



HOWARD STEIN HUDSON

Engineers + Planners

Mount Auburn Street Corridor Study

Non-Price Proposal

Prepared for
Department of Conservation and Recreation

Prepared by
Howard Stein Hudson

In association with
Kittelson & Associates, Inc.
Crosby | Schlessinger | Smallridge LLC (WBE)
Fort Hill Companies (VBE)
Bryant Associates Inc. (MBE)

October 16, 2015





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Mr. Kenneth Kirwin
Department of Conservation and Recreation
251 Causeway Street
Boston, MA 02114

**Re: Contract P16-3055-D1A
Corridor Study – Mount Auburn Street, Cambridge/Watertown**

Dear Mr. Kirwin,

As the Department of Conservation and Recreation (DCR) seeks to improve safety and connectivity for all modes of travel along Mount Auburn Street, it is requesting a transit and traffic engineering, and roadway design firm that specializes in delivering projects addressing Complete Streets planning, design, and analysis, as well as safety improvements. Over the past 10 years, *Howard Stein Hudson (HSH)* has become the leader in planning and implementing Complete Streets projects in the Commonwealth, designing many important corridor and safety projects directly for agencies and municipalities.

HSH has worked for and coordinated with DCR and MassDOT on many of the recent Charles River Bridge planning and design projects, including the Craigie Bridge, the BU Bridge, and the River Street and Western Avenue Bridges. We would be delighted for the opportunity to continue to provide our expertise and to partner with DCR on a wonderful project such as this.

We understand that Mount Auburn Street is a very important roadway link in Cambridge and Watertown. The Mount Auburn Street corridor also serves a significant transit population on the MBTA's 71 and 73 bus routes, which experience significant delays in peak hours. Improving access along Mount Auburn Street for all users – including transit riders, pedestrians, and cyclists – is an overarching goal for this study.

We have assembled a team that will serve the needs of the DCR and the MBTA, as well as Cambridge and Watertown. HSH, established in 1987 with a staff of over 50 planners and engineers, is known to deliver planning and design projects that respect the particular sensitivities of the community while ensuring robust infrastructure improvements are incorporated. We work collaboratively with the state agencies and municipalities, the stakeholders, and the public to balance their needs – and we do this in an accelerated manner. We will serve as the lead firm for this study.



Kittelson & Associates, Inc. (KAI) provides comprehensive transit and transportation engineering, planning, and research services to government and private organizations. With 17 offices across the nation, KAI provides national leadership and expertise related to multimodal system analysis and evaluation. KAI is a nationally-recognized leader in traffic planning and transit engineering, specifically in the area of signal systems, including signal timing and traffic studies; traffic signal system designs; traffic management plans; transit signal priority; and ITS design transit station access.

Our team also includes *Crosby | Schlessinger | Smallridge (CSS)*, a nationally-recognized Woman-owned landscape architecture, urban design, and planning firm; *Fort Hill Companies (Fort Hill)*, a Veteran-owned business, to assist with preliminary cost estimating; and *Bryant Associates Inc. (Bryant)*, an MBE firm, for survey services. Full biographies for each team member can be found in the Technical Proposal.

Our team staffing includes:

- Keri Pyke, P.E., PTOE, HSH's Principal of Planning and Public Involvement, will serve as the Project Manager. Keri has over 20 years of experience in traffic engineering and transportation planning, including preparation of roadway designs, traffic impact studies, peer reviews, and road safety audits. She specializes in planning and design of Complete Streets projects. Keri has led some of the company's most complex, multifirm, cross-disciplinary teams on a variety of projects. Keri led the team for the Dorchester Avenue Reconstruction project, working with the Massachusetts Department of Transportation (MassDOT), Boston Transportation Department (BTD), and Boston Department of Public Works (BPWD). The project included the final design of 14 intersections along the 6-mile urban corridor of Dorchester Avenue in South Boston and Dorchester.
- Andy Paul, KAI Senior Engineer, will co-lead the Traffic Signal/Bus Priority Systems design and analysis. Andy has over 12 years of experience in traffic operations, design, construction, project management, and program management. Andy has developed an expertise with innovative intersections and interchanges and is Past Chair of the FHWA Every Day Counts II: Intersections and Interchange Geometrics Committee. Andy also led the MassDOT statewide implementation of roundabouts in Massachusetts. He has collaborated with transportation partners at the local, regional, state, and federal level.
- Alexandra Siu, P.E., PTOE, HSH's Manager of Traffic Engineering, will co-lead the design and analysis efforts for Traffic Signal/Bus Priority Systems. Alex is integral to HSH's traffic engineering team. Alex has completed advanced level training in VISSIM, Synchro, and SimTraffic, as well as training in traffic signal operations and control components.



- Conor M. Semler, AICP is a Senior Planner at KAI who draws on his experience in urban planning, traffic engineering, and technical research in complete streets design. Conor is highly regarded for his ability to leverage transportation design to create livable and healthy communities.
- Mark Gravalles, Manager of Public Infrastructure and former MassDOT District 6 Project Engineer, will lead the Complete Streets design. Mark is a member of the FHWA's Every Day Counts Road Diets Committee. While at MassDOT, Mark was on the forefront of the Complete Streets initiative reviewing, shaping, and implementing the Department's Complete Streets directives as well as the Healthy Transportation Policy. He now provides guidance to communities relating to multi-modal design, MassDOT policies, engineering standards, planning, and funding to design cost-effective and context sensitive projects.
- Pete Stidman, HSH's Active Transportation Leader, is the former Executive Director and founder of Boston Cyclists Union (BCU). Pete has a passion for creating active, social, and beautiful public spaces. As director of the BCU, he worked collaboratively with municipalities and the state on a wide range of groundbreaking projects, including giving detailed input on the designs for the first protected bike lanes to be planned for Boston, Brookline, and Somerville. Since joining HSH, he has been assisting clients with bike parking, intersection design, and a plan to activate a lesser-used park at the center of East Milton.
- Nathaniel Cabral-Curtis will assist Keri and lead the Public Involvement process for the study. Nate works closely with our engineering, planning, and construction management teams to integrate public involvement into projects as needed and appropriate. He provides public involvement and transportation planning support for an array of projects, including the River Street and Western Avenue Complete Streets Project; the Casey Arborway Project in Jamaica Plain; and the McCarthy Boulevard project in Somerville.

We understand the unique transportation issues confronting urban cities and towns, and the need to address those problems with a solution that respects the character of the communities as well as DCR's parkland. The HSH team has experience working with DCR on parkways, and we have included CSS on our team in order to incorporate a landscape and urban design perspective into our conceptual design process.

At HSH, we pride ourselves in being the keystone to complex projects. From traffic engineering and planning to large-scale civil engineering, our leading expertise in Complete Streets solutions helps clients realize big ideas. Our expertise in project development and public outreach means we can streamline complex projects so our clients can focus on the big picture.



Our team is available to you at any time if you have any questions or require additional information. I can be reached by phone at (617) 348-3303 and by e-mail at tstokes@hshassoc.com; and our Project Manager, Keri Pyke, is available by phone at (617) 348-3301 and by email at kpyke@hshassoc.com. We thank you for the opportunity to present our qualifications and approach to this exciting project with DCR.

Sincerely,

Thomas A. Stokes, P.E.
Principal and Chief Executive Officer



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Engineers + Planners

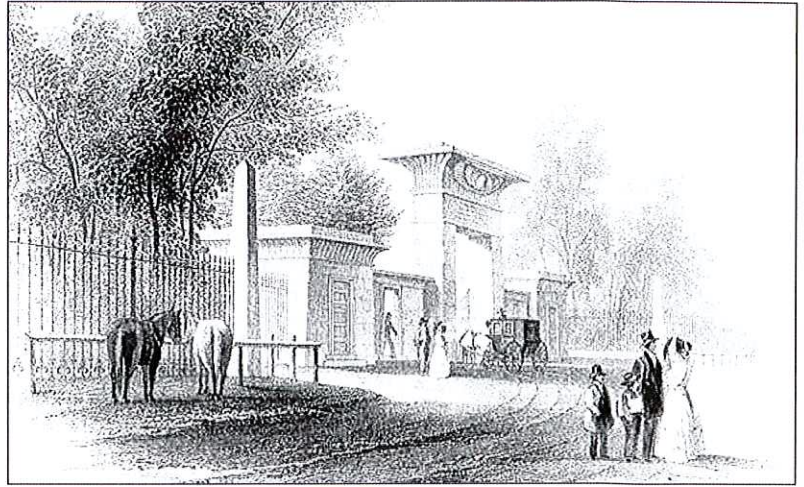
Project Understanding





Project Understanding

When Fresh Pond Parkway was first built in 1899, crossing busy Mount Auburn Street, the amount and variety of traffic it holds today could not have been preconceived. At the time, the intersection traveled by one of the remaining “urban farms” belonging to the Coolidge family, and the area closer to the Charles River, was still a marshy river bank. What became the numbers 71 and 73 streetcar lines, installed around the same time, quickly became the main commuter transportation on Mount Auburn Street, connecting nearby Harvard Square with Watertown Square and Waverly Square, and sparking the development of new neighborhoods.



Mount Auburn Street had a significantly different feel to it when the Mount Auburn Cemetery was opened in 1831.

When the Larchwood neighborhood was built in 1915, there were no horse-and-carriage traffic jams at the intersection of Huron Avenue and Fresh Pond Parkway; when Coolidge Hill was sold off by the Coolidge family into private lots that became handsome homes in the mid-1920's, traffic was equally light, making the decision to keep the family driveway (now Coolidge Hill Road) directly on the intersection seem like a natural one. However, in 1929, Fresh Pond Parkway was extended to Concord Avenue, and a connection to Alewife Brook Parkway was completed. Traffic began to increase significantly. It rose to new levels when Gerry's Landing and the Eliot Bridge were completed in the early 1950's.



Trackless trolleys, like this one on Mount Auburn Street in 1967, were first introduced on the route in 1958.

Today the patchwork evolution of these roadways, and the signals that control them, is causing a host of problems for residents and commuters. Today's trackless trolley passengers on the 71 and 73 may have the worst of it — particularly when they travel east down Mount Auburn Street in morning rush hour. They face tremendous delays as motorists, and private and public buses all trickle through the overly complicated crossing of Fresh Pond Parkway. The old design currently limits the efficiency of the signal cycle, and Mount Auburn's eastbound vehicle traffic may suffer the most for it.

Not to be dismissed, however, is the plight of pedestrians and cyclists, who tend to race across the intersection's extremely long crossings as if their lives depended on it. Pedestrians eastbound face a four-minute or more crossing with four separate phases, making the street a major barrier for seniors and those with disabilities. Cyclists have no guidance through the intersection, and it is as difficult for them to determine where vehicles will be as it is for drivers to know where cyclists will be.



The path to Fresh Pond Reservation passes through a rotary at north end of Fresh Pond Parkway.

The Fresh Pond Parkway/Mount Auburn Street intersection is the keystone of this project, and solving its problems will resolve many issues in the surrounding neighborhoods. It will also open up many new opportunities. A more efficient intersection allows potential for low-stress bicycle infrastructure on at least part of Mount Auburn Street and part of Fresh Pond Parkway. A redesign of the intersection could create a new crossing for pedestrians, and a shortening of existing crossings. This will create a pedestrian experience that is more in keeping with the surrounding leafy suburban streets and historic landmarks among them.

In addition to this central need, there are a number of other opportunities for improvements in the project area. Cut-through traffic in the Larchwood neighborhood could be easily thwarted with a system of one-way streets and other traffic-calming elements. A high crash intersection at Mount Auburn and Brattle Streets can be simplified at low cost, producing a new pedestrianized pocket park overlooking the Egyptian Revival gateway to the historic Mount Auburn Cemetery. A system of roundabouts replacing an outdated system of 1950's infrastructure along the Charles River could help reconnect people in the entire project area to the water, and create acres of new parkland.

Our team of Howard Stein Hudson, Kittelson and Associates, and Crosby | Schlessinger | Smallridge sees enormous potential to help restore the Fresh Pond Parkway to a condition more in tune with the intent originally set forward by Charles Eliot and the Olmsted brothers in the 19th Century, while also managing 21st Century multimodal traffic demands on Mount Auburn Street and all the roadways in the project area. We look forward to working with the Department of Conservation and Recreation, the MBTA, the City of Cambridge, and the community on this monumental study.

Existing Conditions – Traffic

Mount Auburn Street between Belmont Street and Fresh Pond Parkway has two travel lanes in each direction, and carries approximately 19,000 vehicles per day. The section of Mount Auburn Street between Aberdeen Street and Brattle Street is considered a high crash location. The skewed alignment of the Brattle Street as it approaches Mount Auburn Street is likely a factor in the number of crashes at this location. There is a very short section where Brattle Street merges into Mount Auburn Street prior to the stop line at Aberdeen Street. Because of the angle in which Brattle Street intersects Mount Auburn Street, it is unclear which street has the right of way. A Road Safety Audit (RSA) should be conducted in order to determine additional safety issues, and potential improvements to be incorporated into the conceptual design.



Fresh Pond Parkway has two travel lanes in each direction north of Mount Auburn Street, and carries approximately 34,000 vehicles per day. South of Mount Auburn Street, the roadway widens to three travel lanes in each direction with additional turning lanes. The intersection of Mount Auburn Street at Fresh Pond Parkway is a high crash location. The size of the intersection, the skewed geometry, and the excess pavement area contribute to the high number of crashes. Visibility of traffic signals is also an issue at this location. Most of the vehicle indications are post-mounted and may not be within the cone vision for each approach. There are also signal heads that do not display standard messages. On the Fresh Pond Parkway southbound approach, there are indications on the far side of the intersection that displays a flashing yellow circular indication in the place of a green indication. This message could be confusing to motorists. An RSA should be conducted at this intersection in order to determine additional safety issues, and potential enhancements that could be applied in both the short- and long-term improvements.

In addition, the following intersections on Fresh Pond Parkway within the study area are also classified as high crash locations:

- Fresh Pond Parkway/ Brattle Street;
- Fresh Pond Parkway/ Larch Street; and
- Fresh Pond Parkway/Huron Avenue.

The HSH team recommends performing an RSA for the Mount Auburn Street and Fresh Pond Parkway corridors to ensure that these safety issues are addressed as part of the proposed improvements. The RSA should include the Mount Auburn Street corridor from Belmont Street to Fresh Pond Parkway, and the Fresh Pond Parkway corridor from Mount Auburn Street to Huron Avenue.

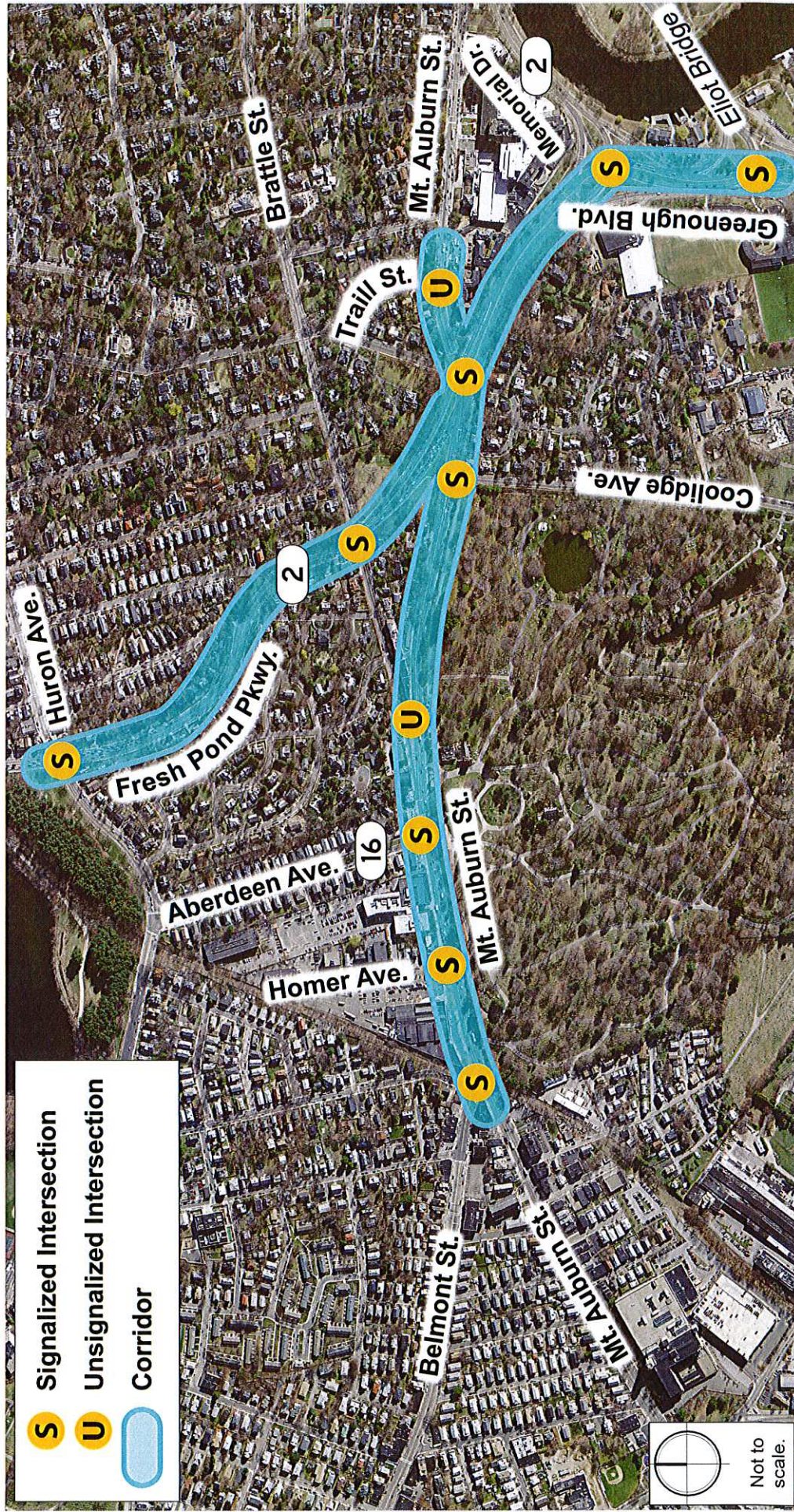
The study area intersections, as outlined in the RFR, are shown in **Figure 1**.



Fresh Pond Parkway/Huron Avenue is a high-crash location.



Figure 1. Study Area Intersections





Existing Conditions – Transit

Mount Auburn Street serves a critical link for MBTA bus routes 71 and 73, connecting riders from Watertown and Waverley to Harvard Square and the Red Line, which provides access to the entire MBTA system. With 12,000 weekday daily riders, transit ridership on these two routes represents as much as one-third of people traveling on the corridor, many of whom also walk or bike to access the service. The primary motivation for this study is to improve the service for these riders.

Anecdotally, riders of the 71 and 73 buses report delays due to traffic queuing during the morning rush hour on Mount Auburn Street eastbound from Fresh Pond Parkway all the way back to Belmont Street at the edge of Watertown.



The MBTA 71 bus connects riders from Watertown Square and Waverley Square to Harvard Square and the Red Line.

The MBTA's Key Bus Route Improvement Program, which focused on improving transit service along the region's busiest routes, recommended a number of changes to the 71 and 73 lines. The recommendations included consolidating and relocating bus stops to improve running times, and reduce delay. The recommendations also included station access, and amenity improvements. Other transit preferential treatments, such as transit signal priority and queue jump lanes, were evaluated but not recommended for the corridor at the time.

The majority of passengers on the 71 and 73 routes board and alight at the terminal stations: Watertown Square, Waverley Square, and the Harvard Square Bus Tunnel. However, several intermediate stations along Mount Auburn Street also accommodate hundreds of boardings and alightings per day, including stops at Homer Avenue and at Mount Auburn Hospital.

Finally, the 72 bus provides service along Aberdeen Avenue and terminates/originates at Mount Auburn Street. Under the current design, buses traveling south on Aberdeen Avenue make a U-turn at the intersection with Mount Auburn Street to begin northbound service on Aberdeen Avenue.

Figure 2 shows the MBTA bus routes in the study area.

In addition to MBTA bus service, there is an employee shuttle service for Mount Auburn Hospital to an employee parking lot on Grove Street in Watertown on the west side of the Mt. Auburn Cemetery. The shuttle also provides service to Tufts Health Plan, located west of the study area on Mount Auburn Street. The shuttles run every 15 minutes at rush hour and every 30 minutes off-peak, and are operated by ML Transit Systems, Inc.

Figure 2. MBTA Bus Routes in Study Area





Existing Conditions – Pedestrians

Fresh Pond Parkway currently bisects two very walkable neighborhoods with cozy cafés, and other retail stores in Harvard Square and West Cambridge/East Watertown. The surrounding neighborhoods and most of Mount Auburn Street are part of the Old Cambridge Historic District; residential density is relatively low for Cambridge on these quiet, well-landscaped streets. Some date back to before the American Revolution — such as Tory Row — and others were developed in the streetcar era by firms such as Pray, Hubbard & White (who trained under Frederick Law Olmsted). One of the latter is the beautiful Larchwood neighborhood. As it exists today, Fresh Pond Parkway interrupts these leafy historic hideaways with a high-speed, high-traffic barrier for pedestrians — particularly at the intersection with Mount Auburn Street. Our approach to this study includes identifying a multitude of tactics that could be used to restore some of the parkway’s intended bucolic and pedestrian-friendly nature.

For the pedestrian walking westbound on Mount Auburn Street from the northeast corner, the crossing of Fresh Pond Parkway currently involves four phases, taking four minutes or more to reach the southwest corner. To avoid this longer crossing, pedestrians often ignore the lack of a crosswalk, and walk straight across the parkway to the northwest corner. This northwest corner has no sidewalk to receive them; however it has a “goat trail,” showing this habit is a common occurrence. For people walking eastbound on Mount Auburn Street, the crossing involves three phases, and a more tolerable minute and a half walk or more; but the skew of the intersection involves walking a significant distance alongside heavy traffic from both streets to reach the entrance to the crosswalk on the southwest corner.

Neighborhood residents and parents with children at the Shady Hill School and Buckingham Browne & Nichols schools complain of dangerous crossings at many locations along Fresh Pond Parkway, and also at Mt. Auburn and Coolidge Avenue — where a fatal crash occurred in Spring 2014. DCR is employing a crossing guard at that location when the schools open and close to students for the day, and there is a community desire to add one at Fresh Pond Parkway and Brattle Street which accesses the neighborhoods where a few dozen students live.

Residents in the Larchwood neighborhood complain of cut-through traffic at rush hour on Larchwood Drive, Fresh Pond Lane, and even Meadow Way. Walking in the neighborhood — where roadways are treated as shared between all modes due to an intentional lack of sidewalks — feels treacherous at times. Several people have purchased their own “Slow, Children at Play” signs to display on their front lawns, as there are many children in the neighborhood.



The crossing of Fresh Pond Parkway at Mount Auburn puts many pedestrians on edge.



Mount Auburn Street to the east of the project area toward Harvard Square could be held up as a model of walkability, but that context is abruptly cut off as the street approaches Fresh Pond Parkway. However, it begins to recover its pedestrian roots slowly as it approaches the intersection with Belmont Avenue. There are many opportunities for improvements that would invite more people to walk in the project area. Issues and opportunities for pedestrians in the study area are shown in **Figure 3**.

Existing Conditions – Bicycles

Mount Auburn Street and Fresh Pond Parkway both represent gaps in Cambridge's current bike network. Adding low-stress bicycle accommodations to either or both would have significant impact on local bike ridership, contributing to a healthier community, more engaged with their local parks. Despite a relatively hostile environment for people on bikes, many people do pedal through the area, indicating considerable demand for safe bicycle infrastructure.

Observations indicate a wide diversity of cyclists are using or crossing these roadways, from middle school children heading to and from the Shady Hill School and BB&N School, to commuters headed to work along Mount Auburn Street, and recreational riders headed to the Charles River along Fresh Pond Parkway. On either side of the project area along Mount Auburn Street, there are small cafés that typically have multiple bikes parked on every available pole or parking meter, indicating that there may be even more latent demand for the route. For all of these users, riding in the project area can be stressful.



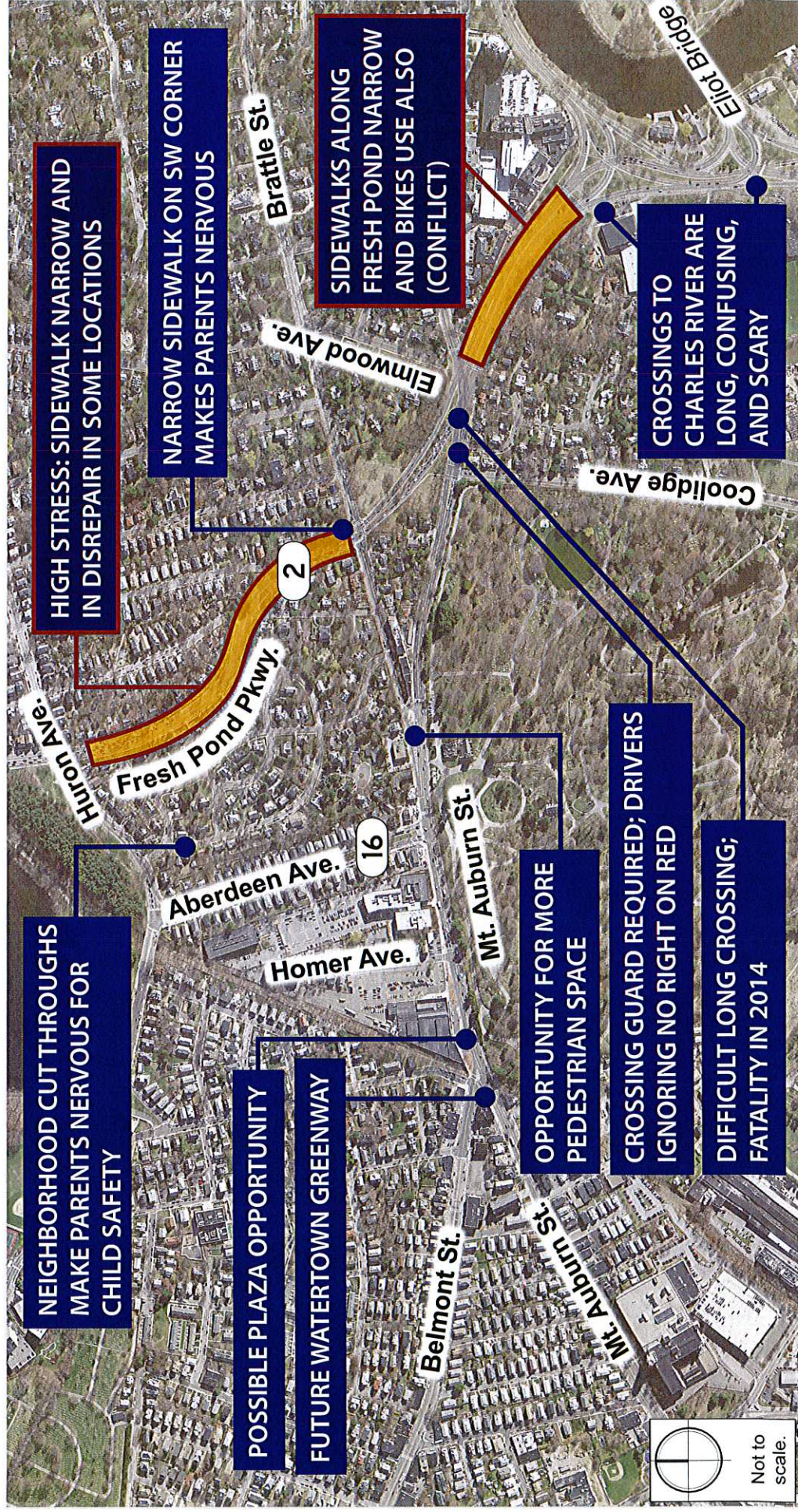
Bikes are evident in numbers at Sofra, a café just west of the project area, and at Darwin's, a café just east of the project area on Mount Auburn.

On Mount Auburn Street through the project area, there are no bike lanes, sharrows, or other facilities; motor vehicle traffic lanes are not wide enough for passing, and have no adjacent parking. These conditions may contribute to vehicle travel speeds that are relatively high compared to other parts of Cambridge, which increases the potential risk and severity of injury for cyclists. In some areas, there is no pavement marking guidance indicating the travel lanes of any kind, such as the westbound approach to Fresh Pond Parkway, making motorist behavior very unpredictable.

Crossing Fresh Pond Parkway on Mount Auburn Street is a harrowing experience for the majority of cyclists, and each seems to have a slightly different strategy for getting safely across. Traveling westbound, the cyclists' tendency is to take a position in the middle of the lane and race straight across the intersection at top speed, endeavoring to stay ahead of cars that may be turning right, left, or trying to pass going straight. Traveling eastbound, some cyclists employ a similar speedy tactic. Others follow the crosswalks with pedestrians, less confident as the extreme skew of the intersection puts cross traffic over their left shoulder.



Figure 3. *Pedestrian Issues and Opportunities*





People of all ages are riding bikes on Fresh Pond Parkway and Mount Auburn Street.

Only very brave cyclists ride directly on Fresh Pond Parkway. Many more take advantage of narrow sidewalks and paths on either side. That this is the more common option speaks to the high stress level of the street, because riding on the paths involves navigating potholes and uneven patching, particularly on the southbound side.

In many locations there seems to be more asphalt than existing motor vehicle traffic demands, indicating a number of potential opportunities for short- and long-term bicycle improvements. Issues and opportunities for bicyclists in the study area are shown in **Figure 4**.

Existing Conditions – Roadway Design

The roadways and intersections in the study area are described in more detail in the following sections. **Figure 5** highlights the issues and opportunities for vehicles traveling in the study area.

MOUNT AUBURN STREET

Mount Auburn Street generally consists of two travel lanes in each direction. Within the study area, Mount Auburn Street consists of an approximately 5-foot sidewalk along the north side of the roadway, and an approximately 4-foot sidewalk along the south side of the roadway; these sidewalk widths are considered less than adequate for pedestrians to walk side-by-side or pass one another comfortably. The sidewalks are generally separated from the roadway by planting strips, where posts for street lighting and supports for the trackless trolley wires are located. Vehicle travel lanes are typically approximately 11 feet wide, and a 1-foot shoulder is generally provided between the outside travel lane and the curb along the length of the roadway.

Dedicated bicycle accommodations are not provided, and the roadway is not marked with shared lane symbols (“sharrows”). Parking is generally not provided on Mount Auburn Street within the study area.

Buses pick up and drop off passengers in the outside travel lane at most bus stops in the study area (with the exception of the westbound bus stop west of Homer Avenue); this blocks vehicle traffic while the bus is stopped, but also allows traffic to quickly resume traveling, as they do not need to merge into traffic. At the bus stop west of Homer Avenue, buses have a cut-in, and must merge with traffic to resume traveling westbound, increasing dwell times for buses.



Looking east on Mount Auburn Street from Belmont Street.

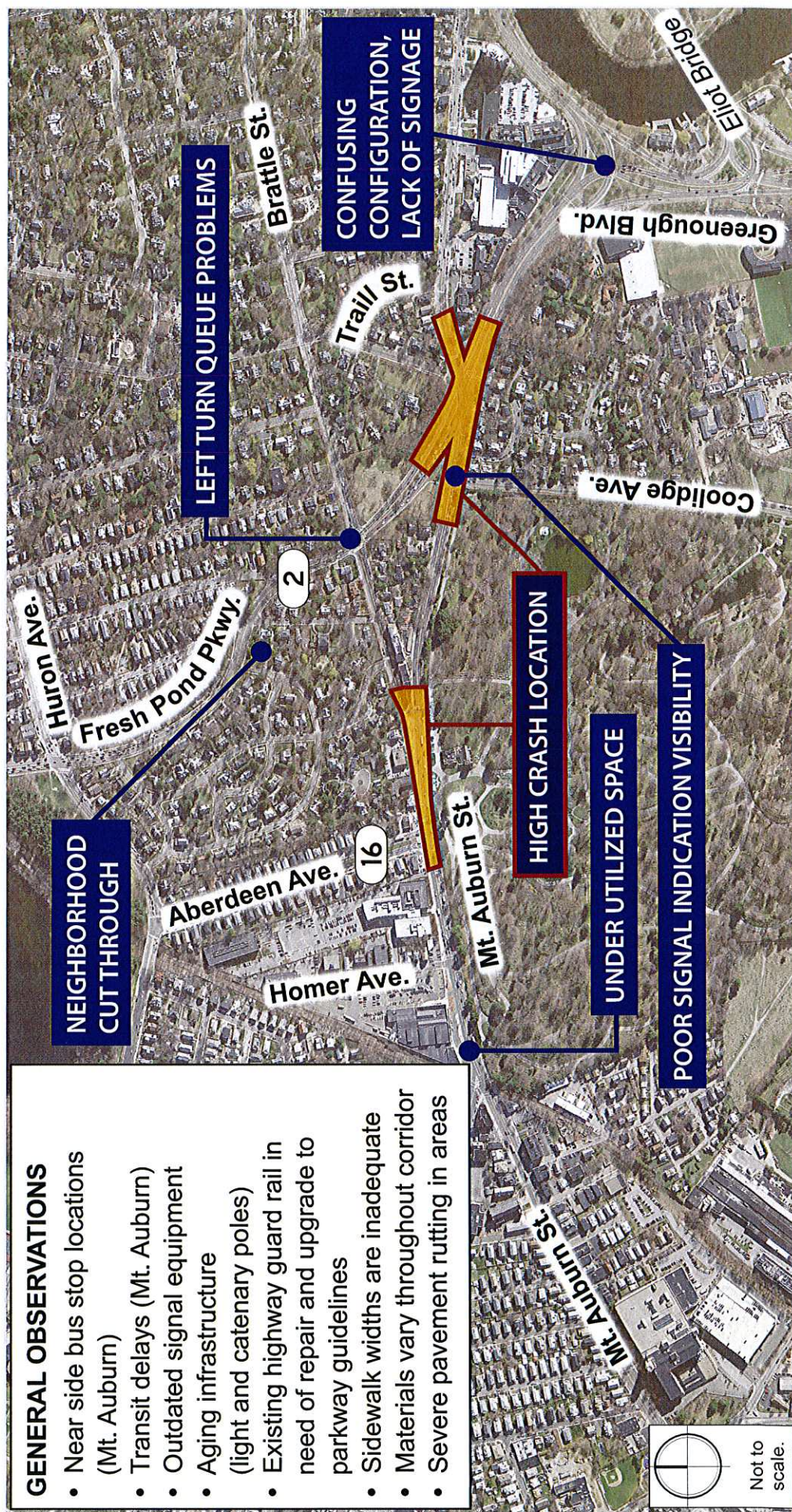


Figure 4. *Bicycle Issues and Opportunities*





Figure 5. *Vehicle Issues and Opportunities*





MOUNT AUBURN STREET/BELMONT STREET

The signalized intersection of Mount Auburn Street/Belmont Street is located just west of the Cambridge/Watertown City Line. Each approach to the intersection consists of two general purpose travel lanes. Belmont Street intersects Mount Auburn Street from the northwest at an acute angle, allowing Mount Auburn Street westbound vehicles to turn right onto Belmont Street at high speeds.

MOUNT AUBURN STREET/HOMER AVENUE

The signalized intersection of Mount Auburn Street/Homer Avenue is a three-way intersection. The Mount Auburn Street eastbound and westbound approaches each consist of two general purpose travel lanes, while the Homer Avenue southbound approach consists of a single travel lane. Bus stops are located on the downstream side of the intersection on both Mount Auburn Street eastbound and westbound.

MOUNT AUBURN STREET/ABERDEEN AVENUE

The signalized intersection of Mount Auburn Street/Aberdeen Avenue is a three-way intersection. The Mount Auburn Street eastbound approach consists of a left-turn lane and a through lane; the Mount Auburn Street westbound approach consists of a through lane and a shared through/right-turn lane. The Aberdeen Avenue southbound approach consists of a left-turn lane, a right-turn lane, and a bicycle lane. The terminus stop for the MBTA #72 bus is located on Aberdeen Avenue, just north of the intersection. Aberdeen Avenue is a critical bicycle connection between Fresh Pond and Mount Auburn Street.



Looking west on Mount Auburn Street at Aberdeen Avenue.

MOUNT AUBURN STREET/BRATTLE STREET

The unsignalized intersection of Mount Auburn Street/Brattle Street is a three-way intersection that is also listed as a crash cluster location by MassDOT. Brattle Street intersects Mount Auburn Street at an acute angle from the northeast; as a result, the effective length of the intersection is about 400 feet. Brattle Street southwest-bound consists of a single travel lane. Motorists turning from Brattle Street onto Mount Auburn Street westbound must look over their shoulders and merge into traffic. During periods of low traffic, Brattle Street southwest-bound vehicles may enter Mount Auburn Street at high speeds. To access Brattle Street northeast-bound, vehicles turn onto a spur of Brattle Street which intersects Mount Vernon Street at a perpendicular angle.



MOUNT AUBURN STREET/COOLIDGE AVENUE

The intersection of Mount Auburn Street/Coolidge Avenue is a signalized intersection with three approaches. The Mount Auburn Street eastbound approach consists of a through lane and a shared through/right-turn lane. The Mount Auburn Street westbound approach consists of a 90-foot long left-turn pocket and two through lanes. The Coolidge Avenue northbound approach consists of a left-turn lane, and a right-turn lane. The intersection is located just 200 feet west of the intersection of Mount Auburn Street/Fresh Pond Parkway, and the signals at the two intersections operate on the same controller.



Brattle Street intersects Mount Auburn Street at an extreme, obtuse angle.

MOUNT AUBURN STREET/FRESH POND PARKWAY

The intersection of Mount Auburn Street/Fresh Pond Parkway is a signalized intersection with four approaches. The intersection is classified as a crash cluster location by MassDOT. The Mount Auburn Street eastbound approach consists of three unmarked travel lanes. The Mount Auburn Street westbound approach consists of one unmarked travel lane, which typically acts as two travel lanes. The Fresh Pond Parkway northbound approach consists of two left turn lanes, two through lanes, and a channelized right-turn lane; the left-turn lanes are separated from the through lanes with a median. The Fresh Pond Parkway southbound approach consists of three unmarked travel lanes, which act as a shared left-turn/through lane, a through lane, and a shared through/right-turn lane. The skewed nature of the intersection, as well as wide cross-sections of the roadways that form the intersection, contribute to long crosswalk lengths and a large intersection area. Mount Auburn Street eastbound queues extend from the intersection as far as Belmont Street, creating long delays for motorists and MBTA buses.



An MBTA bus navigates the wide expanse of unmarked pavement at Mount Auburn Street and Fresh Pond Parkway.



FRESH POND PARKWAY/MEMORIAL DRIVE/GREENOUGH BOULEVARD (ELIOT CIRCLE)

The intersection of Fresh Pond Parkway/Memorial Drive/Greenough Boulevard (Eliot Circle) is a complex, three-way intersection. From Fresh Pond Parkway southbound, two travel lanes lead to Greenough Boulevard southbound, while two travel lanes lead to Memorial Drive eastbound. From Memorial Drive westbound, two travel lanes lead to Fresh Pond Parkway northbound, and two travel lanes lead to Greenough Boulevard southbound. From Greenough Boulevard northbound, three travel lanes lead to Fresh Pond Parkway northbound, while one travel lane leads to Memorial Drive.



Eliot Circle has many legs entering the intersection, and can be confusing for motorists, pedestrians, and cyclists alike.

ELIOT BRIDGE/GREENOUGH BOULEVARD

The intersection of Eliot Bridge/Greenough Boulevard is a complex three-way intersection. From the Eliot Bridge, motorists can use one of two travel lanes to access Greenough Boulevard northbound, or use one of three travel lanes to access Greenough Boulevard southbound. From Greenough Boulevard southbound, motorists can use a channelized travel lane to continue along Greenough Boulevard, or use one of two travel lanes to continue to the Eliot Bridge. The Greenough Boulevard northbound approach consists of two travel lanes that continue to Greenough Boulevard northbound and two travel lanes that lead to the Eliot Bridge. In several locations, areas of excess pavement are painted with a white crosshatch.



Looking north on Greenough Boulevard toward the Eliot Bridge.



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Project Approach



Project Approach

The HSH team has many ideas for the Mount Auburn Street corridor and its surrounding roadway network. We believe there are both short- and long-term enhancements that can be implemented to improve the travel experience for all users: transit riders, vehicles, pedestrians, and cyclists. We outline our approach and ideas to accomplish this here.

Design Alternatives

The study area has several opportunities for improved connectivity and mobility, many of which can be implemented in the short-term before being formalized in the long term. The MBTA 71 and 73 bus routes run along the Mount Auburn Street corridor; congestion and delay along the corridor and at intersections hinder the on-time performance of these critical bus routes. The study area also includes several high-crash locations which should be improved to reduce injuries and provide safer and more comfortable conditions for pedestrians and bicyclists.

MOUNT AUBURN STREET AT FRESH POND PARKWAY

The intersection of Mount Auburn Street/Fresh Pond Parkway is a signalized intersection of two major roadways. Mount Auburn Street connects Harvard Square in Cambridge to Watertown Square, and numerous neighborhoods in between. Fresh Pond Parkway (Route 2) connects Memorial Drive and Soldiers Field Road to municipalities — such as Arlington and Lexington — and points west on Route 2.

The intersection itself has an oversized footprint due to the acute intersection angle, and a wide cross-section as both roadways approach the intersection. The aerial photo in **Figure 6** shows the existing geometry of the intersection. Through vehicles on Mount Auburn Street take over seven seconds to clear the intersection. Similarly, through vehicles on Fresh Pond Parkway are exposed for over six seconds, assuming 40 mph vehicle speeds. Longer clearance times create additional delay in traffic signals. The added delay of long clearance times at the intersection negatively impacts buses, which are already contending with congestion. Long clearance times also create an unsafe condition for motor vehicles, and especially bicyclists, as bicyclists take much longer to travel through the intersection. A bicyclist traveling at 15 mph on Mount Auburn Street would need over 16 seconds to clear the intersection — a period during which conflicting vehicles may receive a green light. The intersection is a high-crash location, with 27 crashes recorded from 2010-2012, including seven that resulted in personal injury, and one fatality. HSH proposes several alternatives for solutions at the intersection which will improve congestion and safety for all users of the intersection.

Figure 6. Existing Geometry: Mount Auburn Street at Fresh Pond Parkway





SHORT-TERM ENHANCEMENTS

Changes to Traffic Signal Timing and Phasing

A primary concern at this intersection is long queues along Mount Auburn Street eastbound, which have been observed to extend as far as one-half mile upstream of the intersection. The queue is caused by a disproportionate share of the signal phasing at Fresh Pond Parkway being assigned to Mount Auburn Street eastbound. Mount Auburn Street eastbound receives approximately 27% of the cycle length, compared to 50% of the cycle length for a conflicting movement, the Mount Auburn Street westbound left turn onto Coolidge Avenue which was observed to receive excess green time during the a.m. peak hour. The amount of green time for the Mount Auburn Street westbound left-turn seems out of proportion to the observed traffic volumes. HSH will explore solutions to allocate additional signal time to the Mount Auburn Street eastbound approach. Optimizing traffic signal control and implementing an actuated traffic signal system could also yield benefits to motorists on all approaches.

MID-/LONG-TERM ENHANCEMENTS

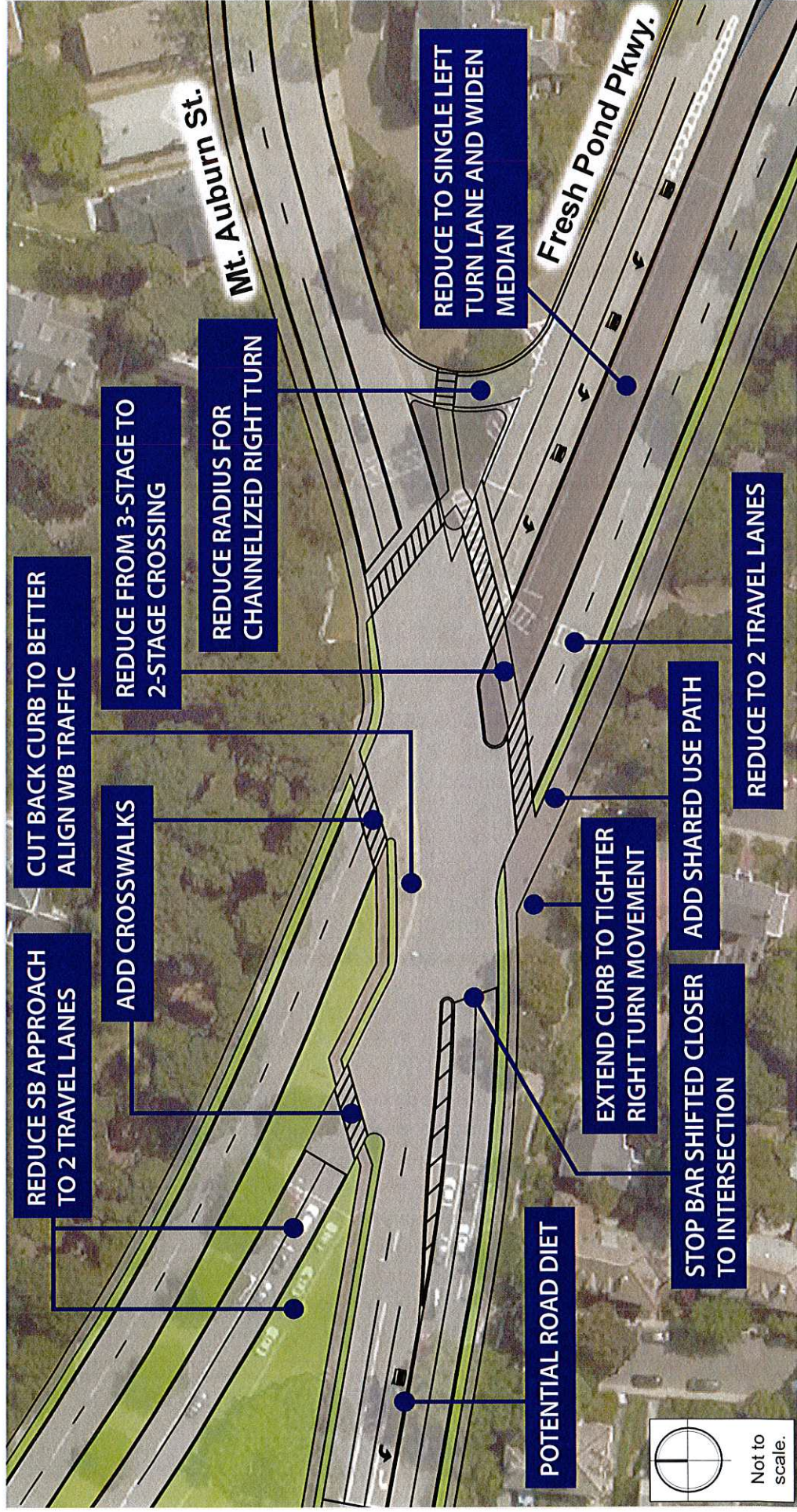
Alternative 1: Pedestrian Improvements and Removal of Excess Pavement

The northern leg of Fresh Pond Parkway currently does not have any pedestrian crosswalks or ramps. A pedestrian on the northwest corner of the intersection who wishes to continue along the north side of Mount Auburn Street must cross three legs of the intersection, which takes at least five minutes to do legally. HSH proposes providing a pedestrian crossing across the northern leg of Fresh Pond Parkway. The crossing would utilize the existing median that divides the northbound and southbound directions of travel; pedestrians would be guided along the median using a sidewalk with wooden barriers to protect them from traffic, and prevent pedestrians from crossing where it is unsafe. HSH understands that the grade of the median will be a factor in the design of the walkway.

Although both Mount Auburn Street eastbound and Fresh Pond Parkway southbound are two travel lanes upstream of the intersection, each roadway widens to three travel lanes at the intersection. Fresh Pond Parkway southbound also has three receiving lanes downstream of the intersection. These wide cross-sections, in combination with the acute intersection angle, create long pedestrian crossings. To cross the southern leg of Fresh Pond Parkway, a pedestrian walking at 3.5 feet per second needs about 38 seconds to cross the intersection; this requires very long pedestrian phases at the intersection, introducing significant delay. It also exposes pedestrians in the roadway for a long time, impacting pedestrian comfort and safety.

In Alternative 1, there are lane reductions at the Mount Auburn Street eastbound approach, the Fresh Pond Parkway southbound approach, and the Fresh Pond Parkway southbound departure from three lanes to two. Similarly, the northernmost median along Fresh Pond Parkway northbound, which separates left-turn movements from through movements, would be removed, and the approach would be narrowed from four lanes to three. This extra space would be allocated to extend bicycle accommodations to the intersection, and widen sidewalks, reducing pedestrian crossing distances. Corner radii along the northwest and southeast corners of the intersection would be decreased, forcing vehicles to make these turns at slower speeds, and further reducing pedestrian crossing and exposure times. Similarly, the existing channelizing island at the northeast corner of the intersection would be expanded, and the radius of the existing Fresh Pond Parkway northbound channelized right-turn lane would be decreased. These improvements would reduce pedestrian crossing distance across the southern leg of Fresh Pond Parkway from about 132 feet in the existing condition to about 70 feet, which will reduce pedestrian crossing time from about 38 seconds to about 20 seconds. This reduction in crossing times would allow for shorter cycle lengths, decreasing delay for all users of the intersection, including bus traffic. Alternative 1 improvements are shown conceptually in **Figure 7**.

Figure 7. *Alternative 1: Mount Auburn Street at Fresh Pond Parkway*





Alternative 2: Creation of Two Separate Intersections along Fresh Pond Parkway

Many of the safety and operational issues at the intersection of Mount Auburn Street/Fresh Pond Parkway can be attributed to the skewed geometry of the intersection. Pedestrians and bicyclists are exposed for long periods of time, vehicles need more time to clear the intersection, and some turns can be made at unsafe speeds. The intersection may also be confusing to new users of the intersection. The HSH team is exploring an alternative where the intersection is reconfigured to create two three-way intersections along Fresh Pond Parkway. In this alternative, Mount Auburn Street would intersect Fresh Pond Parkway from the west approximately 400 feet north of the intersection between the eastern leg of Mount Auburn Street and Fresh Pond Parkway. Both intersections would be signalized, and the signals would work closely together to ensure smooth traffic flow through the intersections. The Alternative 2 concept is shown in **Figure 8**.

The two separate “T” intersections would have several safety and operational improvements over the current configuration. The configuration of the intersections would be much more pedestrian-friendly; pedestrians walking along either Mount Auburn Street or Fresh Pond Parkway would encounter shorter crosswalks at intersections that have more efficient signal timing and phasing than the current configuration. Vehicles traveling along Fresh Pond Parkway would be able to continue through the intersections similar to today. Vehicles wishing to continue along Mount Auburn Street would need to take a right turn, followed by a left turn. This alternative would most likely result in a significant net removal of pavement, which could be used to add additional green space to the area.

Alternative 3: Creation of Two Separate Intersections along Mount Auburn Street

Similar to Alternative 2, the HSH team is also exploring an alternative to create two separate intersections along Mount Auburn Street. In this alternative, the intersection of Mount Auburn Street/Fresh Pond Parkway would be converted to two three-way intersections along Mount Auburn Street. The Fresh Pond Parkway southbound approach would intersect Mount Auburn Street approximately 500 feet west of the intersection of Fresh Pond Parkway northbound at Mount Auburn Street. Both intersections would be signalized, and the signals would work closely together to ensure smooth traffic flow through the intersections. The Alternative 3 concept is shown in **Figure 9**.

In addition to shortened pedestrian crossings and more efficient intersection operations, this alternative would create a significant amount of space along Mount Auburn Street between the two intersections. This space could be used as parkland and incorporated into the neighborhood, converting what is currently a vast swath of pavement into a gathering place. The separation of Fresh Pond Parkway into two legs would slow this traffic down to speeds similar to other roadways in the area, further encouraging use of the area as a living space rather than simply a thoroughfare.

A future project that constructs all or portions of Alternative 1 could be achieved within a short time frame. The Department could piece together the scope of work using existing on-call annual maintenance contracts. This concept involves moving curb lines, new sidewalks, re-striping, signage, and signal work all within the existing public right of way. Alternative 1 is less invasive and less expensive than some of the long-term enhancements described in Alternatives 2 and 3, and could bridge the gap until funding for a larger Capital Project is obtained.

Figure 8. *Alternative 2: Mount Auburn Street at Fresh Pond Parkway*

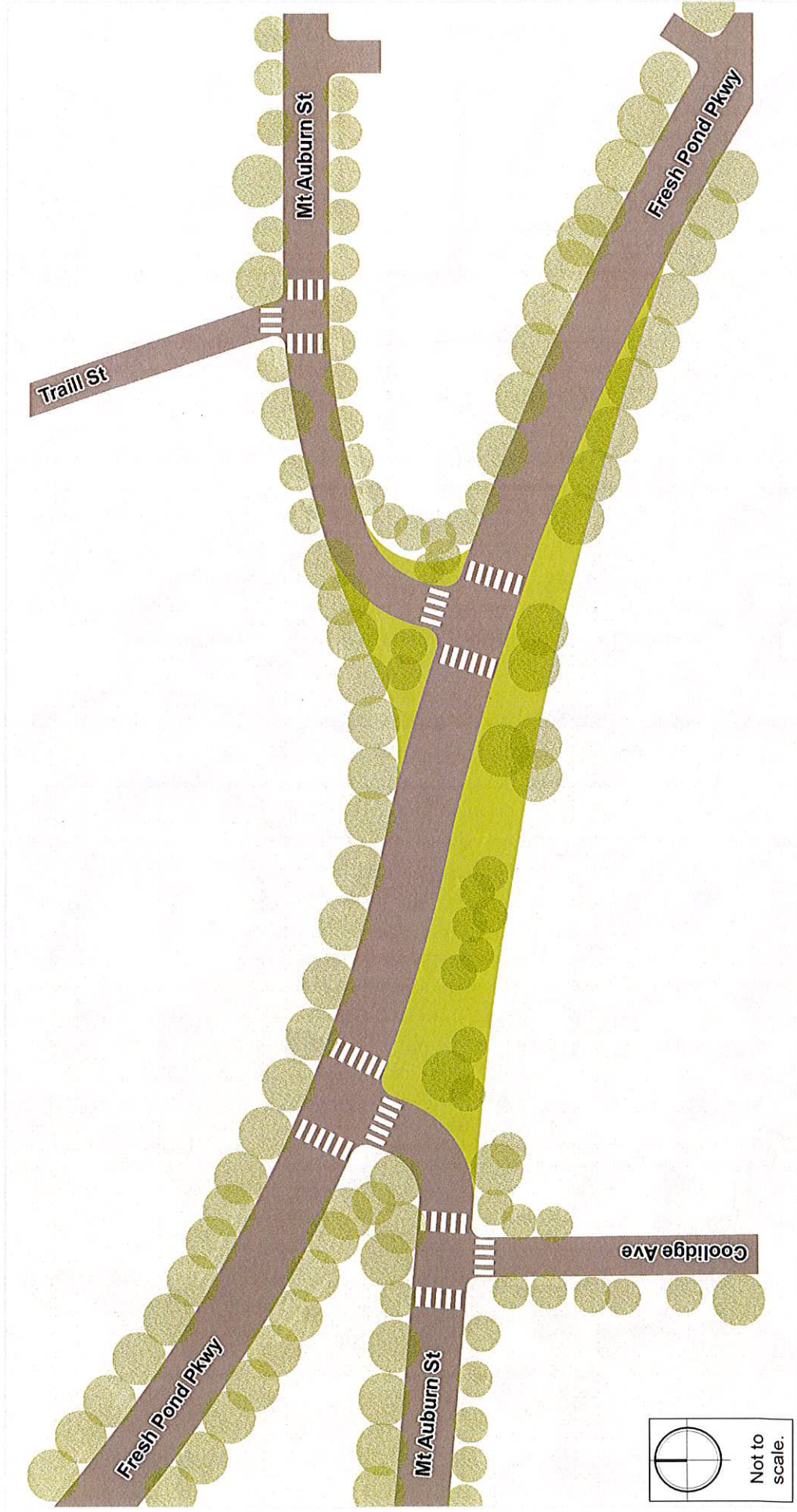
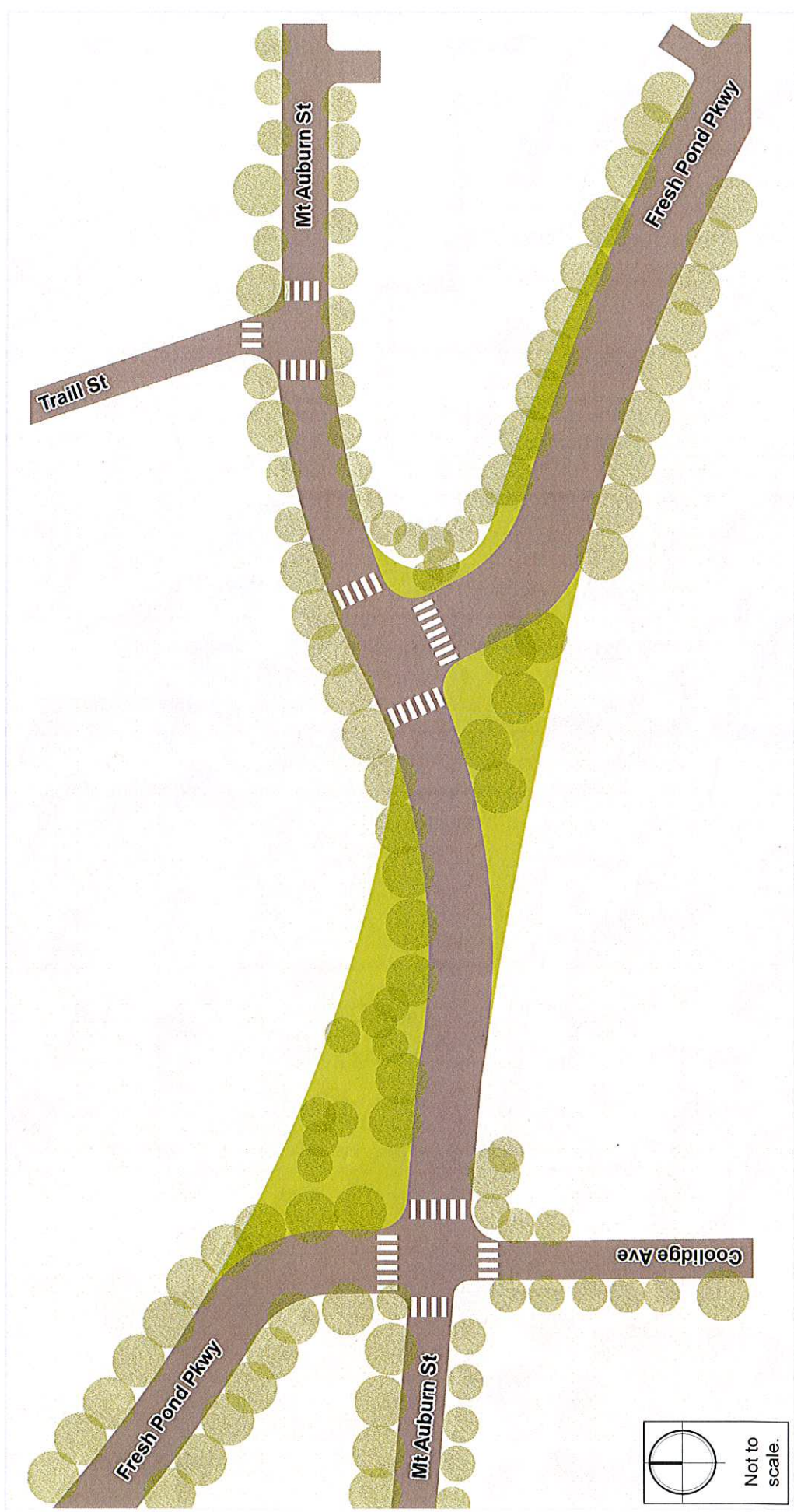




Figure 9. *Alternative 3: Mount Auburn Street at Fresh Pond Parkway*





MOUNT AUBURN STREET/BRATTLE STREET

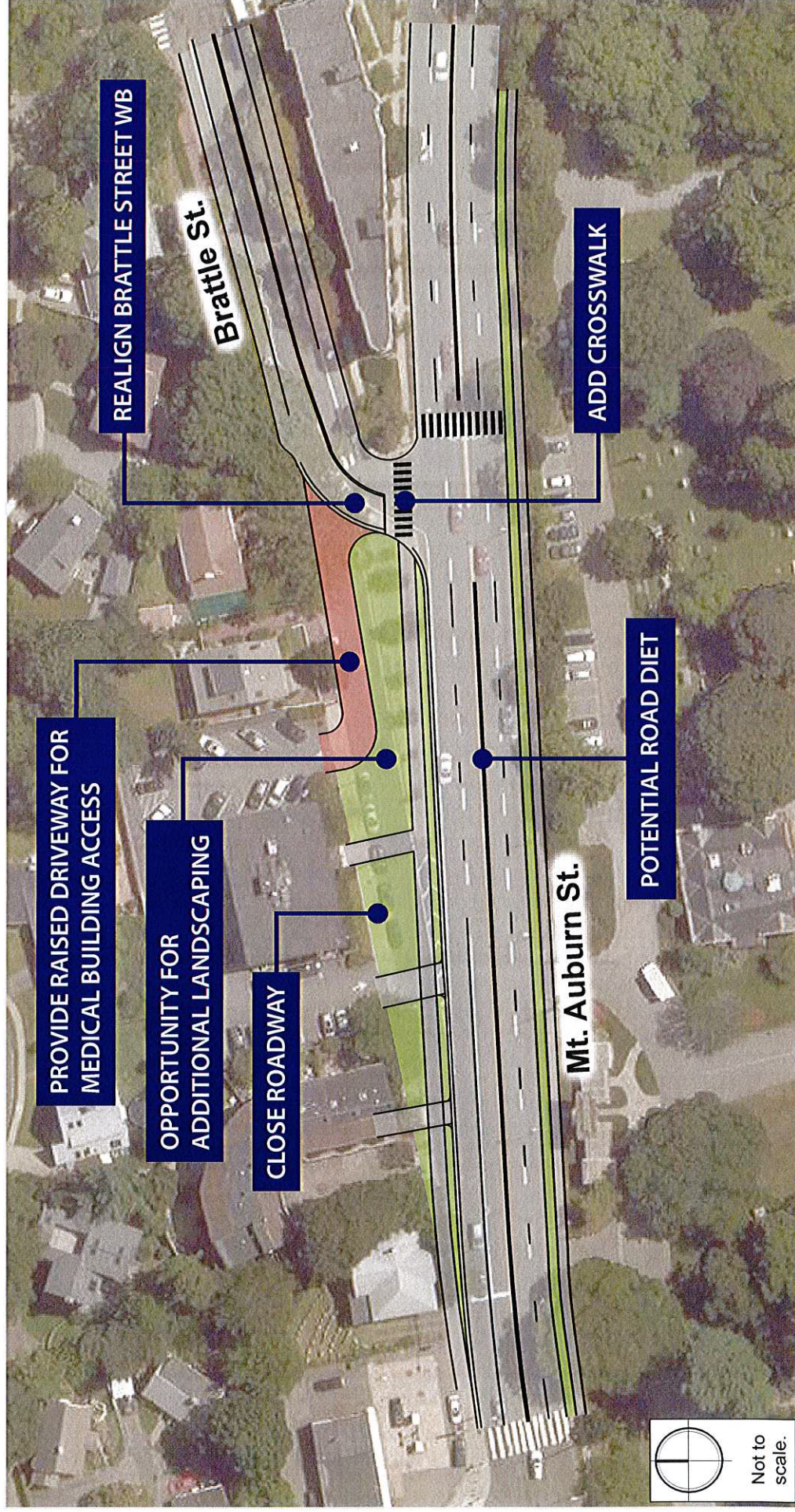
Brattle Street intersects Mount Auburn Street from the northeast at an acute angle. Brattle Street southwest-bound motorists approaching Mount Auburn Street must look over their shoulder, and merge with Mount Auburn Street traffic; this condition causes motorists to be susceptible to rear-end and sideswipe crashes. The geometry also encourages Brattle Street southwest-bound vehicles to approach the intersection at a high rate of speed, creating an unsafe and uncomfortable condition for pedestrians crossing Brattle Street at the intersection. The section of Mount Auburn Street between Brattle Street and Aberdeen Street is a high-crash location; 28 crashes occurred at the intersection from 2010-2012, including 11 crashes that resulted in personal injury.

HSH proposes a design alternative that removes the southwest-bound spur of Brattle Street, and creates a traditional three-way “T” intersection. DCR and the City of Cambridge could test this alternative by closing the Brattle Street spur using barriers and pavement markings. Access to the adjacent homes and businesses along the spur would be maintained, but through traffic would be blocked using barriers. Brattle Street southwest-bound vehicles would be diverted along the existing section of roadway currently used to access Brattle Street northeast-bound. This roadway would be widened, as necessary, to allow for use by Brattle Street southwest-bound vehicles. Brattle Street southbound right-turn vehicles would approach the intersection at slower speeds and would make slower, more deliberate turning movements, which would improve safety for all roadway users. The southwest-bound approach would continue to be right-turn only; no left turns would be permitted at the intersection.

In the long-term, the closure of the Brattle Street spur would be formalized by expanding the sidewalk to create a plaza area, which could be converted into green space. A crosswalk across the Brattle Street leg of the intersection would be provided, allowing pedestrians to continue walking along their desired line. Access to the adjacent homes and businesses would remain; access to these uses could be differentiated using bricks or pavers, similar to a Dutch woonerf. This concept is shown in **Figure 10**.



Figure 10. Conceptual Design: Mount Auburn Street at Brattle Street





MOUNT AUBURN STREET ROAD DIET

Mount Auburn Street is a critical link between the Harvard Square and West Cambridge neighborhoods of Cambridge, and East Watertown and Watertown Square. However, buses face significant delays and bicycle accommodations are not present. Although traffic queues created by an inefficient intersection at Fresh Pond Parkway can be massive, the traffic volume on the street between Brattle Street and Fresh Pond Parkway was relatively low around 18,000 ADT — when it was last measured. New traffic counts will provide more information and help determine if sections between Brattle and Belmont Streets, or Aberdeen Avenue and Belmont Street, are candidates for a road diet.

Available traffic counts indicate that a 4-3 road diet, combined with bus signal priority and queue jumps, may be possible in the short-term on part or all of Mount Auburn Street. Road diets typically reduce crashes by 20% or more, yet have not been shown to reduce volumes or travel times. Particular design elements, such as bus stop bulb-outs, can help ensure bus headways are maintained or improved by the change. Road diets can be carried out with very low investment, particularly when carried out in conjunction with repaving; lower-cost improvements achieved with road striping can evolve into more significant improvements to sidewalks, bicycle facilities, and other features when reconstruction becomes possible.

Detailed counts and modeling of traffic and transit movements would reveal to what extent a road diet would be effective in the Mount Auburn Street context. Mount Auburn Street east of Aberdeen Avenue carries significantly less traffic than Mount Auburn Street west of Aberdeen Avenue, and thus is the more likely candidate.

The current cross-section provides two lanes in each direction, with little room for dedicated bus or bicycle facilities. The two key bus routes that run along the corridor (MBTA 71 and 73) can experience significant delays during peak period congestion, particularly the a.m. peak heading east through the Fresh Pond Parkway intersection. Where possible, the HSH team is considering two alternatives that reallocate space to these two modes along Mount Auburn Street. In combination with a more efficient intersection at Fresh Pond Parkway, the new configuration could alleviate traffic congestion, and create highly visible mode shift incentives for bus and bicycle alternatives.

ALTERNATIVE 1: CONVERSION OF VEHICLE TRAVEL LANES TO BUS/BIKE LANES

The MBTA 71 and 73 bus routes are key transit routes to the Cambridge and Watertown communities. These bus routes average 5,548 and 6,424 passengers, respectively, per weekday, according to the MBTA's *Ridership and Service Statistics, Fourteenth Edition, 2014*. According to the MBTA's scheduling information, a one-way trip on the 71 bus between Watertown Square and Harvard Square takes approximately 15 minutes during off-peak periods; during peak periods, this trip takes 21 minutes — an increase in travel time of 6 minutes (40%).



Existing bus/bike lane on Washington Street in South Boston.



The HSH team is considering an alternative where the outside travel lane in either direction along Mount Auburn Street is converted to a shared bus/bicycle lane. Such a conversion would prioritize buses, greatly improving service for the thousands of riders of the 71 and 73, as well as providing a markedly lower-stress accommodation for bicyclists. At the same time, along with a more efficient intersection at Fresh Pond Parkway, vehicle travel times would not be negatively impacted. Under this accommodation, buses operating during peak periods would be able to travel through the corridor at speeds similar to off-peak periods, encouraging residents of the surrounding neighborhoods to take the MBTA rather than driving. Bicyclists would ride in mixed traffic with buses; however, because the combined headway of the 71 and 73 buses is three minutes during peak periods, bicyclists would experience considerably less stress than in the existing condition.

In the short-term, this accommodation could be made using pavement markings, signage, and flexible posts to discourage general traffic from using the bus lanes. In the long term, the pavement for the bus/bike lanes could be colored red, similar to Washington Street in Boston — a popular route for many riders — to communicate to general traffic that traveling the bus/bike lane is not permitted. A view of this cross section is shown in **Figure 11**.

ALTERNATIVE 2: CONVERSION OF VEHICLE TRAVEL LANES TO PROTECTED BICYCLE LANES

Protected bicycle lanes provide a low-stress bicycling experience that is appropriate for a wide range of age and experience levels. In order to encourage residents of the local neighborhoods to travel to work and play via bicycle, the HSH team is considering an alternative where one travel lane is removed from the westbound direction on Mount Auburn Street. This space would be used to provide bicycle lanes protected by a physical barrier (e.g. a curb, flex posts, or other vertical barrier). The two eastbound lanes would become a vehicle lane, and a dedicated bus and right hand turn lane which would help alleviate peak traffic congestion for buses. This alternative would provide the best possible accommodation for bicyclists, allowing for safe and comfortable travel along the corridor. At bus stops along the corridor, a “floating bus stop” design would ensure that buses headed in the westbound direction would not lose time re-entering the traffic flow after pulling out of the traffic lane to pick up passengers. Eastbound buses would benefit from the same design, as well as an exclusive travel lane, ensuring minimum delays at the morning peak rush hour. A view of the Alternative 2 cross section is shown in **Figure 12**.

Figure 11. Road Diet, Alternative 1: Mount Auburn Street at Brattle Street Looking East

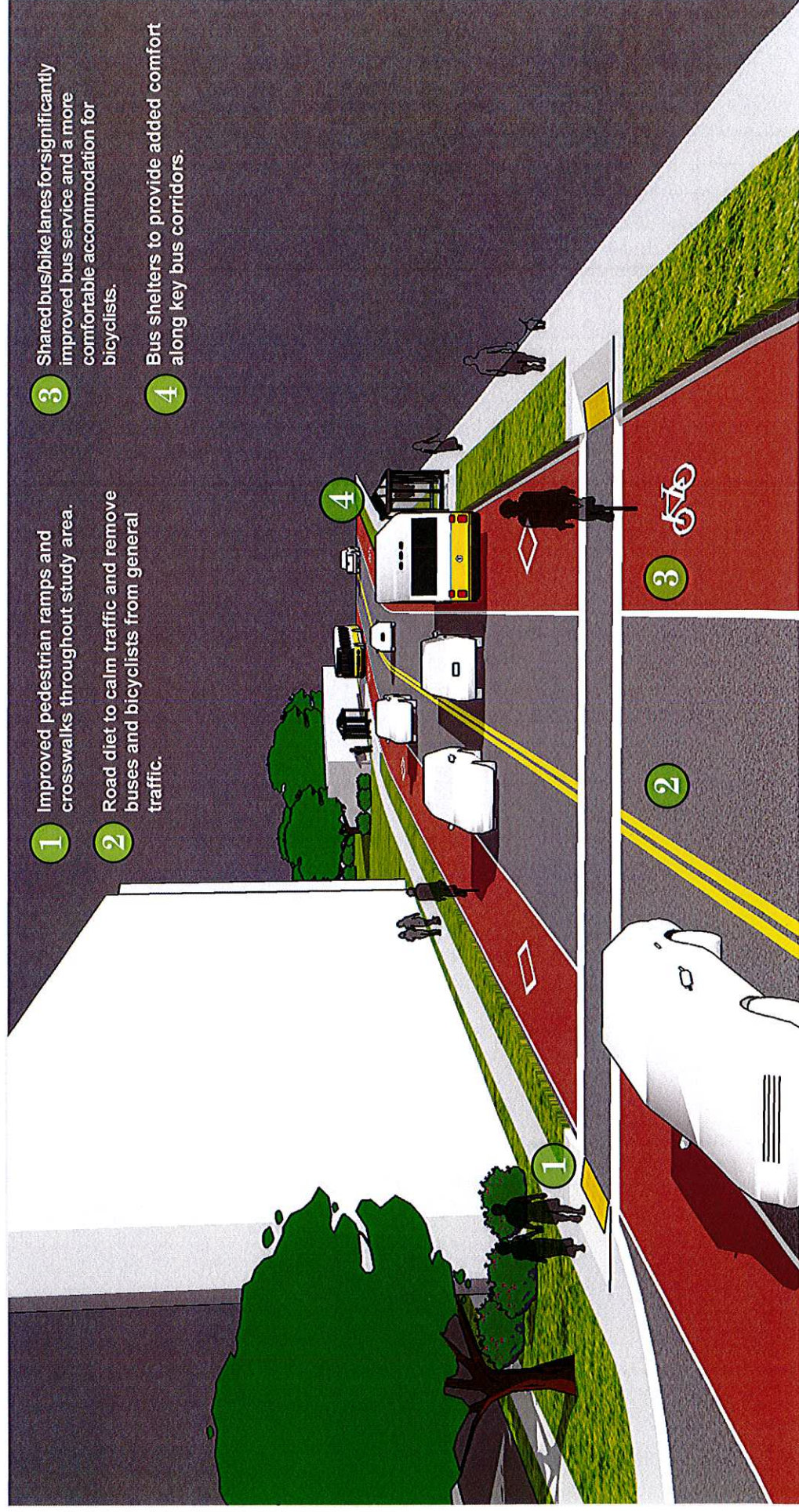
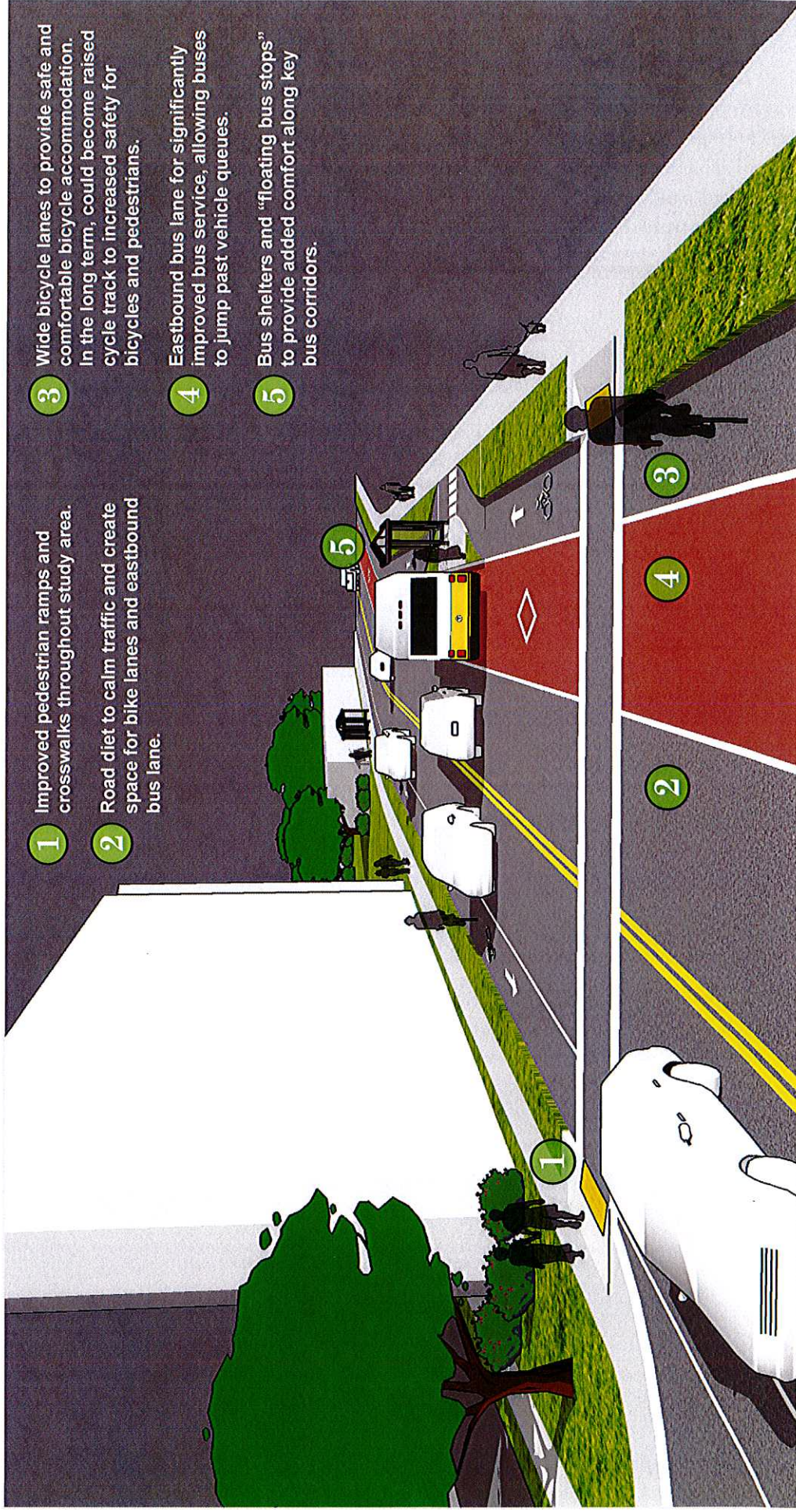




Figure 12. Road Diet, Alternative 2: Mount Auburn Street at Brattle Street Looking East





TRANSIT SIGNAL PRIORITY

Improving bus travel time on Mount Auburn Street is a primary priority for this project. Transit Signal Priority (TSP) is an operational strategy to facilitate the movement of transit vehicles through signalized intersections. It is typically done by giving transit vehicles an extended green or reduced red at signalized intersections under certain pre-defined conditions (e.g. late arriving buses only). This allows for more reliable travel times and improved schedule adherence. Experiences from prior TSP deployments across the country generally indicate average bus travel time savings between two to twenty percent with minor impacts on the cross street traffic. Eight percent to twelve percent is the most typical range for bus travel time savings based on data from the Transit Cooperative Research Program.

An example of multimodal signal operations is on the D.C. Streetcar project, primarily on the H Street/Benning Road corridor. KAI worked closely with the design/build contractor, program management team, and DDOT staff to develop an implementable design for effective streetcar operations on a constrained corridor. At several key intersections, dedicated transit phases and unique controller logic was required to allow a streetcar vehicle to transition through the intersection. The effort included VISSIM simulation of several timing strategies, defining and designing detector locations, integrating train control logic with traffic signal control logic, and ultimately bench and field testing. This experience can be applied to the signal timing plans for Mount Auburn Street.

ELIOT CIRCLE AND GREENOUGH BOULEVARD

The HSH team is considering alternatives for the two intersections along Greenough Boulevard: Eliot Circle and the intersection with the Eliot Bridge. The team has developed two initial concepts which could improve traffic operations, simplify pedestrian and bicycle connections to the Charles River, and reclaim pavement for parkland.

ALTERNATIVE 1: TWO ROUNDABOUTS

The first concept replaces the two, complex, signalized intersections with two-lane modern roundabouts. The roundabouts would allow access to all abutters to be maintained, minimize conflict points, and improve pedestrian and bicycle access. They would also allow a significant amount of pavement to be re-purposed as parkland to be enjoyed by the many users of the riverfront. **Figure 13** shows the dual roundabout concept.

ALTERNATIVE 2: TWO SIMPLIFIED INTERSECTIONS

The second concept replaces the two complex signalized intersections with two simplified, signalized T intersections. The T intersections would simplify traffic patterns for motorists, and improve pedestrian and bicycle access. They would also allow a significant amount of pavement to be reclaimed as parkland, for the active and passive enjoyment of those who use the riverfront area. **Figure 14** shows the two intersections concept.

Both alternatives complete the connectivity and mobility improvements along the Mount Auburn Street and Fresh Pond Parkway corridors — getting people to their destination of the Charles River basin and its parkland.



Figure 13. *Greenough Boulevard, Concept 1: Dual Roundabouts*

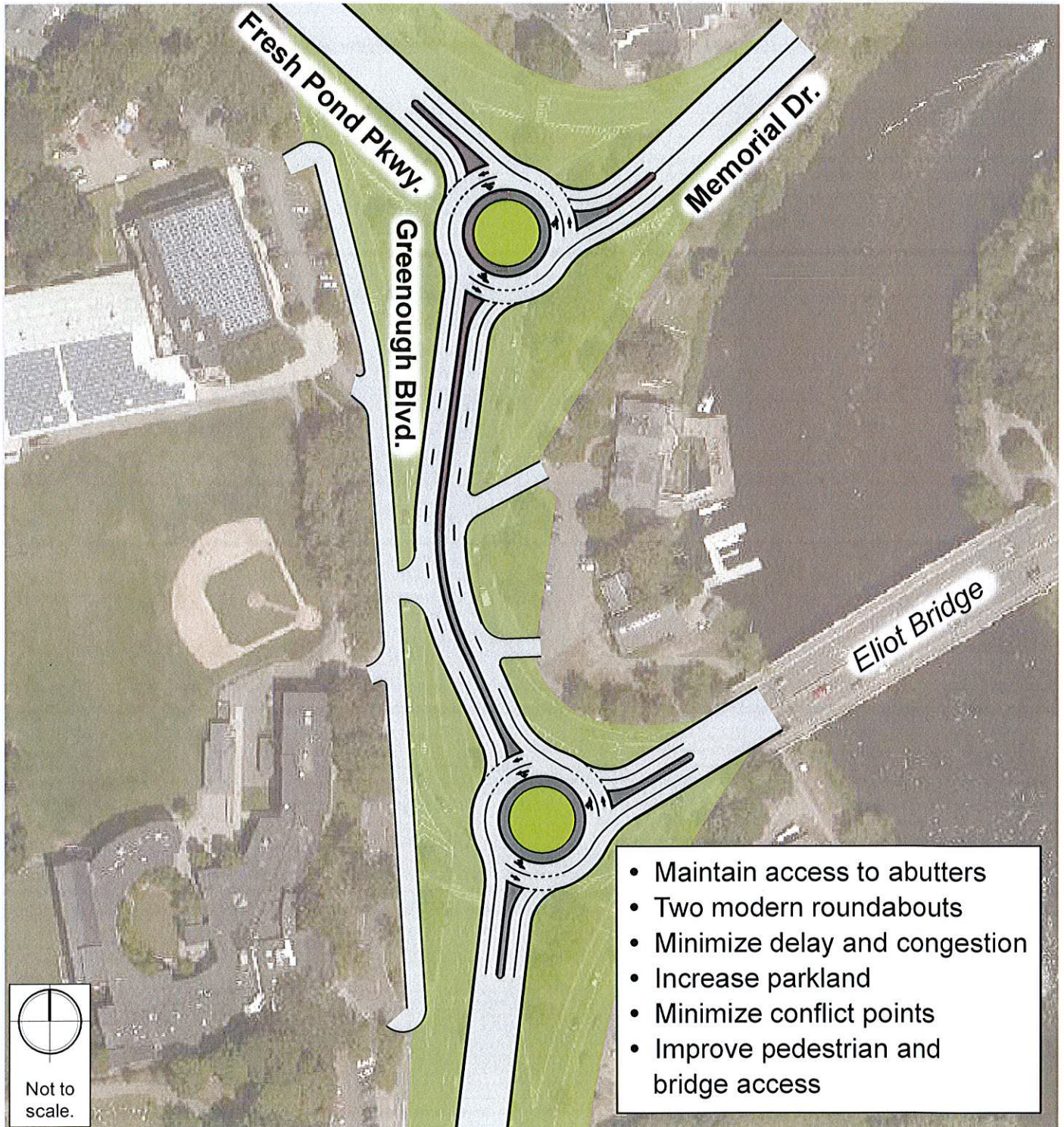
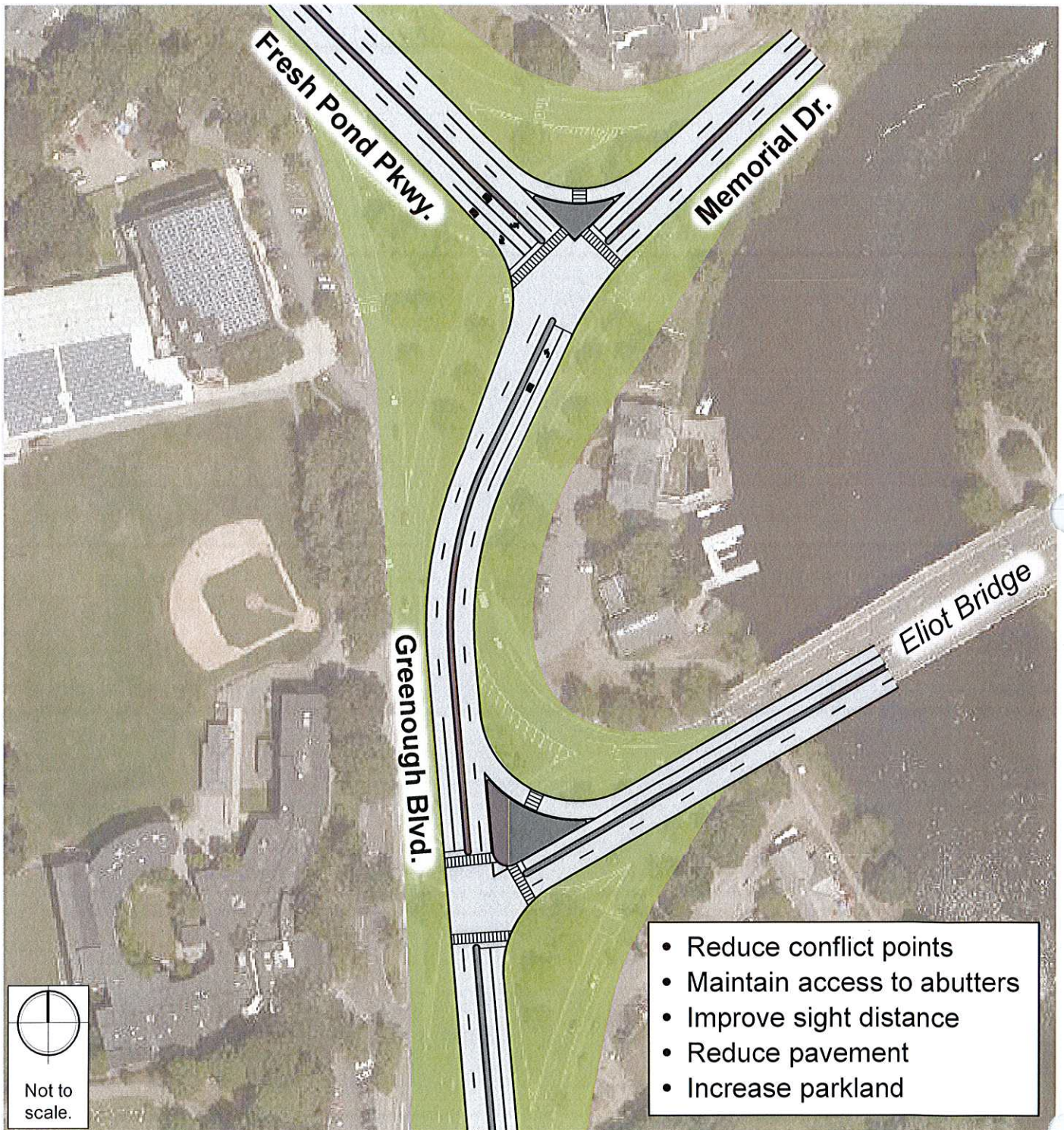




Figure 14. *Greenough Boulevard Intersections, Concept 2: Two Intersections*





Complete Streets Opportunities

In addition to improving the transit experience and calming traffic in the project area, there are a number of exciting opportunities for adding pedestrian and biking amenities, increasing accessibility. By improving the streetscape, and inviting people to slow down, enjoy the street, and even stay for a while, the enhancements will help businesses attract more customers. In addition to the site specific possibilities previously described, a general wayfinding system would help pedestrians and cyclists access the many natural, historical, retail, and institutional resources in the area.

PEDESTRIANS

There are many design alternatives that could accomplish a better pedestrian crossing of Fresh Pond Parkway at Mount Auburn Street, including reclaiming asphalt to better organize and guide traffic (and create a new crossing on the north side of the intersection); mitigating the skew of the existing intersection to reduce crossing distances; or creating a roundabout to process traffic rather than a signal allowing for raised crosswalks away from complex motor vehicle interactions. Determining which option is optimal will rely on examining the feasibility of realignment of the MBTA's catenary system for the 71 and 73 bus. Such a realignment could also be beneficial to achieving signal priority or queue jumps for bus commuters, but would have significant construction costs relating to the MBTA's need to hire diesel-powered buses to operate the routes while the catenaries are realigned.

At the intersection with Coolidge Avenue, short term improvements could have significant impact. An enhanced decorative crosswalk, additional "No Right on Red" indications, and School Zone signage would help raise awareness. In the long-term, raising the intersection and adding red arrow globes to the signal could further enhance those additions.

At two locations, the DCR could create invitations for pedestrians to stay, adding more life to the street by creating new plazas with low-cost, temporary materials based on the models of the NYC Plaza Program, or San Francisco's Pavement to Parks initiative. One of the strongest aspects of these programs is that they create editable spaces that can evolve over time — allowing short-term improvements to be tested by neighborhood residents who may feel tentative about change. The lessons learned become valuable when a full reconstruction becomes possible. The HSH team can initiate this process with local communities and produce a collaborative result.

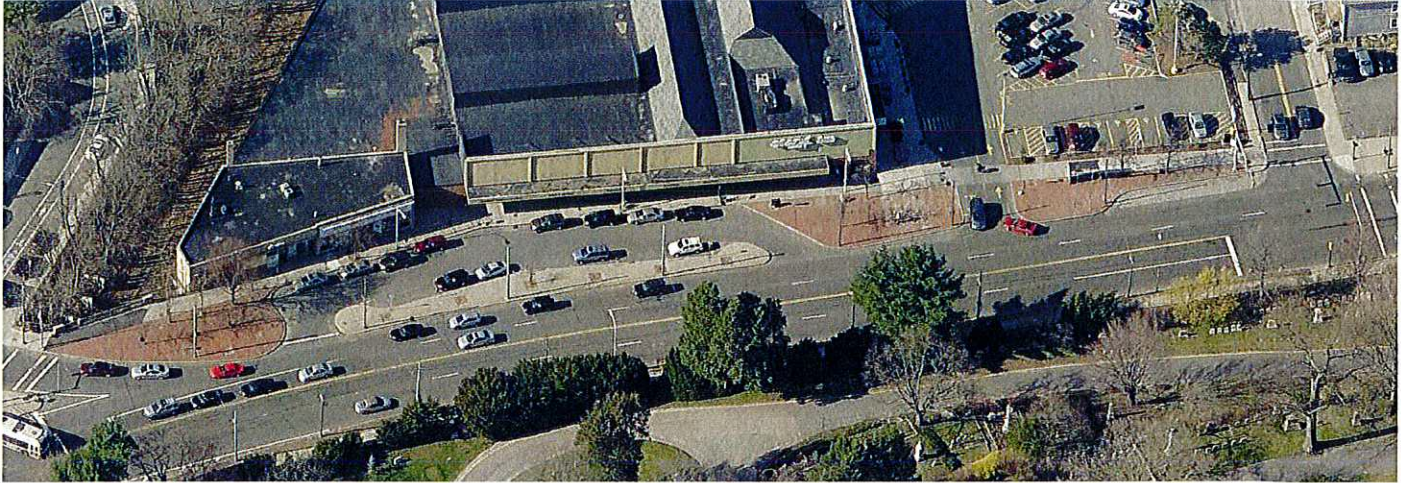
The first of these is at the end of Brattle Street where a 0.2-acre pocket park would be made possible by "squaring up" the intersection with Mount Auburn Street. The change could create calmer, more predictable traffic movements while highlighting the Mount Auburn Cemetery and the entrance to Brattle Street — a gateway to the Old Cambridge Historic District.



The intersection of Brattle Street and Mount Auburn Street could be made safer by squaring up the intersection, opening up the remaining pavement for a potential park or plaza use.



A similar short-/long-term evolution could be possible on Mount Auburn Street near Belmont Street, adjacent to the now vacant “Concept Cleaners” storefront. All local business tenants, including Star Market — which controls a large parking lot nearby — might be supportive of a 0.5-acre community park/plaza in this location if the location retained some customer parking. A small change to the intersection of Belmont and Mount Auburn streets could further enhance the pedestrian and bike connection to the Belmont Street business district, and also be used to connect Mount Auburn Street pedestrians and cyclists directly to the future Watertown Greenway — a bike from the Arsenal Mall to Fresh Pond that is currently under design at the DCR.



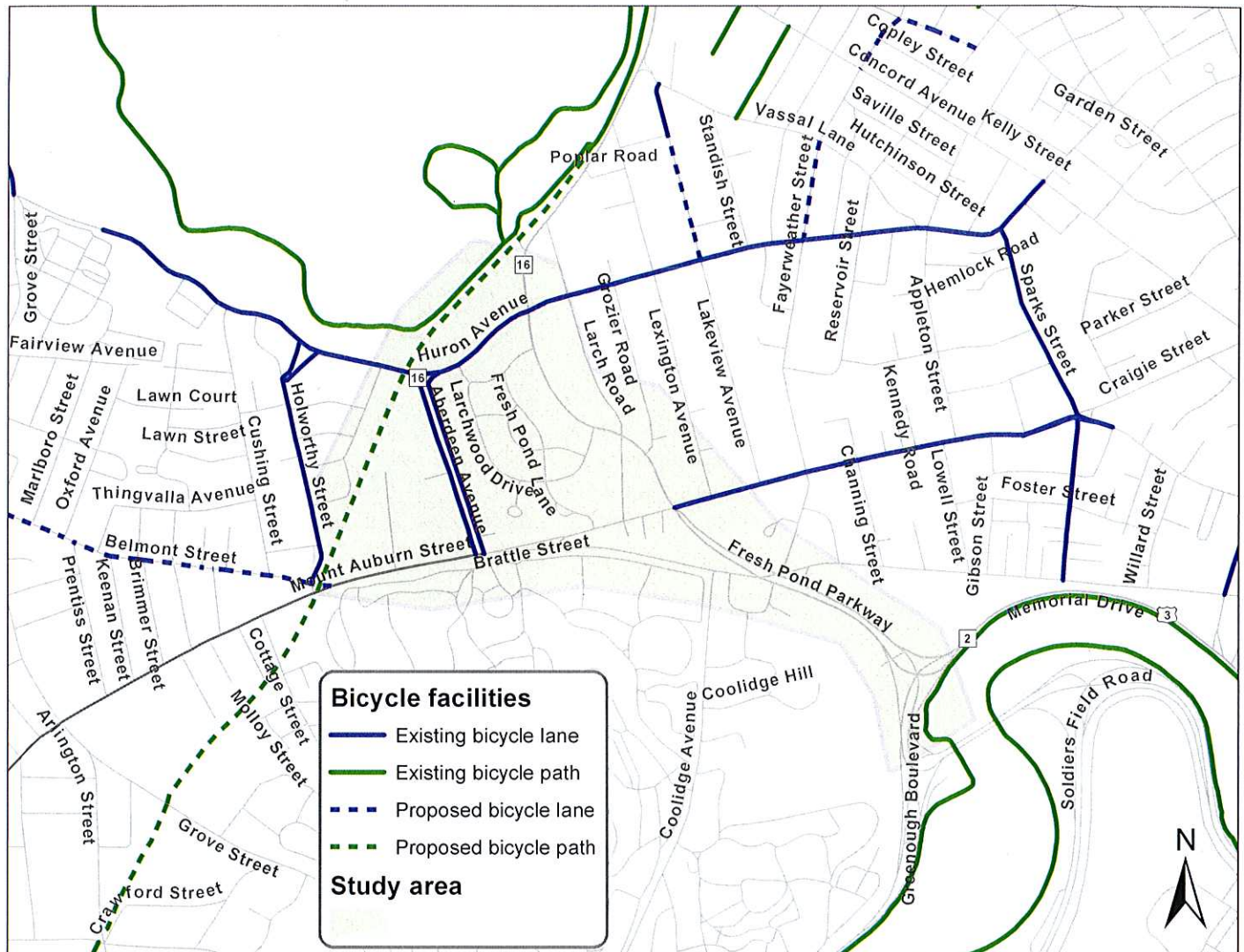
The area adjacent to Concept Cleaners could be improved by re-purposing excess pavement and parking for potential park or plaza use.

Pedestrians walking along Fresh Pond Parkway may benefit from simple sidewalk widening and repaving. They may also benefit from a more visible crossing treatment of Mount Auburn Street and of Huron Avenue that includes a barrier between pedestrians and traffic where the sidewalk is narrowest to create a stronger perception of safety for parents. To benefit those who cross the parkway, further study may reveal potential signal timing improvements, more visible crosswalks, and additional traffic calming features to reduce high vehicle speeds. Road diets north and south of Mount Auburn Street would have the potential to reduce crashes, and put more distance between people and motor vehicle traffic.



PEOPLE ON BIKES

Creating safe, comfortable and attractive bikeways on Mount Auburn Street and Fresh Pond Parkway would connect a wide variety of existing and proposed bike infrastructure. The two streets together are an integral part of Cambridge's future bike network.



Adding low-stress bikeways to Mount Auburn Street and Fresh Pond Parkway would eliminate what is currently a barrier to many would-be cyclists in the neighborhood.

Available traffic counts indicate that a 4-3 road diet, combined with bus signal priority and queue jumps, may be possible in the short term on part or all of Mount Auburn Street, allowing enough room for a protected bike lanes (with flexposts or planters), or buffered bike lanes (paint only). These improvements could be balanced with the demand for bus priority and/or bus queue jumps at signaled intersections.



Carrying bicycle traffic safely through the intersection with Fresh Pond Parkway can be better achieved in the short-term through additional guidance for cyclists and vehicles, organizing traffic, and creating more predictable movements. Some of the extant road space in the intersection today can be reclaimed with gore lines and/or flex posts, or temporary drums in the short-term; in the long-term, a variety of options could create a more protected space for cyclists, whether their path skirts the edge of a roundabout, or follows the protected intersection model for which MassDOT is currently producing guidelines.

There are also opportunities to connect any new bike facility on Mount Auburn Street to the future Watertown Greenway (alongside Holworthy Street).

Implementing a 4-3 road diet on Fresh Pond Parkway north of Mount Auburn Street is a challenging proposal, and needs careful study. Nationwide 4-3 conversions are rare on streets with higher than 25,000 vehicles per day. Other options may include improving paths and sidewalks alongside the roadway, reducing the number of lanes south of Mount Auburn Street (along Gerry's Landing), or even improving the bike and pedestrian connections to the Charles River paths. In lieu of the possibility of an on-road facility, a shared-use path, or in some locations, a walking and biking paths may be possible side-by-side.

SURROUNDING NEIGHBORHOODS, "CUT-THROUGH" TRAFFIC

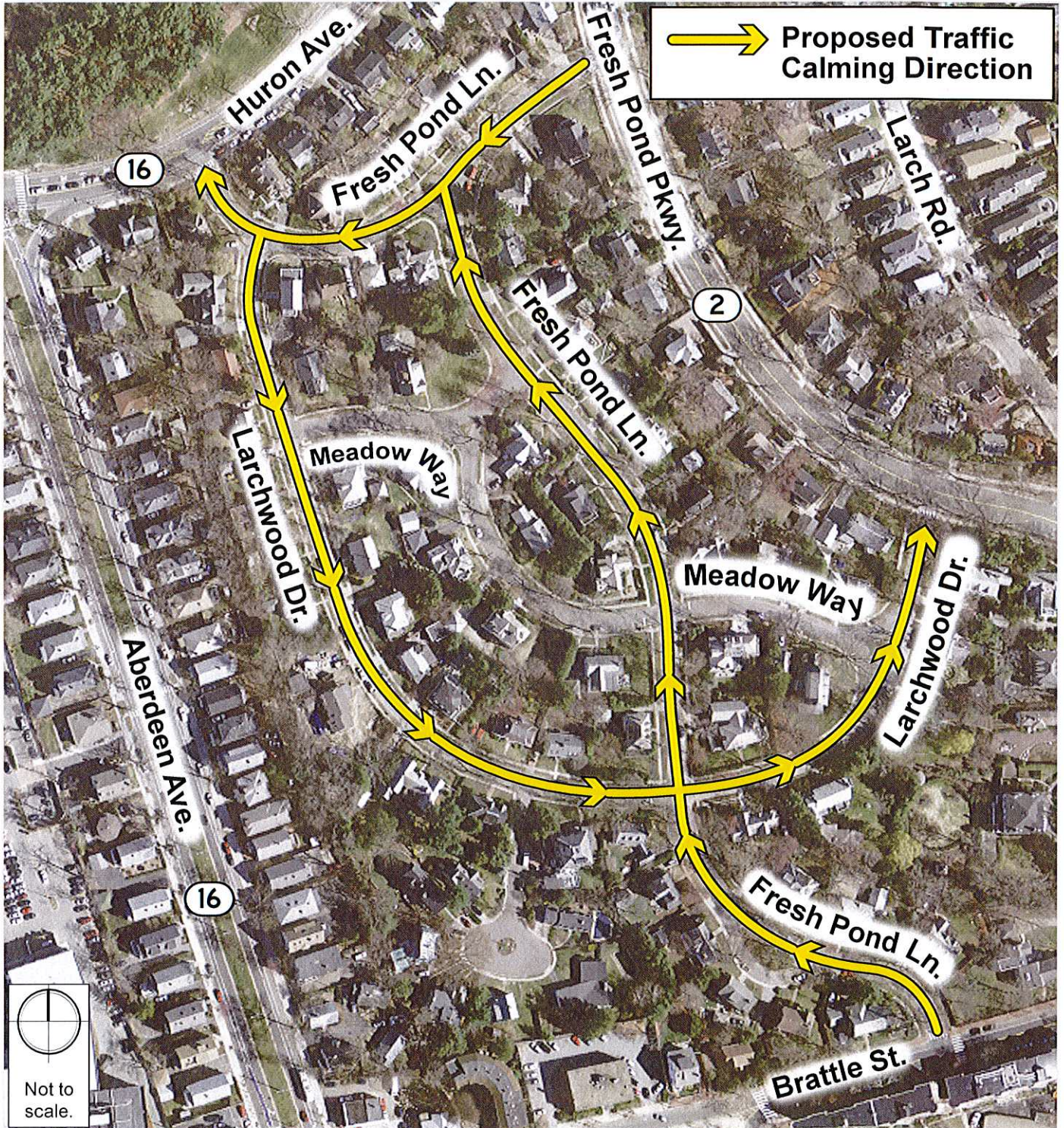
Neighborhood residents in the Larchwood neighborhood have complained about cut-through traffic on Larchwood Drive, Fresh Pond Parkway, and Meadow Way. These problems could be solved with better design, either by creating a system of one-way streets in the neighborhood that would make cut-through routes less efficient or impossible, or by adding traffic calming elements that are also maintainable during snow events. In either case, better design can alleviate this neighborhood nuisance. A possible one-way scheme for traffic calming is shown in **Figure 15**.



A road diet on Fresh Pond Parkway south of Mount Auburn Street could help create more space for bike and pedestrian infrastructure.



Figure 15. *Proposed One-way Traffic Calming*





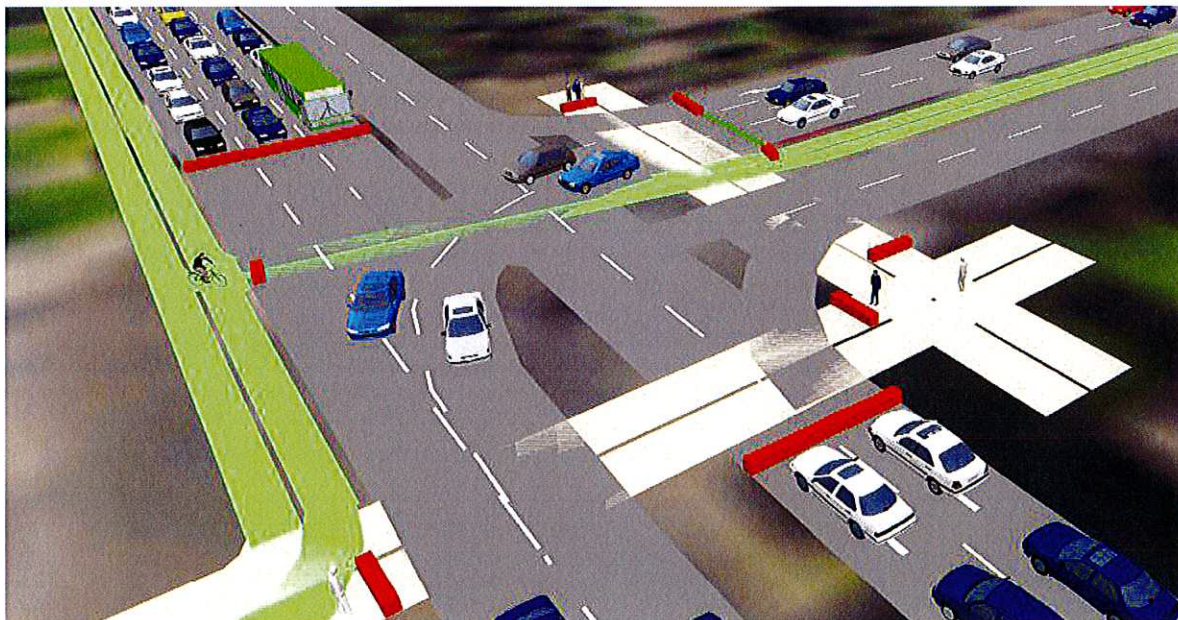
Traffic and Transit Modeling – VISSIM

MICROSIMULATION

Visualization tools help the public to understand the benefits and challenges of transportation decisions. Using microsimulation serves as a means to address many of the issues, and shortfalls of those higher-level analysis methods, allowing the modeling of multimodal interactions, such as pedestrians interacting with right turning vehicles; bicycle interactions with traffic; interactions due to buses around stop locations; advanced signal timing treatments, such as exclusive transit or bicycle phases; dynamic queuing based on simulated traffic; and variability of traffic flow through the analysis periods.

The HSH team will use the 3-D microsimulation modeling software, VISSIM, to analyze the Mount Auburn Street and Fresh Pond Parkway corridors. HSH and KAI staff have extensive experience using this modeling tool on a variety of different projects including corridors, roundabouts, and interchanges. The model will be able to show explicitly how the corridor will operate under existing conditions versus the proposed concepts. VISSIM is a powerful program that will be able to show an accurate picture of operations and is able to incorporate uncommon features, such as public transit, where other programs are limited. HSH will use Sketchup in order to enhance our 3-D models. Sketchup examples are integrated into this proposal in **Figures 11 and 12**.

KAI has expertise modeling multimodal operations with the convergence of traffic, transit, bicycles, and pedestrians, as well as supporting design concepts. A primary example of this is the Portland-Milwaukie Light Rail design project in Portland, Oregon. KAI modeled design options at the Moody/Porter intersection which consisted of a LRT, bus lane, protected bikeway, high pedestrian activity, and vehicles. KAI conducted software-in-the-loop simulation integrating the traffic signal controller with the model to assess if the signal system could operate the complex demands.



VISSIM screen capture modeling the operational effects of Transit Signal Priority (TSP) in Washington, D.C.



Landscape

Mount Auburn Street and Fresh Pond Parkway are part of the DCR's historic parkway network, and all work will incorporate DCR's Historic Parkway Guidelines. Like many of the parkways, much of the road is lined with mature deciduous trees – a number of which need to be further evaluated for health. Construction activities will impact the plantings and it will be important to understand impacts for the various alternatives studied.

Mount Auburn Street and Fresh Pond Parkway pass through a number of different character zones which will be considered in the evaluation of alternatives. In sections where the plantings are largely at the back of sidewalk, the trees will be less impacted by construction (adjacent to Mount Auburn Cemetery). Along Fresh Pond Parkway, where the ROW is constrained for all the various modes, the trees line the road edges – making them the most vulnerable to construction impacts, and contributing to the many challenges along this stretch of roadway. The commercial area beside Star Market, which was once the entrance to a streetcar barn for the Boston Elevated Railway, offers opportunities to re-evaluate the need for and the layout of roadway parking which could result in a treatment that better addresses pedestrian needs as well as improves the image of this district.

Both Fresh Pond Parkway and Mount Auburn Street are part of the bicycle route to the Charles River from Cambridge, Belmont, and Watertown, and they connect other important open spaces such as the Fresh Pond Reservation to the River. The treatment of this corridor will reflect the importance of it as a greenway, as well as a bicycle/pedestrian transportation route.

Although the details of the parkways (e.g. lights, railings, etc.) will not be part of the study at this time, they will be when the project is further developed. It is important that the images shown for this work reflect the proposed character of the parkway.

Engaging Stakeholders

HSH has over 28 years of experience in providing public involvement support to many challenging transportation, planning, engineering, and construction projects. Since 2008, we have been privileged to work closely with MassDOT's pioneering Accelerated Bridge Program, now generally acknowledged as a template for the rest of the agency, on some of that section's highest profile projects: the Fore River Bridge between Quincy and Weymouth, the Kenneth F. Burns Memorial Bridge between Worcester and Shrewsbury, and the Casey Arborway in Jamaica Plain. HSH also has a history of successful public involvement with challenging municipal jobs such as the East Milton Square Parking and Access Study, and the ongoing West Chatham Roadway Design Project, where after several years of contentious debate, the HSH team's recommended design received the unanimous support of the Chatham Board of Selectmen, as well as MassDOT and



Public Involvement Specialist Nate Cabral-Curtis at a Public Information Meeting for the Casey Arborway project in Jamaica Plain.



the MPO. All of these projects are noteworthy for the interplay among local, state, and federal participants – a condition which would be replicated on this project.

The hallmarks of the HSH public involvement style are building trust with the community to allow a reasonable consensus to emerge, and fostering a close working relationship with our client. In all of our projects, we work to humanize the Project Team to community members so that a working partnership can emerge in which both sides trust and respect the other. Project after project, we have seen that this kind of partnering between the agency, consulting team, and the community is what gets projects built. A strong client-consultant relationship is another key component of the HSH style of public involvement. We begin each project with a detailed public involvement plan to ensure that all members of the team get the greatest possible benefit from the outreach effort. Throughout the life of the project, we are careful to make certain that our messaging about the project is consistent with, and supportive of, the client's aims. Our public involvement team prides itself on responsiveness. We understand the many pressures of completing a project, and we will at all times do what is necessary and appropriate to ensure that your needs are addressed in a timely fashion



HOWARD STEIN HUDSON

Engineers + Planners

Scope of Work



Scope of Work

The sections that follow provide more detail to the scope of work that was provided in the RFR. We have broken the scope task into technical elements and community outreach.

Elements of Design Scope

TASK 2. EXISTING CONDITIONS SURVEY

The HSH team will review traffic count and crash data provided by DCR and the cities of Cambridge and Watertown. We will collect new Automatic Traffic Recorder (ATR) and turning movement count data, including pedestrians and cyclists. We will obtain traffic signal timing and coordination data for all traffic signals in the study area. We will collect bus travel time, delay, and occupancy information for the MBTA's Routes 71 and 73. We will also review the prior study by the City of Cambridge regarding bus operations. We will collect right-of-way and ownership information using available GIS layers and assessors databases. No topographical survey or property research will be performed at this time.

The HSH team will develop existing conditions VISSIM models to evaluate multimodal operations within the study area, including Mount Auburn Street and Fresh Pond Parkway. Following completion of the VISSIM analysis, the HSH team will conduct an operational evaluation of the Concept Design based on VISSIM results, as well as a qualitative evaluation of performance for each mode. The results will be incorporated in the Initial Conditions Report.

We will obtain the latest available crash data from MassDOT. The HSH team will prepare crash diagrams and trends for the study area. We will use this information to perform an RSA for the Mount Auburn Street and Fresh Pond Parkway corridors. The RSA report will be incorporated into the Initial Conditions Report under Task 5.

TASK 3. FEASIBILITY AND IMPACT OF ADDING BIKE FACILITIES ON MOUNT AUBURN STREET

The HSH team will develop and analyze two options for adding bicycle facilities on Mount Auburn Street from Trail Street in Cambridge to Belmont Street in Watertown. The conceptual graphics will be developed at 40-scale on aerial photograph base with right-of-way information shown. One concept will include maintaining the existing curblines and the second will consider potential widening within the existing Right of Way to provide off-road, protected bicycle facilities. The HSH team will evaluate these two options using the VISSIM models developed under Task 2. The findings will be incorporated into the Initial Conditions Report.

TASK 4. FEASIBILITY OF A THREE-LANE SECTION FOR PORTIONS OF FRESH POND PARKWAY

The HSH team will develop concept designs and analyze the potential for a road diet on the section of Fresh Pond Parkway between Mount Auburn Street and Huron Avenue. The 4-to-3 road diet would allow for a center Two-Way Turn Lane (TWTL) and would allow the extra pavement area to be re-purposed for pedestrian and bicycle



use. The HSH team will evaluate this alternative using the VISSIM models. The results of the analysis will be incorporated into the Initial Conditions Report.

TASK 5. INITIAL CONDITIONS REPORT

The HSH team will prepare the Initial Conditions Report, which document existing conditions, as well as the findings of Task 3 and Task 4. The report will also outline potential short- and long-term improvements which are intended to reduce bus travel times on the Mount Auburn Street corridor, which will be further evaluated. The HSH team will also outline for further study the potential improvements at intersections to improve comfort and safety for pedestrians and bicyclists.

TASK 7. PROPOSED SHORT- AND LONG-TERM IMPROVEMENTS

The HSH team will develop conceptual layouts for up to three short-term, and three long-term improvements. The alternatives to be advanced will be chose through coordination with DCR, MassDOT, the City of Cambridge, the Town of Watertown.

TASK 8. ANALYSIS OF PROPOSED SHORT- AND LONG-TERM IMPROVEMENT CONCEPTS

The HSH team will analyze the improvements developed in Task 7 using the VISSIM models. The analysis will also include right-of-way needs, safety, parking, and qualitative assessment of benefits and impacts for all users. Travel time and delay for MBTA bus trips will be one of the primary measures of benefits of an alternative. The HSH team will summarize all the alternatives studied and analysis outcomes in the Draft Final Report.

TASK 11. DRAFT FINAL REPORT

The HSH team will prepare the Draft Final Report, which will document all the concepts studied and analysis outcomes. The final report will incorporate the Initial Conditions Report. The HSH team will provide up to 10 paper copies as well as an electronic copy in PDF format to the stakeholders (DCR, MassDOT, MBTA, the City of Cambridge, the Town of Watertown) for review.

TASK 12. FINAL REPORT

Once the stakeholders have provided comments on the Draft Report, the HSH team will incorporate those comments and prepare the final report. The HSH team will provide up to 10 paper copies as well as an electronic copy in PDF format.



Community Outreach and Coordination

There are several tasks of the scope of work that deal with garnering input from key stakeholders and the public at large. The HSH team will prepare a Public Participation Plan at the onset of the project for review and approval by DCR. This plan will guide the public participation process for the study.

PUBLIC PARTICIPATION PLAN (PPP)

In coordination with DCR, the HSH team will develop a public participation plan specifically designed to address the challenges of the study and the needs and concerns of its various stakeholders. While HSH has over the years accumulated a formidable toolkit of traditional and innovative techniques to engage the public and elicit input that can be used effectively in the planning process, we avoid a “cookie cutter” approach, instead developing a package of strategies and techniques that will best serve a project’s specific challenges and will complement each other so that the bases that need to be covered will be covered. The size and comprehensiveness of the public participation program for the study will be suited to address its particular issues. We will clearly define the goals, strategize on how best to achieve them, and create a specific, detailed action plan.

During its 28-year history, HSH has developed such customized plans for hundreds of public projects along the East Coast and elsewhere in the U.S., from statewide comprehensive transportation plans to neighborhood improvements. HSH is nationally known for its expertise in the field, and in the mid-’90s produced a catalogue of techniques, a training manual, and case studies on innovative public involvement techniques for the Federal Highway and Transit Administrations. Since that time, HSH has added such innovative and effective public outreach techniques as social media, which allow the project staff to quickly and effectively communicate with stakeholders both one-on-one and as a group.

TASK 1. KICKOFF MEETING WITH STAKEHOLDERS

The HSH team will hold a kickoff meeting with DCR, MBTA, the City of Cambridge, the Town of Watertown, and other key stakeholders to review the scope of the study and outline its goals and objectives. Key stakeholders who could participate in this and other meetings include Representatives Hecht and Brownsburger, Larchwood Neighborhood Group, and Mount Auburn Hospital. We will work with DCR, MBTA, the City of Cambridge, and the Town of Watertown to identify the complete list of stakeholders.

TASK 6. FIRST PUBLIC MEETING

The HSH team will prepare for and participate in the initial public meeting for the project, at which we will present the findings of the Initial Conditions Report. We have identified the timing of this meeting in our schedule, which follows this section.

At this meeting, the HSH team will share the concepts developed through the study process. We anticipate that through the public meeting process we will be able to first determine which of the concepts should be carried forward for further consideration by the public and which should be dropped. Following that, we will be able to refine the selected concepts still further to ensure that the options that are carried forward, including a locally preferred option, have the greatest community support possible. Materials developed to support the meeting, such



as presentations and handouts as well as documentation of the meetings, can be made available through DCR's website.

Throughout the process, the HSH team will prepare for (including developing briefing materials), assist in presenting at, and document (through minutes) all meetings.

TASK 9. STAKEHOLDER MEETINGS

The HSH team will work with DCR and key stakeholders to develop goals and objectives for the project. Our goal will be to understand the concerns of the various user groups of the Mount Auburn Street study area so that we can develop a range of concepts to address those goals and objectives that can ultimately be shared with the public. We propose expanding Task 9 to incorporate a series of focused stakeholder meetings (residents, businesses, institutions, elected officials, MBTA, and private shuttles) at the onset of the process to understand their transportation issues and concerns for the study corridors. This stakeholder outreach could also include an online or mobile survey for transit riders of the bus and shuttle services in the area, as well as for cyclists and pedestrians. These are user groups that may not choose to attend a public meeting to provide input, but like have useful experiences and input that can inform the study progress.

In addition to these initial meetings to gather input, we have proposed a series of check-in meetings with key stakeholders throughout the study to review progress and outcomes. These meetings could be with the state agencies and cities, but could also be expanded to include other key stakeholders. In this way, the dialogue about the study will be informed throughout the study process, ensuring that there are no surprises in each of the two public meetings.

TASK 10. SECOND PUBLIC MEETING

Following the concept development and analysis of short- and long-term alternatives, the HSH team will prepare for and participate in the second public meeting for the project, at which we will present the recommendations and analysis. At this meeting, the team will outline the next steps for implementation. We have identified the timing of this meeting in our schedule, which follows this section.



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Engineers + Planners

Schedule

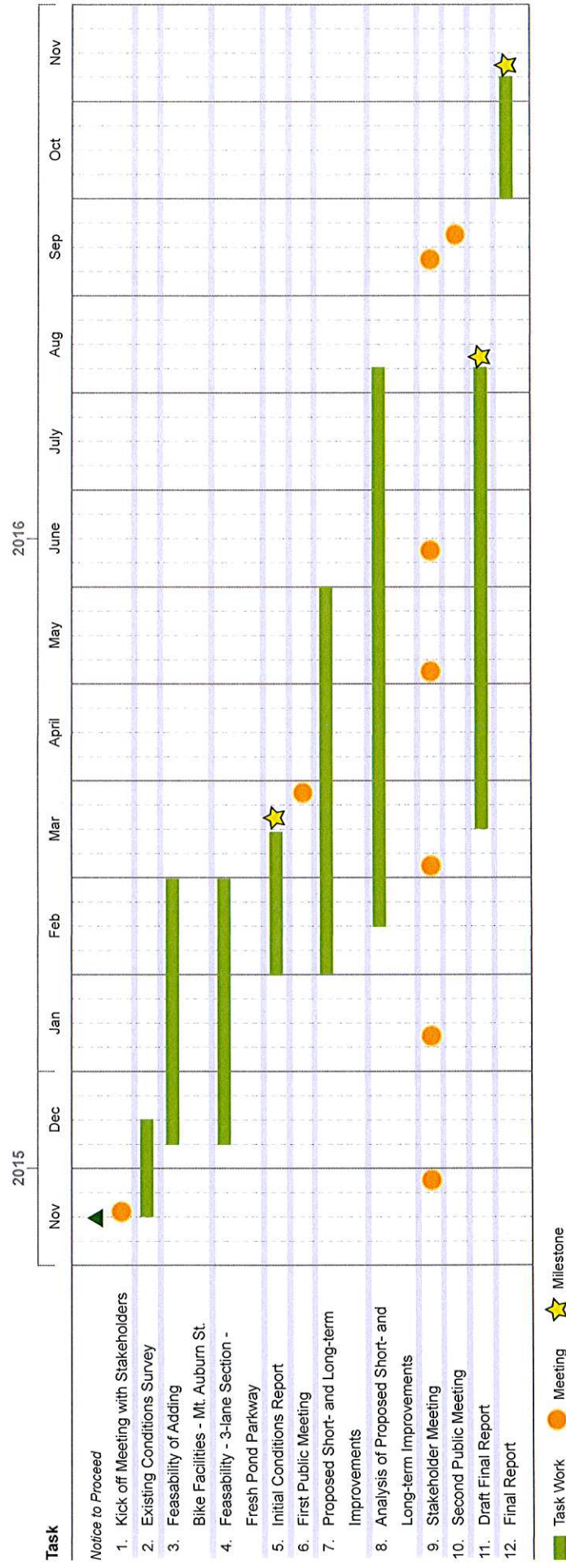




Schedule

The HSH team believes this study can be completed in one year. We have proposed a schedule, shown in **Figure 16**, which outlines the time frames to complete the tasks as well as the timing of meetings for the public involvement process.

Figure 16. Project Schedule





HOWARD STEIN HUDSON

Engineers + Planners

Qualifications





Our engineers and planners collaborate to deliver creative solutions.

Qualifications

With offices in Boston and Chelmsford, **Howard Stein Hudson (HSH)** is a full service transportation engineering firm that provides complete streets design, traffic engineering, transportation planning, civil engineering, and public involvement for municipalities and public agencies. Our tightly-integrated relationships with clients and our understanding of reviewing agencies' needs ensure sophisticated projects succeed swiftly and efficiently, no matter the scale. HSH utilizes a closely engaged, collaborative process, enabling us to provide exceptional project delivery. Our firm's multi-disciplinary approach allows us to resolve complex transportation design issues and help clients understand the relationships between land use, transportation by all modes, and parking. We are more than engineering experts at HSH – we are the keystone of complex projects.

The HSH staff of over 50 includes Professional Engineers licensed in Massachusetts, several of whom are also licensed in other jurisdictions. Other HSH engineers are Professional Traffic Operations Engineer (PTOE) certified, LEED AP accredited, or certified by the International Municipal Signal Association in Level I Work Zone Safety Control, Level I Traffic Signal Inspection, and Level II Traffic Signal Field Electrician.

Kittelson & Associates, Inc. (KAI) provides comprehensive transportation engineering, planning, and research services to government and private organizations. With 17 offices across the nation, KAI provides national leadership and expertise related to multimodal system analysis and evaluation. KAI has developed new measures, automated the preparation of the annual FDOT Source Book, and assisted with the development of the FDOT Quality/Level of Service Handbook.

KAI's skilled professional staff and national experts offer decades of progressive research, technological innovation, and a diverse portfolio of industry-leading work. KAI is a nationally-recognized leader in traffic planning and engineering, specifically in the area of signal systems, including signal timing and traffic studies; traffic signal system designs; traffic management plans; transit signal priority; and ITS design transit station access. KAI is also the author of various industry-leading national guidebooks, including the *Traffic Signal Timing Manual*, the *Transit Signal Priority Research for the Federal Transit Administration*, and the *Transit Performance Measurement Guidebook*.



Crosby | Schlessinger | Smallridge (CSS) is a nationally-recognized Woman-Owned landscape architecture, urban design and planning firm that collaborates with municipalities, public agencies, and institutions to transform places — and drive positive change — through an integrated approach to planning and design for open space, transportation, and urban redevelopment. The principals of the firm have worked together for over thirty years and bring personal focus, deep technical expertise, creativity, and seasoned judgment to ensure that the potential of every project is realized. CSS's focus is on implementation. By integrating the political, physical, economic and cultural goals of every project, they have developed a strong history of moving from creative ideas to built projects.

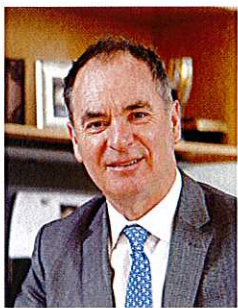
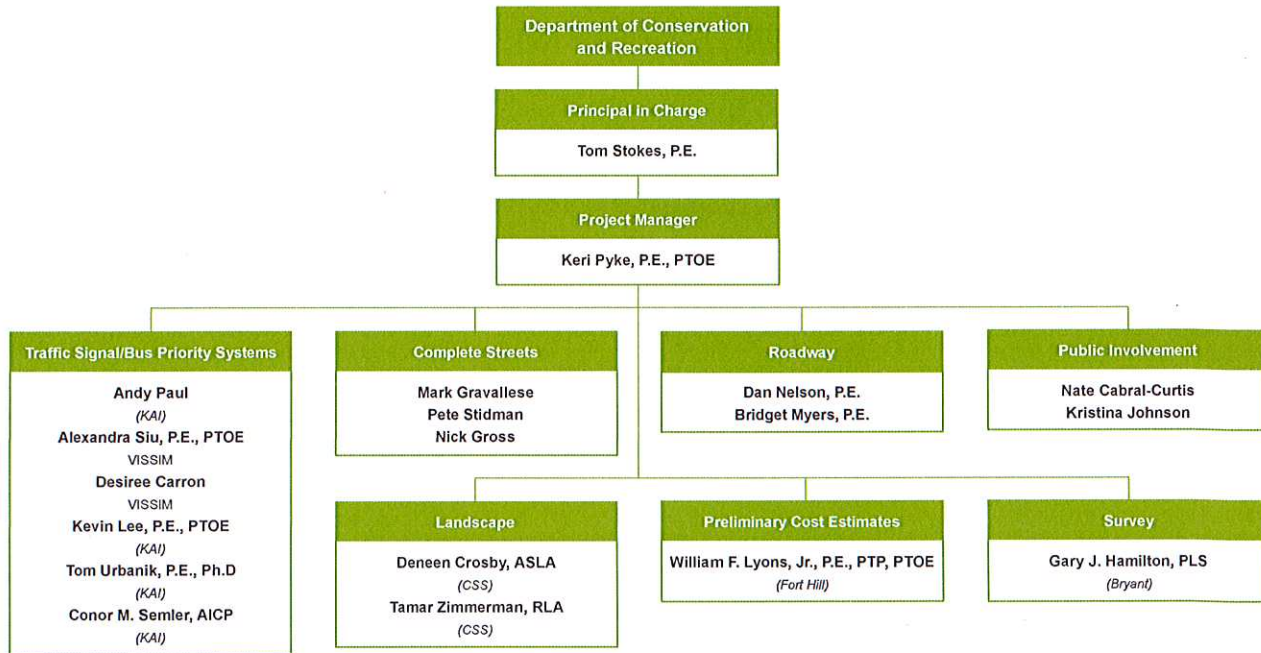
Fort Hill Companies (Fort Hill) has a mission to provide best in class technical consulting services to meet the client's goals in planning, designing, engineering and program/construction management. They know how to bring complex facility and infrastructure projects and programs from conception through to construction close out – on time and within budget. Fort Hill approaches the complex nature of the build environment and sustainability with an integrated multidisciplinary thought process unfettered by traditional limitations. They have long-standing relationships with government agencies and private sector owners on a wide range of real estate, facilities, infrastructure, and environmental projects. Fort Hill partner's with client organizations to help the clients achieve their vision through consensus, and buy-in from stakeholders and the public. Combined, Fort Hill's professionals have more than 150 years of experience with private, non-profit, municipal, state, and federal agency clients.

Bryant Associates Inc. (Bryant) has accomplished major surveys for numerous clients over the past 30+ years, including federal, municipal and private clients. Most of Bryant's roadway and site development projects include the preparation of topographic plans with utilities and property surveys. Bryant fields multiple survey crew equipped with precise total station instruments with data collectors and GPS equipment. They also have the ability to field and equip more crews using their office staff. Bryant performs their work utilizing the latest software, including AutoCAD, Civil 3D surveying software. The Bryant crews have experience working on active highways, roads, subways, railroads, and terminals, and have attended MBTA, Amtrak, MBCR, OSHA safety courses, and are certified in Confined Space Entry using in-house equipment.



Project Team

Our organization chart, pictured below, is followed by qualification summaries of our proposed team. Additional skilled technical staff are available to the Department of Conservation and Recreation, if needed, to accelerate project delivery. Full resumes are included in Resumes section of this proposal.



Tom Stokes, P.E. – Principal in Charge – is HSH's Chief Engineer. Tom draws on over 25 years of experience in the transportation industry. Having worked in both the public and private sectors, he understands the critical issues associated with new projects and uses his experience in producing timely and cost-effective solutions for clients. Tom is involved from planning through implementation of all projects, and is the Engineer of Record on all plans.



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Keri Pyke, P.E., PTOE – *Project Manager* – has over 20 years of experience in traffic engineering and transportation planning, including preparation of roadway designs, traffic impact studies, peer reviews, and road safety audits. She specializes in planning and design of Complete Streets projects. Keri, who is a Principal, has led some of the firm's most complex, multifirm, cross-disciplinary teams on a variety of projects. Keri led the team for the Dorchester Avenue Reconstruction project, working with the Massachusetts Department of Transportation (MassDOT), Boston Transportation Department (BTD), and Boston Department of Public Works (BPWD). The project included the final design of 14 intersections along the 6-mile urban corridor of Dorchester Avenue in South Boston and Dorchester.



Andy Paul – *Traffic Signal/Bus Priority Systems* – has over 12 years of experience in traffic operations, design, construction, project management, and program management. Andy has developed an expertise with innovative interconnections and interchanges and is Past Chair of the FHWA Every Day Counts II: Intersections and Interchange Geometrics Committee. Andy also led the MassDOT statewide implementation of roundabouts in Massachusetts, where there are over 100 rotaries. Andy was the Project Manager for the statewide conversion to All Electronic Tolling, and he worked on the Fast 14 bridge replacement project. He has collaborated with transportation partners at the local, regional, state, and federal level.



Alexandra Siu, P.E., PTOE – *Traffic Signal/Bus Priority Systems* – is integral to HSH's traffic engineering team, specializing in traffic signal design, transportation data collection, Synchro modeling and analysis, and estimating. Alex has completed advanced level training in VISSIM, Synchro, and SimTraffic, as well as training in traffic signal operations and control components. Specializing in traffic analysis and design, Alex uses her technical skills to advance complicated large-scale projects through permitting to design and into construction. Alex holds an M.S. in Civil Engineering from Northeastern University and a B.S. in Civil and Environmental Engineering from Georgia Institute of Technology.



Desirée Caron, EIT – *Traffic Signal/Bus Priority Systems* – joined HSH as an intern in the traffic engineering team. She has aided in a wide array of tasks within the transportation discipline during this time including traffic analysis, data collection, the completion of pavement marking, signage, and signal timing plans and schedules, and developed reports such as Functional Design Reports (FDRs) for various projects. Desirée has helped to develop the pavement marking, signage, and signal plans and schedules for the Connect Historic Boston project. She also helped to develop the Functional Design Report (FDR) and Design Exception Report (DER), as well as completing the engineering estimate for all traffic-related items.



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Kevin Lee, P.E., PTOE – *Traffic Signal/Bus Priority Systems* – is a leader in multimodal signal operations. He provides a balance in traffic signal operations for all users in varied operating environments. He is currently leading the technical review and operational assessment of the DC Streetcar implementations along the H Street/Benning Road corridor and its future alignments. Kevin is also the deputy principal investigator for TCRP A-39, Improving Transportation Network Efficiency Through Implementation of Transit-Supportive Roadway Strategies. He is currently the Chair of the TRB Multi-Modal Signal Systems subcommittee under the Traffic Signal Systems Committee and president of ITS Maryland.



Tom Urbanik, P.E., Ph.D – *Traffic Signal/Bus Priority Systems* – is an international expert in transportation system management and operations. He has focused his comprehensive experience in transportation engineering on policy-based traffic signal system projects including extensive experience with transit signal priority. His TSP experience includes DDOT firmware and hardware in the loop simulation. Tom has been active in establishing next generation traffic signal system concepts that take a multimodal perspective on performance-based system operation; developing training material and workshops on traffic signal control and freeway operations; conducting FHWA peer reviews of existing agency practices; and promoting the benefits of regional transportation system management and operations.



Conor M. Semler, AICP – *Traffic Signal/Bus Priority Systems* – is a Senior Planner who draws on his experience in urban planning, traffic engineering, and technical research in complete streets design. Conor is highly regarded for his ability to leverage transportation design to create livable and healthy communities. Conor is a national leader in the planning and design of innovative bicycle facilities. He was involved in the development of both the NACTO Urban Bikeway Design Guide and the FHWA Separated Bike Lane Planning and Design Guide. Conor's experience is informed by his role in leading research, contributing to designs, and working closely with cities to continually evolve and innovate safer, more inviting bicycle facilities.



Mark Gravalles – *Complete Streets* – has over 14 years of experience in managing the development and sequencing of roadway, tunnel, facility and bridge projects. As the former MassDOT District 6 Projects Engineer, Mark's expertise lays in the review, examination, and approval/disapproval of complex and diversified engineering data, such as design plans, specifications, contracts, and bids. Mark provides guidance to communities relating to MassDOT policies, engineering standards, planning, and funding to design costeffective and context-sensitive projects. He specializes in managing complex urban infrastructure projects focusing on progressive designs that fit today's transportation landscape and are sustainable for the future.



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Pete Stidman – *Complete Streets* – is a former newspaper editor and founder of the Boston Cyclists Union with a passion for creating active, social and beautiful public spaces. As director of the Union, he worked collaboratively with municipalities and the state on a wide diversity of groundbreaking projects, including giving detailed input on the designs for the first protected bike lanes to be planned for Boston, Brookline and Somerville. Since joining Howard Stein Hudson, he has been assisting clients with bike parking, intersection design, and a plan to activate a lesser-used park at the center of East Milton.



Nicholas Gross – *Complete Streets* – works closely with our engineering, public involvement and construction management groups to integrate conceptual planning ideology into projects as needed. As a transportation planner at HSH, Nick has been successful in demonstrating projects implementation during the planning phase of projects through the use of 3D renderings created in Google SketchUp. In order to help illustrate the Connect Historic Boston Project's vision, Nick used Google SketchUp to model the roadway design and cycle track plans for both Causeway and Commercial streets in Phase 1 of the project. Nick's Causeway Street renderings have received significant applause and have further been displayed at the City of Boston's Boston Bikes 6th Annual Update Presentation.



Daniel C. Nelson, P.E. – *Roadway* – has a full understanding of the key elements that go into developing a project from preliminary engineering through construction. Dan led the roadway design of a safety improvement project in Sandwich, where he developed and recommended the replacement of the four-way intersection with a modern roundabout. He designed the new roundabout from 25% through to 100% design, as well as the Plans, Specifications & Estimates package (PS&E). Construction of the safety improvements completed ahead of schedule in the winter of 2012.



Bridget Myers, P.E. – *Roadway* – is a Project Manager with over 10 years of experience in transportation and roadway design, site design and redevelopment, right of way, stormwater management design, hydrologic analysis, low impact design, municipal peer review, state and local permitting, and construction inspection. She has been responsible for the design of several civil/site design projects, transportation improvement projects, stormwater management plans, and assisting with master planning projects. She has experience at the conceptual, design, permitting and construction phases for both the public and private sector. Bridget has significant experience using the latest in Auto CAD, Hydro CAD, and GIS technology.



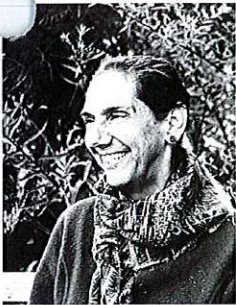
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Nathaniel Cabral-Curtis – *Public Involvement* – works closely with our engineering, planning, and construction management to integrate public involvement into projects as needed and appropriate. He provides public involvement and transportation planning support for an array of projects, including: River Street and Western Avenue Complete Streets Project, and the Fore River Bridge Replacement project in Quincy and Weymouth. Nate's public involvement process makes use of an array of innovative outreach techniques including project websites and Facebook pages, key informant interviews, public listening sessions and public information meetings.



Kristina Johnson – *Public Involvement* – is a Transportation Planner with considerable public sector experience at State, regional, and municipal agencies managing transportation and neighborhood planning studies and projects, coordinating land use and zoning initiatives, developing and implementing public outreach strategies, administering federal entitlement grant programs, and supervising planning staff. For the Stoughton Town Square Traffic Improvements project, Kristina was responsible for discussing with Town residents HSH's proposed traffic circulation design alternatives within in the context of Stoughton's Master Plan. She also facilitate several crucial dialogues with residents about their varying transportation needs and overall vision for the future of Stoughton Square.



Deneen Crosby, ASLA – *Landscape* – has extensive experience in the landscape design for multi-use paths, parks and recreational facilities, streetscapes, and public open space, as well as commercial and industrial developments. In October 2003, Deneen became a founding Principal and Director of Landscape Architecture for Crosby | Schlessinger | Smallridge, LLC (CSS). Prior to founding CSS, Deneen was a Principal at Wallace Floyd Design Group where she oversaw all of the firm's landscape design projects and often provided input to planning, architecture, and urban design projects.



Tamar Zimmerman, RLA – *Landscape* – is a Landscape Architect with significant experience in the design of public parks and urban open spaces. She joined Crosby | Schlessinger | Smallridge (CSS) in 2003 as an Associate and Project Manager. Prior to joining CSS, Tamar was an Associate at Wallace Floyd Design Group.



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William Lyons, Jr., P.E., PTP, PTOE – *Preliminary Cost Estimates* – has more than fifteen years of experience providing consulting engineering and planning services to private and institutional clients, as well as federal, state, and local governments. Bill's planning experience includes transportation planning, master planning, and urban design strategies. His design experience includes highway and traffic signal design, parking design, intelligent transportation systems, lighting design, and site civil design. Bill's traffic and parking experience includes traffic studies, traffic design, parking utilization studies, revenue forecasting, and parking design. He has direct experience in the planning, permitting, and design of a wide range of transportation facilities.



Gary J. Hamilton, PLS – *Survey* – has over 34 years of experience. He has worked for almost every public agency within the City of Boston and Massachusetts such as the DCR, MBTA, Massport, BWSC, MWRA, and BPRD. His broad experience includes large and small, rural and city projects such as roadway and utility surveys, housing, airports, universities, construction/engineering projects, railways, bikepaths, dams and bridges, hazardous waste sites, waterfront properties and piers, parks and playgrounds, and as-needed contracts. Additionally, Gary has served as an expert witness. As Director of Survey, his responsibilities include supervising projects from initial client contact through final review and approval process.



The projects listed in the table below have been selected to best demonstrate our relevant capabilities to the Department of Conservation and Recreation. Full descriptions of each project are included in the following pages.

PROJECTS

Dorchester Avenue Reconstruction

River Street and Western Avenue Complete Streets Project

Connect Historic Boston Complete Street Design

Central Square Reconstruction

Melnea Cass Boulevard Reconstruction

Craigie Bridge Reconstruction

Highland Street Corridor Intersection Improvements

Boston University Bridge Rehabilitation

SERVICES

Bicycle Signals

Civil Engineering

Complete Streets Design

Construction Phase Services

Construction-period Management

Elevated Cycle Tracks

Field Engineering

Inspection/Acceptance of Work

Pedestrian Accessibility Improvements

Pedestrian Accommodations

Public Involvement

Right of Way

Roadway Design

Signage

Stormwater Management

Synchro Model

Temporary Traffic Controls

Traffic Analysis

Traffic Engineering

Traffic Signal Design

Traffic Signal Warrant Analysis

Transportation Engineering

Transportation Planning



Dorchester Avenue

Massachusetts Department of Transportation
Boston, Massachusetts

The reconstruction of Dorchester Avenue was the culmination of extensive collaboration between the City of Boston, MassDOT, Federal Highway Administration and Howard Stein Hudson. As one of the first American Recovery and Reinvestment Act (ARRA) or stimulus projects in the Commonwealth, close engagement was needed to deliver the \$12.9 million project within the accelerated 9 month schedule. Successfully coordinating and delivering multimodal urban projects is what we do.

Running through the heart of Boston's Dorchester neighborhood for a length of 4 miles, the project upgraded 13 signalized intersections for pedestrians, motorists and cyclists. Elements included bike boxes, accessible ramp upgrades and a coordinated traffic signal system that connected to the City's Transportation Management Center.

The collaborative approach incorporated the expertise of the City's agencies and the vision of Dorchester's businesses and residents. With construction complete in September 2012, we are pleased that Dorchester Avenue is now transformed with major safety and mobility improvements.

Project Status

Construction Completed 2012

HSH Services

- Roadway Design
- Transportation Engineering
- Construction Phase Services
- Public Involvement
- Traffic Signal Design
- Complete Streets



River Street and Western Avenue Complete Streets Project

Massachusetts Department of Transportation
Boston/Cambridge, Massachusetts

This replacement provided a unique opportunity to provide multi-modal and green infrastructure improvements to this highly traveled corridor. HSH, working with a prime consultant, advanced a “complete streets” solution for commuting traffic, cyclists and pedestrians. The plan was developed through MassDOT with a robust public involvement plan, led by HSH, that sought input from Walk Boston, Liveable Streets, MassBikes, and the cities of Boston and Cambridge.

HSH designed Stormwater Best Management Practices to control and alleviate nonpoint source pollution in the lower Charles River Basin. HSH successfully obtained approval from both the City of Boston and City of Cambridge Conservation Commissions and is currently seeking MassDEP Water Quality Certification approval.

The \$44 million project was developed under the Accelerated Bridge Program and is currently at the 100% Design Stage.

Project Status

In Construction

HSH Services

- Complete Streets Design
- Elevated Cycle Track
- Bicycle Signal
- Stormwater Management
- Traffic Engineering
- Right of Way
- Public Involvement
- Temporary Traffic Controls



Connect Historic Boston Complete Street Design

City of Boston
Boston, Massachusetts

The TIGER funded Connect Historic Boston is one of the most progressive multimodal transportation projects in the country. The \$24 million construction project will revolutionize the way Boston residents commute and tourists explore the City. The focal point of the project is a two-way protected cycle track that runs along the center of Causeway Street in front of the TD Bank Boston Garden. The 1.4 mile complete streets project extends from Atlantic Avenue through Commercial Street, Causeway Street and Staniford Street to Cambridge Street.

Wider sidewalks, shorter crossings and accessibility improvements further enhance Boston's reputation as America's Walking City. The new cycle track and state of the art bicycle signals provide significant improvements for cyclists in the City.

Collaborating closely with the City of Boston, Federal Highway Administration, advocacy groups and abutters, the Connect Historic Boston project was delivered shovel-ready within the one year schedule.

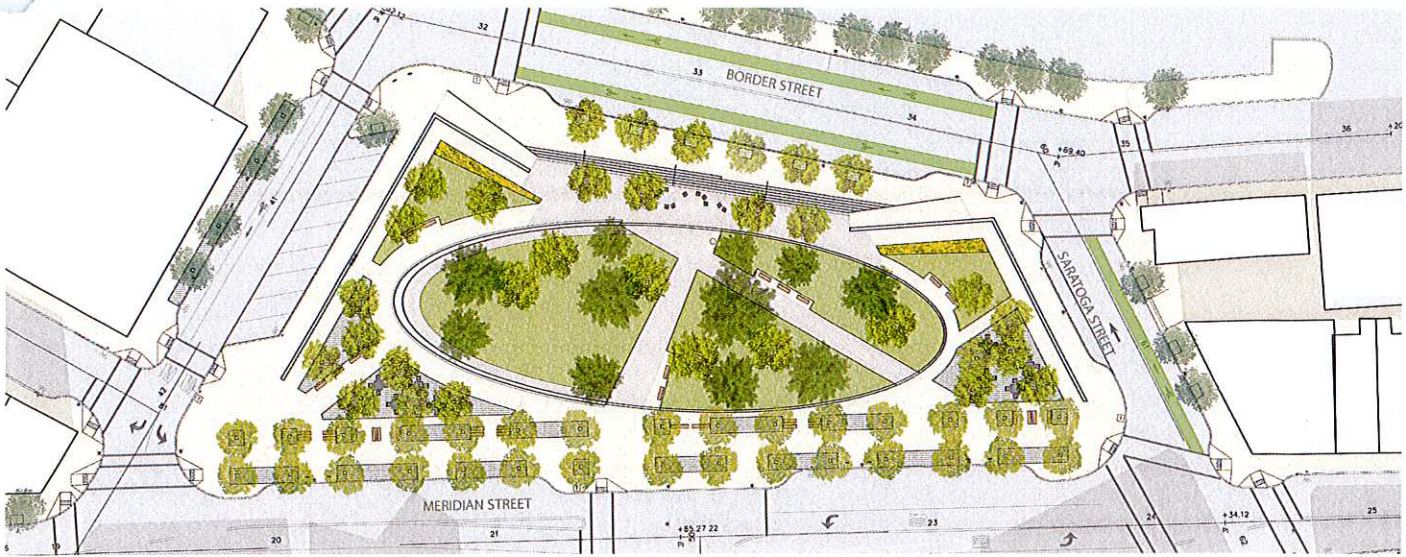
Construction is now underway with completion expected in Fall 2016.

Project Status

In Construction

HSH Services

- Pedestrian Accessibility Improvements
- Elevated Two-way Cycle Track
- Bicycle Signals
- Traffic Signal Design
- Temporary Traffic Controls
- Construction Phase Services



Central Square Renovation

Boston Transportation Department
East Boston, Massachusetts

HSH is working with the Boston Transportation Department, Parks and Recreation Department, Public Works Department and the Boston Water and Sewer Commission on the design of roadway, drainage and streetscape improvements in Central Square as part of an overall revitalization. Our multi-disciplinary team includes survey, public involvement, roadway design, signal design, stormwater management, urban design, and landscape architecture.

The “Complete Streets” project will: provide bike accommodations and reorganize traffic to improve flow and create a safer environment for cyclists; shorten pedestrian crossings by narrowing wide streets around the park; expand the park and widen sidewalks reclaiming more space for pedestrian use; include green stormwater infrastructure elements such as permeable paving and infiltration trenches; and provide back-in angle parking; which is safer than head-in angle parking.

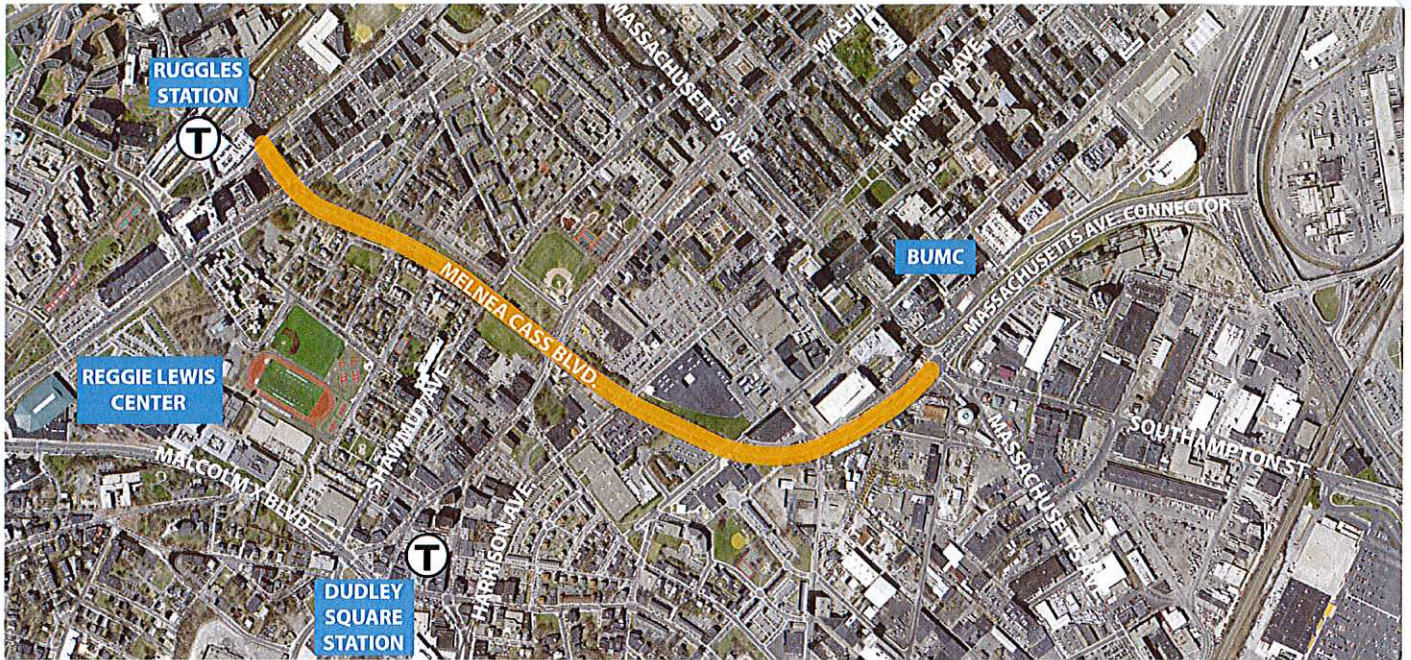
The Project was selected as a pilot project for BWSC to evaluate green infrastructure. Some of the elements incorporated into the project include, porous cement, porous asphalt, permeable pavers, and stormwater infiltration systems.

Project Status

Design Complete; In Construction 2015

HSH Services

- Civil Engineering
- Transportation Planning
- Complete Streets Design
- Traffic Engineering
- Construction Phase Services



Melnea Cass Boulevard Reconstruction

City of Boston
Boston, Massachusetts

Melnea Cass Boulevard is an important arterial providing access from I-93 to the Longwood Medical Area (LMA) and Boston University Medical Center (BUMC). The South Bay Harbor Trail, an important pedestrian and bicycle facility, also exists along the corridor. The HSH team is working with the community to design a 'Complete Street' that is multimodal, green, and smart.

HSH is leading a multidisciplinary team, working with the City, the community, and MassDOT, to develop concepts for how all modes can be safely accommodated. The team is developing an overall vision for the street, including considering development parcels along the corridor. HSH is providing transportation planning, traffic engineering, civil engineering, and public involvement services on the project. The project will incorporate innovative stormwater management practices, as well as traffic and transit signal design elements.

Project Status

Pre-25% Design

HSH Services

- Civil Engineering
- Complete Streets Design
- Traffic Engineering
- Public Involvement
- Stormwater Management
- Transportation Planning



Craigie Bridge Reconstruction

Massachusetts Department of Transportation
Boston/Cambridge, Massachusetts

Adjacent to the Museum of Science, the Craigie Bridge is a critical commuting route linking the northern suburbs to downtown Boston. The roadway also serves as an emergency route to Massachusetts General Hospital and the TD Bank Garden. Faced with the choice of a lengthy bridge replacement project maintaining two way single lane traffic flow with a much shorter outbound only plus detour option, our engineers ascertained that the detour option was feasible. Inbound travel lanes on the bridge were closed and traffic was detoured in part of the comprehensive traffic management plan. The 16 week detour plan allowed the new bridge to be opened one year earlier than planned.

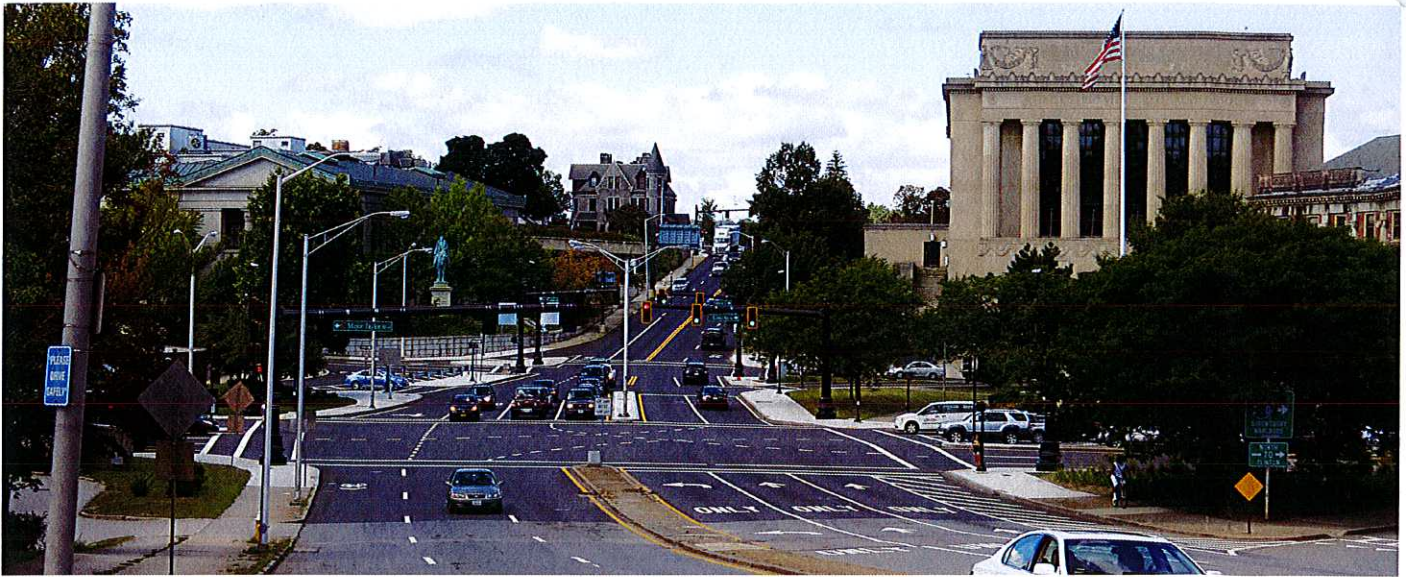
Modeling traffic is a proven practical method to predict traffic flow options. We couple traffic simulation with robust public outreach to clearly illustrate traffic flow possibilities and to present the best outcome.

Project Status

Construction Completed 2011

HSH Services

- Traffic Engineering
- Drainage
- Civil Engineering
- Construction-period Management



Highland Street Corridor Intersection Improvement

Massachusetts Department of Transportation
Worcester, Massachusetts

HSH performed a study to address congestion and safety issues at 18 locations along the Lincoln Street/Highland Street/Pleasant Street corridor, a principal arterial roadway in Worcester that extends from I-290 through downtown to Worcester Regional Airport and beyond. HSH provided 25% design plans for the corridor and intersections.

HSH's work included preparation of detailed plans, special provisions, and estimates in accordance with the MassDOT Project Development and Design Guidebook for 13 signalized intersections, 2 unsignalized intersections, and 1 modern roundabout. HSH performed extensive data collection and conducted warrant analyses for 2 of the intersections. Based on this assessment, HSH designed proposed needed improvements for designated locations including new handicapped accessible ramps, sidewalks, and pedestrian improvements throughout the corridor.

After review by MassDOT, the intersection improvements were prioritized and MassDOT elected to bring 5 of the intersections to 100% design. The project was advertised in Fall 2013 and was scheduled to begin Spring 2014.

Project Status

Complete

HSH Services

- Traffic Signal Design
- Traffic Signal Warrant Analysis
- Roadway Design
- Temporary Traffic Controls
- Right of Way
- Pedestrian Accommodations
- Synchro Model
- Traffic Analysis



Boston University Bridge Rehabilitation

Massachusetts Department of Conservation and Recreation
Route 2, Boston/Cambridge, Massachusetts

One of the earliest projects funded through the Commonwealth's Accelerated Bridge Program, the approximately \$20 million project rehabilitated the road deck and sidewalks of this important local transportation link. A major local transportation asset, the Bridge carries 35,000 vehicles per day but is also a significant link in the area's bicycle and pedestrian infrastructure.

HSH provided the traffic management plan for this project to minimize its impacts on automotive, bicycle, and pedestrian users. The traffic management plan evaluated current area automotive, bicycle, and pedestrian conditions. This evaluation served as the basis for a complex phasing plan to help ease the passage of traffic during construction, temporary signage to guide bridge users, and major changes to the signalization of the rotary on the Cambridge side of the bridge. HSH also analyzed how work on the Bridge would impact other ongoing DCR projects.

HSH staff members attended all public meetings, helped DCR work with local cycling and pedestrian groups, and assisted with coordination between DCR, the Cities of Boston and Cambridge, and major institutional players, including Boston University, Harvard, and MIT.

This high-profile project was completed on time and on budget.

Project Status

Complete

HSH Services

- Transportation and Traffic Engineering
- Public Involvement
- Signage
- Construction-period Traffic Management

WASHINGTON METRO AREA TRANSPORTATION AUTHORITY - TIGER TSP



KAI is assisting WMATA with implementing transit preferential treatments across the metropolitan Washington area as part of the TIGER Grant funding for the "Priority Bus Transit in the National Capital Region" project. KAI is working with the regional traffic and transit agencies to identify opportunities to improve transit service and reliability. As part of this effort, a regional TSP technology was defined through functional and system requirements, and is consistent with the regional TSP concept of operations. KAI is leading the technical development and review of this effort.

In addition, KAI is the technical lead to identify opportunities to implement TSP along Virginia Route 7. The effort will include a preliminary engineering review of candidate intersections, design of the TSP system and intersection upgrades, system implementation, acceptance testing, and performance measurement.



Client: Washington Metro Area Transportation Authority

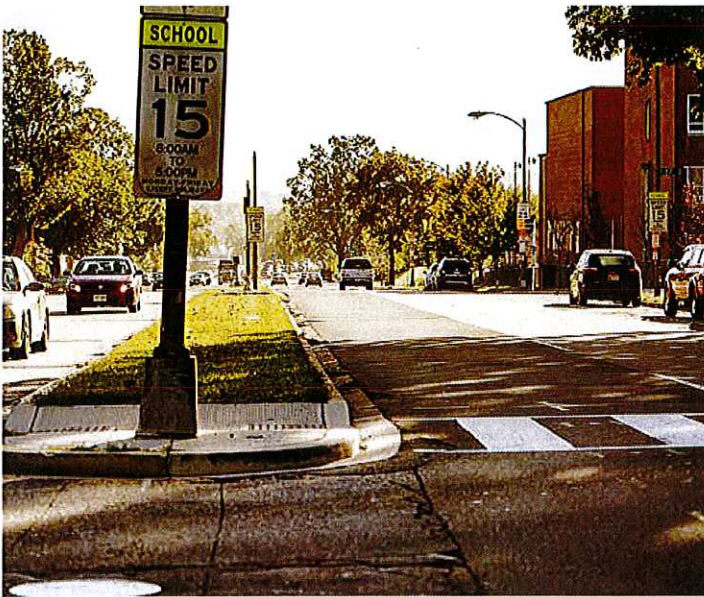
Reference: N/A

Location: Washington, DC

Cost: N/A

Date Completed: November 2013

C STREET NE TRAFFIC AND HOT SPOT ANALYSIS



Kittelson & Associates, Inc. (KAI) is leading a multimodal corridor study on C Street NE between 16th Street and 21st Street NE in Washington, DC. The study includes detailed multimodal traffic operations analysis, public outreach, preliminary design, environmental documentation, and air quality analysis. The project intends to create a more complete street of C Street NE, a street that has historically served heavy morning commuter traffic through a residential neighborhood but has seen a significant decrease in motor vehicle traffic in the past few years. The study represents a detailed approach to “right sizing” a minor arterial so that it more adequately accommodates all modes, effectively illustrates trade-offs of potential changes, and developing analysis and design measures to ensure intended changes are measured and documented so that future studies can detail impacts to these changes.



The Recommended Alternative includes a reduction in the number of travel lanes, physically protected bike facilities, increased tree canopy, shorter crossing conditions, and low impact development infrastructure to capture excess rain runoff. Proposed changes to the roadway are a result of several key project needs identified early in the project process through stakeholder and public engagement, including high motor vehicle speeds, uncomfortable and unsafe pedestrian crossing conditions, a significant decrease in traffic volumes since 2010, the need to maintain auto and freight mobility, history of high severity crashes, and lack of protected bicycle facilities.

Client: District Department of Transportation

Reference: N/A

Location: Washington, DC

Cost: N/A

Date Started: 2014-Ongoing

TCRP A-39 TRANSIT PRIORITY TREATMENTS



KAI is the prime consultant for TCRP A-39 to evaluate strategies to increase transportation efficiency through the implementation of transit-supportive treatments. Transit-supportive strategies include both intersection treatments such as transit signal priority, special signal phasing, queue jump lanes and signals, bypass lanes and curb extensions, and roadway segment treatments such as exclusive or shared transit lanes within the travelled way, exclusive transitways (typically in the median), and corridor signal progressions favoring transit operations. Partnering of transit and highway/traffic agencies throughout the project development process is necessary but not sufficient; a clear understanding of the criteria for and costs and impacts of such strategies are critical to the implementation of transit-supportive strategies.



The objectives of this research are to (1) identify consistent and uniform strategies to improve transportation network efficiency to reduce delay and improve reliability for transit operations on roadways; (2) develop decision-making guidance for operational planning and functional design of transit/traffic operations on roads that provides information on warrants, costs, and impacts of strategies; (3) identify the components of model institutional structures and/or intergovernmental agreements for successful implementation; and (4) identify potential changes to the Manual on Uniform Traffic Control Devices (MUTCD) and related documents to facilitate implementation of selected strategies.



This research will build on the information presented in TCRP Synthesis 83: Bus and Rail Transit Preferential Treatments in Mixed Traffic.

Client: National Academy of Sciences (TCRP)

Reference: N/A

Location: National

Cost: N/A

Date Started: February 2013

**ALEWIFE/FRESH POND
CORRIDOR
ENHANCEMENT*** | Cambridge, Massachusetts



The Alewife/Fresh Pond Corridor links a number of different land uses including the major transportation and employment centers at Alewife, open space at Alewife Brook and Fresh Pond Reservation, the Minuteman Bike Path, and neighborhood bike lanes.

Working with the City of Cambridge and a community Task Force, the design team provided urban design services for the planning of efficient and safe facilities for bicyclists and pedestrians. The design provides a link to the corridor's heritage as part of the region's Metropolitan Parkway System.



The project area includes Concord Avenue, the Fresh Pond Reservation, and Fresh Pond Parkway.

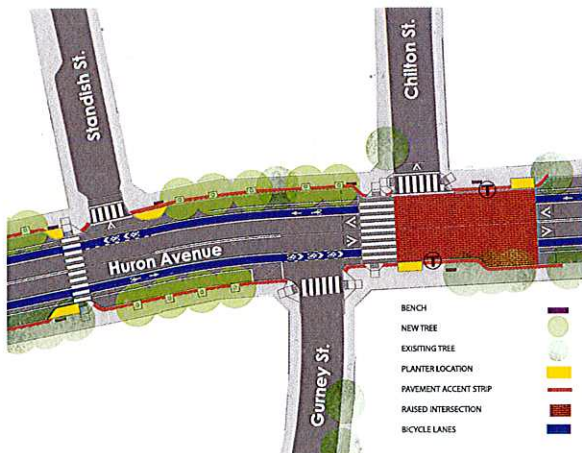
Bicycle and pedestrian routes link important open space, transportation and commercial centers, and residential communities.

New walks, bicycle paths, planting, and site amenities improve the pedestrian and bicyclist environment and create a parkway aesthetic.

The improvements include pedestrian and bicycle routes adjacent to Concord Avenue and through the Fresh Pond Reservation linking the Alewife area to other parts of Cambridge. Safer bicycle and pedestrian crossings and pathways from residential neighborhoods and businesses to the Fresh Pond Reservation also were developed.

Additional improvements include the design of adjacent open space, proper signage, lighting and planting.

*Project directed by Deneen Crosby with a prior affiliation.



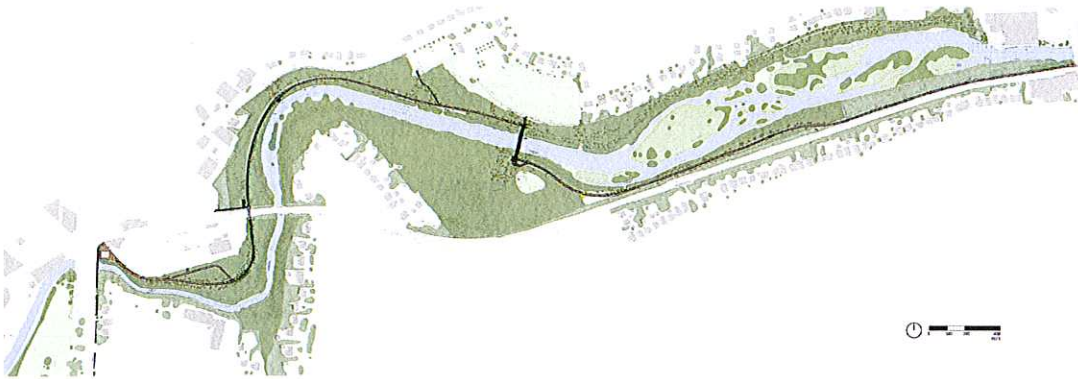
CSS is currently providing landscape design services for the reconstruction of Huron Avenue in Cambridge.

The project, a part of the City's sewer separation effort, will give the central business district a distinct feel while keeping the existing character.

The project includes the design of a small corner park, new paving materials, new plantings, lighting, traffic calming improvements, balancing modes of transportation, and new site furniture.

Huron Avenue is currently in construction and scheduled for 2016 completion.

NEPONSET RIVER GREENWAY | *Boston and Milton, Massachusetts*
BLUE HILL TO CENTRAL AVE



The 4.5 mile stretch of the Neponset River studied in the Neponset River Master Plan includes both isolated natural areas and more densely developed urban neighborhoods.

Neponset Trail connects the recently constructed path between Field Office Park and Martini Shell Park to an existing path adjacent to the MBTA High Speed Trolley line.

The trail will connect the communities of Milton and Mattapan Square in Boston, opening up transit opportunities for residents while completing a safe route for bicyclists to access Boston's waterfront or to commute to downtown Boston.

The trail is located on a plateau between the Neponset River and the High Speed Trolley Line in Milton. A new pedestrian bridge over the Neponset River will connect to Ryan Playground in Boston and a Canopy Walk will bring users over the rail line to Mattapan Station and Mattapan Square.

The design of the project is complete and the project is currently in construction.



LANCASTER, MA

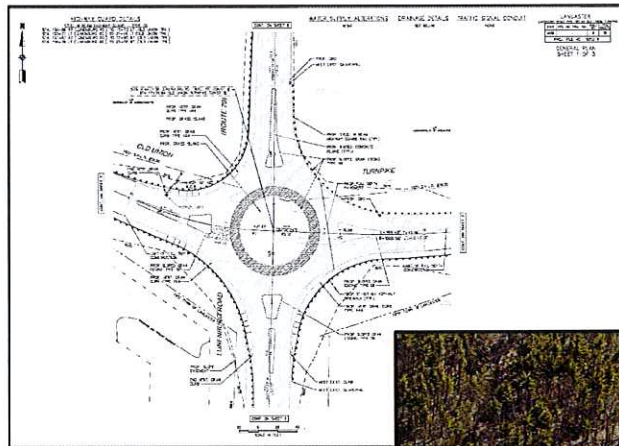
TRANSPORTATION PLANNING & TRAFFIC ENGINEERING

SERVICES PROVIDED

- Transportation Planning
- Traffic Engineering
- Highway Engineering
- Community Participation
- Local & State Permitting

PROJECT DESCRIPTION

Fort Hill Infrastructure Services was retained as a consultant to plan, permit, and design improvements for the intersection of Lunenburg Road (Route 70) at Old Union Turnpike in Lancaster, Massachusetts. The improvements consist of the design and construction of a modern roundabout to replace an existing unsignalized four legged intersection. The required plans, specifications, and estimates (PS&E), as well as supporting documentation, required preparation in conformance with the Project Development and Design Guide of the MassachusettsDOT Highway Division. In addition to MassachusettsDOT review and approval, the project also required the filing of an Environmental Notification Form (ENF) under the Massachusetts Environmental Policy Act (MEPA).





STRATEGIC PERSPECTIVE. EXCEPTIONAL RESULTS.

MBTA GREEN LINE EXTENSION PROJECT **CAMBRIDGE, SOMERVILLE, MEDFORD, MASSACHUSETTS**

SERVICES PROVIDED

- Transportation Planning
- Traffic Engineering
- Right-of-Way Services
- Public and Government Relations
- Regulatory Approvals

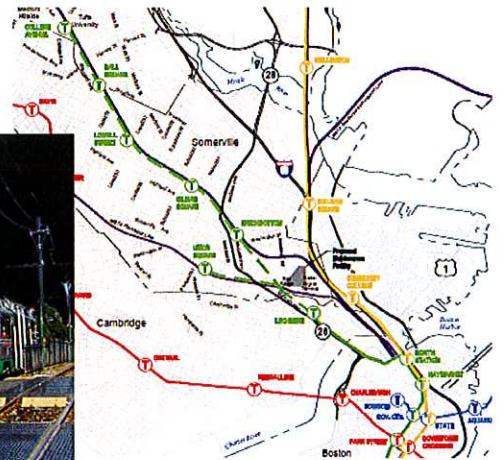
PROJECT DESCRIPTION

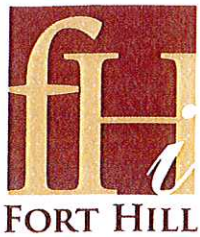
The Green Line Extension project is an initiative of the Massachusetts Department of Transportation (MassDOT) and the Massachusetts Bay Transportation Authority (MBTA) to enhance transit services in order to improve mobility and regional access for residents in the communities of Cambridge, Somerville, and Medford. The project also supports municipal plans for sustainable growth and urban redevelopment around new transit stations and provides residents of environmental justice communities with faster rides to jobs and other destinations.

The proposed service consists of two distinct branches: a 3.4 mile "mainline" branch, beginning at a relocated Lechmere Station in Cambridge and traveling north to Medford; and a 0.9 mile branch line to Union Square in Somerville. There will be seven new stations constructed as part of the project. Once completed, trains will operate every five to six minutes in the peak periods, providing fast and efficient service to downtown Boston.

As a member of the Green Line Extension Design Team, Fort Hill performed:

- Intersection/roadway design improvements at 17 intersections;
- Traffic signal, sign and pavement markings improvements at 40 locations;
- Construction staging and traffic management plans;
- Pedestrian traffic modeling;
- A Functional Design Report (FDR); and
- Assistance with regulatory approvals.





STRATEGIC PERSPECTIVE. EXCEPTIONAL RESULTS.

WESTWOOD STATION MIXED USE DEVELOPMENT

SERVICES PROVIDED

- Master Planning
- Transportation Planning
- Local, State, & Federal Permitting
- Subdivision Design
- Highway Engineering
- Traffic Engineering
- Lighting Design
- Right-of-Way Services
- Public and Government Relations
- Litigation Support Services

PROJECT DESCRIPTION

Fort Hill Infrastructure Services was retained by Cabot, Cabot, & Forbes of New England, in association with CommonFund Realty and New England Development, to perform transportation planning, permitting, and engineering services for Westwood Station, a 153-acre, 4.5 million square foot master planned mixed use development situated next to the Massachusetts Bay Transportation Authority's Route 128 intermodal station. This smart growth project included 1000 multifamily residential units and more than 1 million square feet of office development within walking distance of the train station. The project also included 1.35 million square feet of retail uses and amenities, plus a new public safety station and more than an acre of new parks. Fort Hill was responsible for the planning permitting and design of more than 10 new lane miles of local roads, a mile long bicycle path, two interstate highway interchanges, three bridges, and mitigation in the three adjacent towns. The total

value of the transportation infrastructure was \$80 million.



Some of the work described in this sheet was performed by firm principals in a previous employment engagement.

NORWOTTUCK RAIL TRAIL REHABILITATION

AMHERST, HADLEY, & NORTHAMPTON, MASSACHUSETTS



Owner
Department of Conservation & Recreation

Client
Stantec

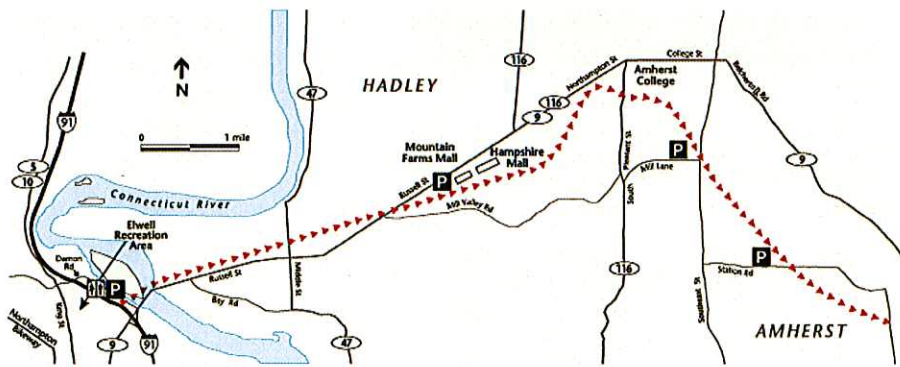
Services
Survey

Completion
2013

Cost
Contract Fee:
\$115,000

Construction Cost:
\$4.2 Million

Reference
Ron Headrick, RLA
Principal Landscape Architect
Stantec
141 Portland Street
Boston, MA 02114
(617) 523-8103



The Norwottuck Rail Trail is an 11 mile path linking Northampton, Hadley, and Amherst along the former Boston & Main Railroad ROW. The trail is used as a migration corridor for people, animals and plants. It serves a variety of recreational users and commuters, including bicyclists, walkers, runners, roller bladers, dog-walkers, and strollers. This multi-purpose trail is has limited space due to the existing eight-foot wide paved trail. The Massachusetts Department of Conservation and Recreation (DCR) and the Massachusetts Department of Transportation (MassDOT) Highway Division are working together to rehabilitate the Norwottuck Rail Trail.

Bryant performed an existing conditions survey via aerial photogrammetry and on ground survey using conventional methods and GPS. Improvements include safety of the trail and road crossings; paving and reclamation; lighting; signage and interpretive wayside plans; bridges and tunnels along the trail; trail parking; drainage and erosion issues; ADA compliance; and tree removal and tree planting.

STORROW DRIVE PAVEMENT REMOVAL

BOSTON, MASSACHUSETTS



Located in Boston's historic Back Bay neighborhood, the Storrow Drive tunnel is a major commuter route with over 103,000 vehicles passing through this half-century-old tunnel daily.

Bryant performed a topographic survey and prepared an existing base plan for use in developing various options for horizontal and vertical roadway and tunnel alignments. The layout included roadway drainage systems and stormwater pre-treatment which lead to preparation of the Environmental Impact Report. Alternative studies prepared by Bryant included preliminary designs of roadway and tunnel drainage systems, recharge of groundwater, and temporary roadways/ construction phasing. Bryant's work also included final design and cost estimates of surface/roadway, and drainage improvements for the approved alternative. Construction staging plans, traffic management plans, and detour plans have been prepared and coordinated with the Boston Transportation Department. Bryant is currently providing services during the upcoming bid phase, including shop drawing reviews, as-built plans, and bridge rating reports after reconstruction.

Owner

Department of Conservation & Recreation

Client

Simpson Gumpertz & Heger, Inc

Services

Survey
Civil Engineering
Construction Services

Completion

2011

Cost

Contract Fee:
\$559,351

Reference

Michael McCall, PE
Senior Project Manager
Simpson Gumpertz & Heger, Inc
41 Seyon Street
Bldg. 1, Suite 500
Waltham, MA 02453
(781) 907-9338



HOWARD STEIN HUDSON

Engineers + Planners

Resumes





Thomas Stokes, P.E.

Principal

Chief Executive Officer

tstokes@hshassoc.com

As President and Chief Executive Officer for HSH, Tom draws on over 25 years of experience in the transportation industry. Having worked in both the public and private sectors, he understands the critical issues associated with new projects and uses his experience in producing timely and cost-effective solutions for clients. Tom is involved from planning through implementation of all projects, and is the Engineer of Record on all plans.

Relevant Experience

Dorchester Avenue Reconstruction

City of Boston – Boston, MA

Tom was Principal in Charge of the multi-firm team for this design project, whose proponent is the City, and the funding was provided through MassDOT under the recent round of ARRA Stimulus funding. The project included final design of 14 intersections along the 6-mile urban corridor of Dorchester Avenue in South Boston and Dorchester. Each intersection included the replacement of wheelchair ramps, new traffic signal equipment, and hard-wire connection to the City's Traffic Management Center. It also involved successful coordination between city agencies and MassDOT to ensure the aggressive project schedule was met, with design completed in 10 months. The project completed construction in 2012.

River Street and Western Avenue Complete Streets Project

Massachusetts Department of Transportation – Boston/Cambridge, MA

Tom was Principal in Charge for the project that presented a unique opportunity to provide multi-modal and green infrastructure improvements to this highly travelled corridor. HSH provided traffic engineering, construction-period traffic management, and public involvement. HSH advanced a "Complete Streets" solution for commuting traffic, cyclists and pedestrians. The plan was developed through MassDOT with a robust public involvement plan that sought input from Walk Boston, Liveable Streets, MassBikes, and the cities of Boston and Cambridge.

Connect Historic Boston Complete Street Design

City of Boston – Boston, MA

Tom is the Principal in Charge for a multi-disciplinary consultant team on the design of roadway and streetscape improvements to enhance bike and pedestrian connectivity among National Park Service Assets by creating a family-friendly cycle track through Downtown Boston's urban corridor. The first phase of the City of Boston bike path initiative involves the reconfiguration of over a mile and a half of streets spanning North End to Beacon Hill, including Atlantic Avenue, Commercial Street, Causeway Street, and Staniford Street. HSH is carrying the project from conceptual design through construction along an accelerated delivery schedule. The redesign takes a "Complete Streets" approach to project design, and uses the Boston Complete Streets Guidelines to produce a design accommodating all road users. HSH is responsible for the design of the cycle track, roadway, underground utilities, and stormwater management. The project is now in construction.

Specialities

Boston Article 80 and MEPA Permitting
Construction Document Preparation
Construction Management Plans
Expert Witness Testimony
MassHighway Design
Municipal Transportation Planning
Peer Reviews
Roadway and Intersection Design
Traffic Impact Studies

Licenses/Registrations

Professional Engineer, MA, 37505,
06/30/2016

Education

University of Massachusetts Lowell,
Master of Science, Civil and
Transportation Engineering, 1998
University College, Dublin,
Bachelor of Science, Civil Engineering,
1985

Professional Affiliations

Member, Institute of Transportation
Engineers



HOWARD STEIN HUDSON

Engineers + Planners

Central Square Renovation

Boston Transportation Department – East Boston, MA

The project included changing curb lines in this important neighborhood business district in order to simplify the traffic patterns; improve the pedestrian experience; create new open space; and accommodate all modes of transportation. HSH took a “Complete Streets” approach to the project, with emphasis on walking, bicycling, and transit, as well as place-making and wayfinding. Working with BTM and other city agencies, Tom was Principal in Charge.

Melnea Cass Boulevard Reconstruction

City of Boston – Boston, MA

In support of the Crosstown Center development project in Roxbury, Tom served as Principal In Charge for the implementation of the mitigation associated with the project. The work included the relocation of the center median along Melnea Cass Boulevard, traffic signal improvements at three locations, and sidewalk reconstruction along Melnea Cass Boulevard. The \$4.3 million project was funded through a PWED Grant from the Commonwealth. The work included construction inspection services and was completed in 2010.

Craigie Bridge

Massachusetts Department of Transportation – Boston/Cambridge, MA

Tom was Principal in Charge of the roadway design, traffic engineering, and public involvement work for the MassDOT \$40-million replacement of the Craigie Drawbridge over the Charles River in Boston and Cambridge. The project, part of MassDOT's Accelerated Bridge Program, completed construction in the summer of 2011.

Highland Street Corridor Intersection Improvement

Massachusetts Department of Transportation – Worcester, MA

Tom served as Principal in Charge for the design of 6 locations along the Pleasant Street/Highland Avenue corridor, which will alleviate safety concerns and improve the progression of traffic flow through one of the City's most congested corridors. The project included new signal equipment, roadway resurfacing, sidewalk enhancements, and utility relocation. At the intersection of Lancaster and Highland Street, the roadway will be widened to incorporate an additional travel lane.

Cotuit Road Modern Roundabout

Massachusetts Department of Transportation – Sandwich, MA

HSH developed and recommended the replacement of a dangerous four-way intersection in Sandwich with a modern roundabout. HSH designed the new roundabout from 25% through to 100% design, as well as the Plans, Specifications & Estimates package (PS&E). The roundabout was advertised for construction in October 2011 and was awarded in December 2011. Construction of the safety improvements was completed in 2012. Tom was Principal in Charge.



Keri Pyke, P.E., PTOE

Principal of Planning and Public Involvement

kpyke@hshassoc.com

As Principal at HSH, Keri is responsible for overseeing a variety of transportation planning and traffic engineering projects in the Boston area. She has worked on both public and private projects in the cities of Boston, Cambridge, and Somerville, as well as for other state and municipal agencies throughout New England and New York. Keri is well-versed in many aspects of transportation, including operational analysis, parking, safety studies, pedestrian and bicycle studies, traffic signal design, traffic management, and peer reviews.

Relevant Experience

Dorchester Avenue Reconstruction

City of Boston – Boston, MA

Keri led the team for the Dorchester Avenue Reconstruction project, working with the Massachusetts Department of Transportation (MassDOT), Boston Transportation Department (BTD), and Boston Department of Public Works (BPWD). The project included the final design of 14 intersections along the 6-mile urban corridor of Dorchester Avenue in South Boston and Dorchester. Each intersection involved replacement of wheelchair ramps, new traffic signal equipment, and hard-wire connection to the City's Traffic Management Center. Some locations were coordinated to improve traffic flow along the Avenue. The project's schedule was very aggressive; design was completed in 10 months, and construction reached completion in 2012.

Central Square Final Design

Boston Transportation Department – East Boston, MA

Working with BTD and other city agencies, Keri led the team on the Central Square Renovation project in East Boston. The project included the changing of curb lines in this important neighborhood business district in order to simplify traffic patterns, improve the pedestrian experience, create new open space, and accommodate all modes of transportation. Keri and her team took a Complete Streets approach to the project, with emphasis on walking, bicycling, and transit, as well as place-making and wayfinding. The project was advertised for construction January 2015.

Melnea Cass Boulevard Final Design

City of Boston – Boston, MA

Keri is serving as the Project Manager for this Complete Streets project in the Roxbury and South End neighborhoods of Boston. Melnea Cass Boulevard is an important arterial in the City of Boston, providing access from I-93 to the Longwood Medical Area (LMA) and Boston University Medical Center (BUMC). The South Bay Harbor Trail, an important pedestrian and bicycle facility, also exists along the corridor. The HSH team is working with the community to design a multimodal, green, smart street that accommodates all users: vehicles, pedestrians, transit, and bicycles.

Specialities

Neighborhood Transportation Issues
Concept Design Studies
Construction-period Traffic Management
Intersection and Traffic Signal Design
Parking Studies
Pedestrian and Bicycle Studies and Design
Peer Reviews
Traffic Impact Studies
Transportation System Management
Complete Streets Design

Licenses/Registrations

Professional Engineer, MA, 47252,
06/30/2016
Professional Engineer, RI,
9596, 06/30/2017
Professional Engineer, CT, 22777,
01/31/2016
Professional Engineer, NY, 077515,
02/28/2017
Professional Engineer, NH, 13388,
03/31/2017
Professional Engineer, NC, 039687,
12/31/2015
Professional Traffic Operations Engineer,
906, 04/23/2017



HOWARD STEIN HUDSON

Engineers + Planners

Education

Rensselaer Polytechnic Institute
Bachelor of Science, Civil Engineering,
1993

Professional Affiliations

Member, Institute of Transportation
Engineers
Member, Women's Transportation
Seminar, Boston Chapter

Arlington Center Massachusetts Avenue/Mystic Street Intersection Improvements

Town of Arlington – Arlington, MA

Keri served as Project Manager in developing safety and access improvements to three intersections in Arlington Center. The project sought to improve mobility for all modes: vehicles, pedestrians, and cyclists. Keri recommended changes to the traffic signal timing and equipment to improve the operational efficiency for vehicles, including coordinating the signals. The intersection of Massachusetts Avenue/ Mystic Street/Pleasant Street is very wide and challenging for pedestrians to cross. HSH developed a design that shortened the crossing distances for pedestrians, and pedestrian signal timing was extended. The preferred design to connect the ends of the Minuteman Bikeway included an extension through Uncle Sam Park, as well as bike lanes on Massachusetts Avenue. HSH completed the bid documents for the Town in consultation with MassDOT early in 2014, and construction began Fall 2014.

Adams Green Transportation Improvement Project

City of Quincy – Quincy, MA

Keri was Project Manager who oversaw a multi-firm, multi-disciplinary team providing design and engineering to support the future construction of the Adams Green public gathering space. The HSH team built upon the conceptual design prepared by Halvorson Design Partnership (HDP) from preliminary engineering to final construction plans and construction oversight. Funded by a Federal earmark, HSH worked closely with MassDOT, the Federal Highway Administration, the City of Quincy and other relevant stakeholders. A critical component of the project involved making use of the surplus land from the closure of a major arterial and rerouting traffic. The former street provides new open/green space adjacent to Quincy City Hall, Quincy Center Cemetery, the Quincy Center MBTA station and the Church of Presidents.

Bicycle Network Plan and On-Call Bicycle Facility Design

Boston Transportation Department – Boston, MA

Keri is managing HSH's work on the Boston Bicycle Network Plan and On-Call Facility Design contract as a subconsultant. HSH's assignments on the project include traffic analysis to determine the impacts of installing bicycle lanes on a roadway or at local intersections. HSH has also prepared pavement marking and signing plans for several streets that will be resurfaced, which included bicycle lane markings.

Arlington Comprehensive Plan

Town of Arlington – Arlington, MA

HSH worked with a consulting team in preparing the Comprehensive Master Plan for the Town of Arlington. HSH's role was to review and document the existing transportation conditions, and work with the public to build scenarios and determine implementation strategies for public infrastructure improvements, circulation and parking improvements, and Complete Streets. The new Local Comprehensive Plan defines the community's overall vision for the future, and serves as the primary planning and policy tool for growth and development. Keri served as the Principal in Charge for the transportation section of the master plan.



Andy has over 12 years of experience in traffic operations, design, construction, project management, and program management. Andy has developed an expertise with innovative intersections and interchanges and is Past Chair of the FHWA Every Day Counts II: Intersections and Interchange Geometrics Committee. Andy also led the MassDOT statewide implementation of roundabouts in Massachusetts, where there are over 100 rotaries. Andy has also been involved at the national level with continuing education and research with the TRB and ITE as a committee member, presenter, facilitator, and subject matter resource. As a project manager Andy oversaw innovative project delivery including accelerated bridge construction and design-build contracting. Andy was the Project Manager for the statewide conversion to All Electronic Tolling and he worked on the Fast 14 bridge replacement project. He has collaborated with transportation partners at the local, regional, state, and federal level.

ANDREW PAUL, EIT

Senior Engineering Associate

EDUCATION

Masters Business Administration, Fitchburg State University

BS Civil Engineering, Catholic University

YEARS OF EXPERIENCE

12

LICENSES

EIT: MD

AFFILIATIONS

Institute of Transportation Engineers, Member

Young Professionals in Transportation Boston Chapter, Past Chair, Co-Founder

TRB Operational Effects of Geometrics Committee AHB65, Member

TRB Roundabout Committee ANB75, Past Member

Institute of Transportation Engineers, Roundabouts Committee, Member

MassDOT Transportation Asset Management Steering Committee, Past Chair

FHWA Every Day Counts II: Intersections and Interchange Geometrics, Past Co-Chair

AWARDS

2007 Commonwealth Performance Recognition Award, MassDOT:

PUBLICATIONS

Mobility Matters, Volume 4 Issue 4, spring 2012

MassDOT's Fast 14: Managing Interstate 93 Demand with Half the Capacity

TRB Webinar: Community Outreach - Successful Outcomes for Roundabout Implementation - June 2013

TRAFFIC OPERATIONS ANALYSIS

Andy has worked with several models for traffic operations analyses, including Sidra, HCS, VISSIM, Synchro, SimTraffic, and RODEL. He has used VISSIM to evaluate a number of intersections, interchanges, and corridors. He has used VISSIM in the evaluation and visualization of roundabouts for projects throughout Massachusetts. Andy developed and authored the MassDOT Guide on Traffic Analysis Tools.

TRANSIT SIGNAL PRIORITY & STREETCAR SIGNAL OPERATIONS AND DESIGN

Andy conducted the field survey and design for a transit signal priority in the District of Columbia. The project included two express bus routes in Washington, D.C. Andy gathered field data and assessed the feasibility of retrofitting the existing signalized corridor with TSP. Identifying modifications to bus stops and signal hardware and programming, as well as re-designing the traffic signal system logic diagrams for transit prioritization. Andy is a designer on the final design of the WAVE Streetcar. The proposed 2.9 mile streetcar project is located in downtown Fort Lauderdale, Florida. Andy's work includes assessment of existing conditions, intersection and signal design, including signal phasing and operations and interoperability with the streetcar.

ROADWAY DESIGN

As a Project Manager in the Design Section at MassDOT Andy developed short and long term projects aimed at incorporating innovative intersections and interchanges on MassDOT roadways. As part of project delivery Andy managed the development of project plans, specifications, and estimate from concept to construction.

MULTIMODAL DESIGN

The Charles River Basin connects the cities of Boston and Cambridge, Massachusetts over a series of several bridges and connecting pathways and roadways. This area has the highest bicycle, pedestrian, and transit traffic in

Massachusetts. Previously, as a supervisor in the MassDOT Traffic Engineering Section, Andy oversaw the design of the construction staging and traffic control plans for all projects in the MassDOT Accelerated Bridge Program including those in the Charles River Basin.



Alexandra W. Siu, P.E., PTOE

Associate

Manager of Traffic Engineering

asiu@hshassoc.com

Alex is a Traffic Engineer with over 8 years of experience. She is a valuable asset to HSH's traffic engineering team in the preparation of conceptual and functional design reports (CDR/FDR), and their underlying data collection and analysis. She is an integral part of the team working with the Massachusetts Department of Transportation on a number of transportation improvement projects.

Relevant Experience

Dorchester Avenue Reconstruction

Massachusetts Department of Transportation – Boston, MA

This project consisted of a multi-firm team, whose proponent is the City, and the funding was provided through MassDOT under the recent round of ARRA Stimulus funding. The project included final design of 14 intersections along the 6-mile urban corridor of Dorchester Avenue. Each intersection included the replacement of wheelchair ramps, new traffic signal equipment, and hardware connection to the City's Traffic Management Center. This project also involved successful coordination between city agencies and MassDOT to ensure the aggressive project schedule was met, with design completed in 10 months. Alex prepared the Conceptual Design Report (CDR) and was involved in numerous aspects of the project, including data collection, traffic analysis, plan development, and estimation. She worked with BTM to improve traffic congestion during construction. The project completed construction in 2012.

River Street and Western Avenue Bridges Rehabilitation

Massachusetts Department of Transportation – Cambridge, MA

Alex coordinated the data collection for this MassDOT rehabilitation project. She also prepared the Functional Design Report (FDR), traffic analysis of existing conditions, and alternatives for build conditions with continued coordination with MassDOT, the Department of Conservation and Recreation (DCR), and the Cities of Boston and Cambridge.

Connect Historic Boston Complete Street Design

City of Boston – Boston, MA

HSH is a part of the multi-disciplinary consultant team on the design of roadway and streetscape improvements to enhance bike and pedestrian connectivity among National Park Service Assets by creating a family-friendly cycle track through Downtown Boston's urban corridor. HSH is carrying the project from conceptual design through construction along an accelerated delivery schedule. The redesign uses the Boston Complete Streets Guidelines to produce a design accommodating all road users. Alex wrote the CDR to submit to BTM, and the FDR for MassDOT for the project, which was formerly a part of the City's Crossroads Initiative. She also expanded the FDR to incorporate the larger study area. She is performing signal optimization and design intended to improve the links of downtown streets to the Rose Kennedy Greenway, reconnecting neighborhoods and destinations formerly cut off by the Central Artery/Tunnel Project (CA/T).

Specialties

Traffic and Transportation
Engineering
Synchro Analysis
Traffic Signal Design and
Optimization
VISSIM Microsimulation

Licenses/Registrations

Professional Civil Engineer, MA, 49980,
06/30/16
Professional Traffic Operations Engineer,
3349; 7/22/2016
Certification, IMSA Work Zone Temporary
Traffic Control, ZZ_108075; 8/4/2017
Certification, IMSA Traffic Signal
Technician I, AA_10875; 8/4/2017

Education

Georgia Institute of Technology
Bachelor of Science, Civil and
Environmental Engineering, 2007
Northeastern University,
Master of Science, Civil Engineering,
2011
Electric Light Company, Inc.
Studies, Basic Traffic Signal Theory and
Operation, 2009
Trafficware
Studies, Synchro and SimTraffic Level 2,
2009



HOWARD STEIN HUDSON

Engineers + Planners

HCM 2010 Workshop, McTrans, 2011
PTV Vision Training
VISSIM Introduction
VISSIM Advanced I Signal Control & VAP
VISSIM Advanced II Specialized
Applications

Professional Affiliations

Member, Institute of Transportation
Engineers
Member, Society of Women Engineers,
2008-2009
Committee Member, Young Professionals
in Transportation, 2010-Present
Member, Communications Committee,
2010-Present
Member, Programs Committee,
2010-Present

Central Square Renovation

Boston Transportation Department – East Boston, MA

HSH is working with BTM, Boston Parks and Recreation Department, Boston PWD, and the Boston Water and Sewer Commission on the design of roadway, drainage and streetscape improvements as part of an overall revitalization. Our multi-disciplinary team includes survey, public involvement, roadway design, signal design, stormwater management, urban design, and landscape architecture. Alex performed signal analysis and optimization for several circulation alternatives. She also analyzed the alternatives which were summarized in the CDR submitted to BTM. Alex prepared the pavement marking and signage plans, as well as the traffic signal plans.

Melnea Cass Boulevard Reconstruction

City of Boston – Boston, MA

Alex oversaw the traffic analysis for this design project to improve traffic flow on this busy corridor and introduce complete streets design. This project involved roadway alignment and grading modifications on Melnea Cass Boulevard, Massachusetts Avenue, and Albany Street. The project included the first segment of the Harbor Trail Park extension: the South Bay Harbor Trail, a 3.5-mile pedestrian-friendly park. It also involved traffic signal design at four locations, and pavement marking and signing design in the general area around the project that would be affected by the project development. Dan also developed Public Improvement Commission (PIC) plans. He provided construction oversight and worked as a liaison between the developer, the City, and the various contractors.

Craigie Bridge

Massachusetts Department of Transportation – Boston/Cambridge, MA

Alex prepared the FDR for reconstruction of the Craigie Drawbridge between Boston and Cambridge, which involved the closure of a major section of Route 28 into Boston. Her responsibilities included data collection, analysis of existing conditions, examination of possible construction alternatives, and assistance with traffic management plans. Alex also develop detour signage specific to the project and helped with traffic signal mitigation along the detour route during construction.

Highland Street Corridor Intersection Improvement

Massachusetts Department of Transportation – Worcester, MA

Alex assisted with signal design and optimization for this MassDOT project, including pavement marking and signage design, cost estimating, signal timing, and phasing development. The intersection designs alleviated safety concerns and improved the progression of traffic flow through one of the Worcester's most congested corridors. The project included new signal equipment, roadway resurfacing, sidewalk enhancements, and utility relocation. At the intersection of Lancaster and Highland Street the roadway was widened to incorporate an additional travel lane.



Desirée Carron

Transportation Engineer

dcarron@hshassoc.com

Desirée joined HSH in January 2014 as an intern in the traffic engineering team, transitioning in January 2015 to a full-time engineering position. She has aided in a wide array of tasks within the transportation discipline during this time including traffic analysis, data collection, the completion of pavement marking, signage, and signal timing plans and schedules, and developed reports such as Functional Design Reports (FDRs) for various projects.

Relevant Experience

Connect Historic Boston Complete Street Design

City of Boston – Boston, MA

HSH is a part of the multi-disciplinary consultant team on the design of roadway and streetscape improvements to enhance bike and pedestrian connectivity among National Park Service Assets by creating a family-friendly cycle track through Downtown Boston's urban corridor. HSH is carrying the project from conceptual design through construction along an accelerated delivery schedule. The redesign uses the Boston Complete Streets Guidelines to produce a design accommodating all road users. Desirée has helped to develop the pavement marking, signage, and signal plans and schedules for this project. She calculated signal timings for pedestrian and bicycle signals throughout the entire project area. She also assisted to develop the Functional Design Report (FDR) and Design Exception Report (DER) for this project. She also completed the engineering estimate for all traffic-related items.

Project First Light Resort and Casino, Taunton

Mashpee Wampanoag Tribe/Epsilon Associates – Taunton, MA

The Tribe has proposed a \$500M casino on a site near the intersection of Routes 24 and 140. Since 2010, HSH has been involved in the due diligence phase for the siting of the casino; preparation of all MEPA and NEPA documents related to transportation; developing traffic recommendations for the Inter-Governmental Agreement with the City of Taunton; and the design of roadways, traffic signals and other key transportation infrastructure. HSH recommended a set of improvements at 24 locations within the City to mitigate project impacts, including a set of improvement measures at the critical interchanges of Routes 24 with 140 and Route 140 with Stevens Street; intersection improvements along the Route 140 corridor west of Route 24, including the key location of Hart's Four Corners; and improvements in East Taunton to improve safety and reduce vehicle speeds. For the Hart's Four Corners project, Desirée aided in completing the pavement marking and signage plans for this intersection in Taunton, Massachusetts. She also completed the crash analysis and crash diagrams for this intersection and aided in writing the Design Exception Report (DER) for the proposed design.

Stow Lower Village Complete Streets Improvements

Town of Stow – Stow, MA

This project is a \$1M complete streets improvement project for the Town of Stow's Lower Village district. HSH is working closely with the Town Planner and abutters to develop a plan that fosters economic development in the area

Specialities

Traffic and Transportation Engineering
Synchro Analysis
VISSIM Microsimulation

Licenses/Registrations

Engineer-in-Training, NH, #5827

Education

Northeastern University,
Master of Science, Civil Engineering,
2015

University of New Hampshire,
Bachelor of Science Dual Degree, Civil
Engineering and International Affairs,
2012

Professional Affiliations

Member, Boston Society of Civil Engineers
Section (BSCES), Younger Member
Group, 2014-Present



HOWARD STEIN HUDSON

Engineers + Planners

while retaining the important rural characteristics of Great Road (Route 117). The design will provide new sidewalks on both sides of Route 117, enhance pedestrian accommodation with protected crosswalks, upgrade the drainage system and improve stormwater management, encourage bicycle use as a travel mode for residents, slow traffic speeds in the Lower Village, and achieve funding through a MassWorks Grant. Desiree completed pavement marking and signage plans for this project.

East Milton Square Parking and Access Study

Town of Milton – Milton, MA

HSH led a parking and access study to help reconnect the East Milton Square area. The team worked with Town staff, MassDOT, the business community, and residents to understand the short- and long-term constraints, articulate a vision for the area, and produce practical and implementable recommendations to correct any observed deficiencies in order to achieve said vision. Desiree evaluated all crashes for the past five years within the study area to develop the crash rate indices and crash diagrams for the study area. She collected pertinent field data and developed the Functional Design Report (FDR) for this project. She also completed the traffic analysis, pavement marking and signage plans, and traffic signal plans and schedules for the study area intersections.

West Chatham Roadway Design Project

Town of Chatham – Chatham, MA

HSH is providing the preliminary and final design services for the West Chatham Roadway Design Project. The project addresses Route 28 between Barn Hill Road and George Ryder Road and was previously stalled in the planning phase for several years due to lack of consensus among the community. HSH has been tasked to deliver the 100% design while simultaneously providing the necessary public outreach to move the project forward. Desiree compiled all traffic analysis data from Synchro into the Functional Design Report (FDR) for this project and editing the report. She also developed the queuing diagrams for the major intersections within the project area for all alternatives considered within the FDR, and aided with the VISSIM model.



Kevin is a leader in multimodal signal operations. He provides a balance in traffic signal operations for all users in varied operating environments. Multimodal signal operations consist of planning for, designing, and operating preferential treatments along corridors and at individual intersections such as transit signal priority, bicycle signals, and leading pedestrian intervals. He is currently leading the technical review and operational assessment of the DC Streetcar implementations along the H Street/Benning Road corridor and its future alignments. Kevin is also the deputy principal investigator for TCRP A-39, Improving Transportation Network Efficiency Through Implementation of Transit-Supportive Roadway Strategies. He is currently the Chair of the TRB Multi-Modal Signal Systems subcommittee under the Traffic Signal Systems Committee and president of ITS Maryland.

KEVIN LEE, PE, PTOE

Associate Engineer

EDUCATION

MS Civil Engineering, Purdue University

BS Civil Engineering, Purdue University

YEARS OF EXPERIENCE

12

LICENSES

PE: DC, VA, MD, PA, DE, IN, OR

PTOE

AFFILIATIONS

Institute of Transportation Engineers, Member

TRB Regional Transportation Systems Management and Operations Committee, Member

TRB Traffic Signal Systems Committee (TSSC), Member

ITS Maryland, Incoming President

PUBLICATIONS

Burchfield, Rob, Peter Koonce, and Kevin Lee, "Improving Red Light Running Camera Site Selection", Presentation at the Institute of Transportation Engineers Western District Meeting, Portland, Oregon, July 15-18, 2007.

Lee, Kevin, "Managing Travel for Planned Special Events", Presentation at the 2nd Incident and Special Events Management Conference, Newport Beach, California, November 28-December 1, 2006.

MULTIMODAL SIGNAL OPERATIONS

Kevin's experience in transit operations and planning ranges from conducting corridor studies that evaluate preferential treatments to performing detailed intersection evaluations. He is currently leading the technical review and operational assessment of the DC Streetcar implementations along the H Street/Benning Road corridor and its future alignments. Kevin's notable project experience includes the Howard Street LRT in Baltimore, MD and developing pedestrian mid-block crossings in Portland, OR.

TRANSIT PREFERENTIAL TREATMENTS

Kevin's experiences in transit preferential treatments include research, planning, design, and implementation. He is currently the deputy principal investigator for TCRP A-39 which is providing guidance on effective selection and implementation of various transit treatments. Kevin is currently assisting DDOT and WMATA to design and implement a regional TSP technology as part of the TIGER I Grant funds. TSP is planned and designed up to 300 signalized intersections in the region including 200 within the District. Over 20 implementations are along 16th Street NW. Additional transit preferential treatment projects include DDOT's Transit Corridors Analysis, Bus Stop Relocation and Improvement Design, and 16th Street NW and Georgia Avenue NW Queue Jump Design.

DDOT TIGER BUS PRIORITY TRANSIT SIGNAL PRIORITY DESIGN, WASHINGTON, DC

As project manager, Kevin is leading the transit signal priority system (TSP) design for intersections within the District of Columbia along four corridors. The project goals include an assessment of up to 120 intersections along the four corridors, signal timing modifications for transit signal priority, and detailed design at the selected intersections for TSP equipment. The design will include signal timing modifications, traffic controller assessment and parameter modifications, priority equipment designs, and wiring. KAI has already assessed intersection operations and DDOT's existing traffic signal system to determine the opportunities to effectively implement TSP. The existing signal timing was reviewed to determine the flexibility within each time-of-day plan to accommodate TSP. Transit routes were also reviewed to assess the complexities within the downtown core area and overlapping routes. KAI

developed a method to prioritize the granting of TSP between multiple routes and applied the methodology at intersections with more than one bus route. Upcoming tasks will include preparing traffic signal drawing modifications, signal timing parameter modifications, and the plans, specifications, and estimate package. Cost: \$670,000 total.

ADAPTIVE CORRIDOR ANALYSIS, DESIGN, AND IMPLEMENTATION, WASHINGTON DC

Kevin is leading a team to plan for, design, implement, and evaluate adaptive signal control in DC along three (3) arterial corridors. The team conducted a Systems Engineering assessment of signal operations, and DDOT's signal system hardware and software capabilities. A concept of operations and system requirements were developed for an adaptive signal control system. Through the Systems Engineering assessment, the team identified opportunities and constraints to improve operational performance with various system upgrades with a goal for adaptive control implementation. The team is currently completing a Plans, Specifications, and Estimate package for the design of upgraded signal system equipment including detectors, traffic signal controllers, and communications. The system will be constructed in 2014. Cost: \$990,000 total

TCRP A-39: IMPROVING TRANSPORTATION EFFICIENCY

Kittelson is the prime contractor identifying strategies to improve network efficiencies with transit preferential treatments and develop decision-making guidance for planning and design of treatments. Kevin is the lead researcher and is serving as the deputy principal investigator.

PEDESTRIAN SAFETY CORRIDOR DESIGN – MARYLAND AVENUE NE

KAI serves as a subcontractor on this project and Kevin is the project manager for KAI's staff members. He led the traffic analysis for existing conditions and corridor alternatives with the goal of assessing the feasibility of a road diet. Multi-modal operations were the focus for the corridor which included Stanton Park to H Street/Benning Road. The key metric for evaluating alternatives is pedestrian safety.

16TH STREET NW CORRIDOR PROJECT

Kevin is the technical lead for the 16th Street NW Corridor project with DDOT evaluating multi-modal corridor and intersection operations. Alternate typical cross sections were evaluated and compared for the entire corridor from H Street NW to Eastern Avenue NW. Primary issues that were being evaluated included mobility, safety, on-street parking, and community needs.



Dr. Urbanik is an international expert in transportation system management and operations, with expertise from the broad policy standpoint to the details of advanced traffic control systems. He provides his clients with a broad perspective based on his involvement in a wide variety and geographic diversity of project efforts. He has focused his comprehensive experience in transportation engineering on policy-based traffic signal system projects including extensive experience with transit signal priority. His TSP experience includes DDOT firmware and hardware in the loop simulation. Dr. Urbanik has been active in establishing next generation traffic signal system concepts that take a multimodal perspective on performance-based system operation; developing training material and workshops on traffic signal control and freeway operations; conducting FHWA peer reviews of existing agency practices; and promoting the benefits of regional transportation system management and operations.

TOM URBANIK, PE, PH.D

Senior Principal Engineer

EDUCATION

PhD Civil Engineering, Texas A&M University

MS Civil Engineering, Purdue University

BS Civil Engineering, Syracuse University

YEARS OF EXPERIENCE

46

LICENSES

PE: MI, TX

AFFILIATIONS

Institute of Transportation Engineers, Fellow

American Society of Civil Engineers, Member

Transportation Research Board, Member and Former
Chairman of Traffic Signal Systems Committee

International Municipal Signal Association, Member

American Railway Engineering and Maintenance-of-Way
Association, Member

AWARDS

Individual Service Award: Tennessee Section, Institute of
Transportation Engineers (2008)

Trinity Senior Researcher Award: Awarded by Texas
Transportation Institute (1999)

PUBLICATIONS

Sun, X., T. Urbanik, Sean Skehan, and M. Ablett, "Improved
Rail-Highway Interface for the Preemption Trap,"
Transportation Research Record 2080, Washington, D. C.,
2008, pp.1-7.

Kyte, M, M. Dixon, A. Abdel-Rahim, T. Urbanik, V. Nayak,
"What's New in the Queue: Discovering More About Queue
Discharge Characteristics and Their Effect on Signal Timing
Using New NGSIM Data Set," Transportation Research

SURFACE TRANSPORTATION SYSTEMS MANAGEMENT

Tom is a leader in integrated management of the surface transportation system. His work with Institute of Transportation Engineers and TRB helped develop and promote the concept of Transportation System Management and Operations (TSMO). His research has helped improve the understanding of what potential benefits of TSMO are achievable. Tom was an early participant in Integrated Traffic Management Systems (ITMS) and subsequently was the author of "Management of Surface Transportation Systems," NCHRP Synthesis of Highway Practice 259. He has been involved in several studies using simulation to evaluate the effectiveness of alternative strategies to provide better operations of complex freeway and arterial corridors. Tom is an advocate of performance-based operations and has extensive experience with the application of Bluetooth technology. He has extensive experience related to multimodal operations of transit (bus, LRT, and streetcar).

SIGNAL SYSTEMS

Tom has focused experience in traffic signals and traffic signal systems, including how to achieve the maximum system performance consistent with local objectives. He has a strong background in the various techniques used to analyze arterial flow, intersection traffic operations, and optimizing vehicle movement. He is principal author of the Second Edition of the *Traffic Signal Timing Manual*. Tom's notable experience includes transit signal priority (Anchorage, AK; Portland, OR; Ft. Lauderdale, Tampa, and Jacksonville, FL; District of Columbia; and Baltimore, MD), streetcar operation (District of Columbia and Portland, OR), truck priority (Sullivan City, TX; Portland, OR; and Vancouver, WA), and adaptive traffic signal control (Portland and Bend, OR and the District of Columbia). Tom's extensive experience in traffic signals systems includes developing next generation traffic signal control concepts that provide improved transit, pedestrian, bicycle, and truck service. He has extensive experience in developing transit signal priority for buses, light rail, streetcars, and trucks. Tom also has expertise in freeway operations, including freeway control and information systems. He has worked

Record 2080, Washington, D. C., 2008, pp.28-36.

Han, L. D., Jan-Mou Li, and Thomas Urbanik II, Control-Type Selection at Isolated Intersections Based on Control Delay, Transportation Research Record 2071, Washington, D. C., 2008, pp.109-116.

R. Wunderlich, C. Liu, I. Elhanany, T. Urbanik, "A Novel Signal Scheduling Algorithm with Quality of Service Provisioning for an Isolated Intersection," IEEE Transactions On Intelligent Transportation Systems, Vol. 9, No. 3, September 2008, pp. 536-547.

Koonce, P., E. Lindstrom, T. Urbanik, and S. Beaird, Improving the Application of Transit Signal Priority Using NTRCIP 1211 Standard, ITE Journal, Washington, D. C., April 2008, pp. 28-31.

Yohe, J., and T. Urbanik, Advance Preempt with Gate-Down Confirmation: Solution for Preempt Trap, Transportation Research Record 2035, Washington, D.C., 2007, pp. 40-49.

Head, K. L., D. Gettman, D. Bullock, and T. Urbanik, Modeling Traffic Signal Operations Using Precedence Graphs, Transportation Research Record 2035, Washington, D.C., 2007, pp.10-18.

Kyte, M., T. Urbanik, and E.Amin, Foundation for Joint Determination of Passage Time and Detection Zone Length Using Stop Bar Presence Detection, Transportation Research Record 2035, D.C., 2007, pp. 114-121.

Si, Jianwen, and T. Urbanik, Effectiveness of Alternative Detector Configurations for Option Zone Protection on High-Speed Approaches to Traffic Signals, Transportation Research Record 2035, Washington, D.C., 2007, pp. 107-113.

with the Florida Department of Transportation District 4 on safety projects that include improving arterial operations at two railroad grade crossings in Broward County, FL. Tom is lead author on the Second Edition of the *Traffic Signal Timing Manual*. This new guidance will include be based on an outcome based approach to operations that has a multimodal and performance-driven focus.

SIGNAL SYSTEMS II

Tom has focused experience in traffic signals and traffic signal systems, including how to achieve the maximum system performance consistent with local objectives. He has a strong background in the various techniques used to analyze arterial flow, intersection traffic operations, and optimizing vehicle movement. He is principal author of the Second Edition of the Traffic Signal Timing Manual. This new guidance will include be based on a regional approach to operations that has a multimodal and performance-driven focus. Tom's notable experience includes transit signal priority (Anchorage, AK; Portland, OR; Ft. Lauderdale, Tampa, and Jacksonville, FL; District of Columbia; and Baltimore, MD), streetcar operation (District of Columbia and Portland, OR), truck priority (Sullivan City, TX; Portland, OR; and Vancouver, WA), and adaptive traffic signal control (Portland and Bend, OR and the District of Columbia). Tom's extensive experience in traffic signals systems includes developing next generation traffic signal control concepts that provide improved transit, pedestrian, bicycle, and truck service. He has extensive experience in developing transit signal priority for buses, light rail, streetcars, and trucks. Tom also has expertise in freeway operations, including freeway control and information systems.



Conor Semler is a Senior Planner who draws on his experience in urban planning, traffic engineering, and technical research in complete streets design. Conor is highly regarded for his ability to leverage transportation design to create livable and healthy communities. His focus is on improving conditions for walking and bicycling through better evaluation and design. Conor is a national leader in the planning and design of innovative bicycle facilities. He was involved in the development of both the NACTO Urban Bikeway Design Guide and the FHWA Separated Bike Lane Planning and Design Guide. Conor's experience is informed by his role in leading research, contributing to designs, and working closely with cities to continually evolve and innovate safer, more inviting bicycle facilities.

CONOR M SEMLER, AICP

Senior Planner

EDUCATION

MRP City and Regional Planning, Cornell University

BA Government, Colby College

YEARS OF EXPERIENCE

8

LICENSES & CERTIFICATIONS

AICP

NACTO Certified Trainer

AFFILIATIONS

American Planning Association, Member

Association of Pedestrian and Bicycle Professionals, Member

Young Professionals in Transportation - Boston, Vice Chair

American Institute of Certified Planners (AICP), Member

PUBLICATIONS

With Coffel, K., et al., TCRP Web-Only Document 44: Literature Review for Providing Access to Public Transportation Stations, TCRP, TRB, NAS, Washington, DC 2009

Paul Ryus and Conor Semler, "Best Practices for Benchmarking Public Transportation," presented at the AITPM National Conference, Brisbane, Australia (July 2010).

Robyn Davies, Stephen Larter, Athol Moore, Conor Semler, and Jerryn Zwart, "Best Buys for Walking and Cycling Workshop," presented at the AITPM National Conference, Brisbane, Australia (July 2010).

Miranda Blogg, Conor Semler, Manu Hingorani, and Rod Troutbeck, "Travel Time and Origin-Destination Data Collection using Bluetooth MAC Address Readers," presented at Australasian Transport Research Forum

URBAN BICYCLE DESIGN

Conor contributed to the NACTO *Urban Bikeway Design Guide* which provides cities with state-of-the-practice solutions that can help create complete streets that are safe for bicyclists. Conor wrote and developed material for the Guide and offered engineering insight into the appropriateness and applicability of the cycling treatments. Bicycle facilities covered by the Guide include a variety of innovative facilities, including bicycle signals, cycle tracks, bike boxes, and intersection improvements. Conor also contributed to the FHWA *Separated Bike Lane Planning and Design Guide*, which offered the first federal guidance on planning and design for separated bike lanes (also known as cycle tracks). Conor has applied bicycle facility design across the U.S., including most recently in Portsmouth, New Hampshire, where he led the conceptual design of a separated bike lane on Route 1.

MULTIMODAL TRANSPORTATION PLANNING

Conor has conducted several major multimodal transportation planning projects in constrained urban environments. He is developing recommendations for multimodal transportation improvements in the Rosslyn neighborhood of Arlington, VA, which will seek to create a vibrant, walkable environment in an area currently dominated by vehicle traffic. He recently completed a Livability Study for the Far Northeast neighborhood of Washington, DC to identify improvements for walking, cycling, and riding transit. Conor also helped the DC Office of Planning develop the transportation element of the Land Use Plan for the proposed DC Streetcar network. He conducted a Metro Station access study just outside of DC in Prince George's County, MD.

TRANSIT STATION-AREA PLANNING

Conor has extensive experience in planning for transit station areas, including coauthoring TCRP Report 153: *Guidelines for Providing Access to Public Transportation Stations*. This research identifies best practices for station-area planning, including providing access for pedestrians, bicyclists, feeder bus riders, and automobiles. It also evaluates opportunities for transit-oriented development and includes a tool for calculating tradeoffs between TOD and various access modes. Conor used this research to help Sound Transit evaluate station-area opportunities and prioritize

2010 Proceedings.

With Coffel, K., et al. TCRP Report 153: Guidelines for Providing Access to Public Transportation Stations. Transit Cooperative Research Program, Transportation Research Board, National Academy of Sciences, Washington, D.C., 2013.

project funding in the Seattle, WA metropolitan area. He is currently helping the Maryland Transit Administration develop guidelines for TOD to ensure development around its transit stations embraces walking and bicycling to enhance the connection between transit and land use.

ROSSLYN SECTOR PLAN, ARLINGTON, VIRGINIA

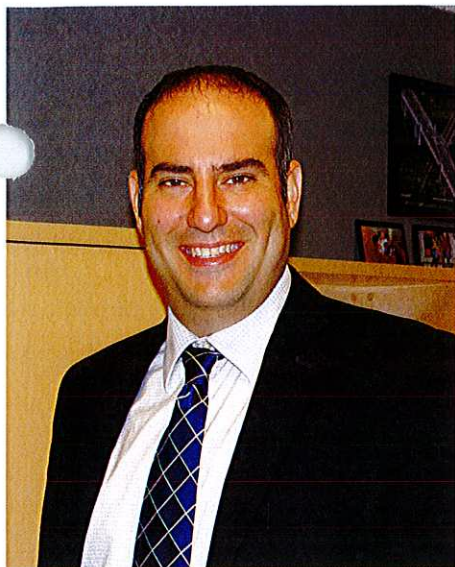
Conor is working with Arlington County to develop a Sector Plan for the Rosslyn neighborhood. The plan, which will advance many of the recommendations from the County's Multimodal Transportation Study, is focused on improving conditions for walking, biking, and accessing transit to enhance the vibrancy and livability of the neighborhood. Recommendations include major changes to its transportation system, including grading an intersection, converting one-way streets to two-way and significant travel lane reductions for bike lanes and pedestrian spaces.

STREETSCAPE DESIGN GUIDELINES & WAYFINDING PROGRAM, BOSTON, MA

Conor collaborated with the Downtown Boston Business Improvement District and the City of Boston to develop Streetscape Design Guidelines and Wayfinding Program for downtown Boston, MA. Representing the BID, Conor worked with the team of landscape architects, urban designers, engineers, and graphic designers to create a streetscape standard, including street furniture, sidewalk and roadway materials, lighting, and other roadway elements. The project also developed a comprehensive wayfinding program consisting of unifying signs and gateway installations to help residents, employees, and visitors navigate downtown and recognize it as a special place.

INNOVATIVE BICYCLE FACILITY EVALUATION, WASHINGTON, DC

Conor helped the DC Department of Transportation evaluate several recently-installed innovative bicycle facilities intended to improve cyclist comfort and safety. He analyzed the safety and operations of these facilities for all travel modes using before and after video data, multimodal level of service, and user surveys. These facilities include cycle tracks, bike boxes, bicycle signal heads, and contra-flow bike lanes, and the results of the analysis will be used to refine the existing designs, as well as provide guidance on best practices moving forward.



Mark Gravallese

Manager of Public Infrastructure

mgravallese@hshassoc.com

Mark has over 14 years of experience in managing the development and sequencing of roadway, tunnel, facility and bridge projects. As the former MassDOT District 6 Projects Engineer, Mark's expertise lays in the review, examination, and approval/disapproval of complex and diversified engineering data, such as design plans, specifications, contracts, and bids. While at MassDOT, Mark was responsible for all design review within the 18 municipalities of District 6. He was on the forefront of the complete streets initiative reviewing, shaping and implementing the Department's complete streets directives as well as the Healthy Transportation Policy. He now provides guidance to communities relating to multimodal design, MassDOT policies, engineering standards, planning and funding to design cost-effective and context sensitive-projects.

As HSH's Manager of Public Infrastructure, Mark oversees all aspects of design and quality control of all documents. He specializes in managing complex infrastructure projects focusing on cutting-edge designs that fit today's transportation landscape and are sustainable for the future.

Specialities

Complete Streets Design
MassDOT Policy and Procedures
Public Safety
Managing Complex Infrastructure
Improvements
Project Development and Contract
Management
Context Sensitive Design
Public Outreach and Multi-Jurisdictional
Project Coordination
Managing Design Task Forces/Working
Groups
Traffic and Transportation Engineering

Education

Tufts University,
Bachelor of Science – Environmental
Engineering

Relevant Experience

Project First Light Resort and Casino, Taunton

Mashpee Wampanoag Tribe/Epsilon Associates – Taunton, MA

The Tribe has proposed a \$500M casino on a site near the intersection of Routes 24 and 140. Since 2010, HSH has been involved in the due diligence phase for the siting of the casino; preparation of all MEPA and NEPA documents related to transportation; developing traffic recommendations for the Inter-Governmental Agreement with the City of Taunton; and the design of roadways, traffic signals and other key transportation infrastructure. HSH recommended a set of improvements at 24 locations within the City to mitigate project impacts, including a set of improvement measures at the critical interchanges of Routes 24 with 140 and Route 140 with Stevens Street; intersection improvements along the Route 140 corridor west of Route 24, including the key location of Hart's Four Corners; and improvements in East Taunton to improve safety and reduce vehicle speeds. For the Hart's Four Corners project, Mark is overseeing all aspects of the design, including QA/QC of all documents.

Falmouth Road (Route 28) Safety Improvements

Massachusetts Department of Transportation – Barnstable, MA

As an assignment under a MassDOT on-call design contract, this project is working to address access management issues, improve queuing conditions, provide safe pedestrian and bicycle accommodations at the intersection, consider ways to extend an existing multi-use path through the intersection, and provide enhanced pedestrian accommodations along Route 28 between Bearses Way and the Cape Cod Mall. In his role as the Manager of Public Infrastructure, Mark is responsible for managing the design, including QA/QC of all documents.



HOWARD STEIN HUDSON

Engineers + Planners

West Chatham Roadway Design Project

Town of Chatham – Chatham, MA

HSH is providing the preliminary and final design services for the West Chatham Roadway Design Project. The project addresses Route 28 between Barn Hill Road and George Ryder Road, and was previously stalled in the planning phase for several years due to lack of consensus among the community. HSH has been tasked to deliver the 100% design while simultaneously providing the necessary public outreach to move the project forward. Mark is responsible for supervising all aspects of the design, including QA/QC of all documents.

Prior to joining HSH, Mark's experience includes:

River Street and Western Avenue Bridges Rehabilitation

Massachusetts Department of Transportation – Cambridge, MA

This project included the historic restoration of the concrete arches and replacement of the spandrel walls, parapet walls, granite capstones, bridge deck, and sidewalks. Major utility relocation is also required in order to facilitate the work. Similar to the Anderson Memorial Bridge, this project focused on temporary traffic control plans for use of the Charles River. Crew teams and recreational boat users (both motor and sail) required a safe navigable channel at all times during the project. Construction phasing and temporary traffic control plans maintained the same concrete arch simultaneously clear on both bridges for recreational river use at all times. Working for the Owner, Mark was responsible for design procurement, project management, design review, public outreach and multijurisdictional coordination of the project. Construction delays and complicated project sequencing within the Charles River Basin and the I-90 corridor postponed construction of this design to a later date. However, when it is constructed it will be the first Charles River Crossing to include cycle tracks connecting the bike networks of Boston and Cambridge.

Boston University Bridge Rehabilitation

Massachusetts Department of Transportation – Boston, MA

The \$18M scope included historic restoration and replacement of the steel superstructure, concrete arches, spandrel walls, parapet walls, granite capstones, bridge deck, sidewalks and railings. Working for the Owner (DCR the MassDOT) as Special Projects Manager, Mark was responsible for final design review, contract preparation for advertisement, construction management, public outreach and multijurisdictional coordination of the project. This was the first project to administer the Accelerated Bridge Program's Project Controls specification for "on time" and "on budget" reporting; these specifications are now standard in all MassDOT contracts. The design was modified to include dedicated bike lanes between Boston and Cambridge, setting precedent for inclusion of bike accommodations in all future MassDOT projects within the Charles River Basin. The Rehabilitation of Boston University Bridge earned an ACEC 2013 Silver Award honoring outstanding professional design excellence.

Awards

ACEC Silver Award – Rehabilitation of Boston University Bridge



Pete Stidman

Active Transportation Leader

pstidman@hshassoc.com

Pete's extensive experience includes the founding of the Boston Cyclist Union, where he acted as Executive Director from January 2010 until stepping down in September of 2015 to join the HSH Transportation Team.

Relevant Experience

Prior to joining HSH, Pete's experience includes:

Vision Zero Task Force Member

City of Boston – Boston, MA

As a member of Mayor Martin J. Walsh's Vision Zero Task Force, Pete assisted in an analysis of all bike and pedestrian crashes on Massachusetts Avenue, created a plan for a before and after study of Commonwealth Avenue, and helped emphasize the benefit street and large vehicle design improvements can have on reducing injuries and fatalities.

Casey Arborway Project

Massachusetts Department of Transportation – Boston, MA

Pete identified a community desire for a more walkable and bikeable neighborhood in Forest Hills. He also helped organize a wide diversity of residents in support of an at-grade solution for the replacement of the Casey Overpass.

Commonwealth Avenue Cycletrack

Boston Transportation Department – Boston, MA

Pete led a team of engineers and artists in creating an exemplar redesign for Commonwealth Ave, organized a public meeting with 130 attendees and built a coalition of several organizations to ask the City of Boston to build a cycletrack. This process resulted in the first protected intersections installed in an urban context in the United States.

Boston Police Bike Crash Study

Boston Police Department – Boston, MA

Pete brought together a coalition of organizations and Rappaport Fellow Dahianna Lopez to collate and analyze bicycle crashes, focusing specifically on the narrative section of the police incident reports that are the best indication obtainable on the cause of crashes. The data has aided several initiatives, including the City of Boston's first-in-the-nation ordinance requiring city contractees to install sideguards and blind-spot mirrors on heavy trucks.

Bike to Market Program

Boston Cyclist Union – Boston, MA

Pete created, managed and developed a program that teaches basic bike repair to people who have limited access to full-service bike shops. The program started in 2010, fixed over 4,500 bicycles and helped diversify the bike movement by connecting thousands of people in dozens of neighborhoods.

Specialities

Bicycle and Pedestrian Crash Data Analysis

Bicycle and Pedestrian Planning
Livable Streets

Education

Attended the University of Colorado at Boulder, Bachelor of Art, History
Attended the Harvard Extension School, Bachelor of Arts Studies

Professional Affiliations

Member, Alliance for Biking & Walking
Member, Association of Pedestrian and Bicycling Professionals
Former Member, Boston Bike Network Master Plan Advisory Group
Former Member, Boston Bikes Advisory Group
Former Member, Boston Public Health Commission Crash Data Task Force
Former Member, Casey Overpass Working Advisory Group
Former Member, City of Boston Vision Zero Task Force
Former Member, Connect Historic Boston Advisory Group
Former Chair, Department of Conservation & Recreation Urban Paths & Parkways Committee



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Former Member, Fairmount Indigo Corridor
Community Advisory Group
Member, Go Boston 2030 Mobility
Advisory Committee
Member, Green Lanes Project
Member, League of American Bicyclists
Member, Mayor Martin J Walsh Transition
Team – Transportation
Member, WalkBoston

Urban Parks and Pathways Committee

Department of Conservation and Recreation – Boston, MA

Pete organized a broad cross section of advocates to conduct a grassroots #WinterBiker campaign that ultimately led to the creation of this new Committee at the Department of Conservation and Recreation. The committee brings together nearly 100 advocates all across Eastern Massachusetts and is currently overseeing an effort to bring bikeways to all of the DCR's parkways, repave many of its existing paths, and introduce roundabouts as a safer alternative to traffic rotaries.

As Founder and Executive Director of the Boston Cyclists Union, Pete managed a small staff, interns, and a very large volunteer base. He developed and managed several programs designed to encourage active transportation. Pete also oversaw the work of several bike advocates, engineers, researchers, and planners who actively seek better bike planning and policy in the city. Pete created and maintained the bostoncyclistsunion.org website, the Union Rider newsletter, and other social media channels. He organized several major and minor events—as many as 100 in a single year. Pete wrote successful grants to the Haymarket People's Fund, the Mazer Foundation, and People for Bikes. Pete was responsible for managing relationships with donors and members, including significant partnerships with local bike industry leaders, and others in the business community.

Publications and Presentations

Presenter, New England Bike Walk Summit, 2015

Presenter, Moving Together Conference, MassDOT, 2013, 2014

Presenter, Leadership Retreat, Alliance for Biking & Walking, 2011, 2014

Awards

Commissioner's Commendation, For work on Cyclists Safety Report, Boston
Police Department, 2013

Finalist, Award for News Reporting, New England Ethic News, 2008



Nicholas H. Gross

Planner

Public Involvement Specialist

ngross@hshassoc.com

Nick is a member of HSH's Transportation Planning group that works closely with our engineering, public involvement and construction management groups to integrate conceptual planning ideology into projects as needed. He has supported many public involvement projects including the Allston I-90 Interchange Improvement Project, the McGrath Boulevard Project Development, and the I-290 Belmont Street Bridge Project. As a transportation planner at HSH, Nick has been successful in demonstrating projects implementation during the planning phase of projects through the use of 3D renderings created in Google SketchUp. Nick graduated from UMass Amherst in 2013 with a Bachelor of Science in Environmental Design and is a daily bicycle commuter.

Specialities

Public Involvement
Curriculum Development
Data Collection
3D Renderings
Organizational Development and Board Governance
Research
Strategic and Business Planning

Education

UMass Amherst - School of Landscape Architecture and Regional Planning;
Bachelor of Science in Environmental Design; 2013

Relevant Experience

Connect Historic Boston Complete Street Design

City of Boston – Boston, MA

In order to help illustrate the project's vision, Nick used Google SketchUp to model the bicycle accommodations and cycle track plans for both Causeway and Commercial Street in Phase 1 of the Connect Historic Boston Project. Nick's Causeway Street renderings have received significant applause and have been displayed at the Massachusetts Municipal Associates Annual meeting and the City of Boston's Boston Bike's 6th Annual Update Presentation. As a public involvement specialist, Nick has been responsible for the maintenance of the project's stakeholder database and records of the public information meeting minutes including the 25% design public hearing.

Low Street Bike Map

Northeastern University – Boston/Brookline, MA

Nick is assisting in developing a dynamic Low Stress Bike Map for the City of Boston and the Town of Brookline. Nick is working with the Boston Cyclists Union and Northeastern University to input GIS data on the roadways of each municipality in order to generate a map that will highlight routes that would be comfortable for novice bicyclists. In addition to assisting the public, the goal of developing the Low Stress Bike Map is to identify gaps in the bicycle network so that measures can be taken to connect low-stress segments and create truly low-stress bicycle routes.

Stoughton Town Square

Town of Stoughton – Stoughton, MA

Nick is part of the team developing mid- and long-term circulation alternatives for Stoughton Town Square that implements the Town's award winning Complete Streets policy, adopted in 2014. The team is analyzing new and previously-developed concepts to determine a range of alternatives that address the Town's desire for changes in land use patterns, and the potential for changes related to the South Coast Rail project. Nick created the SketchUp model for the project, which was used to provide 3D renderings of new street connections, and bicycle and pedestrian enhancements, as well as cross-section variations developed by the team. The renderings were useful



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in visually representing schematic alternatives, which allowed community members to view plans of potential future conditions.

Commercial Corridor Charrette, Regulating Plan, Form-Based Code

Town of Shelburne – Shelburne, VT

As a planner for the redevelopment design of the Route 7 corridor in Shelburne, Nick was part of a team that led Shelburne planning officials, property owners, and local residents in a 3-day design charrette to prepare conceptual plans for the future development along the corridor. The charrette focused on pedestrian and bicycle accommodations, green space opportunities, and potential development opportunities along the corridor. Activities conducted during the design charrette included: opening listening sessions for residents to voice concerns or ideas, group sessions on developing appropriate scale and design themes, and a public design workshop to provide participants the opportunity to define development alternatives and shape the overall concept plan. Additionally, Nick developed and managed an online Visual Preference Survey; gauging the community's preferences for different building types, streetscape, and other possible elements of the future Route 7.

Casey Arborway

Massachusetts Department of Transportation – Boston, MA

MassDOT gathered an interdisciplinary team of engineers, planners and urban design professionals to determine how best to replace the structurally deficient Casey Overpass. Located in the Jamaica Plain neighborhood, the Casey Overpass carries Route 203, locally known as the Arborway, and a primary east-west connecting route in the area over Forest Hills, a commuter hub including major north/south roadway, bicycle, pedestrian and transit connections. HSH was selected to support the public involvement aspect of the planning effort which ultimately made the decision to replace the overpass with a new, context-sensitive network of at-grade streets, and making the design concept into a buildable reality. As public involvement specialist, Nick helped document public information meetings, and managed the projected stakeholder database. Nick also created Google SketchUp 3D renderings of the projects area to help show community members what a completed, atgrade Casey Arborway will look like once completed.

West Chatham Roadway Design Project

Town of Chatham – Chatham, MA

Nick assisted the public involvement effort associated with the Town's Route 28 Intersection project. To help bring the community together, Nick scheduled one-on-one meetings between abutting residents and the project team to discuss the upcoming project process and address any questions or concerns. To help give the community a sense of upcoming project construction, Nick used Google SketchUp to help illustrate the conceptual roundabout and roadway design with appropriate scale. Additional public involvement work included stakeholder database management, organization and recordings of public information meeting minutes, and photographs of project site.



Daniel Nelson, P.E.

Associate

Manager of Roadway Design

dnelson@hshassoc.com

Dan is a Civil Engineer involved in a variety of projects including roadway reconstruction, roadway alignment and grading, intersection signal design, corridor studies, traffic impact studies, contract document and specification writing, and construction oversight. His strengths include developing projects from design through construction, dedication to providing accurate results, and adaptability to address various client needs.

Relevant Experience

Dorchester Avenue Reconstruction

City of Boston – Boston, MA

Dan served as Civil Engineer for the Dorchester Avenue Reconstruction Project. The project included redesign and signalization of 14 intersections along Dorchester Avenue, including preparation of construction documents, as well as new geometric alignments, surface drainage improvements, utility coordination, and traffic management plans. The design was completed on an accelerated schedule of nine months. Construction was completed in 2012.

River Street and Western Avenue Complete Streets Project

Massachusetts Department of Transportation – Boston/Cambridge, MA

HSH provided traffic engineering, construction-period traffic management, and public involvement. HSH advanced a “Complete Streets” solution for commuting traffic, cyclists and pedestrians. The plan was developed through MassDOT with a robust public involvement plan that sought input from Walk Boston, Liveable Streets, MassBikes, and the cities of Boston and Cambridge. Dan managed the HSH team on this project.

Connect Historic Boston Complete Street Design

City of Boston – Boston, MA

Dan served as Project Manager for the design of roadway and streetscape improvements to enhance bike and pedestrian connectivity by designing a family-friendly cycle track through Downtown Boston’s urban corridor. The first phase of the City bike path initiative involves the reconfiguration of over a mile and a half of streets spanning North End to Beacon Hill including Atlantic Avenue, Commercial Street, Causeway Street, and Staniford Street. HSH is carrying the project from conceptual design through construction along an accelerated delivery schedule. The redesign uses the Boston Complete Streets Guidelines to produce a design accommodating all road users. HSH is responsible for the design of the cycle track, roadway, underground utilities, and stormwater management.

Central Square Final Design

Boston Transportation Department – East Boston, MA

HSH is working with BTD, Boston Parks and Recreation Department, Boston PWD, and the Boston Water and Sewer Commission on the design of roadway, drainage and streetscape improvements as part of an overall revitalization. Our multi-disciplinary team includes survey, public involvement, roadway design, signal design, stormwater management, urban design, and

Specialities

Civil Engineering
Corridor Analysis
MassHighway Design
Traffic Signalization

Licenses/Registrations

Professional Engineer, MA, 47351,
06/30/2016

Education

University of Massachusetts - Lowell,
Bachelor of Science, Civil Engineering,
2002

Professional Affiliations

Member, Boston Society of Civil Engineers
Member, Institute of Transportation
Engineers
Member, Order of the Engineer



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landscape architecture. Dan is redesigning roadway alignments and drainage designs. The project includes the changing of curb lines in this important neighborhood business district in order to simplify traffic patterns, improve the pedestrian experience, create new open space, and accommodate all modes of transportation.

Melnea Cass Boulevard Reconstruction

City of Boston – Boston, MA

Dan served as Project Manager for the Crosstown Center Traffic Mitigation Plans. This project involved roadway alignment and grading modifications on Melnea Cass Boulevard, Massachusetts Avenue, and Albany Street. The project included the first segment of the Harbor Trail Park extension: the South Bay Harbor Trail, a 3.5-mile pedestrian-friendly park. It also involved traffic signal design at four locations, and pavement marking and signing design in the general area around the project that would be affected by the project development. Dan also developed Public Improvement Commission (PIC) plans. He provided construction oversight and worked as a liaison between the developer, the City, and the various contractors.

Craigie Bridge

Massachusetts Department of Conservation and Recreation –
Boston/Cambridge, MA

Dan designed sidewalk and road layouts for the proposed replacement of the Craigie Bridge on Route 28. HSH provided the Traffic Management Plan (TMP) to minimize the impacts of a total inbound lane closure on automotive, bicycle and pedestrian users during construction. All TMPs that were developed included coordination with the Cities of Boston, Cambridge, Somerville, and MassDOT. The \$40M MassDOT Accelerated Bridge Project completed construction in the summer of 2011.

Highland Street Corridor Intersection Improvement

Massachusetts Department of Transportation – Worcester, MA
Town of Arlington – Arlington, MA

Dan led the design of 6 intersections for MassDOT which will alleviate safety concerns and improve the progression of traffic flow through one of the Worcester's most congested corridors. The project includes new signal equipment, roadway resurfacing, sidewalk enhancements, and utility relocation. At the intersection of Lancaster and Highland Street the roadway will be widened to incorporate an additional travel lane. Dan is currently working with the City to procure then necessary land takings and temporary easements required to construct the improvements. The project is currently under 100% design review.



Bridget A. Myers, P.E.

Associate
Project Manager
Senior Civil Engineer

bmyers@hshassoc.com

Bridget is a Project Manager with over 10 years of experience in transportation and roadway design, site design and redevelopment, right of way, stormwater management design, hydrologic analysis, low impact design, municipal peer review, state and local permitting, and construction inspection. She has been responsible for the design of several civil/site design projects, transportation improvement projects, stormwater management plans, and assisting with master planning projects. She has experience at the conceptual, design, permitting and construction phases for both the public and private sector. Bridget is a licensed Professional Engineer in Massachusetts and has significant experience using the latest in Auto CAD, Hydro CAD, and GIS technology.

Specialities

Civil Engineering
Transportation Improvements
MassDOT Design
Stormwater Management
Site Design

Licenses/Registrations

Professional Engineer, Massachusetts,
48697, 6/30/2016
Office of Safety and Health Administration,
10 Hour Occupational Safety and Health
Training Course 2006

Education

University of New Hampshire,
Bachelor of Science, Civil Engineering,
2004

Relevant Experience

River Street and Western Avenue Complete Streets Project

Massachusetts Department of Transportation – Boston/Cambridge, MA

Bridget serves as project engineer for the transportation design associated with this MassDOT Accelerated Bridge Project. This project involves the rehabilitation of the arch bridges over the Charles River as well as the underpass bridges over Soldiers Field Road on both River Street and Western Avenue. She has organized the preparation of the 25%, 75%, and 100% design plans, right-of-way plans, and a Design Exception Report all of which have been submitted to MassDOT. This project involves progressive design associated with bicycle and pedestrian accommodations, and requires regular coordination and communication between MassDOT, DCR, the City of Boston, the City of Cambridge, as well as abutting property owners.

Route 30/Wellesley Street Intersection Safety Improvements

Town of Weston – Weston, MA

Bridget is the Project Manager for the intersection improvement design at the South Avenue (Route 30) and Wellesley Street intersection in Weston, MA. Bridget participated in the Road Safety Audit (RSA) of this intersection in December 2011 as part of Federal Highway Administration's Highway Safety Improvement Program (HSIP). Bridget has now completed the 100% design submittal to MassDOT and is awaiting review comments in order to progress to the final PS&E stage. This project was advertised in September 2015.

Arlington Center Intersection Improvements

Town of Arlington – Arlington, MA

Bridget is the project engineer leading the advancement of this multi-modal improvements project in Arlington Center. The project seeks to improve mobility for all modes: vehicles, pedestrians, and cyclists. This project will create a defined link for the Minuteman Bikeway using bike lanes, bicycle queue boxes, and ramps to the bike path. The project also provides new accessible ramps, updated signals and signal timings, and new pavement. This project was advertised on September 13, 2014, with a bid opening scheduled for January 2015.



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Adams Green Transportation Improvements

City of Quincy – Quincy, MA

As part of the HSH team providing design and engineering services for this federally funded transportation improvements project, Bridget was responsible for the preparation of the stormwater management design as well as utility layout and coordination. The recommended concept balances traffic flow through Quincy Center, while creating bicycle accommodations, and an enhanced pedestrian experience. This design involved removing the 4-lane roadway between the United First Parish Church and City Hall. This removal, combined with traffic signal modifications and access changes, improved traffic flow and provided pedestrians with a greater cohesive open space. HSH designed the redirection of traffic along the newly constructed concourse bypass roadway, while maintaining progression through Quincy Center and around the proposed town green.

Union Street (Route 139) Reconstruction

Town of Holbrook – Holbrook, MA

Bridget is the Project Manager for the roadway improvements project along Union Street (Route 139) between Centre Street and Linfield Street in Holbrook, MA. This project involves improvements to just under a mile of roadway including new sidewalks, ADA accessible ramps, pavement, pavement markings, and drainage improvements. The 25% design submittal is currently under review by MassDOT and we are waiting final review comments in order to schedule the Design Public Hearing.

Road Safety Audits

Massachusetts Department of Transportation – Statewide, MA

Bridget has participated in 2 Road Safety Audits led by HSH through a contract with MassDOT. She has completed an RSA in Weston and Lexington where she was part of the HSH team leading the audit participants through safety issues of various intersections as well as site visits to these locations. After each audit, she helped prepare a report summarizing all safety issues and possible improvements for each location. Several of these improvements will then go on to be incorporated in a design for these transportation improvement projects.



Nathaniel Cabral-Curtis

Associate

Manager of Public Involvement

ncabral-curtis@hshassoc.com

Nate works closely with HSH engineering, planning, and construction management to integrate public involvement into projects as needed and appropriate. He provides public involvement and transportation planning support to an array of projects including the Casey Arborway, Fore River Bridge Replacement in Quincy and Weymouth, the Kenneth F. Burns Bridge Replacement in Worcester and Shrewsbury, the East Milton Square Parking and Access Study Implementation and the Connecting Historic Boston Cycle Track.

Specialities

Public Involvement
Curriculum Development
Data Collection
Organizational Development and Board Governance
Research
Strategic and Business Planning

Relevant Experience

Dorchester Avenue Reconstruction

City of Boston – Boston, MA

This project included redesign and signalization of 14 intersections along Dorchester Avenue, including preparation of construction documents, as well as new geometric alignments, surface drainage improvements, utility coordination, and traffic management plans. Nate's work included designing intersection geometry, counting bicycle and pedestrian volumes, and observing gas station driveway operations along the route, to determine the necessity of the driveways. The design was completed on an accelerated schedule of nine months. Construction was completed in 2012.

River Street and Western Avenue Complete Streets Project

Massachusetts Department of Transportation – Boston/Cambridge, MA

Nate provided public involvement support for the MassDOT rehabilitation of these bridges between Boston and Cambridge. He assisted with all public informational meetings, and developed content for MassDOT's project website. Nate also attended regular internal team meetings to bring a public involvement viewpoint to team discussions and ensure the accessibility and clarity of materials being prepared for public dissemination.

Central Square Final Design

Boston Transportation Department – East Boston, MA

HSH is working with BTD, Boston Parks and Recreation Department, Boston PWD, and the Boston Water and Sewer Commission on the design of roadway, drainage and streetscape improvements as part of an overall revitalization. Our multi-disciplinary team includes survey, public involvement, roadway design, signal design, stormwater management, urban design, and landscape architecture. The project includes the changing of curb lines in this important neighborhood business district in order to simplify traffic patterns, improve the pedestrian experience, create new open space, and accommodate all modes of transportation. Nate assisted in the preparation, attendance, and documentation of all public meetings for the redesign project.

I-90 Allston Interchange Improvement Project

Massachusetts Department of Transportation – Allston, MA

Nate was closely involved with the public involvement effort for the conceptualization phase of this project. His work included developing an

Education

Boston University,
Master of Science, Master of City
Planning, 2008
Trinity College,
Bachelor of Arts, History, 2002
National Transit Institute,
Studies, Public Involvement in
Transportation Decision-making, 2009
National Highway Institute
Studies, NEPA and Public Involvement,
2009



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overall outreach strategy for MassDOT, and regular coordination with the agency on the execution of that plan. Nate has overseen the maintenance and operation of the project's taskforce, and facilitated public information meetings. He also oversaw all aspects of the project's documentation of taskforce and public meetings. He assisted in developing the project's website and populating the project's taskforce under the direction of MassDOT.

Casey Arborway

Massachusetts Department of Transportation – Boston, MA

During the planning and design phases, Nate supported the intense deliberations of the agency-convened Working Advisory Group and Design Advisory Group which frequently met up to twice a month for almost two years. Nate also arranged and documented the production of detailed meeting minutes for the well-attended community meetings and small, targeted briefings for individual neighborhood groups. Following the decision to replace the viaduct with a new, at-grade boulevard, Nate provided strategic guidance to MassDOT on how to work with those members of the community committed to stopping the project, and reopening the planning effort in hopes of getting a new bridge. As part of the construction team, Nate is now working with the general contractor and staff from MassDOT district 6 to arrange meetings and briefings, as well as resourcing the project website to alert the community to project progress and traffic changes as the job moves through construction.

West Chatham Roadway Design Project

Town of Chatham – Chatham, MA

HSH is providing the preliminary and final design services for the project. The project addresses Route 28 between Barn Hill Road and George Ryder Road and was previously stalled in the planning phase for several years due to lack of consensus among the community. HSH has been tasked to deliver the 100% design while simultaneously providing the necessary public outreach to move the project forward. To help bring the community together around a reasonable consensus and to allow the project to move forward into the MassDOT design process, Nate has launched a public involvement process that makes use of an array of innovative outreach techniques including, but not limited to, a project website and Facebook page, key informant interviews, public listening sessions and public information meetings. All interactions with the community will be documented and made available through the project website.

Kenneth F. Burns Bridge Replacement Project

Massachusetts Department of Transportation –
Shrewsbury/Worcester, MA

Nate has provided public involvement support to both phases of the Kenneth F. Burns Bridge Replacement project. During the planning and design phase, Nate worked closely with the consultant team and MassDOT to arrange meetings, review and incorporate input received from community members, and launch the project website for the job. As part of the design/build construction team, Nate continues to maintain and update the project website, answer community inquiries, provide timely information regarding changes to traffic patterns, and arranges, prepares for, and documents all meetings associated with the progress of construction.



Kristina Johnson

Manager of Transportation Planning

kjohnson@hshassoc.com

Kristina is an Transportation Planner with considerable experience managing transportation and neighborhood planning studies and projects; coordinating land use and zoning initiatives; and developing and implementing public outreach strategies with state, regional, and municipal agencies. Her expertise includes the development and preparation of multimodal transportation visions and plans for communities by utilizing her unique ability to help clients develop sound funding and implementation strategies during the planning process. Whether in an urban or suburban context, much of her planning work has involved complex traffic, bicycle and pedestrian, transit, and parking circulation issues, and she has a deep understanding how transportation infrastructure must fully integrate into a neighborhood and enhance the community fabric.

Education

University of Rhode Island, Graduate Studies, Department of Community Planning and Landscape Architecture, 2001

University of Massachusetts Dartmouth, Bachelor of Arts, Political Science, Magna cum Laude, 1999

Professional Affiliations

Member, Massachusetts Association of Planning Directors (MAPD)

Member, American Planning Association (APA)

HUD Certified HOME Regulations Specialist

National Community Development Association (NCDA) certified CDBG administrator

Attended regional NCDA fall and winter conferences

Attended Florida Department of Transportation course on Transportation Planning and Travel Demand Forecasting in 2005

Attended ESRI ArcGIS training in 2004

Relevant Experience

Stoughton Square Transportation Improvements

Town of Stoughton – Stoughton, MA

The Town sought to create a place where people would want to visit, and enjoy amenities like boutiques, eateries, and green space. HSH led the consultant team that studied traffic circulation patterns, safety, and Complete Streets in the Town Center. HSH worked with the public and Town officials to evaluate several design alternatives, including previously developed conceptual alternatives. The project worked in tandem with the Stoughton Downtown Redevelopment Plan (SDRP) and Stoughton's Master Plan. Kristina was responsible for helping to discuss with Town residents HSH's proposed traffic circulation design alternatives within in the context of their master plan. She also assisted in facilitating several crucial dialogues with residents about their varying transportation needs and overall vision for the future of Stoughton Square.

Interstate-90 Allston Interchange TIGER Grant

Massachusetts Department of Transportation – Allston, MA

As Project Manager, Kristina prepared a \$45 million Transportation Investment Generating Economic Recovery (TIGER) grant application on behalf of MassDOT for three multimodal mitigation projects to be constructed on the I-90 Interchange in Allston. Kristina was responsible for researching, organizing, and writing all of the components of the TIGER application including the documentation of the project's quality of life, safety, and multimodal accessibility benefits, and the preparation of the project's cost/benefit analysis. These three mitigation projects represented the larger transportation vision for the interchange is developed and implemented.

Route 4/Concord Road Intersection Improvements - PNF/PIF

Town of Chelmsford – Chelmsford, MA

On behalf of the Town, Kristina is leading the project initiation process for transportation improvements at the Route 4/Concord Road/Parker road intersection. She is preparing two Massachusetts Department of Transportation (MassDOT) project initiation documents: the Project Notification Form (PNF) and the Project Initiation Form (PIF), which is the



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first important step in the MassDOT project development process. Kristina is also working to develop a project funding strategy for the project and is assisting the Town in initiating the Federal transportation funding and programming process with the Northern Middlesex Metropolitan Planning Organization.

Prior to joining HSH, Kristina's experience includes:

Adams Green Transportation Improvements

City of Quincy – Quincy, MA

As the Director of Transportation Planning at the City of Quincy, Kristina served as Project Manager for the two-phased Adams Green project. She managed the \$800,000 federally-funded transportation design contract with the Massachusetts Department of Transportation (MassDOT) to carry out Phase 1 (circulation, streetscape, and utility improvements) of the Adams Green project, now under construction by MassDOT. She also managed the \$1M contract under the Commonwealth of Massachusetts Gateway Cities program to carry out final design of the park.

As the Director of Transportation Planning at the City of Quincy, Kristina provided leadership on bicycle and pedestrian planning and policy actions. She oversaw the preparation of planning studies and plans and the planning initiatives relative to Complete Streets implementation, bicycle and pedestrian infrastructure planning, and transit oriented development. She was responsible for:

- Managing an \$800,000 federally-funded transportation design contract with the Massachusetts Department of Transportation (MassDOT) to carry out Phase 1 (circulation, streetscape, and utility improvements) of the Adams Green project, now under construction by MassDOT and a \$1 million dollar Commonwealth Gateway Cities grant to carry out the final design of the Adams Green Park;
- Overseeing a transit oriented development initiatives and multimodal access in the vicinity of the Wollaston MBTA station including a visioning study-funded under the Federal Sustainable Communities program—with the Metropolitan Area Planning Council-- for the Wollaston Business District in Quincy; and
- Directly managing over \$250,000 in U.S. Department of Housing and Community Development Block Grant Funds for infrastructure and public facility projects in the Brewer's Conner Business District Improvement project, an effort funded with CDBG, ARRA, and local appropriations.

While with the Massachusetts Highway Department's Bureau of Transportation Planning and Development (now Office of Transportation Planning), she coordinated the environmental review of more than fifty Massachusetts private developments through the Massachusetts Environmental Policy Act (MEPA) process. Kristina analyzed and interpreted MEPA regulations as applicable to private development project requiring highway access permits. She also assisted in the fashioning of public/private partnerships to address long-range transportation improvements for major private developments including the expansion of the East Taunton Industrial Park and the BioSquare project in Boston.

Deneen Crosby, ASLA

PRINCIPAL / LANDSCAPE ARCHITECTURE

Project Role

*Principal-in-Charge/
Landscape Architecture*

Introduction

Ms. Crosby has extensive experience in the landscape design for multi-use paths, parks and recreational facilities, streetscapes, and public open space, as well as commercial and industrial developments. In October 2003, Ms. Crosby became a founding Principal and Director of Landscape Architecture for Crosby | Schlessinger | Smallridge, LLC. Prior to founding Crosby | Schlessinger | Smallridge (CSS), Ms. Crosby was a Principal at Wallace Floyd Design Group where she personally oversaw all of the firm's landscape design projects and often provided input to planning, architecture, and urban design projects.

Professional Background

- B.L.A., State University of New York and Syracuse University, 1979
- Registered Landscape Architect, Commonwealth of Massachusetts #750, Ohio #849, Connecticut #909
- Member: American Society of Landscape Architects (ASLA); Boston Society of Landscape Architects (BSLA); The Trustees of Reservations
- Commissioner: Boston Civic Design Commission (BCDC)

Representative Project Experience

Casey Arborway Project, Jamaica Plain, MA

Ms. Crosby is CSS's Project Manager for the Casey Arborway Project in Boston. CSS is providing landscape design services for major open space components of the project and is responsible for the design of a plaza associated with the Forest Hills Station head house on Washington Street, a plaza at a new head house connecting to the Southwest Corridor Park, Shea Square - the reconfigured entrance to the historic Arborway and Franklin Park, and planting and pedestrian improvements along the newly constructed section of the Arborway. The project will result in public realm improvements for the many thousands of people that visit the historic park and parkland, access to the Forest Hills Station or use the recreational and commuter trails along the Arborway, the Southwest Corridor Park and Washington Street. The project has begun construction.

Boylston Street, Audubon Circle, Fenway-Yawkey Multi-use Path, Boston, MA

Ms. Crosby is currently CSS's Project Manager for the design of these Fenway area projects in the City of Boston. Boylston Street, connecting two sections of the historic Emerald Necklace, is being redesigned as an important connector of this historic parkland as well as the site of significant new

development. The historic Audubon Circle is being redesigned to better accommodate bicyclists and pedestrians while respecting its historic context and the Multi-use Path will connect Yawkey Station with the nearby commercial district and Emerald Necklace parklands.

Alewife/Fresh Pond Corridor Enhancement Project, Cambridge, MA

The Alewife/Fresh Pond Corridor is a mile long stretch of roadway through a mixed-use retail and recreational landscape in North Cambridge. As Senior Landscape Architect, Ms. Crosby directed the landscape architecture and urban design for this streetscape improvement project, which assisted the Metropolitan District Commission and the City of Cambridge in providing efficient and safe accommodations for bicyclists, pedestrians and drivers within the corridor. The design includes a bicycle path, sidewalks, lighting, planting, and bicycle and pedestrian access signage.

Neponset River Greenway, Boston and Milton, MA

Ms. Crosby is currently the Principal-in-Charge and Project Manager for the Neponset River Greenway. The project consists of a multi-use pathway system between the river and the MBTA's High Speed Trolley, a pedestrian bridge over the Neponset River, a canopy walk and pedestrian bridge over the rail R.O.W., and connections to parks, open space, and public transportation. The work is a result of the Neponset River Master Plan completed in 2006. The project will complete construction by Winter 2015.

Green Line Light Rail Extension, Cambridge, Somerville, and Medford, MA

Ms. Crosby is currently CSS's Principal in Charge for the extension of the Green Line rail through Cambridge, Somerville, and Medford, MA. The work includes station area plans and landscape architecture for seven stations, corridor wide landscape and the design of a multi-use pathway through the City of Somerville.

Mount Vernon Street, Boston, MA

Ms. Crosby is CSS's Principal-in-Charge and Project Manager for this streetscape project for the major roadway through Boston's Columbia Point neighborhoods for which CSS developed the earlier TOD master plan. Working to create an identity for a street born on top of a sewer main, CSS is collaborating with a design team and the City of Boston to rethink the street. The proposed design will create a pedestrian and bicycle friendly route with better sidewalks, additional street crossings, and the addition of a cycle track that not only makes the street safer, but enhances the life of the neighborhood. Collaborations with stakeholders are bringing temporary results that yield long term solutions.

Tamar Zimmerman, RLA

ASSOCIATE / LANDSCAPE ARCHITECTURE

Project Role

Project Manager/

Project Landscape Architect

Introduction

Ms. Zimmerman is a Landscape Architect with significant experience in the design of public parks and urban open spaces. She joined Crosby | Schlessinger | Smallridge (CSS) in 2003 as an Associate and Project Manager. Prior to joining CSS, Ms. Zimmerman was an Associate at Wallace Floyd Design Group.

Professional Background

- M.L.A., Harvard University, Graduate School of Design, 1987
- B.A., Magna Cum Laude, Harvard College, 1982
- Registered Landscape Architect, Massachusetts #1046
- 27 Years of experience in Landscape Architecture - Construction Administration experience on all final design projects included.

Representative Project Experience

Huron Avenue Streetscape, Cambridge, MA

Ms. Zimmerman is currently landscape architect for the Huron Avenue Central Business District streetscape, part of a larger street reconstruction and utility separation project. Improvements include new plantings at widened intersections, pavement edge treatments, furnishings, street lighting and design of a new plaza that incorporates a hubway and custom granite and wood seating surrounding an irrigated planter. CSS coordinated with business owners to design enhanced plantings to mark the "gateways" to the CBD. This project is currently under construction.

Neponset River Reservation Master Plan, Boston and Milton, MA

Ms. Zimmerman was a Project Landscape Architect for the Master Plan for the Neponset River Reservation. The plan includes a continuous riverfront path, recommendations for public/private partnerships to develop new open space, improved riverfront access, canoe landings and designated conservation areas. The public involvement component of the project included a series of public workshops and a widely-distributed newsletter.

Neponset Greenway, Boston and Milton, MA

Ms. Zimmerman was recently a landscape architect for the Neponset Trail Multi-Use Path. This project is further divided into Phases by location. The first, where the river runs

through the town of Milton, consists of a multi-use pathway system along the river, a river crossing, a canopy walk, a railroad crossing, and connections to parks open space and public transportation. Ms. Zimmerman was involved in the early work of this design, studying alternate trail alignments on-site and was involved in siting the bridge crossing. Ms. Zimmerman's primary work on the project has been on the Dorchester Bay section where the trail passes twice under Route I-93, runs through the highway right-of-way, enters a narrow right-of-way adjacent to the famous Boston Gas Tank site, crosses salt marsh and, finally, meets an existing bridge sidewalk.

Alewife/Fresh Pond Corridor Enhancement Project, Cambridge, MA

As Senior Landscape Architect, Ms. Zimmerman assisted with project direction and oversight for this project which creates a pedestrian and bicycle link between the City of Cambridge water treatment facility and the Minuteman Bike Trail. In addition to traffic improvements and curb cut consolidation along busy commercial frontage, the design includes a bicycle path, sidewalks, lighting, planting, and bicycle and pedestrian access signage.

Green Line Light Rail Extension, Cambridge, Somerville, and Medford, MA

Ms. Zimmerman performed Quality Control review for the extension of the MBTA's Green Line through Cambridge, Somerville and Medford, MA. Her work included review and coordination of the landscape architecture construction documents for seven stations including plans, details and specifications.

North End Parks, Rose Kennedy Greenway, Boston, MA

Ms. Zimmerman was a Landscape Architect for the design of the north section of the Central Artery Surface Restoration. This \$12 million park forms a welcoming threshold from Boston's City Hall Plaza to the historic North End. Ms. Zimmerman's responsibilities included coordinating the new design and construction with the existing tunnel, utility relocation and surrounding streetscape projects.

Light Rail Accessibility Program, Boston, MA

Ms. Zimmerman was Project Landscape Architect for this Massachusetts Bay Transportation Authority project to renovate twenty stations of the above-grade portions of the MBTA's Green Line light rail system to comply with the accessibility requirements outlined in the American Disabilities Act of 1990. Ms. Zimmerman worked on design improvements addressing pedestrian safety and access issues, including contextual design around the historically significant Newton Center station.

GARY J. HAMILTON, PLS

DIRECTOR OF SURVEY



Mr. Hamilton has over 34 years of experience and worked for almost every public agency within the City of Boston and Massachusetts such as the DCR, MBTA, Massport, BWSC, MWRA, and BPRD. His broad experience includes large and small, rural and city projects such as roadway and utility surveys, housing, airports, universities, construction/engineering projects, railways, bikepaths, dams and bridges, hazardous waste sites, waterfront properties and piers, parks and playgrounds, and as-needed

contracts. Additionally, he has served as an expert witness. As Director of Survey, his responsibilities include supervising projects from initial client contact through final review and approval process.

Relevant Projects

DCR Morrissey Boulevard Stormwater Study

Dorchester, MA

Bryant provided an aerial survey, utility compilation and wetland flag locations for this DCR study focused on the review of the existing stormwater system on Morrissey Boulevard.

DCR Storrow Drive Tunnel Rehabilitation

Boston, MA

Bryant is working as a subconsultant to repair or replace this half-century-old, heavily traveled tunnel, having a useable life less than five years. This project has received fierce opposition from commuters and residents about the traffic impacts and round-the-clock construction lasting anywhere from 18 to 48 months. As Chief of Survey, Mr. Hamilton supervised base plan preparation used to prepare conceptual/preliminary designs for various options of permanent roadways, including new and rehabilitated tunnel structures and at-grade roadways, temporary roadways, and all storm drainage systems. Bryant is currently providing services during the upcoming bid phase, including shop drawing reviews, as-built plans, and bridge rating reports

after reconstruction.

DCR Norwottuck Rail Trail

Northampton, Hadley, Amherst and Belchertown, MA

Chief of Survey for an existing conditions survey via aerial photogrammetry and on ground survey using conventional methods and GPS for rehabilitation of this 11-mile rail trail from Northampton to Belchertown. Improvements include safety of the trail and road crossings; lighting; signage and interpretive wayside plans; bridges and tunnels along the trail; trail parking; drainage and erosion issues; ADA compliance; management plans for beavers, muskrats and vegetation.

BRA Melnea Cass Boulevard Parcels (Pcls SR-25/38-1-C-BRA)

Roxbury, MA

Chief of Survey for a topographic with utilities survey and property line survey of two development parcels.

BPWD Maverick Gardens/Putnam Square Improvements

Boston, MA

Chief of Survey for roadway improvements including street layout plans for various sites in East Boston including Maverick Street, New Street, Havre Street, Clippership Way, Father Jacobbe Road, and D Street Extension.

Education

AAS, Survey, Forest Technician,
Paul Smith's College, 1979

Training

NYSAPLS-NGS/NOAA,
Aeronautical Survey Training for
Surveyors performing aeronautical
surveys in accordance with FAA
Advisory Circulars 150/5300-16,
17 and 18

Field Practices - Mean High Water
Surveying for Professional Land
Surveyors

University of New Hampshire, Tides
and Water Levels for Survey and
Mapping

MBTA Right-of-Way Safety

Memberships and Affiliations

Society of American Military
Engineers (SAME)

Construction Management
Association of America

Professional Registrations

Massachusetts # 33596

Rhode Island # 1887

New York # 049650-1

GARY J. HAMILTON, PLS

DIRECTOR OF SURVEY

Page 2

BPWD Mattapan Square/Blue Hill Avenue Reconstruction

Boston, MA

Project Surveyor for total reconstruction including utilities.

DCR Bridge Restoration Plan

Multiple Locations in MA

Chief of survey for approximately 278 bridges using GPS to overlay on Massachusetts GIS data. As a subconsultant, Bryant will assist DCR in managing their inventory of by developing a comprehensive bridge management and restoration plan.

DCR Rehabilitation of General Edwards Bridge

Lynn/Revere, MA

Chief of Survey for the survey of the General Edwards Bridge for a new wastewater tank. Bryant provided survey and design of a new wastewater tank with grinder pumps with a forcemain to a new gravity sanitary sewer system discharging into an existing Revere sanitary system. This system services the sanitary facilities located in Tower No. 1 (Control Tower), which controls the drawbridge.

City of Cambridge Various Parks Improvements

Project Manager for topographic survey with Utilities for the Fletcher Maynard Academy, and the Squirrel Brand Site, and Topographic Survey with utilities and Property Line Information for the 238 Broadway/Harvard Street/site.

Broad Street Reconstruction

Boston, MA

Survey services for the Broad Street Reconstruction, as part of the City of Boston's Crossroads Initiative, which is a larger project designed to form vital connections between districts and Greenway Parks, neighborhoods, and cultural destinations. This project will facilitate multi-modal transportation, including pedestrian, bicycle and vehicle traffic and will also improve accessibility. The scope of the project includes sewer/drain separation, reconstruction of basement archway roofs below new brick sidewalks, and installation of streetscape features (trees, shrubs, benches) to create a more pedestrian friendly environment. Bryant has provided topographic survey for the entire length of Broad Street (approximately 1,200 L.F.) as well as resident engineering services and construction layout.

DCAM New Boston Pre-release Center/Canterbury Street Improvements

Roslindale, MA

Chief of Survey overseeing the property line survey for this 150-bed community based level three/two (3/2) Correctional facility. Bryant performed a property line survey; civil engineering, including water (domestic & fire), sanitary sewer, storm drainage; site engineering, including grading, roadways & parking; relocation and reconstruction of Canterbury Street to City standards; Public Improvement Commission permitting; and construction phase services.

BRA Thoreau Path

Boston, MA

Chief of Survey for a topographic survey with utilities for an 20' wide urban passageway that runs along Cardinal O'Connell Way to Charles Street. This curvy thoroughfare connects pedestrians to businesses and residences in the West End, and also provides emergency access.





WILLIAM F. LYONS, JR., PE, PTP, PTOE

Principal Transportation Planner/Traffic Engineer

CIVILIAN EDUCATION

- Juris Doctor
Suffolk University Law School
Boston, MA
- Master of Transportation
& Urban Systems
North Dakota State University
Fargo, ND
- Master of Strategic Studies
US Army War College
Carlisle, PA
- Transportation Leadership
Graduate Certificate
Upper Great Plains
Transportation Institute
Fargo, ND
- Graduate Certificate
Land Use and Development
Framingham State College
Framingham, MA
- Bachelor of Science
Electrical Engineering
Norwich University
Northfield, VT

PROFESSIONAL QUALIFICATIONS

- Licensed Professional Engineer
Traffic: MA, CA
General: ME, NJ
Civil: NH, VT, RI, CT, FL
- Licensed Professional Planner
New Jersey
- Licensed Attorney
Admitted to Massachusetts Bar
- Certified Professional Traffic
Operations Engineer (PTOE)
- Certified Professional
Transportation Planner (PTP)
- Envision Sustainability
Professional (ENV SP)
- American Institute of Certified
Planners (AICP)
- Certified Transportation Planner
(CTP)

HIGHLIGHTS OF EXPERIENCE

Mr. William Lyons is the President of Fort Hill Infrastructure. He serves as a subject matter expert and trusted advisor on transportation, land use, urban design, site development, and real estate matters. Bill has provided professional engineering and planning services to a wide array of public and private sector clients. He has served in a professional capacity as a traffic engineer with the Massachusetts Highway Department (MHD) and as the Director of Traffic & Parking for the City of Somerville, Massachusetts.

He has more than fifteen years of experience providing consulting engineering and planning services to private and institutional clients, as well as federal, state, and local governments. Bill's planning experience includes transportation planning, master planning, and urban design strategies. His design experience includes highway and traffic signal design, parking design, intelligent transportation systems, lighting design, and site civil design. Bill's traffic and parking experience includes traffic studies, traffic design, parking utilization studies, revenue forecasting, and parking design. He has direct experience in the planning, permitting, and design of a wide range of transportation facilities.

AFFILIATIONS, AWARDS, AND SERVICE

Mr. Lyons is affiliated with numerous professional organizations, including the Urban Land Institute (ULI), Institute of Transportation Engineers (ITE), Boston Society of Civil Engineers (BSCES), Society of American Military Engineers (SAME), and Transportation Research Board (TRB). Mr. Lyons has served on many committees and has served in a leadership capacity at the local, regional, and national levels. Bill is currently serving as the Chair of the ULI Boston Infrastructure Council and the Boston Society of Civil Engineers Government Affairs and Professional Practice Committee. He is a past president of the New England Section of ITE and a past member of the ITE International Committee on Ethics. He has been recognized as the Young Engineer of the Year and a President's Award recipient by BSCES. He received a Jurisprudence Award in Environmental Law from Suffolk University. Bill has a long track record of public service, including service in the Army Reserve (presently a Colonel in the Corps of Engineers), on the Town of Natick Planning Board, and on the Massachusetts Department of Housing & Community Development Designer Selection Board. He recently completed two years as the BSCES Legislative Fellow for the Massachusetts Legislature's Joint Committee on Transportation.

PRESENTATIONS AND PUBLICATIONS

Mr. Lyons is a sought-after speaker for various audiences in the engineering, planning, and legal communities. He has been a guest lecturer at the university level and has spoken at ITE Meetings at the local, regional, and national levels. Bill is a frequent participant in ULI Technical Assistance Panels. He has been published in multiple periodicals, including *Planning & Environmental Law*, *ITE Journal*, *NEITE Chronicle*, *IMSA Journal*, *Parking Today*, *The Military Engineer*, and the *Green Gavel*.





HOWARD STEIN HUDSON

Engineers + Planners

References



References

Name	Company	Address	Phone Number
Howard Stein Hudson			
Bill Egan, P.E. - Chief Civil Engineer	Boston Public Works Department	City Hall, Room 710, Boston, MA 02201	617-635-4968
Patrick Hoey	Boston Transportation Department	City Hall, Room 721, Boston, MA 02201	617-635-2454
Laura Wiener	Town of Arlington	Town Hall, 730 Mass Ave. Arlington, MA 02174	617-316-3090
Kittelson and Associates, Inc.			
Collen Hawkinson, AICP - Senior Transportation Planner	District Dept. of Transportation	55 M Street, SE Washington, DC 20003	202-671-2228
Wasim Raja	District Dept. of Transportation	55 M Street, SE Washington, DC 20003	202-671-2656
Mike Niederhauser	Maryland State Highway Administration	Office of Traffic and Safety, 7491 Connelley Drive, Hanover, MD 21076	410-787-5879
Crosby Schlessinger Smallridge LLC			
Ruth Helfeld - Project Manager	Dept. of Conservation and Recreation	251 Causeway Street, Ste 600 Boston, MA 02114	617-626-1375
George Batchelor - Supervisor of Landscape Design	MassDOT	10 Park Place Boston, MA 02116	857-368-9179
Stella Lensing - Project Manager	Dept. of Conservation and Recreation	251 Causeway Street, Ste 600 Boston, MA 02114	617-626-1387
Fort Hill Companies			
Terence Smith - City Traffic Engineer	Traffic and Parking Department	133 Holland Street Somerville, MA 02144	617-625-6600
Jeffrey Sarin, P.E. - GLX Project Manager	MBTA, Green Line Extension Project Office	100 Summer Street, Ste. 250 Boston, MA 02110	617-996-0771
Noreen Piazza, Planning Director	Town of Lancaster Planning Board, Community Development and Planning	695 Main Street, Ste. 4 Lancaster, MA 01523	978-365-3326
Bryant Associates Inc.			
Richart Corsi - Project Manager	Dept. of Conservation and Recreation	251 Causeway Street, Ste. 600 Boston, MA 02114	617-626-1431
Barbara Farina - Regional Planner	Dept. of Conservation and Recreation	251 Causeway Street, Ste. 600 Boston, MA 02114	617-626-1439
Jack Hammer - Survey Manager	MassPort	1 Harborside Drive, Ste 200S East Boston, MA 02128	617-561-1799



HOWARD STEIN HUDSON

Engineers + Planners

Supplier Diversity Plan





Supplier Diversity Plan

The HSH Team is structured to include significant participation by Minority, Women, and Veterans Business Enterprises (M/W/VBE), as requested in the RFR. We have included Crosby | Schlessinger | Smallridge LLC (CSS) as the team landscape architect. CSS are a WBE. Fort Hill Infrastructure Services (Fort Hill), a VBE, will provide preliminary cost estimates. Finally, for Survey we have included Bryant Associates Inc. (Bryant), a MBE.

Summary Table of Effort

Firm	Designation	% of Design Contract Value
CSS	WBE	5%
Fort Hill	VBE	5%
Bryant	MBE	2.5%



OPERATIONAL SERVICES DIVISION

SUPPLIER DIVERSITY OFFICE

THE COMMONWEALTH OF MASSACHUSETTS
Executive Office for Administration and Finance
OPERATIONAL SERVICES DIVISION

One Ashburton Place, Suite 1017
Boston, MA 02108-1552

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kristen Lepore
Secretary

Gary J. Lambert
Assistant Secretary for
Operational Services

August 5, 2015

Ms. Carole Schlessinger
Crosby Schlessinger & Smallridge, LLC
67 Batterymarch Street, Suite 200
Boston, MA 02110

Dear Ms. Schlessinger:

The Supplier Diversity Office (SDO) is in receipt of your certification renewal information (application). This consists of your request to renew the certification of Crosby Schlessinger & Smallridge, LLC and the required certification renewal information and documentation. Accordingly, SDO has updated your file with this information and documentation. No substantive review of your company was done at this time. This letter serves as sole and exclusive proof of your firm's SDO certification.

Based on your certification renewal information (application), the certification of Crosby Schlessinger & Smallridge, LLC as a woman-owned business enterprise (WBE) with the business description of **LANDSCAPE ARCHITECTURE, URBAN DESIGN AND PLANNING** has been renewed effective the date of this letter. The company will remain listed in the SDO Directory of certified businesses and The Massachusetts Central Register, which is published by the Office of the Secretary of State unless its certification is revoked. Unless revoked, this certification will last for a period of two years and will automatically expire as of August 11, 2017, unless by that date, the certification of the company is renewed again or the company is recertified.

To renew the company's certification at that time, you will need to submit the following information to SDO no later than 30 business days prior to August 11, 2017.

- 1) All company financial statements since the date of the company's then most recent SDO certification;
- 2) A signed copy of all U.S. Tax Returns and Schedules since the date of the company's then most recent SDO renewal;
- 3) Corporations must submit all Annual Reports/Letters of Good Standing filed with the Secretary of (YOUR) State since the date of the company's then most recent renewal; and

PLEASE NOTE THAT THE FOLLOWING ITEMS 4-6 CAN BE COMBINED ON ONE NOTARIZED STATEMENT

- 4) A notarized statement that indicates:

"I certify under the pains and penalties of perjury that no significant changes affecting eligibility as a certified Minority/Minority-Woman/Woman business enterprise have occurred since the date of the company's then most recent date of SDO certification as defined in State regulations 425 CMR 2.00 The Massachusetts Supplier Diversity Office."

5) A notarized statement that indicates either "A or B" as referenced below.

A. "I certify under the pains and penalties of perjury that (Insert your Company Name) has not received any contract(s) as a result of having been SDO certified."

B. "I certify under the pains and penalties of perjury that: (Insert your Company Name) has received a contract(s) as a result of having been SDO certified." List all contract names, contract amounts and the names of the agencies with which you have contracted from the date of your last SDO renewal."

6) A notarized statement that indicates:

"I certify under the pains and penalties of perjury that (Insert your Company Name) has (number) of employees for each year end given; include owner(s)."

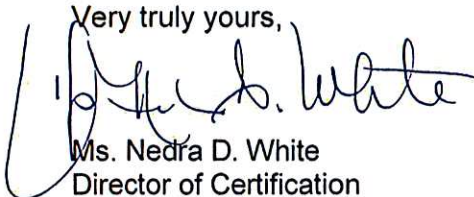
Furthermore, you have a continuing duty to notify SDO of a change in any information that is relevant to the firm's certification eligibility and to ensure that the information and documentation relied upon by SDO to certify or to maintain the certification of the business enterprise is accurate, complete and not misleading. You are required to notify SDO in writing of any change of such information or documentation within thirty calendar days. By way of example and not limitation, any change in ownership, control, investment, ongoing or independence may be considered material. Failure to abide by the continuing duty requirements shall constitute grounds for the business entity's decertification.

Additionally, every six years, certified companies that wish to remain certified must undergo a substantive review of their certification status with a SDO certification specialist who will re-evaluate the company to determine whether it continues to meet the applicable certification criteria. If you wish to recertify your company when it becomes due for substantive review, you will need to submit the applicable recertification application and all required information and documentation to SDO no later than forty-five (45) business days prior to the date of certification expiration (i.e., the recertification date). At that time, a certification specialist will be assigned to evaluate your company and will make a report and recommendation to the Certification Committee (CC) on whether or not the company continues to meet the applicable certification criteria.

As provided above in 425 CMR 2.00, if your company has a change of address or telephone number, please send a signed letter within thirty days of the change on company letterhead to notify SDO of the new address or telephone number.

During the period of your certification, if you have any further questions regarding your certification renewal, please direct them to Ms. Nedra D. White, Director of Certification, at (617) 502-8852.

Very truly yours,



Ms. Nedra D. White
Director of Certification



DEPARTMENT OF VETERANS AFFAIRS
Center for Verification and Evaluation
Washington, DC 20420

August 21, 2015

In Reply Refer To: 00VE

Mr. William F. Lyons, Jr.
Fort Hill Infrastructure Services, LLC
DUNS: 829542203
54 Canal Street
Boston, MA 02114

Dear Mr. Lyons:

On behalf of the U.S. Department of Veterans Affairs (VA), Center for Verification and Evaluation (CVE), I am writing to inform you that your application for renewal has been approved. Fort Hill Infrastructure Services, LLC will remain eligible to participate in Veterans First Contracting Program opportunities with VA as a verified service-disabled Veteran-owned small business (SDVOSB).

This verification is valid for two years from the date of this letter. You may reapply 120 days prior to your new expiration date by logging into www.vetbiz.gov.

To promote your verified status, you may use the following link to download the logo for use on your marketing materials and business cards:

http://www.vetbiz.gov/cve_completed_s.jpg

While CVE has confirmed that Fort Hill Infrastructure Services, LLC is in compliance with the regulation, Fort Hill Infrastructure Services, LLC must inform CVE of any changes or other circumstances that would adversely affect its eligibility. Eligibility changes not reported to CVE within 60 days could result in a referral to the Office of Inspector General (OIG), a referral to the Debarment and Suspension Committee, and the initiation of cancellation proceedings—all of which could result in Fort Hill Infrastructure Services, LLC being removed from the VIP Verification Program.

Please be advised that this letter and other information pertaining to Fort Hill Infrastructure Services, LLC's verification application may be subject to Freedom of Information Act (FOIA) requests. In addition, all companies approved for the program may be required to participate in one or more post-verification audits. Please retain a copy of this letter to confirm Fort Hill Infrastructure Services, LLC's continued program eligibility.

At any time if Fort Hill Infrastructure Services, LLC discovers one or more NAICS Code(s) that are other than small on its CVE VIP profile, CVE will require all other than small NAICS Codes to be removed within five (5) business days. If these NAICS Codes are not removed within the allotted five (5) business days, CVE may request the U.S. Small Business Administration (SBA) to conduct a formal size determination. In addition, CVE may initiate a referral to OIG, Debarment and Suspension Committee and or pursue

Page 2.

Mr. William F. Lyons, Jr.

cancellation proceedings. All of the aforementioned referrals and procedures could result in Fort Hill Infrastructure Services, LLC being removed from the VIP Verification Program.

Thank you for your service to our country and for continuing to serve America through small business ownership.

Sincerely,

A handwritten signature in black ink, appearing to read "Elizabeth E. Torres". The signature is fluid and cursive, with the first name being the most prominent.

Elizabeth E. Torres
Acting Director



THE COMMONWEALTH OF MASSACHUSETTS
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One Ashburton Place, Suite 1017
Boston, MA 02108-1552

OPERATIONAL SERVICES DIVISION

SUPPLIER DIVERSITY OFFICE

Reginald Nunnally
Executive Director

Deval L. Patrick
Governor

Glen Shor
Secretary

Gary J. Lambert
Assistant Secretary for
Operational Services

December 16, 2014

Mr. William Lyons
Fort Hill Infrastructure Services, LLC
54 Canal Street
Boston, MA 02114

Dear Mr. Lyons:

On **October 3, 2014**, The Massachusetts Supplier Diversity Office (SDO) received the required forms to identify **Fort Hill Infrastructure Services, LLC** as a Service Disabled Veteran Owned Business Enterprise (**SDVOBE**) and confirmed certification with the VET BIZ on-line directory

At this time, SDO is processing your request to list **Fort Hill Infrastructure Services, LLC** as a SDVOBE business entity in the Massachusetts Management Accounting & Reporting System to be identified as a SDVOBE firm to all Executive Agencies throughout Massachusetts. We are currently enhancing our Tracking system to add SDVOBE to the data base. You will see your business identified within thirty (30) business days of the date of this letter. While we are waiting to update our system we will add your company name to our webpage to verify that you are a participant in the SDVOBE program.

As a result of your confirmation of SDVOBE Certification the Commonwealth has a number of training programs that you may be interested in to give you a better insight on how to do business with the Commonwealth. If you would like additional information relative to doing business with the State please go to www.mass.gov/sdo.

Congratulations on being listed as one of the Service Disabled Veteran Owned Businesses that is eligible to do business with a preference within the Commonwealth of Massachusetts.

Sincerely,

Reginald A. Nunnally
Executive Director

Tel: (617) 720-3300

www.mass.gov/osd

TDD: (617) 727-2716

Fax: (617) 502-8841
Follow us on Twitter: @Mass_OSD



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Deval L. Patrick
Governor

Glen Shor
Secretary

Gary J. Lambert
Assistant Secretary for
Operational Services

December 29, 2014

Mr. Jack D Bryant
Bryant Associates, Inc.
90 Canal Street, Suite 301
Boston, MA 02114

Dear Mr. Bryant:

The Supplier Diversity Office (SDO) is in receipt of your certification renewal information (application). This consists of your request to renew the certification of Bryant Associates, Inc. and the required certification renewal information and documentation. Accordingly, SDO has updated your file with this information and documentation. No substantive review of your company was done at this time. **This letter serves as sole and exclusive proof of your firm's SDO certification.**

Based on your certification renewal information (application), the certification of Bryant Associates, Inc. as a minority-owned business enterprise (MBE) with the business description of **CONSULTING CIVIL ENGINEERS SPECIALIZING IN TRANSPORTATION, CIVIL, SITE, STRUCTURAL, TRAFFIC, AND MARINE ENGINEERING, SURVEYING AND MAPPING, MARINE SURVEYING AND CONSTRUCTION MANAGEMENT** has been renewed effective the date of this letter. The company will remain listed in the SDO Directory of certified businesses and The Massachusetts Central Register, which is published by the Office of the Secretary of State unless its certification is revoked. Unless revoked, this certification will last for a period of two years and will automatically expire as of January 7, 2017, unless by that date, the certification of the company is renewed again or the company is recertified.

To renew the company's certification at that time, you will need to submit the following information to SDO no later than 30 business days prior to January 7, 2017.

- 1) All company financial statements since the date of the company's then most recent SDO certification;
- 2) A signed copy of all U.S. Tax Returns and Schedules since the date of the company's then most recent SDO renewal;
- 3) Corporations must submit all Annual Reports/Letters of Good Standing filed with the Secretary of (YOUR) State since the date of the company's then most recent renewal; and

PLEASE NOTE THAT THE FOLLOWING ITEMS 4-6 CAN BE COMBINED ON ONE NOTARIZED STATEMENT

- 4) A notarized statement that indicates:

"I certify under the pains and penalties of perjury that no significant changes affecting eligibility as a certified Minority/Minority-Woman/Woman business enterprise have occurred since the date of the company's then most recent date of SDO certification as defined in State regulations 425 CMR 2.00 The Massachusetts Supplier Diversity Office."

5) A notarized statement that indicates either "A or B" as referenced below.

- A. "I certify under the pains and penalties of perjury that (Insert your Company Name) has not received any contract(s) as a result of having been SDO certified."
- B. "I certify under the pains and penalties of perjury that: (Insert your Company Name) has received a contract(s) as a result of having been SDO certified." List all contract names, contract amounts and the names of the agencies with which you have contracted from the date of your last SDO renewal."

6) A notarized statement that indicates:

"I certify under the pains and penalties of perjury that (Insert your Company Name) has (number) of employees for each year end given; include owner(s)."

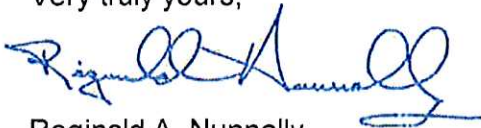
Furthermore, you have a continuing duty to notify SDO of a change in any information that is relevant to the firm's certification eligibility and to ensure that the information and documentation relied upon by SDO to certify or to maintain the certification of the business enterprise is accurate, complete and not misleading. You are required to notify SDO in writing of any change of such information or documentation within thirty calendar days. By way of example and not limitation, any change in ownership, control, investment, ongoing or independence may be considered material. Failure to abide by the continuing duty requirements shall constitute grounds for the business entity's decertification.

Additionally, every six years, certified companies that wish to remain certified must undergo a substantive review of their certification status with a SDO certification specialist who will re-evaluate the company to determine whether it continues to meet the applicable certification criteria. If you wish to recertify your company when it becomes due for substantive review, you will need to submit the applicable recertification application and all required information and documentation to SDO no later than forty-five (45) business days prior to the date of certification expiration (i.e., the recertification date). At that time, a certification specialist will be assigned to evaluate your company and will make a report and recommendation to the Certification Committee (CC) on whether or not the company continues to meet the applicable certification criteria.

As provided above in 425 CMR 2.00, if your company has a change of address or telephone number, please send a signed letter within thirty days of the change on company letterhead to notify SDO of the new address or telephone number.

During the period of your certification, if you have any further questions regarding your certification renewal, please direct them to Ms. Nedra D. White, Director of Certification, at (617) 502-8852.

Very truly yours,



Reginald A. Nunnally
Executive Director



OPERATIONAL SERVICES DIVISION

SUPPLIER DIVERSITY OFFICE

Reginald Nunnally
Executive Director

THE COMMONWEALTH OF MASSACHUSETTS

Executive Office for Administration and Finance

OPERATIONAL SERVICES DIVISION

One Ashburton Place, Suite 1017

Boston, MA 02108-1552

Deval L. Patrick
Governor

Glen Shor
Secretary

Gary J. Lambert
Assistant Secretary for
Operational Services

December 29, 2014

Mr. Jack D Bryant
Bryant Associates, Inc.
90 Canal Street, Suite 301
Boston, MA 02114

Dear Mr. Bryant:

Congratulations! The Supplier Diversity Office (SDO), on behalf of the Massachusetts Unified Certification Program (MassUCP), is pleased to notify you we have renewed your company as a disadvantaged business enterprise (DBE). Your company continues to be assigned NAICS Code(s) 237110, 541990, 236220, 541330, 237310, 237990 and 541370 with the certified business description of **CONSULTING CIVIL ENGINEERS SPECIALIZING IN TRANSPORTATION, CIVIL, SITE, STRUCTURAL, TRAFFIC, AND MARINE ENGINEERING, SURVEYING AND MAPPING, MARINE SURVEYING AND CONSTRUCTION MANAGEMENT**, and will remain listed in our certified business directory. **This letter serves as sole and exclusive proof of your firm's DBE certification.**

As a DBE, you must inform SDO in writing of any change in circumstances affecting your ability to meet size, disadvantaged status, ownership, control requirements or any material change in the information provided in your application form. Changes in management responsibility among members of a limited liability company are covered by this requirement. You must attach supporting documentation describing in detail the nature of such changes. The notice must take the form of an affidavit sworn to by the owners of the firm before a person who is authorized by state law to administer oaths or of an un-sworn declaration executed under penalty of perjury of the laws of the United States. You must provide the written notification within 30 days of the occurrence of the change. If you fail to make timely notification of such a change, you will be deemed to have failed to cooperate under 49 CFR 26.109(c).

To renew your firm's DBE certification and if it continues to meet the applicable criteria, on or before your firm's certification anniversary date of January 7, 2016, and each year thereafter, please send SDO the following documents:

- (1) Notarized originals of No Change Affidavit
- (2) A **signed** copy of your company's, and all of its affiliates', U.S. Tax Returns including all schedules and attachments for the year(s) indicated.
- (3) A signed copy of your Personal Tax Returns

- (4) If a sole proprietor, a **signed** copy of your complete tax return including the Schedule C. for year(s) indicated.
- (5) All financial statements of your company for the year(s) indicated.
- (6) A notarized statement of the number of full- and part-time employees (including owner) for each year indicated.
- (7) Completed Personal Financial Statement and Statement of Disadvantage Forms. (see attached forms with instructions).
- (8) For out of state companies, please provide a copy of your most recent certification letter from your home state.

If you have changed your company name or address, please notify Ms. Nedra D. White, in writing on the company's letterhead in order to update your state vendor file.

SDO reserves the right to monitor, perform random spot checks, re-evaluate the firm or revoke the firm's certification if it no longer meets the certification criteria.

During the period of your certification, if you have further questions regarding annual reviews, please contact Ms. Nedra D. White, Director of Certification, at (617) 502-8852.

Very truly yours,



Reginald A. Nunnally
Executive Director