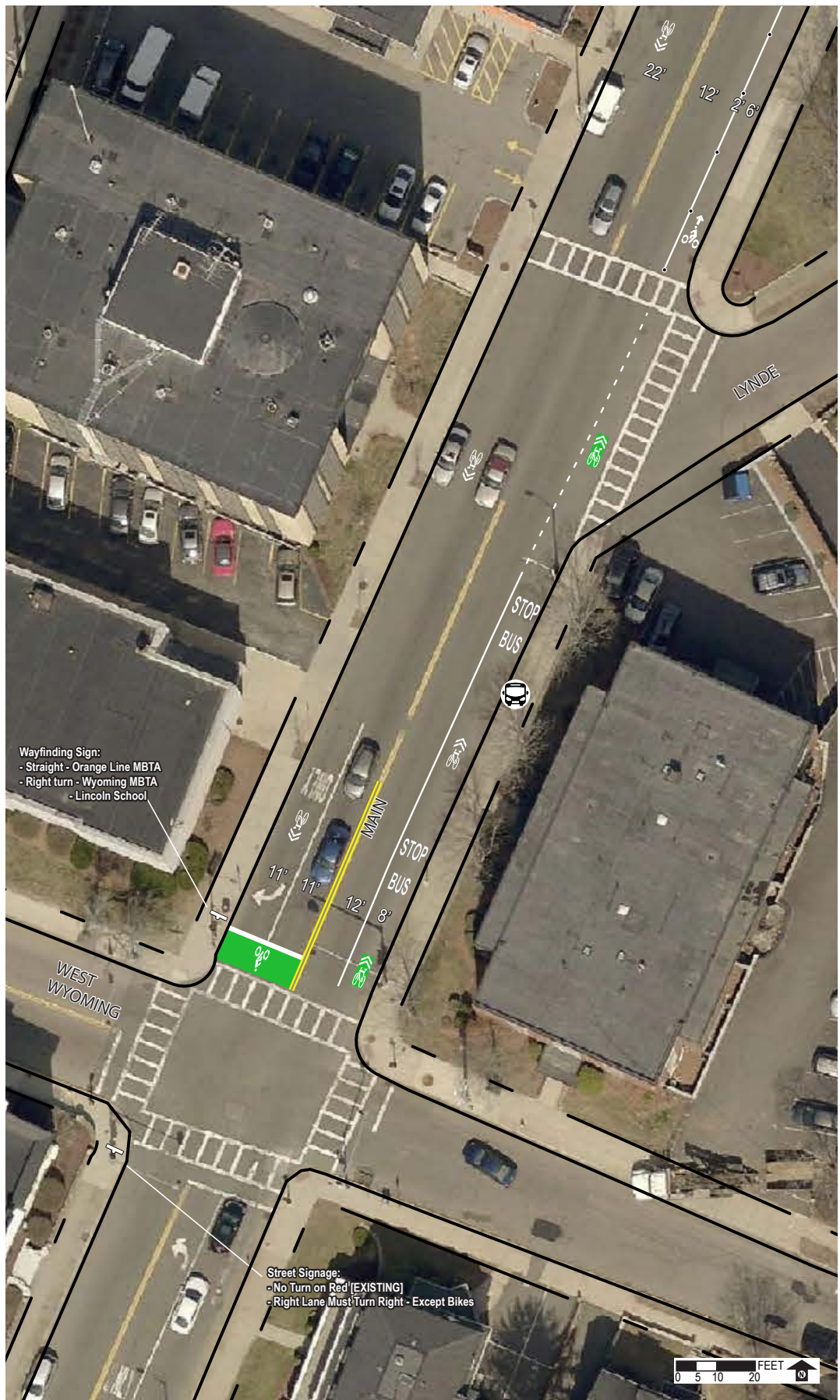


Figure 1



Figure 2



Figure 3 (plan view)



Existing: Parked vehicle obscures crosswalk, which prevents people driving from seeing people trying to cross Main St.



Proposed: Daylighting makes it easier to see people crossing Main St. and creates space that could be used for a street mural and bike parking.

Figure 3 (rendering)

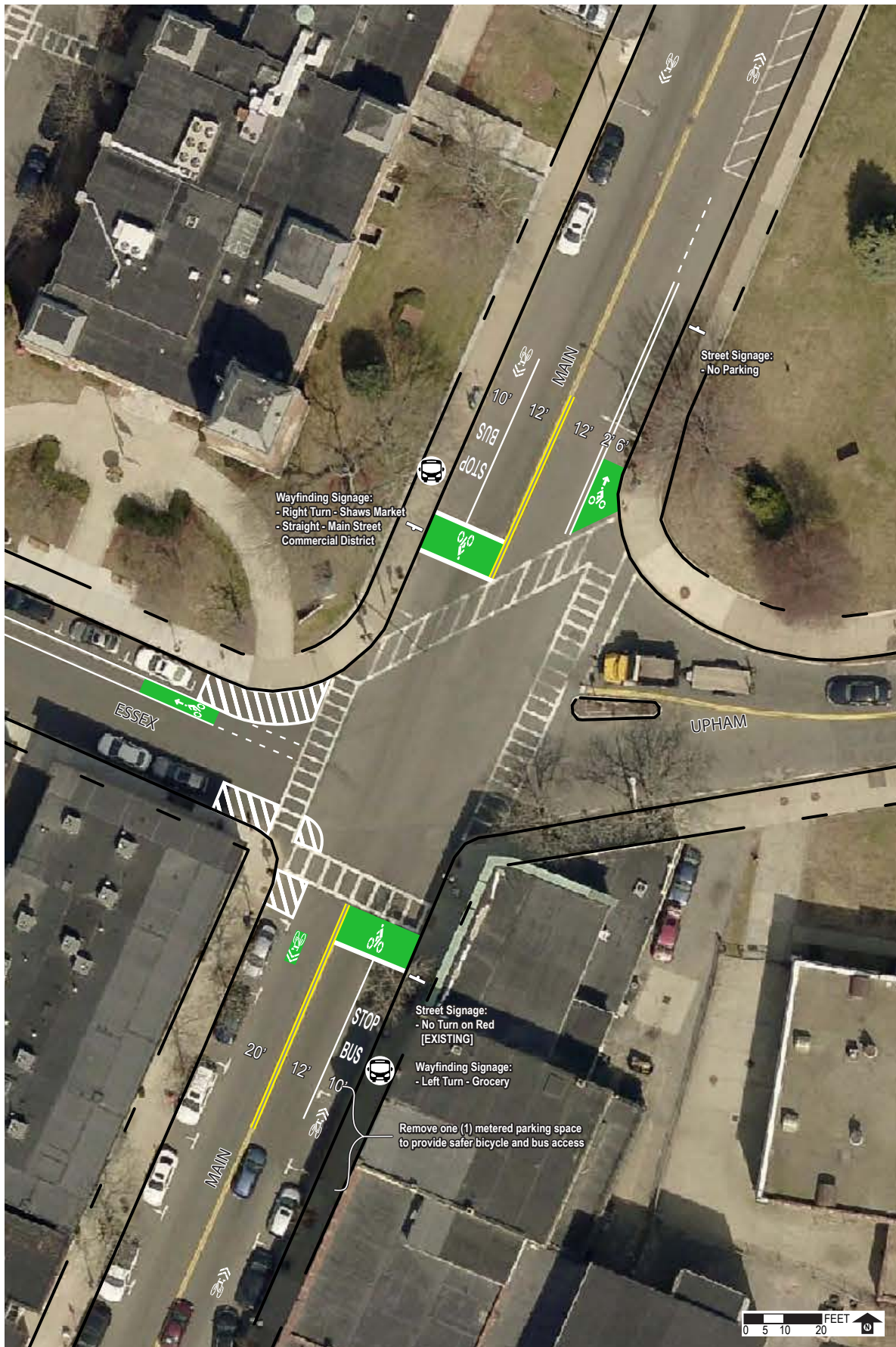


Figure 4

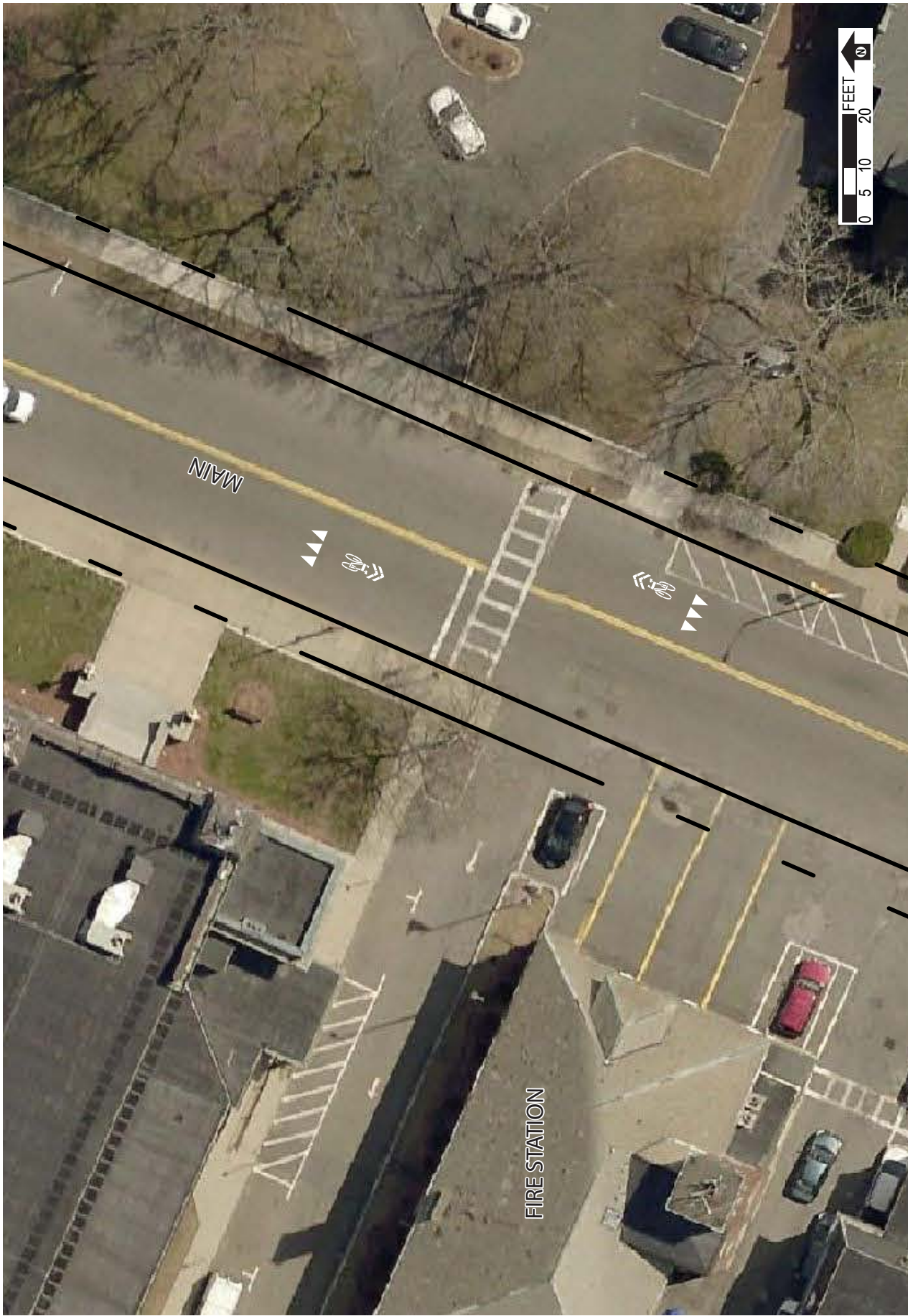


Figure 5



Figure 6

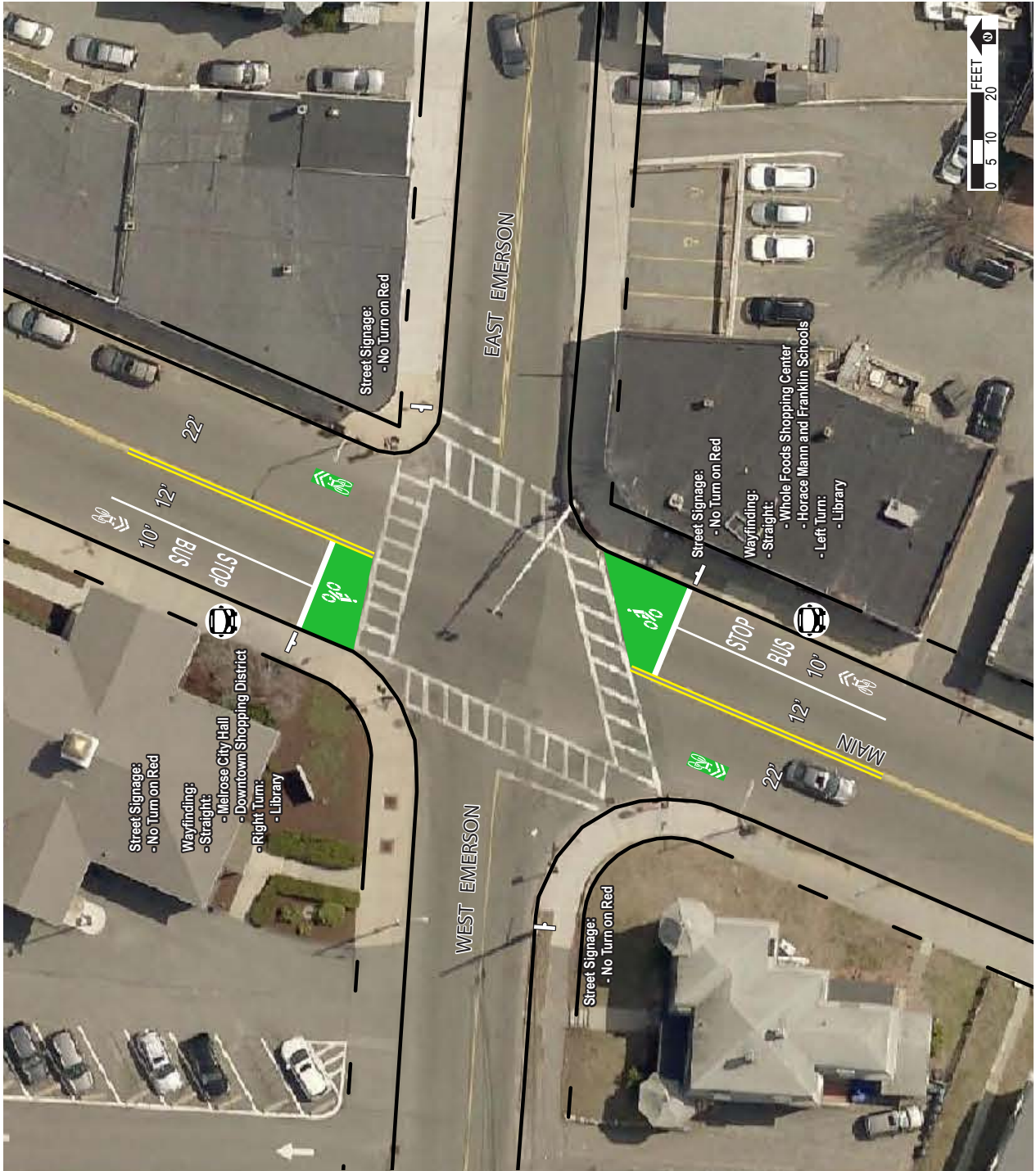


Figure 7

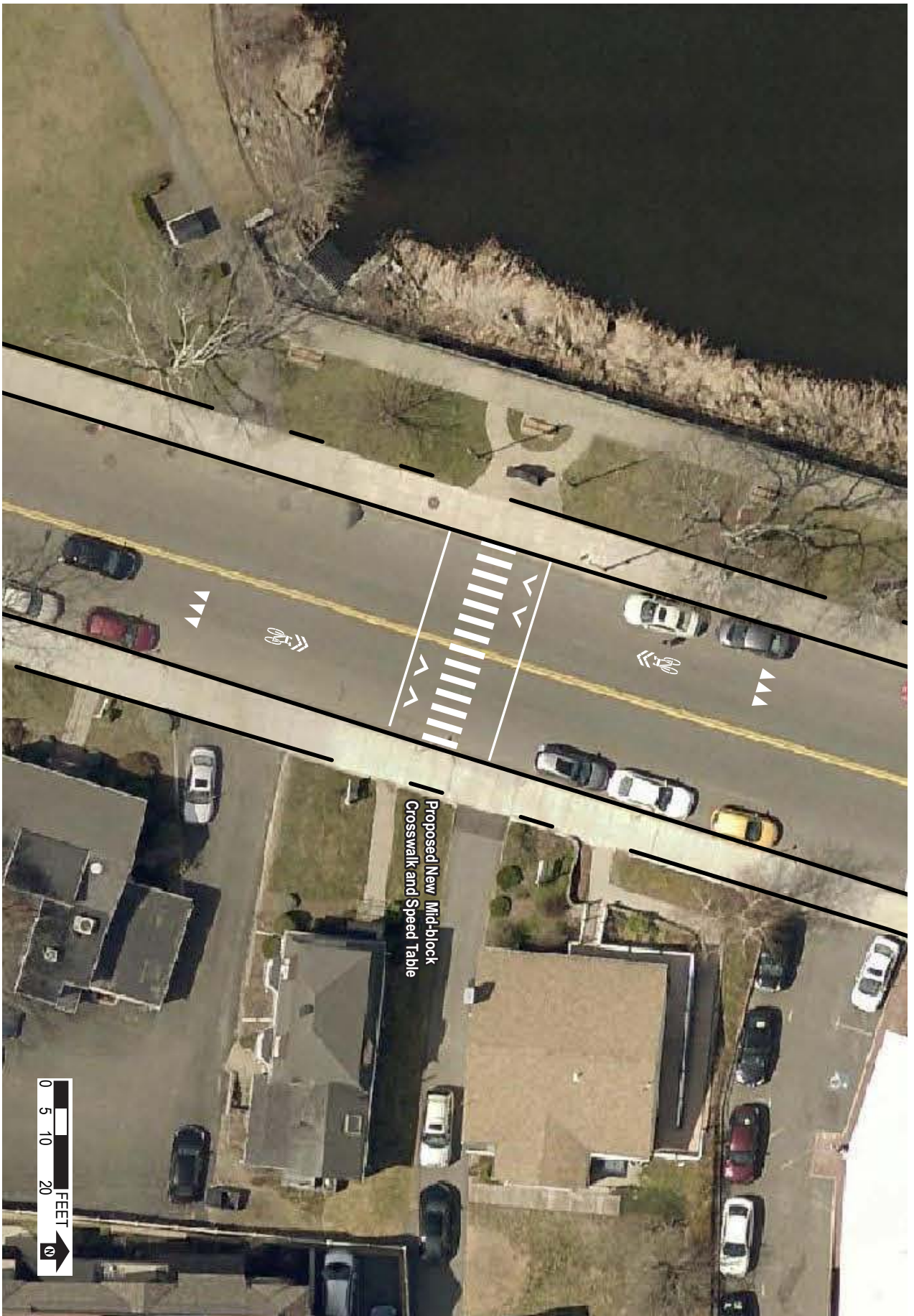


Figure 8



Figure 9



Figure 10



Figure 11



Figure 12

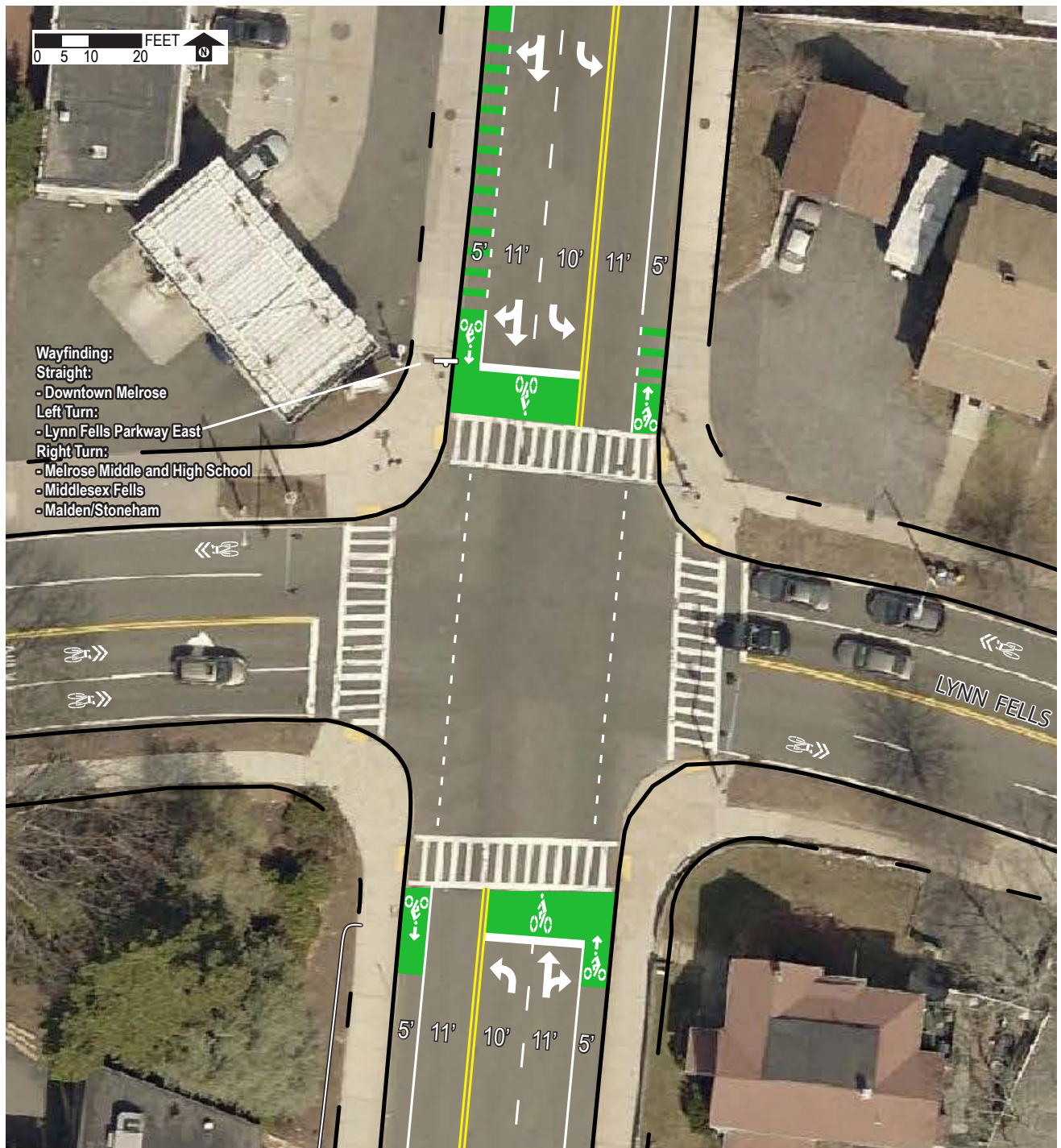


Figure 13



Figure 14

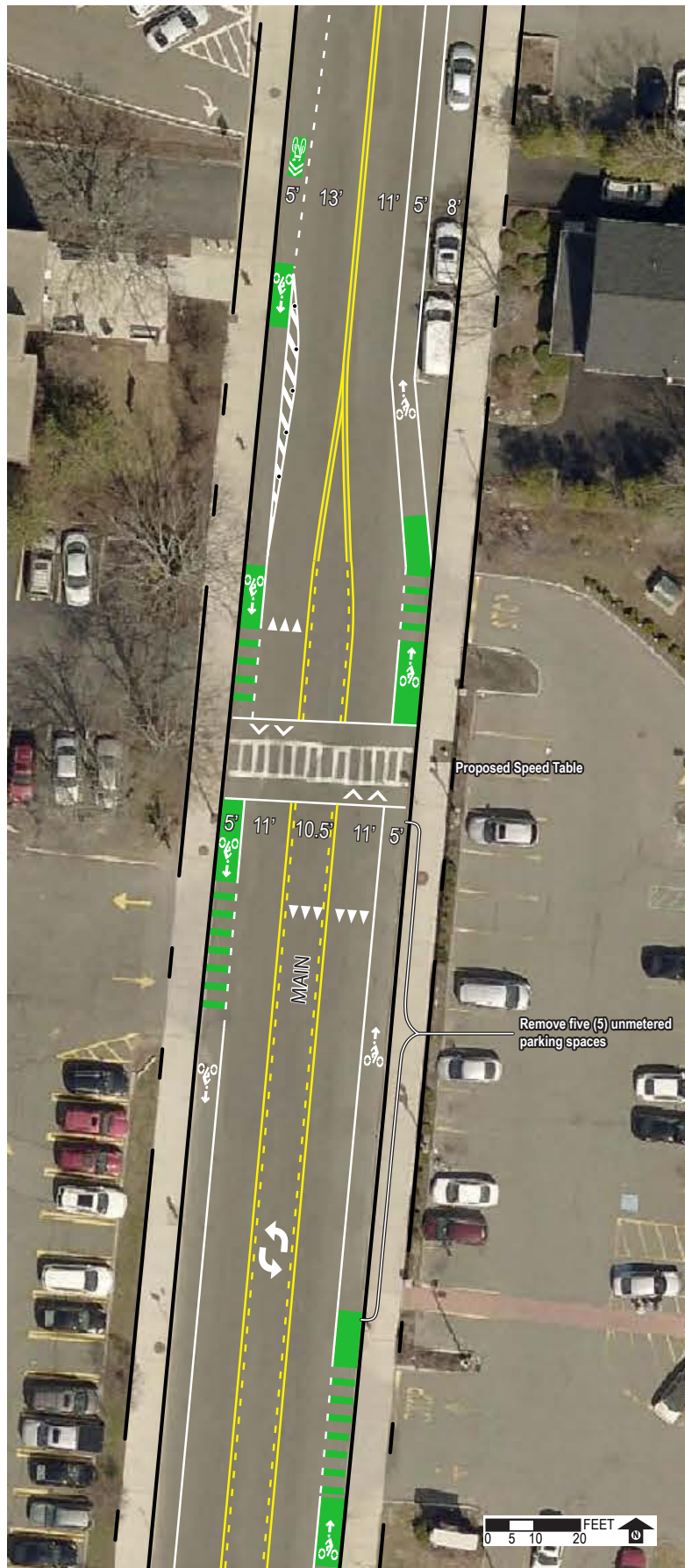


Figure 15

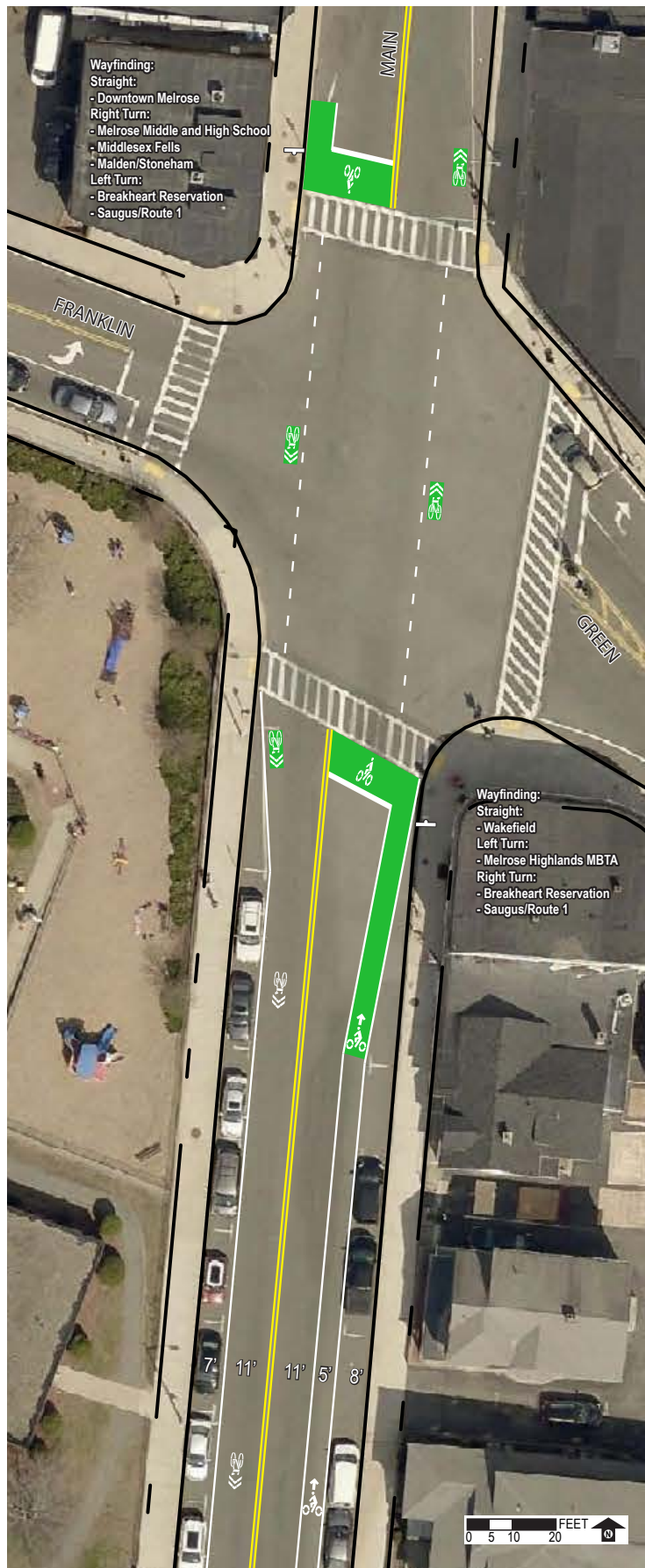


Figure 16

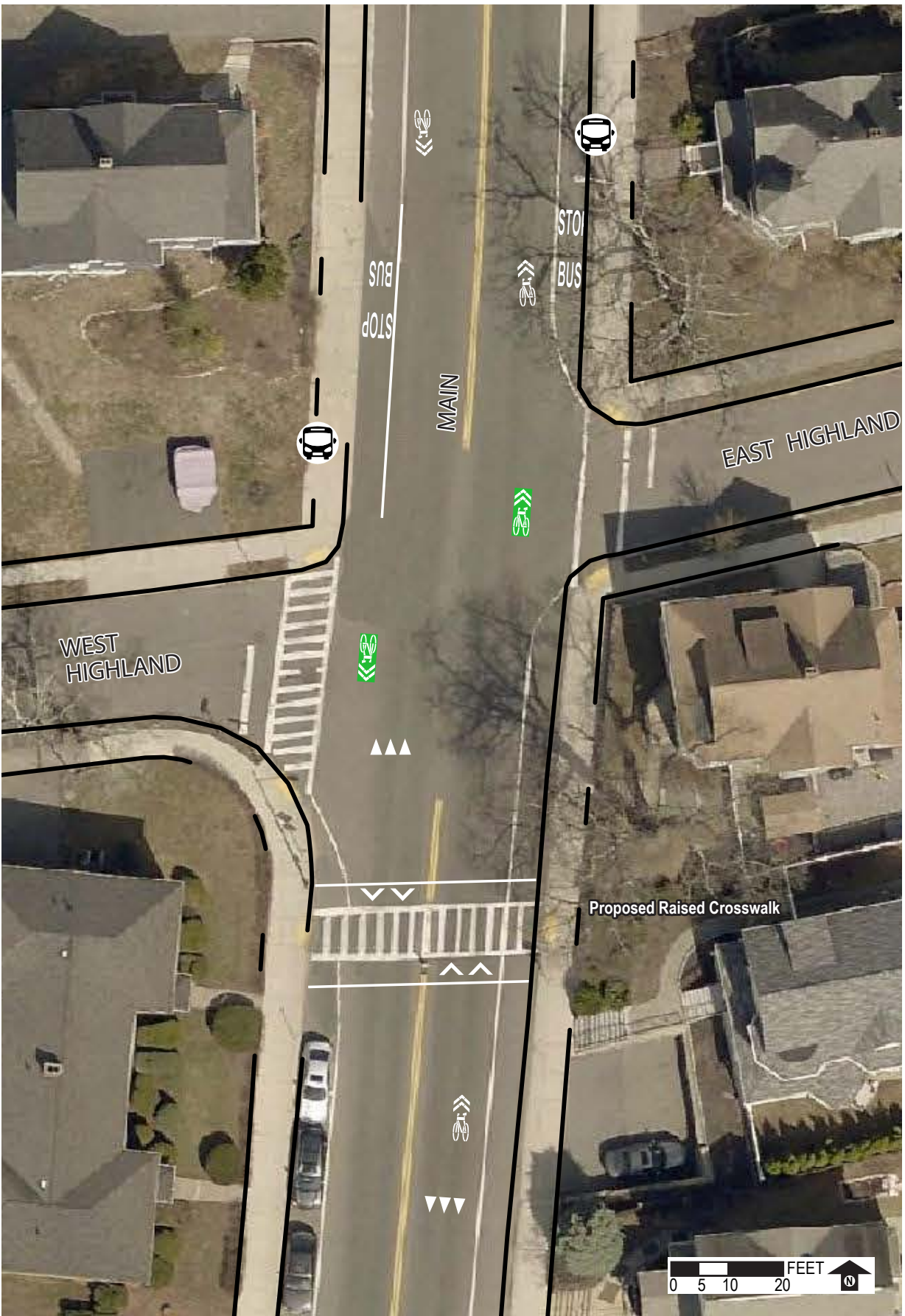


Figure 17



Figure 18

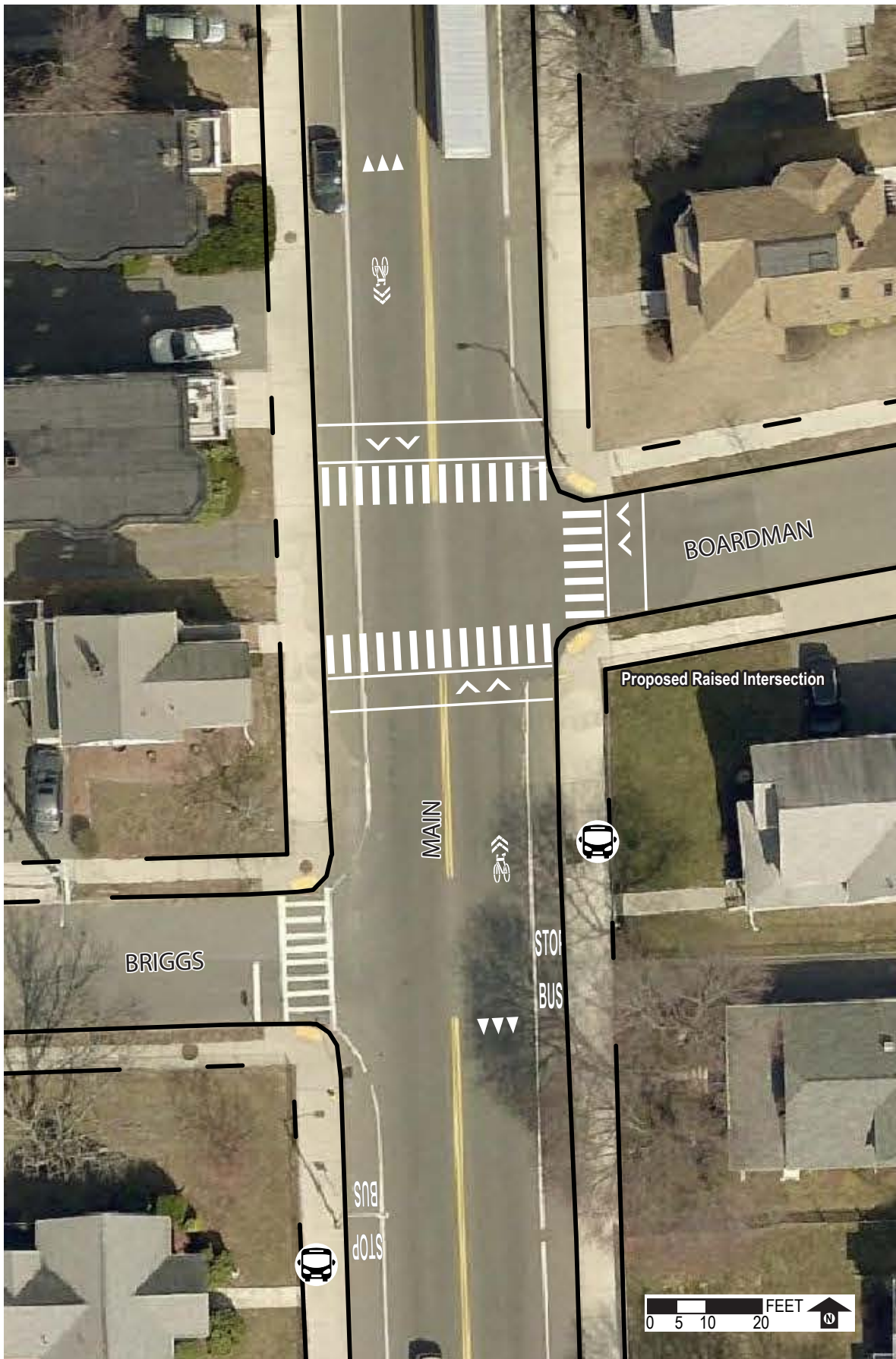


Figure 19



Figure 20

Recreational Trail Access

As noted in the route descriptions, new and existing dedicated bicycle/pedestrian paths provide important opportunities for safe, recreational riding. The Northern Strand Trail, or Bike to the Sea, connecting Everett, Malden and Saugus has been open for several years. Plans are being developed to expand the trail with access to North Shore beaches through Lynn and extension of the trail through Everett to Route 99. While the trail is very close to Melrose, access to the trail in downtown Malden requires travel on busy streets with no bike accommodations. Access from the east side of Melrose provides the most comfortable route, via Swains Pond Rd. From the intersection of Swains Pond and Lebanon in Malden, it is about ½ mile to the Northern Strand Trail off Lebanon. Melrose should consider signing Swains Pond for bicycle access and should work with Malden to improve bicycling conditions along Lebanon Street. Recent discussions with Malden and MAPC on access to Oak Grove Station can be expanded to include access to Northern Strand.

Two new trails are also being developed in nearby towns. The Tri-Town Trail will connect downtown Stoneham with Winchester with a branch to Horn Pond in Woburn, adding 6.6 miles of exclusive bicycle/pedestrian right of way to the region. From where the trail ends in

Winchester there is good access to the Mystic Valley Parkway, a series of trails along the Mystic River and ultimately the Minuteman Trail. The trail is under construction and scheduled to open in 2018. The trail can be accessed from Melrose via Franklin Street and Greenwood/Spring Streets. The most direct access to the trail from Melrose is via Franklin Street, a heavily traveled commercial street with no bicycle accommodation that even seasoned bike commuters on our committee feel unsafe riding. Melrose should engage Stoneham in discussions on whether access to the trail via both Franklin and Spring Street can be improved.

Efforts are also underway to develop a bicycle/pedestrian trail through Wakefield and Lynnfield. This trail is currently in the planning and initial design stage, with funding sources still to be identified. Construction is likely several years away. The southern terminus of the trail will be at the Galvin Middle School on Main Street, just south of Wakefield Center. Improvements to Main Street in Melrose can help encourage access to the trail and coordination should be initiated to help improve bike accessibility on Main Street in Wakefield. Like Main Street in the northern part of Melrose, this road is wide along most of its length and could be configured to provide a safer route to the planned trail.

Bike Route Wayfinding Signage and Markings System

A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes. Signs are typically placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.



Future Considerations

The Reading, Wakefield, Melrose Main Street Corridor Study² prepared by the Metropolitan Area Planning Council (MAPC) in 2012 recommended the communities “evaluate the Haverhill Line commuter rail right-of-way to determine if there is enough width to accommodate a bicycle path. A railroad right-of-way, the area designated for transportation along a rail corridor, allows for railway maintenance and can be utilized to accommodate a bicycle path,” and “Adding a bicycle path along the Haverhill commuter

rail line would provide better connectivity along the corridor and could potentially provide a direct connection to North Station in Boston. By removing bicyclists from roads, the potential for conflicts with vehicles decreases.”

The Committee notes that there is adequate right of way for an off-road path along the commuter rail tracks between at least Grove and W. Emerson Streets, and recommends continuing to evaluate this opportunity for the long-term.

²*Main Street Corridor Study* - January, 2012
<https://www.mapc.org/resource-library/main-street-corridor-study/>

North/South Bicycle Network Plan

Melrose



Ped/Bike

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<https://melrosepedbike.wordpress.com/n-s-bicycle-network-plan/>

Link to online version of this plan