walkBoston®

Walk Assessment

Fall River, MA

October 15, 2014

Massachusetts Department of Transportation
Bicycle and Pedestrian Safety Program

in partnership with Massachusetts Department of Public Health

MAKING MASSACHUSETTS MORE WALKABLE
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Report Scope and Purpose

WalkBoston conducted this walk assessment as part of the Massachusetts Department of Transportation Bicycle and Pedestrian Safety Program, in association with the Massachusetts Department of Public Health. WalkBoston is a pedestrian advocacy organization whose mission is to make walking safer and easier in Massachusetts to encourage better health, a cleaner environment and vibrant communities. The purpose of the walk assessment is to develop knowledge and awareness of the pedestrian environment at the state and municipal level.

This walk assessment report summarizes the observations made along the walk route and makes recommendations for improvements to the built environment. The observations vary from specific infrastructure deficits (e.g., faded crosswalk, uneven sidewalk) to general comments on traffic speeds or land use patterns (e.g., vacant storefronts). Likewise, the recommendations range from individual fixes (e.g., paint the crosswalk) to suggestions for further study (e.g., evaluate the feasibility of installing raised crosswalks). The assessment is not meant to be a complete inventory of infrastructure deficiencies, nor is it meant to provide specific designs for improvement.

WalkBoston leads these assessments as a means to build local capacity for improving the built environment for walking and not as a complete inventory of walking conditions. WalkBoston staff members are not licensed design or engineering professionals. This report may be used as a resource for municipal staff and for design professionals who may be engaged by municipalities to program and design infrastructure improvements.

Fall River Walk Assessment

The City of Fall River is one of twelve communities participating in the Massachusetts Department of Transportation's multi-disciplined program to improve bicycle and pedestrian safety in Massachusetts. One component of the MassDOT program is to conduct walk assessments. The assessments have three goals:

1. Foster an awareness of the infrastructure elements which contribute to the walking environment
2. Evaluate the safety and quality of the walking environment along the route
3. Recommend infrastructure improvements

The City of Fall River identified several high-priority intersections that are particularly dangerous for pedestrians and cyclists. With input from the Mass in Motion program, City officials and the Fall River Police Department, WalkBoston established a walking route that incorporated one of these intersections, and also looked at the safety of the pedestrian environment for students attending the Mary L. Fonseca Elementary School and the Boys and Girls Club of America before and after school programs. The route also included the Pine and Robeson intersection which is at the corner of Ruggles Park, a popular city park. The walk assessment was conducted on October 15, 2014, from 3:00 to 5:00 pm. The weather was clear with temperatures in the high 60s.

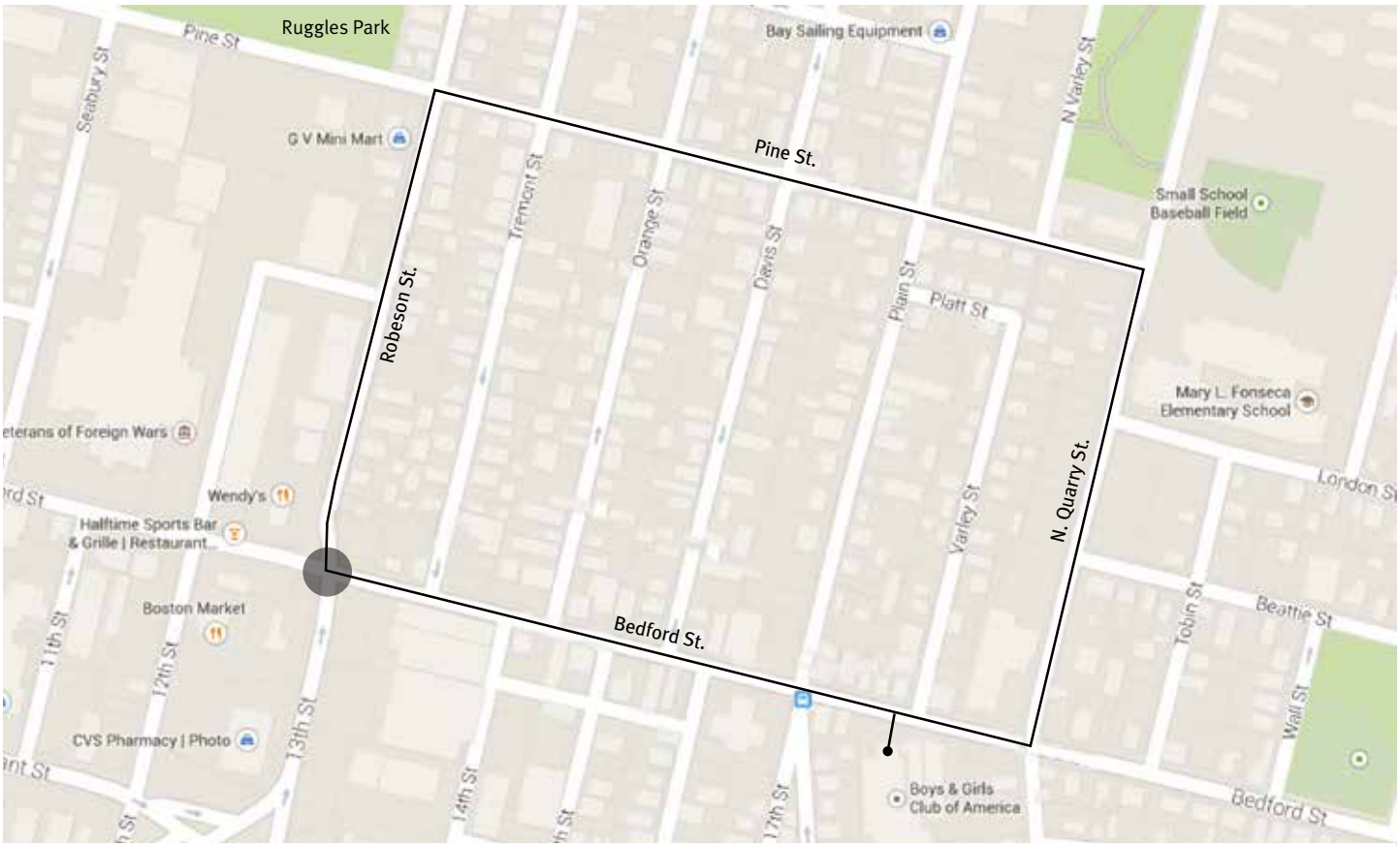
Crosswalk near the Boys and Girls Club

Study Area

The walk assessment focused on the collector streets and intersections in a residential, six-block area of the Flint neighborhood north of Interstate 195 (I-195) and west of U.S. Route 6. The primary intersection of concern, also a site of one of Fall River Police Department's enforcement activities, was the Bedford Street and Robeson Street intersection. Also of interest was the intersection of Pine and Robeson which is used frequently by walkers accessing Ruggles Park.

The Bedford Street corridor is home to residences, restaurants and other commercial enterprises, and the Boys and Girls Club. Pedestrian volumes are high and the traffic patterns, particularly during pick-up hours at the Boys and Girls Club, create confusion and congestion. The Mary L. Fonesca Elementary School on N. Quarry Street also has significant pedestrian and vehicular traffic at arrival and dismissal times with children and their families crossing unpredictably among parked cars and through gaps in traffic.

Crosswalk near Mary L. Fonseca Elementary School



Map of walk assessment route

Enforcement Location

Overall Conditions of the Walking Route

Participants made the following observations about the overall conditions along the walking route:

- Condition of curb ramps was inconsistent: ramps were missing or facing wrong direction; detectable warning strips were missing; landings were not always ADA-compliant
- Few pedestrian crossing signs either at marked crossings or in advance of crossings; few, if any, "yield to pedestrian" signs
- No countdown signals on pedestrian traffic signals
- Sidewalks have many obstacles and trip hazards, trash, and overgrown vegetation

Broken sidewalk and extensive curb cut on Bedford Street

Specific Observations and Recommendations

The descriptions below summarize the issues observed at each intersection and along the street corridors of the walking route and recommend short- and long-term improvements to the pedestrian environment.

Bedford Street and Robeson/13th Street Intersection

This intersection is full of complicated vehicular movements and is treacherous for pedestrians. Bedford Street is two-way on the east side of the intersection with one travel lane in each direction and parking lanes. On the west side of the intersection, Bedford Street becomes a one-way street with two, wide travel lanes that lead west to I-195.Thirteenth Street is one-way street with a primary lane leading through the intersection becoming Robeson on the opposite side. Two slip lanes facilitate right and left turns onto Bedford Street. The intersection is signalized and there are sidewalks on all sides of the intersection and some marked crossings.

View across 13th Street facing the western part of Bedford Street

Primary lane and two slip lanes looking south to 13th Street

Current infrastructure deficiencies:

- Pedestrians crossing on the south side of Bedford Street walking westbound toward 12th Street do not have a protected crossing to the pedestrian refuge island in the middle of 13th Street. The green right arrow is always illuminated for drivers turning right onto Bedford Street from 13th Street, including during the pedestrian phase of the traffic signal
- Pedestrian phase of traffic signal is exclusive and seems short; it takes two pedestrian phases to cross some approaches, but pedestrians are crossing as if they can clear the intersection in one pedestrian phase
- The WALK signal lights were out when crossing Robeson Street from east to west
- There is no marked crossing on Bedford Street on the west side of the intersection; due to oncoming, free flowing traffic a marked crossing may be more appropriate further west across Bedford Street at the intersection with 12th Street

Recommendations:

- Install a pedestrian push button signal at the southeast corner of the intersection to deactivate the green right arrow and provide a protected crossing across Bedford Street
- Evaluate the signal timing to determine if concurrent phasing could be implemented; may require upgrade in signal equipment
- Replace the WALK signal lights on Robeson Street

- Evaluate the need for painting a crosswalk at the intersection of Bedford Street and 12th Street to provide a marked crossing for pedestrians walking between the businesses on either side of Bedford Street

Absence of a pedestrian crossing along 12th Street

Pedestrian crossing on Robeson Street where WALK signal lights are out.

Robeson Street Corridor between Bedford Street and Pine Street

Robeson Street is heavily traveled with motorists traveling to the commercial district and to I-195. Robeson is a two-lane road with parking along the west side of the street. There is only one marked crosswalk between Bedford Street and Pine Street located in front of a former men's suit factory warehouse building. The sidewalks were in reasonable condition, but trash and litter was prevalent along the street.

Current infrastructure deficiencies:

- Mid-block crosswalk does not have curb ramps or detectable warning strips
- No advance or pedestrian crosswalk signage at the mid-block crosswalk

Recommendations:

- Evaluate location of mid-block crosswalk for adequate sight lines
- Install curb ramps and detectable warning strips
- Install pedestrian crosswalk and advanced crosswalk signage at the marked mid-block crossing

Missing curb ramp and detectable warning strips on Robeson Street

Pine Street and Robeson Street Intersection

The Pine/Robeson intersection is unsignalized with the primary traffic movement traveling north and south along Robeson Street. Traffic approaching the intersection from the east or west on Pine Street must stop at the STOP sign, but there are no STOP signs for traffic traveling in either direction on Robeson Street. There are crosswalks across all legs of the intersection and stop lines and advance stop signs on Pine Street. A crossing guard assists children across the street in the morning on their walk to school.

Current infrastructure deficiencies:

- Fast-moving, southbound traffic moving downhill on Robeson Street may not be sufficiently aware or pedestrians crossing from Pine Street due to limited pedestrian crossing signs, pavement markings and pedestrian visibility
- Curb ramps are not ADA-compliant and are missing on some corners; ramps are obstructed by telephone poles and fire hydrants; missing detectable warning strips
- Motorists who stop at the stop lines on Pine Street must inch into the crosswalk to see oncoming traffic on Robeson; many motorists do not comply with stop line due to limited visibility
- Crosswalk pavement markings are minimal
- No pedestrian crossing signs or "yield to pedestrian" signs on Robeson to forewarn drivers of pedestrians

Non-ADA compliant curb ramps on Robeson Street and Pine Street

Recommendations:

- Consider traffic calming measures to slow traffic on Robeson Street, such as a raised speed table or curb bump-outs; paint edge (fog) lines along Robeson to narrow travel lanes
- Install and replace existing curb ramps with ADA-compliant ramps and detectable warning strips
- Evaluate location of crosswalks – assuming utility poles and fire hydrants cannot be moved, crosswalks may need to move slightly outside pedestrian desire lines to meet ADA requirements
- Enhance crosswalk pavement markings – "piano keys", ladder, or continental design
- Install pedestrian crossing signs and/or "yield to pedestrian" signs on Robeson

Telephone pole blocking curb ramp across Pine Street

Pine Street and N. Quarry Street Intersection

Pine Street and N. Quarry Street is an incredibly busy intersection when students arrive and are dismissed from the Mary L. Fonseca Elementary School. Parents park their cars up and down Pine Street and walk to pick up their children at the school entrance. Crossing guards assist in traffic management and guiding children and their families across the street. According to walk assessment participants, the location of the crosswalks around the school corresponded to the dismissal locations for students which is implemented by the school principal. There have been several principals since the crosswalks were painted and the dismissal policies may have changed. Other than during school arrival and dismissal, this intersection has relatively low traffic volumes.

Stop sign bolted to telephone pole on N. Quarry Street

Current infrastructure deficiencies:

- Crosswalks are inconsistent in size and have minimal pavement markings; locations may no longer correspond to dismissal locations
- Mid-block crosswalk at the southernmost door of the school does not have curb ramps or detectable warning strips
- STOP sign nailed into telephone pole near N. Quarry Street and Beattie Street
- Detectable warning strips mounted directly on top of sidewalk near the school are now peeling off
- Sidewalks along N.Quarry Street are obstructed by overgrown vegetation and debris

Vegetation overgrowth on Pine Street

Recommendations:

- Verify that the location of crosswalks corresponds to current dismissal locations; may require consolidation of crosswalks and removal of the crosswalk with no curb ramps
- Install ADA-compliant curb ramps and detectable warning strips; provide consistent and proper advanced warning signs for the mid block crosswalks
- Replace non-compliant STOP sign with STOP sign on free-standing post
- Replace peeling detectable warning strip with more permanent solution; currently a tripping hazard
- Enforce ordinance to keep sidewalks clear and trim vegetation along N. Quarry Street sidewalks

Peeling detectable warning strip near the elementary school

Appendix A. Summary of Issues and Recommendations

Bedford Street and Robeson/13th Street Intersection

ISSUE	RECOMMENDATION	TIMEFRAME	RESPONSIBLE PARTY
No protected crossing to the pedestrian refuge island in the middle of 13th Street; green right arrow is always illuminated for drivers turning right onto Bedford Street from 13th Street	Install a pedestrian push button signal at the southeast corner of the intersection to deactivate the green right arrow and provide a protected crossing across Bedford Street	Mid-term	City of Fall River
Pedestrian phase of traffic signal is exclusive and seems short	Evaluate the signal timing to determine if concurrent phasing could be implemented; may require upgrade in signal equipment	Mid- to Long-term	City of Fall River
WALK signal lights out when crossing Robeson Street from east to west	Replace the WALK signal lights on Robeson Street	Short-term	City of Fall River
No marked crossing on Bedford Street on the west side of the intersection	Evaluate the need to paint a crosswalk at the intersection of Bedford Street and 12th Street to provide a marked crossing for pedestrians walking between the businesses on either side of Bedford Street	Mid-term	City of Fall River
Signal timing does not prioritize pedestrians: takes a long time for the phase to change to WALK, and the WALK phase itself seems too short	Consider changing the signal timing so that pedestrians can cross more quickly and efficiently; evaluate the vehicle volumes to see if concurrent phasing with a leading pedestrian indicator (LPI) is possible	Mid-term	City of Fall River
Pedestrian signal equipment is antiquated and in poor condition – appears to have been struck	Upgrade the pedestrian signal heads to a countdown signal	Long-term	City of Fall River

Robeson Street Corridor between Bedford Street and Pine Street

ISSUE	RECOMMENDATION	TIMEFRAME	RESPONSIBLE PARTY
Mid-block crosswalk does not have curb ramps or detectable warning strips	» Evaluate location of mid-block crosswalk for adequate sight lines	Short-term	City of Fall River
	» Install curb ramps and detectable warning strips	Long-term	City of Fall River
No advance or pedestrian crosswalk signage at the mid-block crosswalk	Install pedestrian crosswalk and advanced crosswalk signage at the marked mid-block crossing	Short-term	City of Fall River

Pine Street and Robeson Street Intersection

ISSUE	RECOMMENDATION	TIMEFRAME	RESPONSIBLE PARTY
Fast-moving, southbound traffic moving downhill on Robeson Street may not be sufficiently aware or pedestrians crossing from Pine Street due to limited pedestrian crossing signs, pavement markings and pedestrian visibility	Consider traffic calming measures to slow traffic on Robeson Street, such as a raised speed table or curb bump-outs; paint edge (fog) lines along Robeson to narrow travel lanes	Mid- to Long-term	City of Fall River
Curb ramps are not ADA-compliant and are missing on some corners; ramps are obstructed by telephone poles and fire hydrants; missing detectable warning strips	Install and replace existing curb ramps with ADA-compliant ramps and detectable warning strips	Long-term	City of Fall River
Motorists who stop at the stop lines on Pine Street must inch into the crosswalk to see oncoming traffic on Robeson; many motorists do not comply with stop line due to limited visibility	» Evaluate location of crosswalks – assuming utility poles and fire hydrants cannot be moved, crosswalks may need to move slightly outside pedestrian desire lines to meet ADA requirements	Long-term	City of Fall River
Crosswalk pavement markings are minimal	Enhance crosswalk pavement markings – “piano keys”, ladder, or continental design	Mid-term	City of Fall River
No pedestrian crossing signs or “yield to pedestrian” signs on Robeson to forewarn drivers of pedestrians	Install pedestrian crossing signs and/or “yield to pedestrian” signs on Robeson	Short-term	City of Fall River

Pine Street and N. Quarry Street Intersection

ISSUE	RECOMMENDATION	TIMEFRAME	RESPONSIBLE PARTY
Crosswalks are inconsistent in size and have minimal pavement markings; locations may no longer correspond to school dismissal locations	Verify that the location of crosswalks corresponds to current dismissal locations; may require consolidation of crosswalks and removal of the crosswalk with no curb ramps	Mid-term	City of Fall River
Mid-block crosswalk at the southernmost door of the school does not have curb ramps or detectable warning strips	Install ADA-compliant curb ramps and detectable warning strips; provide consistent and proper advanced warning signs for the mid block crosswalks	Mid-term	City of Fall River
STOP sign nailed into telephone pole near N. Quarry Street and Beattie Street	Replace non-compliant STOP sign with STOP sign on free-standing post	Short-term	City of Fall River
Detectable warning strips mounted directly on top of sidewalk near the school are now peeling off	Replace peeling detectable warning strip with more permanent solution; currently a tripping hazard	Short-term	City of Fall River
Sidewalks along N.Quarry Street are obstructed by overgrown vegetation and debris	Enforce ordinance to keep sidewalks clear and trim vegetation along N. Quarry Street sidewalks	Short-term	City of Fall River

Appendix B. Participant List

NAME	ORGANIZATION
Stacey Beuttell	WalkBoston
Laura Ferreira	City of Fall River Traffic and Parking
Kasia Hart	WalkBoston
Brendan Kearney	WalkBoston
Julianne Kelly	Mass in Motion
Thomas Mauretti	Fall River Police Department
Corey O'Connor	MassDOT
Luis de Oliveira	Southeastern Regional Planning and Economic Development District
Jackie Schmidt	Southeastern Regional Planning and Economic Development District
David Weed	Healthy City Fall River

Appendix C. 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

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 in Woburn, MA

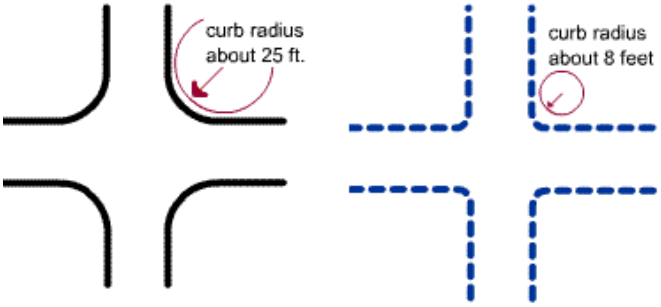
Curb extension/curb bulb-out

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

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.

Edge line

An edge line is a solid white line painted along the roadside curb that defines the driving lane and narrows the driver's perspective. Edges lines are most often used in suburban and rural locations, but may be appropriate in some urban conditions.

Edge lines delineate the vehicular driving zone on wide roadways.

(A) Gravel-filled curb extension

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

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.

Leading Pedestrian Indicator (LPI)

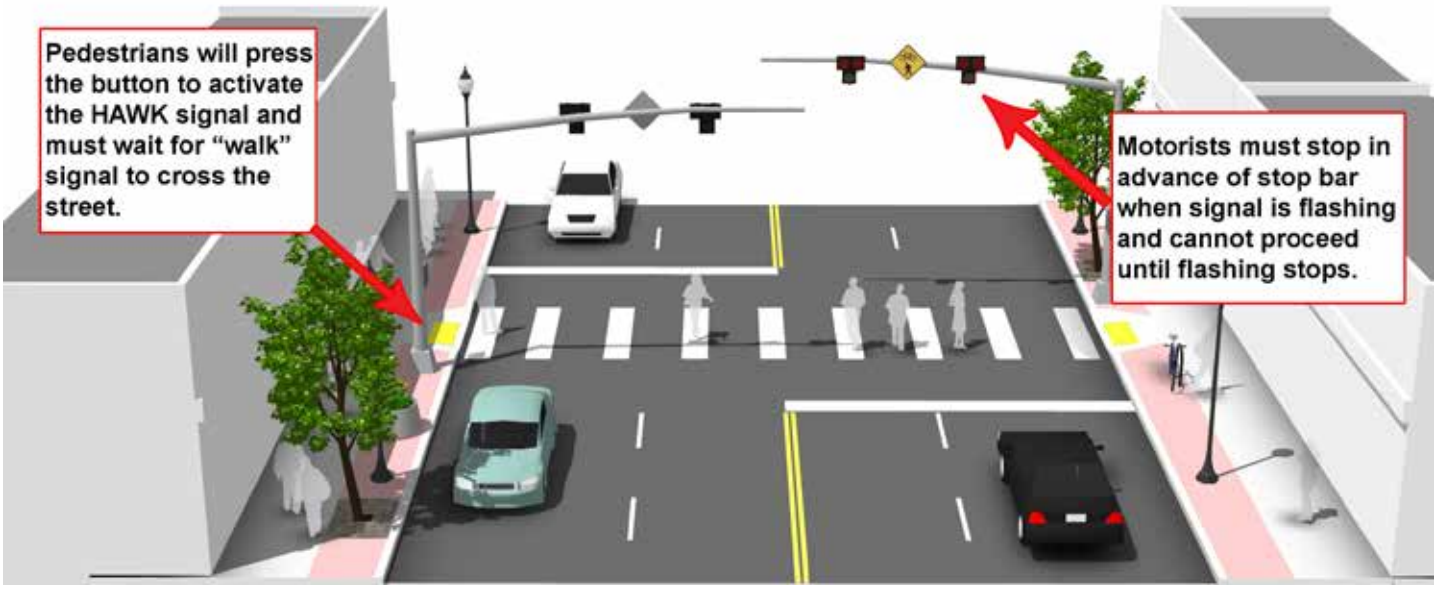
A leading pedestrian indicator gives pedestrians an advance walk signal before motorists get a green signal, giving the pedestrian several seconds to start walking in the crosswalk before a concurrent signal is provided to vehicles. This makes pedestrians more visible to motorists and motorists more likely to yield to them. Typical LPI settings provide 3 to 6 seconds of advance walk time.

Source: http://safety.fhwa.dot.gov/ped_bike/tools_solve/ped_scdproj/sys_impact_rpt/images/fig34.jpg

High-Intensity Activated crossWalk (HAWK)

A HAWK beacon (High-Intensity Activated crossWalK beacon) is a traffic signal used to stop road traffic and allow pedestrians to cross safely. It is officially known as a Pedestrian Hybrid Beacon (PHB). The purpose of a HAWK beacon is to allow protected pedestrian crossings, stopping road traffic only as needed. Where standard traffic signal 'warrants' prevent the installation of standard three-color traffic signals, the HAWK beacon provides an alternative.

Source: http://www.achdidaho.org/Projects/Images/NewHawkSignal092209% 20014.jpg



Source: http://bloomington.in.gov/media/media/image/jpeg/13144.jpg

Pedestrian Refuge Island

Pedestrian refuge islands are protected areas where people may safely pause or wait while crossing a street. Pedestrian refuge islands are particularly helpful as resting areas for seniors, persons with disabilities, children, and others who may be less able to cross the street in one stage. At signalized intersections, they allow slow-moving pedestrians to cross in two phases. At unsignalized locations, they simplify the act of finding a gap in traffic by allowing people to cross traffic moving in one direction at a time.

http://www.sfbetterstreets.org/find-project-types/pedestrian-safety-and-traffic-calming/traffic-calming-overview/medians-and-islands/

Pedestrian refuge island at a signalized crossing
Source:http://safety.fhwa.dot.gov/intersection/resources/fhwasa06016/images/fig95.jpg

Appendix D. Walk Assessment Tool

Transit/Walk Audit Assessment Tool

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Street Name/Intersection	
Date/Time	
Weather Conditions	
Neighborhood Character	
❍ Land use: residential, commercial, industrial or mixed use?	
❍ Community facilities: schools, parks, libraries?	
❍ Surface parking lots?	
❍ Buildings occupied?	
❍ Building facades – blank walls, engaging storefronts, sidewalk cafes?	
❍ Is there street activity?	
Street Description	
❍ Arterial or local	
❍ Number and estimated width of travel lanes – narrow, adequate, wide?	
❍ Parking – none, one or both sides?	
❍ Sidewalks – none, one or both sides?	
Vehicular Traffic	
❍ Posted speed limit signs	
❍ Estimated vehicle speeds	
❍ Volume	
Sidewalks	
❍ On both sides of the street?	
❍ Wide? Continuous? Smooth surface?	
❍ Curb ramps/detectable warning strips?	
❍ Buffered from traffic with landscape strips (verge)?	
❍ Minimal number of interrupting driveways? Narrow or wide driveways?	
❍ Are newspaper racks, outdoor seating organized?	

Street furnishings	
❍ Trees?	
❍ Benches?	
❍ Trash receptacles?	
❍ Bicycle accommodations?	
❍ Lighting?	
Crosswalks	
❍ Condition?	
❍ Design: 2 lines, zebra/ladder, stamped, pavers? Raised?	
❍ Marked and signed?	
Traffic signals	
❍ Pedestrian-activated? Countdown signals?	
❍ Timing – enough time to cross? Traffic stops in all directions? Traffic stops only in lanes pedestrian is crossing?	
❍ Right turn on red prohibited?	
Sight lines/Visibility	
❍ Obstacles – vegetation, light poles, parked cars?	
❍ Road design – curves, elevation change?	
Pedestrian Safety Countermeasures	
❍ Curb extensions?	
❍ Pedestrian refuge islands or medians?	
❍ In-street pedestrian signs?	
❍ Speed tables?	
Accessibility	
❍ Curb ramps?	
❍ Detectable warning strips?	
❍ Slopes/cross-slopes?	