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## *North Salem Walk Audit Salem, MA*

September 19, 2019

MAKING MASSACHUSETTS MORE WALKABLE

Old City Hall | 45 School Street | Boston MA 02108 | T: 617.367.9255 | F: 617.367.9285 | info@walkboston.org | www.walkboston.org

## Background

On Friday, September 19, 2019, WalkBoston conducted a walk audit in the North Salem neighborhood. This walk audit was completed through the Massachusetts Department of Public Health's Mass in Motion program, which grants funding and provides technical assistance to help communities eat better and be more active. WalkBoston has been providing technical assistance to Mass in Motion projects throughout the state, and has previously conducted walk audits in Salem in the locations that include: The Point neighborhood, downtown Salem, and Salem State University campus (<https://walkboston.org/where-we-work/salem/>).

The North Salem walk audit route included North Street from the North Street Bridge to Orne Street; Buffum Street to Randall Street; Franklin Street to Furlong Park, the bike and pedestrian path connecting North Street to the Salem MBTA Commuter Rail Station; and the North Street bridge underpass back to North Street.

MassDOT's crash data indicate 11 pedestrian-involved crashes occurred in the walk audit area between 2009-2019, one of which resulted in a fatality of an older adult pedestrian on North Street. Residents of

the North Salem neighborhood have a desire to make their neighborhood safe and comfortable for people walking to the neighborhood's businesses, the MBTA commuter rail station, schools, and along residential streets.

## Key Recommendations

1. Improve the level of comfort for people walking in the North Salem neighborhood with a connected, accessible sidewalk network
2. Install clearly marked, visible crosswalks at high pedestrian utilization locations along North Street
3. Enhance pedestrian visibility at existing North Street crosswalks
4. Implement traffic calming strategies on North Salem residential streets that intersect with North Street including Buffum Street, Franklin Street, Orne Street, and School Street

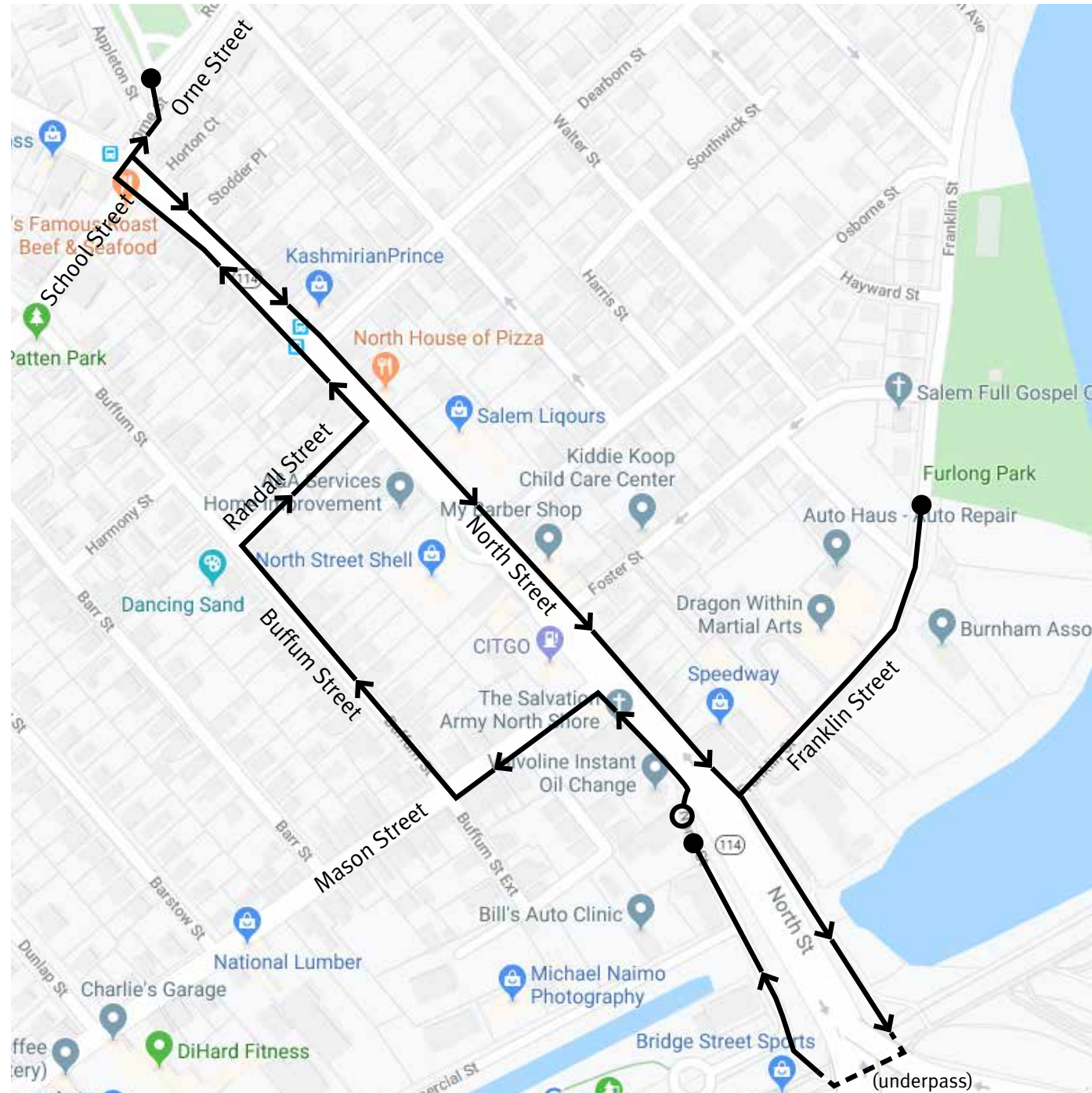
## Walk Audit Participants

<u>Name</u>	<u>Organization</u>
Anne Sterling	North Street Northfields Neighborhood Association
Megan Riccardi	North Street Northfields Neighborhood Association
Nina Cohen	North Street Northfields Neighborhood Association
Lee Dearborn	North Street Northfields Neighborhood Association
Steve Zuretti	North Street Northfields Neighborhood Association
Russell Findley	Mobility Coordinator, City of Salem
Nick Downing	Assistant Director of Traffic & Circulation, City of Salem
Andrea Vorwitti	LWS
Ziqing Ye	LWS
Octavia Parker	LWS
Eric Papetti	Resident/TPC
Sally	Resident (Eric's dog)
Stacey Beuttell	WalkBoston
LeighAnne Taylor	WalkBoston

## Walk Audit Route

The walk audit began at Landworks Studio, Inc. in the North Salem neighborhood. Walk audit participants walked north on North Street to Mason Street, then walked west on Mason Street to Buffum Street. The group traveled north along Buffum Street to Randall Street and then back to North Street via Randall Street. Walk audit participants then walked north along North Street to Orne Street and back south along North Street to Franklin Street, which intersects

with North Street at the North Street bridge. The group walked east on Franklin Street to Furlong Park and returned to North Street to take the walking path, east of the North Street bridge, to the MBTA Salem Commuter Rail Station. The audit route ended with walking the North Street Bridge underpass to a connector street, also called North Street, between Bridge Street and North Street to return to Landworks Studio, Inc.



## Neighborhood Characteristics

North Salem is a residential neighborhood located within a 10-minute walk of downtown Salem. North Salem and downtown Salem are connected via North Street. North Salem has parks, restaurants, and retail establishments along North Street that are within walking distance of many residential streets. North Salem also has several schools including two elementary schools, a preschool, and a high school.

Despite close proximity to the downtown district and nearby businesses, many residents in North Salem choose to use their personal vehicles because the quality of the walking environment across and/or under the North Street bridge feels unsafe and long. The land uses closest to the bridge appear uncared for, unoccupied and dark at night. Landworks Studio located at 83 North Street, however, is an excellent example of restoring a former car dealership and repair shop into a design studio. Poor crosswalk locations and visibility, and a lack of separation from moving vehicle traffic, create a low level of comfort when walking in this neighborhood.



North Street has wide sidewalks and a verge to separate walkers from moving vehicles. Even so, heavy vehicle traffic and snow in winter are a couple of reasons why residents say the area is difficult to walk through.

## Street Characteristics and Recommendations

### North Street

North Street, a two-way minor arterial with two travel lanes in each direction, is a main access point to downtown Salem and has relatively high traffic volumes during peak commuting hours. The section of North Street in the study area has a series of signalized intersections that slow the flow of traffic through North Salem resulting in traffic congestion due to the sheer number of vehicles using the roads. Drivers often choose to cut through the residential streets to the east and west of North Street to avoid this congestion. Residents and neighborhood leaders expressed concern about both the volume and speed of cars traveling along the neighborhood streets.

North Street has wide, well-maintained sidewalks on both the east and west sides. There is a verge separating the sidewalk from the vehicle travel lane on both sides of North Street along the audit route.

Despite the presence of a verge, the volume of traffic makes the walking environment feel uncomfortable. In some areas along the sidewalks, vegetation needs to be trimmed and the grass and weeds mown. In the winter, property owners are responsible for sidewalk snow clearance on North Street. According to walk audit participants, snow mounds build up on both sides of the sidewalk, narrowing the walking path and reducing driver visibility of pedestrians. Plowed snow mounds also grow at intersections, creating barriers to curb ramp access and further decreasing pedestrian visibility at the intersections.

There are three crosswalks along North Street between Landwork Studios, Inc. and Orne Street to the north, which is a distance of 0.3 miles. Two of the three crosswalks are at signalized intersections (Mason Street and Orne Street) and one crosswalk is a midblock crossing with signage and no signal north of Osborne Street. The distance between the existing crosswalks exceeds the National Association of City Transportation Officials (NACTO) recommended distance of 200 feet in densely populated areas. Vehicles often park too close to the midblock crossing at Osborne Street reduces pedestrian visibility.

There are many business entrances on North Street that have driveways with wide curb cuts that walkers must cross when they are walking on the sidewalk. The



View of the crosswalk signage at Osborne Street is obstructed by a tree.

constant flow of traffic taking high speed, wide turns into and out of these businesses requires walkers to be extra vigilant when walking along North Street, reducing the level of comfort for people walking.

### Recommendations for North Street

1. Increased comfort: Enhance the features of the verge to further separate pedestrians from vehicle traffic through the planting of trees or incorporation of other landscaping elements
2. Snow policy: Work with property owners on North Street to ensure that sidewalks are passible, crosswalks are accessible, and pedestrians are visible
3. Crosswalks:
  - a. Evaluate the signal timing and phasing of the traffic signal at Mason and North Streets to determine if adding a crosswalk across North Street on the northern side of Mason Street is safe.
  - b. Move the midblock crossing pedestrian signage at Osborne Street so that the sign is not blocked by the tree. Add elements to enhance pedestrian visibility and safety at this midblock crossing, including curb bump-outs and Rectangular Rapid Flashing Beacons (RRFBs).
  - c. Evaluate the location of the crosswalks on



Along North Street, heavy traffic congestion means drivers do not always pay attention to walkers' right of way.

North Street to ensure that they are located at high pedestrian volume locations.

- d. Consider adding an unsignalized crosswalk at Randall Street to permit crossing to the businesses near this intersection and provide another marked crossing of North Street (see below for more details).
  - e. Consider parking regulations to enhance pedestrian visibility, such as enforcement of a no parking zone within 20 feet of an intersection with a crosswalk.
4. Sidewalks: Evaluate city ordinances for reducing clutter of sidewalks (sandwich board signage at businesses, newspaper receptacles, etc) to ensure that they do not obstruct walk ways.
  5. Curb cuts: Evaluate city site plan guidelines and work with property owners (new and existing) to reduce the frequency and length of driveway curb cuts. Minimize curb radii lengths to slow turning cars. Require that sidewalk pavement material (e.g., concrete, brick) continue across driveways with a comfortable cross-slope to indicate pedestrians have priority along sidewalk length.



Curb cuts at the entrances to gas stations and other businesses along North Street are wide, encouraging drivers to turn at higher speeds.

### Key Intersections in North Street Study Area

#### Intersection of North Street and Mason Street

The intersection of Mason Street and North Street has a painted and signalized crosswalk at Mason Street and at the south side of this intersection on North Street. Pedestrians also cross this intersection at the north side of North Street.

Vehicles approaching North Street from the west on Mason Street are prohibited from making left turns onto North Street. Many drivers, however, do not respect this prohibition which makes crossing at this location even more dangerous. Many drivers divert to Buffum Street and take Randall Street to make a left onto North Street. Walk audit participants reported that this traffic pattern has increased traffic volumes and traffic speeds on Buffum Street and Randall Street.

#### Recommendations

1. Evaluate the signal timing and phasing of the traffic signal at Mason and North Streets to determine if adding a crosswalk across North

- Street on the northern side of Mason Street is safe.
- Update pedestrian signals to current Accessible Pedestrian Signal (APS) standards including countdown signals. It appears the traffic signals and mast arms were recently upgraded (according to Google Maps Street View history).
  - Reevaluate the effectiveness and safety of the prohibited left turn at this intersection. Walk audit participants watched multiple cars make illegal left turns while standing at the intersection.

### Intersection of North Street and Randall Street

Randall Street is a narrow, one-way street with traffic moving from Buffum Street northeast to North Street. Randall Street is used as an alternative access point to North Street for drivers who cut-through Buffum Street to avoid traffic congestion. North Salem residents suggested that Randall Street be closed to through traffic with bollards installed at the North Street intersection to bring Randall Street to a dead end. Randall Street has very narrow sidewalks sometimes dominated by overgrown vegetation, which for a one-way, low traffic volume street could be acceptable. However, given the current use patterns described



Power line poles on Mason Street obstruct the sidewalk.



Overgrown vegetation on Randall Street is a challenge for walkers.

by the residents, the narrow sidewalks need to be addressed.

Pedestrians cross North Street at Randall Street from the Buffum Street residential area to access the restaurants and businesses on the east side of North Street. There is no pedestrian crosswalk at this location currently. Residents would like to see the addition of a crosswalk here with Rapid Rectangular Flashing Beacons (RRFBs) and curb bump outs.

### *Recommendations*

- Study the impact of ending Randall Street before it intersects with North Street through the use of bollards or some other traffic controls.
- Consider installing a crosswalk at the intersection of Randall Street and North Street to allow people to cross North Street at this location.
- Address the issues of the narrow sidewalks either by implementing a shared use street concept for the length of Randall Street, or some other re-allocation of space to provide sidewalks for users of all abilities.



A trash bin disrupts an otherwise wide sidewalk on Mason Street.



Utility poles on Orne Street block pedestrian crossing ramps.



The intersection of North Street and Orne Street.

### Intersection of North Street and Orne Street/School Street

This intersection is particularly treacherous for people walking due to the long crossing distances, asymmetrical approaches, and blind corners. The intersection is signalized with an exclusive pedestrian phase, but no countdown signals. The exclusive pedestrian phase seems appropriate at this location given the vulnerable populations using this intersection. Bates Elementary School is located in the North Salem neighborhood on Liberty Hill Avenue, which can be accessed from North Street via Orne Street. The school has received Safe Routes to School infrastructure funding to improve walkability to the school campus from the surrounding residential streets, however the project scope does not extend to this intersection. Currently, parents do not let their children walk to school across North Street due to high traffic volumes, aggressive red light running, and long crossing distances.

In addition to the Bates School, the cemetery is a popular destination for people walking for recreation. The sidewalk network is incomplete on the north/east side of North Street where Appleton Street intersects Orne Street. A new sidewalk lines the cemetery side of Orne Street, but there is no sidewalk along Appleton

Street along the cemetery side. There is no crosswalk across Appleton Street to reach the cemetery entrance. Walk audit participants reported that drivers try to zip around the corners and do not expect pedestrians to be in this area. The large expanses of pavement do little to discourage speeds.

### *Recommendations*

- Study options to narrow all approaches to the intersection with the goal of shortening crossing distances for people walking. Options to consider include curb bump-outs, pedestrian refuge islands (particularly at the Orne St/Appleton St intersection), and/or narrowing travel lanes by adding bike lanes or changing lane striping layout.
- Evaluate signal timing and phasing to minimize the wait time for pedestrians to improve compliance with the WALK signal and reduce wait times for all road users.
- Install a WALK countdown signal with audible and tactile accessible pedestrian signal warnings at the intersection of Orne Street and North Street
- Install a crosswalk across Appleton Street with appropriate enhancements including curb ramps, detectable warning strips, and advance signage. Consider installing an RRFB if additional warning is needed to slow vehicular traffic.
- Improve the sidewalk along the west side of Appleton Street and/or install a new sidewalk along the cemetery side of Appleton Street.

### North Street Access to the MBTA Commuter Rail

North Salem walkers and bikers who travel via the MBTA Commuter Rail at the Salem Station use North Street to reach the station. The Salem Station is the MBTA's highest ridership volume Commuter Rail station.

From the MBTA Salem Commuter Rail, pedestrians traveling to North Salem must use the North Street Bridge to access the station or use the off-road paved path along the North River. The walking path along North River is not well-lit at night, and has thick vegetation and discarded lumber and construction equipment along its edges making it feel uncared for and dangerous. Commuters often chose to take the bridge when walking from the Salem MBTA station in the evenings. Walking on the bridge feels exposed given the relatively narrow sidewalk up against fast-moving cars and loud traffic noise.

At the north end of the riverside walking path, the path ends at the intersection of Franklin Street and North Street, where there is a large parking lot of a business that was recently purchased.

### Recommendations

1. Improve lighting along path to emit more light on the walking path
2. Clean-up the riverfront of discarded construction debris and overgrown vegetation to create a welcoming walking environment
3. Plan development of parking lot at the north end of walking path to improve connectivity of North Street and North Salem to the walking path and commuter rail station
4. Consider a wayfinding signage program that identifies the path and gives approximate walking times to the MBTA commuter rail station (similar to the signs posted in the North Salem neighborhood).

### Intersection of North Street and Franklin Street

Franklin Street leads to a well-established residential neighborhood behind the commercial district along North Street. People walk across North Street at Franklin Street to access the Salem Commuter Rail Station from the west side of North Street and to access the two parks that are in close proximity to the North Street Bridge (Leslie's Retreat Park to the west and Furlong Park to the east). Vehicles travel at high speeds over the bridge from downtown Salem into North Salem, and visibility of pedestrians crossing at this location is poor. There is no marked crossing at this location; the closest marked crossing is approximately 300 feet away near the Mason Street intersection.

People walking to the train station from the west side of North Street could walk under the bridge without crossing North Street, but this pathway is not well-marked, well-lit or well-maintained. The North Street bridge underpass also serves as an access point to Leslie's Retreat Park. There are no sidewalks on North Street at the pedestrian park access points. Despite close proximity to North Salem, residents use their vehicles to access the park's southwest entrance where there is a larger parking lot.

Franklin Street is a commercial and residential street in the North Salem neighborhood. Furlong Park is a

city park located on Franklin Street that has multi-use sports fields and a play structure. There is a sidewalk on the south side of Franklin Street for only the first 0.25 miles of the street. The existing sidewalk is in need of re-paving. The curb cuts on this sidewalk for the Franklin Street businesses need to be tightened to slow vehicle turning speeds across the sidewalk and into the business parking lots. Drivers travel over the North Street bridge at high speeds and do not yield to pedestrians when turning right onto Franklin Street. The crossing distance across Franklin Street could be shortened with curb bump-outs to limit the time pedestrians are vulnerable.

### Recommendations

1. Consider a redesign of North Street that would provide an enhanced, marked pedestrian crossing at the north end of North Street bridge to cross North Street at Franklin Street.
2. Enhance the crosswalk at the intersection of Franklin Street and North Street to improve pedestrian visibility; consider adding curb bump-outs to shorten the crossing distance.
3. Enhance the North Street bridge underpass to improve the walking environment
4. Improve pedestrian accessibility and connectivity of Leslie's Retreat Park
5. Create a connected sidewalk network on Franklin Street to improve the walkability of this residential street, to promote safe pedestrian access to Furlong Park, and to narrow the width of the travel lanes to slow vehicle speeds



The North Street bridge underpass is not well marked, lit, or maintained but still used as an access point Leslie's Retreat Park.

6. Ensure that parking on Franklin Street does not block pedestrian visibility if a sidewalk network with crosswalks are considered

### Buffum Street

Buffum Street is a residential street that runs parallel to North Street. Buffum Street is a narrow, two-way street with parking on both sides of the street. Drivers often utilize Buffum Street as a cut-through to avoid the traffic and signals of North Street. A member of the North Street Northfields Neighborhood Association submitted a Neighborhood Traffic Calming application to the City of Salem for Buffum Street that advocates for conversion to a one-way street. While a one-way street may cut down on traffic volumes on Buffum Street, it could increase traffic speeds as drivers no longer have to yield to oncoming traffic. It would be prudent for the City to examine this issue and the potential spillover to other residential streets if Buffum is made one-way.

Sidewalks along Buffum Street are generally in good shape, however overgrown vegetation narrows or obstructs the sidewalk on Buffum Street at several locations. Also, the granite curbs at the sidewalk verge of Buffum are low and non-existent in some places, which leads to cars parking in the verge.

### Recommendations

1. Study options to reduce the volume and speed of cars on Buffum Street including a one-way traffic pattern, speed tables, or other measures
2. Trim vegetation to improve the accessibility of sidewalks along Buffum Street
3. Standardize the height of the curb along North Street to separate discourage parking on the sidewalk and verge
4. Add a crosswalk at the intersection of Buffum Street and Randall Street



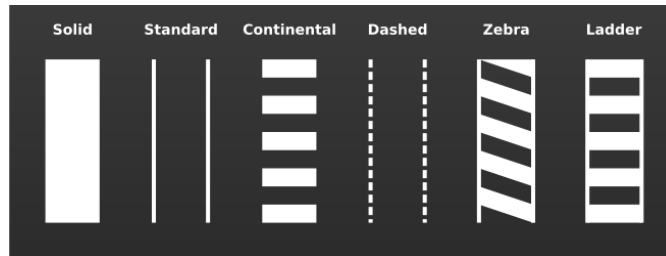
Poor walking conditions such as broken and cracked sidewalks, and obstructions like overgrown vegetation and cars parked into the sidewalk, are barriers for walkers along Buffum Street.

## Appendix A. Terminology

Below are images and definitions of the terms used to describe the walking environment in this report.

### Crosswalk and Stop Line

Crosswalks can be painted in a variety of ways, some of which are more effective in warning drivers of pedestrians. Crosswalks are usually accompanied with stop lines. These lines act as the legally mandated stopping point for vehicles, and discourage drivers from stopping in the middle of the crosswalk.



Crosswalk patterns  
Source: USFHA



Crosswalk and stop line  
Source: [http://safety.fhwa.dot.gov/ped\\_bike/tools\\_solve/ped\\_scdproj/sys\\_impact\\_rpt/images/fig16.jpg](http://safety.fhwa.dot.gov/ped_bike/tools_solve/ped_scdproj/sys_impact_rpt/images/fig16.jpg)

### In-street Pedestrian Crossing Sign

In-street pedestrian crossing signs are used at the road centerline within crosswalks to increase driver awareness of pedestrians in the area. These signs are a relatively low-cost, highly effective tool in slowing traffic by the narrowing travel lanes. They are popular with road maintenance departments since they can be easily moved for snow removal.



### Curb Ramp and Detectable Warning Strip

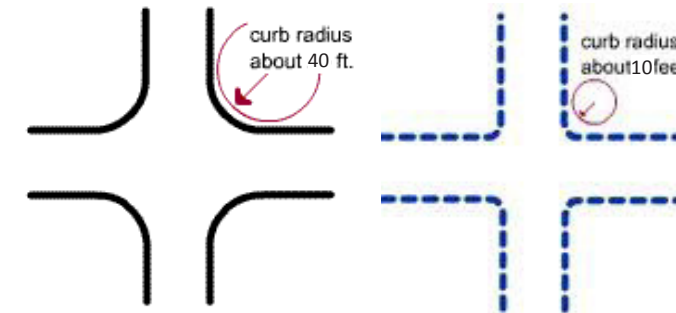
Curb ramps provide access from the sidewalk to the street for people using wheel chairs and strollers. They are most commonly found at intersections. While curb ramps have improved access for wheelchair-bound people, they are problematic for visually impaired people who use the curb as an indication of the side of the street. Detectable warning strips, a distinctive surface pattern of domes detectable by cane or underfoot, are now used to alert people with vision impairments of their approach to streets and hazardous drop-offs.



Curb ramp and detectable warning strip

### Curb Radius

A longer curb radius (on the left in figure below) allows vehicles to turn more quickly and creates longer crossing distance for pedestrians. A shorter curb radius (on the right in the figure below) slows turning speeds and provides pedestrians shorter crossing distances.



There are two excellent examples of the shortening of curb radii in Woburn, MA. The first (A) is a low-cost solution using a gravel-filled zone between the original curb line and the newly established road edge. The second is a higher-cost solution using grass and trees and extending the sidewalks to the new curb. Both work to slow traffic.

### Curb Extension/Curb Bulb-out

A sidewalk extension into the street (into the parking lane) shortens crossing distance, increases visibility for walkers and encourages eye contact between drivers and walkers.



Curb extensions are often associated with mid-block crossings



(A) Gravel-filled curb extension



(B) Grass, trees and extended sidewalk in curb extension

### Fog Line

A fog line is a solid white line painted along the roadside curb that defines the travel lane. It narrows a driver's perspective and helps to slow traffic speeds. Fog lines are used in urban, suburban and rural locations.



Fog lines delineate the vehicular driving zone on wide roadways.