



**Route 132 Walk Audit
Hyannis, MA**

August 9, 2018

*Sponsored by the Massachusetts Executive Office of Public Safety and Security
Planning Initiative for High-Fatality Communities*

On Thursday, August 9, 2018, WalkBoston conducted a walk audit along Route 132 in Hyannis (a village in the Town of Barnstable) as part of the Executive Office of Public Safety and Security's (EOPSS) Pedestrian Safety Planning Initiative for High-Fatality Communities. According to pedestrian crash data provided to WalkBoston from EOPSS, there have been 3 pedestrian fatalities and 122 pedestrian injuries in Barnstable between 2012-2017. These data qualified Barnstable for this initiative. The EOPSS Pedestrian Safety Planning Initiative builds municipal staff understanding and awareness of the components of a safe walking environment. WalkBoston is working in partnership with EOPSS to address walking safety concerns in Massachusetts communities with high pedestrian crash rates, with the goal of reducing pedestrian fatalities and serious injuries in the Commonwealth.¹

In Hyannis, WalkBoston met with representatives from the Town of Barnstable's Department of Public Works, Planning and Development, Parking Management, and the Police Department prior to the walk audit to identify an area where pedestrian safety improvements are needed. The town staff chose Route 132 between Independence Drive and Nightingale Lane, which includes the Cape Cod Mall and Capetown Plaza. According to MassDOT's top crash portal, this section of roadway has a pedestrian crash cluster indicating that 2 fatal pedestrian crashes and 2 pedestrian injury crashes occurred between 2005 and 2015. Furthermore, the town is preparing a request for funding to improve Route 132 and is interested in the walk audit recommendations for pedestrian improvements.

In addition to the documented pedestrian safety issues in this corridor, the Town is in the beginning stages of rethinking the design and use of Capetown Plaza. The Town owns the parcel as part of the Barnstable Municipal Airport's land holdings, and tenant leases will be ending in the near future. The Town has expressed interest in creating a more walkable, potentially mixed use development that would bring more pedestrian traffic to the area.

Key recommendations:

1. Redesign Route 132 using a complete streets approach to serve the needs of people walking and biking and improve traffic safety and levels of service. This may include strategies such as narrower lane widths, planted medians, and wide sidewalks that could double as multi-use paths.
2. Upgrade/construct sidewalks and curb ramps on the southern side of Route 132 between Independence Drive and Hinckley Road (next cross-street east of Nightingale Lane). Study feasibility of installing a sidewalk along the northern side of Route 132.
3. Study feasibility of additional signalized, marked pedestrian crossings across Route 132 to provide more protected crossings for people trying to access services on both sides of the road.
4. Redesign the Cape Cod Mall/Capetown Plaza intersection with Route 132 with improved pedestrian visibility; recalibrated signal phasing, adequate WALK time, and fully functional pedestrian signals; and well-marked, ADA compliant pedestrian crossings at all intersection approaches. Consider restricting right turns on red into and out of the Cape Cod Mall and Capetown Plaza entry roads.

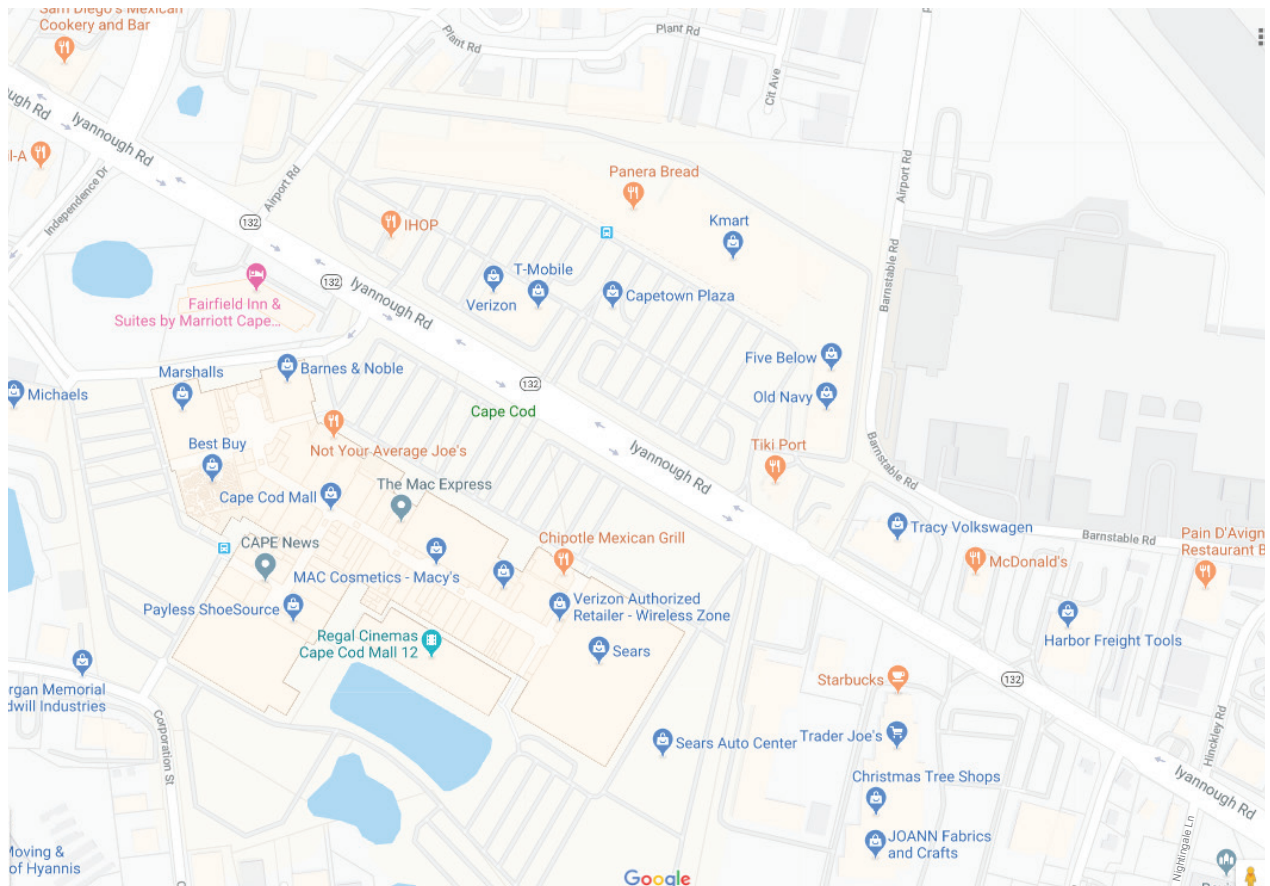
¹ See the EOPSS factsheet in Appendix A for more information.

- Promote internal vehicular circulation and pedestrian circulation between adjacent properties along Route 132 using wayfinding signage, designated walking areas, and connected service roads.

Walk Audit Route

Route 132/28 (Iyannough Road) stretches roughly east to west across Hyannis and connects downtown Hyannis to Route 6 (Mid-Cape Highway). Several hotels, two malls, car dealerships and other retail shopping areas line both sides of Route 132 in the walk audit study area. Parking lots dominate the landscape in this area with large expanses of impervious surfaces that create inhospitable places, particularly in the summer heat and humidity.

The northern half of the walk audit corridor is a 4-lane divided highway with dedicated left-turn lanes at the intersection of the Cape Cod Mall/Capetown Plaza and Route 132. The median is a simple raised concrete structure with no plantings that varies in width. The southern half of the walk audit corridor is a four-lane undivided highway. Speed advisory signs are posted on the northbound and southbound sides of the town-owned section of Route 132 between Bearse's Way and the Airport Rotary identifying this area as a business district with a 30 mph speed limit. Using a handheld speed monitor during the audit, WalkBoston staff measured speeds over 30 mph for greater than 90% of those drivers tracked, with a handful of drivers driving above 40 mph. The current design of Route 132 does little to mitigate speeds. Furthermore, the highway-like atmosphere gives few cues to drivers that people may be walking in the corridor.



Route 132 Walk Audit- Independence Drive to Nightingale Lane

Walk audit participants included staff from the Barnstable Department of Public Works, Planning and Development, and Parking Management, the Cape Cod Mall, the Cape Cod Commission and WalkBoston.

Paul Graves, P.E., Town Engineer	Department of Public Works
Elizabeth Jenkins, Director	Department of Planning and Development
Lev Malakhoff, Sr. Transportation Engineer	Cape Cod Commission
Alena Reardon, Marketing Director	Cape Cod Mall
Mona Solmonte, Parking Program Manager	Department of Planning and Development
Paul Wackrow, Principal Planner	Department of Planning and Development
Stacey Beuttell, Deputy Executive Director	WalkBoston
Brendan Kearney, Communications Director	WalkBoston

Discussion of Observations and Recommendations

- 1. Redesign Route 132 using a complete streets approach to serve the needs of people walking and biking and improve traffic safety and levels of service. This may include strategies such as narrower lane widths, planted medians, and wide sidewalks that could double as multi-use paths.**

A complete streets approach to road design is one that provides safe and accessible options for all road users – walkers, cyclists, transit riders, and drivers – and for people of all ages and abilities. Route 132 developed into its existing condition decades ago, and it appears that in that era the focus was almost exclusively on vehicular travel through this area. As a result, there is a clearly observable lack of adequate pedestrian and bicycle facilities. The Town has stated their intent to employ a complete streets approach to the redesign of Route 132.

Given that some traffic speeds observed on Route 132 during the walk audit exceeded the statutory 30 MPH speed limit for a business district (recognizing, however, that a speed study complying with state standards would be necessary to definitively determine the 85th percentile speed which is the established prevailing speed for engineering studies and establishing posted speed limits), traffic calming strategies, such as narrowing lane widths, should be considered. Depending on traffic volumes and transit/trucking routes, WalkBoston recommends reducing travel lanes to 10' whenever possible. This can be achieved in a number of ways, including simply restriping or painting fog lines. Longer term, more expensive fixes could include widening sidewalks, building separated bike facilities, and moving curb lines. Adding vertical elements, like trees and pedestrian-scaled street lighting has also been credited with reducing traffic speeds since they help to narrow a driver's cone of vision as they drive down a roadway. The wide right of way on Route 132 also provides opportunities to install planted medians with pedestrian refuge islands at key crossing points.

The *Boston Complete Streets Guidelines*² is an excellent resource for communities looking for complete street design solutions. Another helpful resource is the Urban, Rural and Suburban Complete Streets Design Manual published by Alta Planning + Design which outlines complete street road design

² <http://bostoncompletestreets.org/>

recommendations for development patterns more similar to those found in Hyannis and on the Cape at large³.

MassDOT has a Complete Streets Funding Program which provides money for capital projects on locally owned roads that use this approach to road design.⁴ Over 210 cities and towns are currently in enrolled in some stage of the program. To be eligible for funding, the Massachusetts city or town must adopt an approved complete streets policy and develop a prioritization plan outlining complete streets improvements in the municipality. Once MassDOT approves the prioritization plan, the municipality can then apply for up to \$400,000 of funding for complete streets capital improvements. The Town of Barnstable has not adopted a Complete Streets Policy to date and therefore is not eligible for the funding program. Nevertheless, the Town of Barnstable has demonstrated that they incorporate complete street elements into current road improvement projects where appropriate and feasible.

In addition to redesigning roadways to reduce traffic speeds, Massachusetts cities and towns now have the ability to reduce their statutory speed limit from 30 mph to 25 mph in thickly settled or business districts under MGL c. 90 17C. Since Route 132 is within a business district, reducing the default speed limit could be another tool to help reduce speeds. However, if a special speed regulation exists, that posted speed limit will always supersede a statutory speed limit. Over 30 cities and towns have opted in to this lower default speed limit.⁵

Short-term recommendations:

- Implement non-structural approaches to improve pedestrian and bicycle safety including but not necessarily limited to trimming vegetation to improve sight lines, adjusting operation of the existing pedestrian signals, adding or modifying signage and markings, etc.
- Apply for state Transportation Improvement Program (TIP) funding for improvements to the Route 132 corridor.
- Consider adopting a complete streets policy in the Town of Barnstable.
- Consider opting in to MGL c. 90 17C default speed limit reduction in thickly settled or business districts from 30 mph to 25 mph.

Long-term recommendations:

- Implement structural approaches to improve pedestrian and bicycle safety including but not necessarily limited to installing traffic signals for additional crosswalks, widening existing sidewalks and constructing new wide sidewalks where there are none existing, etc.
- Prepare a Complete Streets Prioritization Plan.
- Apply for Complete Streets Funding Program dollars for pedestrian improvement projects.

2. Upgrade sidewalks and curb ramps on the southern side of Route 132 between Independence Drive and Hinckley Road (next cross-street east of Nightingale Lane). Study feasibility of installing a sidewalk along the northern side of Route 132.

Currently, the sidewalks along Route 132 do not meet the needs of people walking. Where they exist, most are too narrow, run right along the curb line, and lack accessible curb ramps. The north side of Route 132 has no sidewalks except for a short, disconnected section between Airport Road and

³ <https://www.northamptonma.gov/DocumentCenter/View/6668/Hampshire-County-Complete-Streets-Design-Manual>

⁴ <https://www.masscompletestreets.com/>

⁵ <https://www.mass.gov/info-details/speed-limits-in-thickly-settled-or-business-districts>

Independence Drive. There are no sidewalks on either side of Route 132 beyond the Courtyard Marriott southeast to the Airport Rotary.



Sidewalk conditions along Route 132 are challenging.

Sidewalks in the study area vary in width and material. Sidewalks measure approximately 3' wide to 5' wide, with the newer sections being wider than the older sections. Asphalt sidewalks run along Route 132, and sidewalks leading to the Cape Cod Mall are concrete. There are no sidewalks leading to Capetown Plaza. Curb ramps either are not present or do not meet current ADA requirements at most driveways and intersections. The recent upgrade of the Independence Drive/Route 132 intersection includes ADA compliant ramps and a crosswalk across only the southern Independence Drive approach. As observed during the walk audit, people in wheelchairs have incredible difficulty navigating along Route 132 and are forced into the street to reach their destinations.



After navigating up the hill from the Cape Cod mall on the entrance road, this man in his wheelchair crossed Route 132 outside the crosswalk and proceeded up the Capetown Plaza entrance road within the travelway since no sidewalk was available.

Short-term recommendations:

- Trim vegetation, clear litter and debris, and remove obstacles from existing sidewalks to improve current walking conditions until Route 132 can be rebuilt.
- Work with property owners to encourage them to maintain sidewalks and pedestrian pathways on their property.
- Design pathways that serve walkers and cyclists using the Route 132 corridor. Given the high volumes of fast-moving traffic, a multi-use, separated path on at least one side of the road could provide comfortable access for both walkers and cyclists. FHWA recommends multi-use paths be at least 10' wide.⁶ MassDOT's *Separated Bike Lane Planning & Design Guide* has more detailed recommendations regarding accommodating bikes that may also provide additional guidance on preferred dimensions.⁷
- Incorporate recommended dimensions for walking/biking paths when redesigning Route 132 corridor.
- Reserve adequate space for a sidewalk separated from vehicular traffic (approximately 10') on the north side of Route 132.

Long-term recommendations:

- Rebuild Route 132 with paved pathways on both sides of the roadway with at least one side of the roadway wide enough to accommodate both cyclists and walkers. Separated pathways (one for cyclists and one for pedestrians) are ideal, but given the Right of Way (ROW) limits and vehicle volumes, use-separated paths may not be feasible.
- All pathways should be separated from the curb with a verge (5'-10' wide) planted with trees to provide shade and help slow vehicle speeds.

3. Study feasibility of more signalized, marked pedestrian crossings across Route 132 to provide additional protected crossings for people trying to access services on both sides of the road.

Route 132 has only 2 marked crosswalks between Independence Drive and the Airport Rotary. In developed areas, MassDOT recommends crosswalks be spaced every 200 to 300 feet, however 500 feet is acceptable.⁸ Given the auto-oriented, suburban development pattern along Route 132, the 500-foot distance seems most relevant. Currently, the crosswalk at Independence Drive is approximately 500 feet from the Mall entrance drive crosswalk. Both crossings are signalized with pedestrian signal heads. There are no marked crossings on Route 132 between the Mall entrance drive and the Airport Rotary which is approximately 2,500 feet. Even though existing businesses are not pedestrian-oriented, people looking to cross the street will most likely wait for gaps in traffic rather than walk the significant distance to reach a marked crossing. This behavior puts them at significant risk with 70% of pedestrian fatalities occurring nationwide at mid-block locations.⁹

It may not be advantageous to vehicular traffic management to introduce another traffic signal in the corridor. There are other options that can be employed to provide protection at mid-block locations including Pedestrian Hybrid Beacons (PHBs), Rectangular Rapid Flashing Beacons (RRFBs), crossing islands, and signage. MassDOT recommends consulting the *Enhanced Crossing Treatments in FHWA's*

⁶ <https://safety.fhwa.dot.gov/saferjourney1/Library/countermeasures/08.htm>

⁷ https://www.mass.gov/files/documents/2017/10/25/SeparatedBikeLaneChapter3_GeneralDesign_0.pdf

⁸ http://www.massdot.state.ma.us/Portals/17/docs/pedplan/PedPlan_MunicipalResourcesGuide.pdf, p. 16.

⁹ http://www.massdot.state.ma.us/Portals/17/docs/pedplan/PedPlan_MunicipalResourcesGuide.pdf, p. 16.

Achieving Multimodal Networks guidance document for more information on when each strategy is recommended.

In addition to the lack of mid-block crossings, crosswalks are missing from several of the approaches at the two signalized intersections in the study area. It is a best practice to paint crosswalks at all legs of a signalized intersection. Since Route 132 does not have continuous sidewalks and many missing compliant curb ramps, it is understandable that the crosswalks were not painted. Some major driveways connecting to Route 132 do have crosswalks, however more crosswalks would bring further awareness to drivers of people walking.

Short-term recommendations:

- Identify location(s) for additional crosswalks on Route 132. Consider land uses that encourage people to cross, such as a hotel across the street from a restaurant, and pedestrian desire lines when planning new crossings.
- Paint crosswalks across major driveways that intersect with Route 132 within Town jurisdiction to make the pedestrian pathway continuous.
- Work with property owners to paint and maintain crosswalks across their driveways if not within the Town's jurisdiction.

Long-term recommendations:

- Install crosswalks across all legs of signalized intersections.
- Rebuild Route 132 with additional marked crosswalks to facilitate safe crossing between signalized intersections.

4. Redesign the Cape Cod Mall/Capetown Plaza intersection with Route 132 with improved pedestrian visibility; recalibrated signal phasing, adequate WALK time, and fully functional pedestrian signals; and well-marked, ADA compliant pedestrian crossings at all intersection approaches. Consider restricting right turns on red into and out of the Cape Cod Mall and Capetown Plaza entry roads.

The Cape Cod Mall/Capetown Plaza intersection with Route 132 presents significant pedestrian safety hazards, specifically pedestrian signal issues, poor pedestrian visibility, and lack of accessible sidewalks.

Pedestrian signal issues

The “red hand” on the pedestrian walk signal on north side of the Cape Cod Mall/Capetown Plaza intersection of Route 132 on the Capetown Plaza side of the road is not functioning. Pedestrians see a WALK sign, but do not see a flashing red hand or solid red hand, and could interpret the lack of a signal as a safe time to cross.

In addition to the faulty pedestrian signal head, the signal phasing may give pedestrians a false sense of security that it is safe to cross when turning traffic is coming across their path. The pedestrian walk signal phasing is concurrent permitting drivers to turn left and right across pedestrian paths after yielding to pedestrians. Given the high turning volumes at the Cape Cod Mall/Capetown Plaza intersection and limited visibility, the Town should consider instituting an exclusive signal phase at this location. However, the current signal equipment may not support this phase change. As the town redesigns this corridor and conducts studies to determine traffic volumes, it is imperative that

pedestrians are counted and considered when redesigning the signal phasing strategies at this intersection.



The walk signal phasing and equipment at the Capetown Plaza entry drive put pedestrians at risk.

Visibility and Sidewalks

The dense, tall vegetation at the entrance to Capetown Plaza blocks drivers' visibility of pedestrians crossing both Route 132 and the Capetown Plaza access road. Drivers turning right out of Capetown Plaza cannot see people walking in the crosswalks on Route 132. While one of only a few areas with mature trees and shrubs along the Route 132 corridor, the removal of this vegetation would significantly increase pedestrian visibility and improve safety for all road users.

Once across Route 132 from the Cape Cod Mall, there are no sidewalks leading to Capetown Plaza. Pedestrians are forced to walk along the access road or navigate a grassy hill to reach the Capetown Plaza parking lots. There are sidewalks leading from Route 132 to the Cape Cod Mall on both sides of the entry drive, however only the east side has a crosswalk leading to the main mall building and neither sidewalk has ADA-compliant curb ramps.

Due to the many immediate pedestrian safety concerns at the Cape Cod Mall/Capetown Plaza intersection with Route 132, WalkBoston staff submitted a memo to the Town Engineer recommending short-term fixes to improve the conditions for people walking.¹⁰ The short-term recommendations are repeated here.

¹⁰ See Appendix C for the WalkBoston memo re: walking conditions at the Cape Cod Mall/Capetown Plaza intersection



Pedestrians are hidden from drivers' view when leaving Capetown Plaza.

Short-term recommendations:

- Repair the “red hand” light on the pedestrian signal head at the Capetown Plaza entry drive intersection with Route 132
- Determine if the pedestrian traffic signal equipment can be changed from a concurrent phase to an exclusive phase. If the existing signal equipment can accommodate it, then reprogram the signal to an exclusive phase.
- Consider posting No Right Turn on Red signs at the intersection to decrease the danger of pedestrians being struck while crossing Route 132 and the Capetown Plaza entry drive.
- Trim or remove vegetation and any other obstacles (e.g., gateway features) that block visibility.
- Install paved walkway on grassy slope (although grades will not meet ADA Accessibility requirements).

Long-term recommendations:

- Upgrade traffic signal equipment to include accessible countdown pedestrian signals.
- Redesign gateway features and Capetown Plaza entry drive to include accessible sidewalks and vegetation that does not limit visibility.

5. Promote internal vehicular circulation and pedestrian circulation between adjacent properties along Route 132 using wayfinding signage, designated walking areas, and connected service roads.

The current auto-oriented development pattern of Route 132 allows individual property owners to have at least one or more curb cuts on Route 132. This can cause some confusion for drivers as they try to decide which driveway leads to their destination. Pedestrians walking along a road that is interrupted by many driveways can be stress-inducing since they must constantly look for turning traffic. Furthermore, driveways may have uncomfortable cross-slopes ramped to ease the transition for vehicles. Promoting internal circulation can help to limit driveways and improve the pedestrian experience.



Pedestrian access to the Cape Cod Mall from the Fairfield Inn.

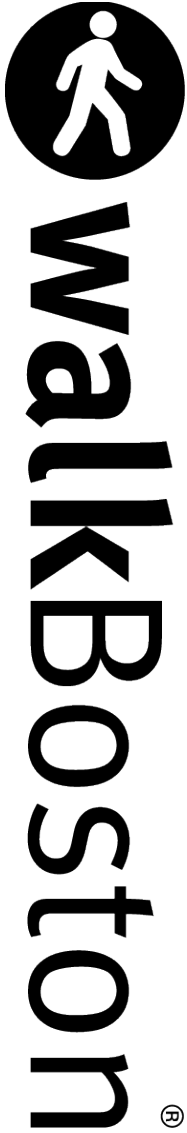
In addition to promoting internal vehicular circulation, pedestrians and business owners would benefit from a network of connected walkways. People now walk through parking lots and service drives to reach their destinations. Marked, signed pathways – which could include the amount of time it takes to walk from one place to another – would help people shop, dine and move between destinations after parking their car once and walking. The pedestrian connection between the Fairfield Inn and the Cape Cod Mall parking lot is a good example of providing safe access between properties.

Short-term recommendations:

- Reach out to property owners to determine interest in cooperative planning for both vehicular and pedestrian circulation, including a district-wide wayfinding signage system.
- Analyze current zoning codes, design standards and site plan review procedures to determine if mechanisms exist to incentivize cooperative circulation planning.

Long-term recommendations:

- Amend Town zoning codes, design standards, or site plan review procedures to require the consideration of internal circulation strategies and pedestrian networks.



Appendix A.

Executive Office of Public Safety and Security (EOPSS) Pedestrian Safety Planning Initiative for High-Fatality Communities

The EOPSS Pedestrian Safety Planning Initiative builds municipal staff understanding and awareness of the components of a safe built environment for pedestrians. WalkBoston is working in partnership with EOPSS to address walking safety concerns in Massachusetts communities with high pedestrian crash rates, with the goal of reducing pedestrian fatalities and serious injuries in the Commonwealth. WalkBoston is a pedestrian advocacy organization that works to make walking safer and easier in Massachusetts to encourage better health, a cleaner environment and more vibrant communities.

Cities and towns participating in the Pedestrian Safety Planning Initiative have used the results to prioritize pedestrian improvements, negotiate infrastructure fixes into development approvals, and apply for funding sources, such as from the Complete Streets Funding Program.

As part of the Initiative, WalkBoston will conduct a walk audit focused on high pedestrian crash locations in **Barnstable**. A walk audit provides on-street, tangible learning opportunities for diverse groups of municipal staff, including police, as well as residents and other community-based groups. During the audit, we will assess pedestrian infrastructure conditions and recommend built environment improvements that promote safety. Walk audits are also an effective means to build local constituencies for pedestrian safety efforts that include increased education and awareness opportunities for all road users, and greater attention to safety in local roadway design and maintenance efforts.

Participation in this EOPSS/WalkBoston Initiative has increased the awareness and readiness of municipal staff to adopt and implement complete streets policies and designs that will reduce fatal and injury crashes for all road users (including pedestrians, motorists and bicyclists) as called for under MassDOT's Complete Streets Funding Program.

To capture the ideas discussed during the walk audit, WalkBoston will provide a written report that includes short- and long-term recommendations for improving pedestrian safety. The report can be shared with the public and elected officials to strengthen local safety efforts.

Proposed Schedule:

1. Hold preliminary meeting with municipal staff, police, regional planning agency staff, and local residents and community groups to determine audit area
2. Conduct site visit to gather baseline information about pedestrian conditions
3. Schedule and conduct the walk audit
4. Prepare walk audit report detailing existing conditions and recommendations for improved pedestrian infrastructure