Making College Square
LEVERAGING PUBLIC TRANSPORTATION FOR A SAFER AND GREENER CAMPUS

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TUFTS UNIVERSITY
DEPARTMENT OF URBAN & ENVIRONMENTAL POLICY & PLANNING
FIELD PROJECTS, SPRING 2015

Client
Tufts Office of Campus Planning
Tufts Office of Sustainability

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All members of the Tufts community who participated in our survey
Abstract

The MBTA Green Line Extension (GLX) will include a new stop directly on the Tufts University Medford/Somerville campus at the intersection of College Avenue and Boston Avenue. The coming of the College Avenue Green Line station presents an unprecedented, historic opportunity for the University to consider transit-oriented development, engage in placemaking activities, foster the creation of a vibrant and welcoming new destination on campus, and shift transportation modes. In order to capitalize on this opportunity, we considered ways Tufts can improve the safety and usability of the College Avenue/Boston Avenue intersection and leverage the College Avenue station to shift transportation modes away from drive-alone vehicles toward more sustainable, environmentally-friendly alternatives. To achieve these goals, we conducted a stakeholder engagement process with the Tufts community through a design charrette and online survey, and we reviewed Tufts’ current TDM programs and, for comparison, the TDM programs of the University’s peer institutions. Presented in this report are our short-term and design recommendations for enhancing the College Avenue/Boston Avenue intersection and for bolstering Tufts’ TDM programs in order to foster the creation of a safer and greener campus.
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Executive Summary

The MBTA Green Line Extension (GLX), expected to be complete in 2020, will include a new stop directly on the Tufts University Medford/Somerville campus at the intersection of College Avenue and Boston Avenue. The opening of the College Avenue Green Line station has the potential to measurably increase sustainable transportation among members of the campus community, creating an environment in which alternatives to the automobile are the norm.

In this report, we have developed a set of recommendations for the Tufts Campus Planning Office and the Office of Sustainability that will help achieve this vision. In particular, we have examined how the College Avenue station can be leveraged to shift modes toward sustainable transportation and serve as a catalyst for increasing the safety and usability of the College Avenue/Boston Avenue intersection. Within this framework, we conducted a stakeholder engagement process with the Tufts community to examine user perception and utilization of the College Avenue/Boston Avenue intersection.

Through this process, which included an online survey and an in-person design charrette, we identified community goals, themes, and visions for the intersection, and our recommendations include both short-term interventions and longer-term design considerations for enhancing the intersection and the site of the new station. As an overarching recommendation, we propose a rebranding strategy for the College Avenue/Boston Avenue intersection to enhance placemaking, public life, and the establishment of a unique identity at this important new crossroads: College Square.

We also examined Tufts’ current transportation demand management (TDM) programs on the Medford/Somerville campus and the programs of Tufts’ peer institutions for comparison. Future policy and programmatic recommendations and engagement and outreach recommendations the University may consider implementing are presented as well. The following summarizes our recommendations.
Short-Term Interventions: Things that could be done immediately to begin improving safety and enhancing the public realm

- Rebrand the intersection as College Square
- Enhance multimodal safety
  - Add bicycle accommodations via restriping
  - Construct a temporary sidewalk extension in front of Curtis Hall
  - Change vehicle signal phasing
  - Focus on snow removal around bicycle parking
- Encourage people to linger
- Conduct an outreach and engagement process with external community stakeholders

Design Considerations: Things to keep in mind as planning and design advances

- Enhance pedestrian access
- Provide bicycle accommodations
- Bring bike share to College Square
- Utilize attractive hardscape
- Install better lighting for the pedestrian scale
- Maintain two-way traffic flow
- Consider how the proposed pedestrian bridge will impact pedestrian safety in the intersection below, and how these effects can be mitigated

Ideas Worth Considering: Visionary approaches to enhance the public realm at College Square and catalyze mode shift

- Boston Avenue pedestrian plaza
- Shared space
- Commuter Rail access at College Square
TDM Recommendations

Policy & Programmatic

• Set a quantitative transportation goal
• Adopt a flex work policy
• Pilot year-round service of the Davis Square Shuttle
• Explore a Tufts ride matching platform
• Explore departmental bike shares for on-campus travel, especially at satellite locations
• Identify opportunities to package strategies and programs together

Engagement & Outreach

• More deeply integrate a broader range of transportation benefits into new employee orientations
• Establish an annual signature transportation event
• Implement a robust safety campaign
• Create a transportation newsletter or e-list
• Collect and publicize transportation testimonials or green commuter profiles
• Market NuRide and the MassCommute Bicycle Challenge to bicycle commuters
• Leverage outside partnerships and resources

Ideas for Further Study

• Develop bicycle network recommendations, programmatic enhancements, and on-campus infrastructure to promote bicycle commuting
• Develop detailed site plans and renderings for the College Avenue/Boston Avenue intersection
The arrival of the Green Line Extension (GLX) to Tufts’ Medford/Somerville campus will be a major catalyst for the transformation of the College Avenue/Boston Avenue intersection, the site of the new College Avenue Green Line station, from a place that people travel through into a destination in and of itself. The College Avenue/Boston Avenue intersection will become an important interfacing zone between the University and Tufts’ host communities, particularly the City of Medford, as the College Avenue station will be utilized by both members of the Tufts community and residents of the neighboring community. Commuters will arrive from and depart to all directions using a variety of different transportation modes, and Tufts students, staff, and faculty will continue to traverse the intersection to access University facilities in the area.
This will be compounded by the presence of a number of new University buildings in the station’s vicinity over the coming years, such as the Collaborative Learning and Innovation Complex (CLIC) at 574 Boston Avenue, the Science and Engineering Complex (SEC) between Anderson/Robinson Hall and Bromfield-Pearson, and potentially an air rights building atop the station connected to the Academic Quad by a pedestrian bridge. The expansion of Tufts’ facilities along the Boston Avenue science and technology corridor provides the opportunity to activate the College Avenue/Boston Avenue intersection as a community focal point and establish it as an important crossroads on campus.

As it currently stands, however, the College Avenue/Boston Avenue intersection is busy and poorly designed for pedestrians, bicyclists, drivers, and other users. With poor visibility, poorly configured traffic patterns, inadequate lighting, and a myriad of other issues, opportunity for improvement at the intersection is extensive. In order for the intersection’s full potential to be realized as a new gateway to, and destination on, campus, significant work remains to make it a safe, usable, and inviting place.

The College Avenue Green Line station will also greatly enhance transit accessibility for the Medford/Somerville campus and vastly improve the connectivity between campus, downtown Boston, and the rest of the MBTA system. The campus is located at what is today the nexus of urban, walking, and transit-oriented communities located to the south and suburban, car-oriented communities to the north. Currently, only 11% of staff and 10% of faculty take transit to campus, while 68% of staff and 54% of faculty commute alone in a vehicle (students have a much lower vehicle mode share, with only 16% driving alone to campus).

The arrival of the GLX will allow Tufts to turn its Medford/Somerville campus definitively toward a walkable, transit-oriented, and urban future – one in which its commuting population uses sustainable modes of transportation to travel to and from campus. With 35% of Tufts’ FTE (full-time equivalent) staff and faculty residing in cities and towns served by the GLX, the College Avenue station will provide a prime opportunity for Tufts employees to shift their mode of transportation from drive-alone to transit and other alternatives.
In light of these considerations, the goals of our project were twofold:

1. To improve the safety and usability of the College Avenue/Boston Avenue intersection.
2. To leverage the College Avenue Green Line station on campus to shift transportation modes away from drive-alone vehicles toward more sustainable, environmentally-friendly alternatives such as transit, biking, and walking.

To fulfill these goals, our work focused on three key areas:

1. Gathering input from the Tufts community to inform recommendations related to the College Avenue/Boston Avenue intersection and the College Avenue Green Line station.
2. Reviewing best practices in multimodal and public space design and presenting a suite of treatments that could be deployed either in the short or long term to increase safety and enhance the public realm at the College Avenue/Boston Avenue intersection.
3. Reviewing Tufts’ current TDM programs and the TDM programs of other institutions to inform recommendations for further developing and improving the University’s TDM programs, policies, engagement, and outreach.

The MBTA Green Line Extension presents an unprecedented, historic opportunity for the University to consider transit-oriented development, engage in placemaking activities, foster the creation of a vibrant and welcoming new destination on campus, and shift transportation modes. With the completion of the College Avenue station still several years off, this is the time for Tufts to accelerate its planning around the College Avenue/Boston Avenue intersection and to start putting its plans into action through the recommendations presented in this report. In doing so, the College Avenue Green Line station may truly serve as a catalyst for advancing Tufts’ efforts to create a safer and greener campus.

References

Chapter Two
BACKGROUND

Upon starting this project, our team entered into the University and MBTA’s ongoing and long-term effort to plan for the arrival of the College Avenue Green Line station. During the past several years, various consultants, community groups, government bodies, and students have engaged in work around the College Avenue/Boston Avenue intersection and/or TDM at Tufts. Some of this work was contracted by Tufts to generate specific recommendations on how to improve the intersection and incentivize multimodal transportation among students and employees, while other work stemmed from ongoing government projects, community processes, or class projects.

In this chapter, we provide an overview of the Green Line Extension (GLX project and review the existing work around the College Avenue Station, the College Avenue/Boston Avenue intersection, and TDM at Tufts.
Green Line Extension

The idea of extending the Green Line north dates back to the early 1900s, and numerous studies were conducted throughout the 20th century to explore the feasibility of such an endeavor. The project eventually advanced in 1990, when the Commonwealth of Massachusetts agreed to extend the Green Line into Somerville as environmental mitigation for the increased emissions that were anticipated as a result of the Big Dig. Planning accelerated in 2005 when the Beyond Lechmere Northwest Corridor Study was completed for the MBTA by Vanasse Hangen Brustlin, Inc. (VHB).

The Green Line Extension will include two branches. The “mainline” branch will extend through Cambridge to Somerville and Medford and will include stops at Washington Street, Gilman Square, Lowell Street, Ball Square, and College Avenue. This line will operate in the existing MBTA right-of-way that is also utilized by the Lowell Commuter Rail Line, but there are no planned transfers to the Commuter Rail at College Avenue. The second branch will include a spur to Union Square in Somerville that will operate in the existing MBTA right-of-way that is also utilized by the Fitchburg Commuter Rail Line. The project will also include a new, relocated station at Lechmere, the Green Line’s current terminus in Cambridge, and a new vehicle storage and maintenance facility.
**GLX Timeline**

The GLX project is being undertaken in four stages.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Work</th>
<th>Timeline</th>
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<tbody>
<tr>
<td>Phase 1</td>
<td>Reconstructing the Harvard Street Railroad Bridge in Medford; reconstructing the Medford Street Railroad Bridge in Somerville; demolishing the MBTA facilities at 21 Water Street in Cambridge</td>
<td>Beginning in 2013 with expected completion in 2015</td>
</tr>
<tr>
<td>Phase 2/2A</td>
<td>Extending service from the new Lechmere Station to Washington Street Station and Union Square Station</td>
<td>Expected completion of construction in mid-2017 and commencement of service at the end of 2017</td>
</tr>
<tr>
<td>Phase 3</td>
<td>Constructing the vehicle maintenance and storage facility (VMSF)</td>
<td>Construction beginning in February 2016</td>
</tr>
<tr>
<td>Phase 4</td>
<td>Extending service from Washington Street Station to College Avenue Station</td>
<td>Construction beginning in late 2015 with expected completion of construction in early 2020 and commencement of service in June 2020</td>
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*Figure 2. TImeline of the Green Line Extension*

*Credit: MBTA*

**College Avenue Station**

The College Avenue Station will lie at the northeast corner of the College Avenue/Boston Avenue intersection in Medford. Due to its key location at the juncture of the Tufts hill, the science and technology corridor along Boston Avenue, and the athletic complex along College Avenue to the east of the intersection, the College Avenue station will serve as an important new gateway to Tufts’ Medford/Somerville campus. It will also provide both the Tufts community and others in the neighboring Medford and Somerville communities with a direct transit connection and 30-35 minute ride to downtown Boston with direct connections to the rest of the MBTA system, including the Orange Line, Blue Line, Red Line, and Commuter Rail.

While further northern extension of the Green Line has been discussed, the College Avenue station is the northernmost station currently planned as part of the GLX project. In the near term, it will function as the new terminal station, but the MBTA is not currently planning the College Avenue station as a traditional terminal station, which would typically include commuter parking, bus bays, and other considerations for commuters transferring between modes. Regardless, given that the
station will be at the end of the line for at least a period of time, Tufts will need to work with the MBTA and the community to mitigate increases in traffic and parking demand that are likely to result from the station.

The College Avenue station will be accessible from the street level, and the platform and concourse will be located one level below the plaza and extend north toward Winthrop Street. Tufts has discussed plans to construct an air rights building over the station with an elevated pedestrian bridge connecting the building to the hill. Preliminary planning for this development was still underway at the time of this report. An accessible pick-up/drop-off area is being planned for Boston Avenue adjacent to the station. Additional features planned for the site include the following:

- Fully accessible, including fare collection turnstiles
- Parking for 98 bicycles (80 enclosed)
- Bus connections to MBTA Route 80, Route 94, and Route 96
- Pedestrian improvements including two new raised crosswalks
- New pedestrian path/bridge from the Burget Avenue neighborhood
- New right-turn traffic lane from College Avenue westbound to Boston Avenue northbound.
- Decorative enclosure of MWRA water pipe at College Avenue bridge

**MBTA Community Engagement Process**

The MBTA initiated a community engagement process, which included station design workshops, public meetings, and land use planning workshops, that dates back to 2008. A number of these meetings and workshops focused specifically on the College Avenue station. At a design workshop for the College Avenue station held in June 2011, for example, stakeholders provided feedback and input into the station design and urban design and raised issues of concern to the community. While these meetings have been open to members of the public and have been attended by Tufts representatives, such as the Director of Community Relations, similar efforts specifically designed to engage members of the Tufts community had not been undertaken prior to the commencement of our project.
**Existing Reports & Research**

**Green Line Extension To Medford Potential Station Sites Study, Medford Green Line Neighborhood Alliance, 2008**

The Medford Green Line Neighborhood Alliance (MGNA) is a local advocacy group for the GLX, and their 2008 report highlights ways that the GLX can be leveraged to maximize community benefits. Specific ideas for the College Avenue station include building a Commuter Rail station to allow commuters from points north local access to Medford and Somerville, integrating local MBTA bus routes (Routes 80, 94, and 96) with the GLX and Red Line at Davis Square, and providing more opportunities for student housing. The report notes the possibility of decking a station plaza over the tracks at College Avenue, given that the railroad corridor is below-grade at this location. It also references Tufts’ 2005 Master Plan, which proposes developing new buildings on parcels near the station and discusses the potential for a pedestrian bridge across Boston Avenue connecting the new station with the Tufts hill. Finally, the report notes that the planned location for the station at the northeast corner of the College Avenue/Boston Avenue intersection is the most suitable due to traffic patterns and the historically dangerous nature of the intersection.

**Community Corridor Planning Summary of Results, 2010**

Jointly prepared by Groundwork Somerville, Somerville Transportation Equity Partnership (STEP), Somerville Community Corporation (SCC), Somerville Community Health Agenda, and Community Corridor Planning (CCP), this report advocates for the GLX to be integrated with larger community goals. CCP’s concept for the College Avenue/Boston Avenue intersection is for the area to strike a balance between the needs of Tufts and the needs of the surrounding community and to serve as a gateway to Tufts and the Cities of Medford and Somerville. The report acknowledges that the station must be integrated with the rest of campus through the use of good urban design and recommends that station entrances be located on both sides of the intersection. CCP supports the Tufts 2005 Master Plan, which includes a pedestrian bridge between the station and the hill and acknowledges the existing issues with the College Avenue/Boston Avenue intersection, including topography, poor visibility, and confusing traffic patterns.

**Transportation for a Safer and Greener Campus, Tufts UEP Field Projects, 2012**

In 2012, a UEP Field Projects Team produced a report for the Tufts Office of Campus Planning that broadly examined transportation issues on the Medford/Somerville campus. Existing transportation conditions across the campus were documented, ranging from a lack of sidewalks and pathways along Professor’s Row and Curtis Street to poorly maintained crosswalks at the College Avenue/Boston Avenue intersection.
Avenue intersection. The team worked with Sasaki Associates to develop a survey for stakeholders that explored issues such as Joey commuting patterns and parking for commuters. The report concluded that short-term infrastructure improvements to enhance pedestrian and bicyclist safety and connectivity, as well as improved educational and marketing campaigns, were needed to promote sustainable transportation on campus.

**Multimodal Access Study, Payette/Nitsch Engineering, 2014**

Payette and Nitsch Engineering collaborated to produce a multimodal access study for Tufts in February 2014. Several new buildings along the Boston Avenue corridor, such as the Collaborative Learning and Innovation Complex (CLIC) at 574 Boston Avenue and the Science and Engineering Complex (SEC), will bring increased pedestrian activity to the College Avenue/Boston Avenue intersection in the coming years and intensify the need to increase its safety. The study confirmed, for example, the limited visibility and poor sightlines throughout the intersection and proposes bump-out crosswalks in front of Anderson Hall. The report also proposes various one-way configurations at the intersection in order to decrease traffic conflicts and simplify vehicle patterns and states that there will still be ample parking even if on-street spaces are removed for enhanced safety features.

**Traversing Boston Avenue, Tina Woolston, Tufts Office of Sustainability, 2014**

This 2014 report identified mitigation strategies for increased traffic resulting from existing and planned University development along the Boston Avenue corridor. In particular, Woolston considered how bicycle transportation between existing and planned buildings could offset vehicle trips and reduce CO₂ emissions and presents roadway cross-section alternatives that would provide a safer and more comfortable experience for bicyclists through increased separation from vehicle traffic. Woolston also identifies two parallel alternative routes to Boston Avenue, albeit ones that would require significant improvement to create suitable bicycling conditions.

An important finding of this report is that the installation of bike lanes on Boston Avenue would potentially require significant modification to the number of on-street parking spaces. The trade-offs, however, would be worthwhile if they reduce driving between Tufts buildings along Boston Avenue. The report recognizes the considerable amount of new traffic that will be traversing the intersection once the SEC is completed and highlights the need for enhanced transportation options between the SEC, CLIC, and 196/200 Boston Avenue to offset potential increases in vehicle traffic.
Tufts University Transportation Demand Management Strategies, Nelson\Nygaard Consulting Associates, 2015

Tufts engaged transportation consulting firm Nelson\Nygaard to conduct a comprehensive analysis of TDM policies and programs at the University’s three campuses and make recommendations for increasing the use of sustainable transportation modes. The report contains a series of recommendations to help Tufts meet its transportation goals, as identified by the University’s Transportation Demand Management Working Group Committee. These recommendations were designed to help address several key findings, including a relatively high drive-alone rate among Tufts employees, low bicycle and walking mode share, the opportunity presented by the new MBTA Green Line Station, a need to reconfigure the University’s parking conditions, underdeveloped bicycle infrastructure, and low awareness of Tufts’ current TDM programs. With these considerations in mind, Nelson\Nygaard developed Catalytic, Priority, and Secondary Strategies.

The report discusses the ways that the College Avenue Green Line station will dramatically alter commuting habits. In order to capitalize upon this opportunity, the report recommends that Tufts restructure its parking rates to reduce parking subsidies while increasing subsidies for MBTA passes. Physical improvements recommended in the report include the creation of a mobility hub at the College Avenue station to enhance multimodal connectivity, raised crosswalks and curb extensions, and new and improved shared-use paths connecting the station with surrounding neighborhoods.
References


Chapter Three

METHODS

One of the first steps our team took at the start of our project was to identify a meaningful scope of work that would complement the extensive work that has already been undertaken to help the University advance its transportation-related goals. After conducting a thorough assessment of existing work, we identified outreach to the Tufts community as an important area that had not yet been explored by the University. We therefore decided to focus a key portion of our project on gathering stakeholder input regarding safety and design issues at the College Avenue/Boston Avenue intersection in anticipation of the arrival of the College Avenue Green Line station.
For purposes of this project, our working definition of “stakeholders” included Tufts students, faculty, and staff. We acknowledge that this definition does not include outside community members and external stakeholders who will also be impacted by the College Avenue station and changes to the College Avenue/Boston Avenue intersection. Due to the limited time frame of our project, we felt that we could achieve the greatest impact by focusing our efforts on thoroughly engaging the Tufts community.

In order to gather input from the Tufts community on the College Avenue/Boston Avenue intersection and the new Green Line station, assess the current conditions of the intersection, and review Tufts’ current TDM efforts in order to develop informed and comprehensive recommendations, we developed methodology specifically tailored to fulfilling each of these goals. These methods are described in detail below.

Charrette

To engage the Tufts community in an in-person dialogue, we organized and conducted a design charrette. The “Green T at Tufts Design Charrette” was held on April 1, 2015 and was attended by approximately 55 members of the Tufts community, primarily students and staff.

The event began with a brief presentation by our team of existing conditions and proposals for the College Avenue/Boston Avenue intersection, after which attendees were randomly assigned to four different groups that rotated every ten minutes to four tables.
Each table was facilitated by a member of our team and focused on a different topic: pedestrian issues, bicycling issues, vehicle issues, and urban design issues. Each table was equipped with large aerial maps of the intersection and posters that provided guiding questions for participants to consider and images from which they could draw inspiration.

We used several methods to gather feedback at the tables and ensure that as much information as possible was captured. Participants were encouraged to write their ideas and concerns on post-it notes and stick them to the maps, mark areas and features they liked and disliked with colored dots, and draw alternative ideas and configurations for the intersection on tracing paper. At the conclusion of the charrette, each of the four groups reported back to the other attendees about key topics and ideas they discussed.

The charrette was advertised through fliers placed around campus, social media, the Tufts online events calendar, the Office of Sustainability’s electronic newsletter, the Tufts Daily newspaper, and direct email communications with a number of departments and student organizations.

Following the charrette, our team transcribed all of the written comments and coded them based on common themes. The comments from the charrette are presented in the Key Findings chapter.
Online Survey

While a design charrette offers an excellent opportunity to engage people one-on-one and hear specific concerns and ideas, it is a method that has its limitations. Time of day, location, duration, and the size of the meeting room can be limiting factors, and participants may self-select based on their interest in the issue. In order to round out our stakeholder engagement strategy and gather feedback from a more substantial number of stakeholders, we also conducted an online survey of the Tufts community.

Working with the Tufts Office of Sustainability and Tufts Operations Division, we developed a set of eleven questions to be included in an annual survey of the Tufts commuting population required by the Massachusetts Department of Environmental Protection. The survey was administered online to employees and students on the Boston, Grafton, and Medford/Somerville campuses starting on Monday, April 13, 2015. A simple random sample survey method was used to obtain a representative cross-section of the staff, faculty, and non-residential student populations on all three Tufts campuses. A census survey method was used for residential students, meaning that all residential students received the survey. While the survey remained open into May, we pulled results for analysis and inclusion in this report on Friday, April 24.

After completing a number of questions about commuting habits and knowledge of TDM programs, survey respondents were given the option to opt into the questions for our project. In order to complement the charrette, our questions built upon the topics of pedestrians, bicycles, vehicles, and urban design issues. The answer options for questions were randomized as appropriate (with the exception of “other” options) to control for potential bias. The survey results are displayed in Chapter 6: Key Findings.

Field Observations

Our team conducted a number of field observations in order to gain an accurate assessment of safety and design issues at the College Avenue/Boston Avenue intersection. Conducted on multiple days between February and April 2015, we observed pedestrian, bicyclist, and vehicle behavior, took photographs, and measured the roadway and sidewalks.
Design Elements

Best practices in urban design, placemaking, and multimodal accommodations have evolved significantly over the past decade. In order to understand leading edge, innovative practices and case studies, our team reviewed the following publications, design guidelines, white papers, and online resources:

- *Urban Street Design Guide* (Online Edition) by the National Association of City Transportation Officials (NACTO)
- *Designing walkable urban thoroughfares: a context sensitive approach* (2010) by Institute of Transportation Engineers
- *How to Study Public Life* (2013) by Jan Gehl and Birgitte Svarre
- *Project for Public Spaces* (http://www.pps.org/)

Traffic Analysis

The Draft Environmental Impact Report for the Green Line Extension (2007) included traffic volume data at the College Avenue/Boston Avenue intersection. The data separated cars, trucks, and bicycles and counted their approach from all four corners along with their action (turning left, right, or going through). Their counts also included pedestrians. Although this information was collected nearly ten years ago and during the winter, vehicular counts are not thought to be vastly different from today; however, data for bicyclists and pedestrians depends on the season, and there are increasingly more bicyclists on the road in the Boston area.

In order to gain a more recent assessment of bicycle and pedestrian counts, we also consulted data presented on the Medford Bicycle Advisory Commission website. The commission conducted bicycle and pedestrian counts at the College Avenue/Boston Avenue intersection in Fall 2013 and Spring 2014. The Medford Bicycle Advisory Commission is a board of the City of Medford and advises the City on improving conditions for and promoting bicycle transportation within Medford.
Our TDM analysis began with a comprehensive study of Tufts’ current TDM programs, which was carried out largely through online research and team members’ existing knowledge and expertise of Tufts’ transportation programs and initiatives. Tufts’ existing programs and infrastructure supporting sustainable transportation were examined, along with the University’s current TDM outreach efforts on the Medford/Somerville campus (see Existing Conditions). In order to gauge the commuting habits and attitudes of Tufts students, staff, and faculty, we reviewed results from the annual Tufts commuting survey conducted in Spring 2014.

As described in the “Background” chapter, Nelson\Nygaard recently completed a TDM report for Tufts. We reviewed this report and its recommendations in order to avoid duplicating efforts. The recommendations presented in this report are therefore designed to build off of and complement those developed by Nelson\Nygaard.

Finally, we reviewed the TDM programs of peer institutions and compared them with Tufts’ practices. These peer institutions included American University, Boston College, Brown University, Princeton University, and Washington University, all of which were identified as peer institutions by Nelson\Nygaard, as well as Harvard University and MIT. While the campuses, settings, and sizes of these two latter institutions differ from Tufts’, they were included in this review because students and employees in Tufts’ commuter surveys most frequently cite them as peer institutions. In several cases, other universities’ programs were also consulted for inspiration.
Chapter Four
EXISTING CONDITIONS

The intersection of College Avenue and Boston Avenue, located within the City of Medford, is a busy intersection with operational challenges for all users. With poor sightlines, confusing traffic patterns, inadequate lighting, and a number of other issues, there is extensive opportunity for improvement at the intersection. In this chapter, we will describe the site location and review current physical conditions for specific modes of transportation in the area immediately surrounding the intersection. This will include an audit of current urban design conditions as they relate to capturing the heavy foot traffic currently passing through the intersection and leveraging that into a vibrant public space. A review of Tufts’ current TDM programs and strategies is also presented.
Site Description & Land Use

College Avenue stretches across the Tufts Medford/Somerville campus from northeast to southwest between Stearns Avenue and Powder House Square. Boston Avenue crosses the campus from northwest to southeast, beginning at University Avenue and ending at Warner Street. The College Avenue and Boston Avenue intersection forms a stretched X-shape.

The land directly surrounding the intersection is owned by Tufts University and used for educational and athletic purposes, and the intersection effectively divides the Tufts campus into two parts. The majority of campus lies to the west of Boston Avenue, while many of the athletics facilities, such as Gantcher Center, the Steve Tisch Sports Complex, and Alumni Field, along with Curtis Hall, the Science and Technology Center (Sci Tech), and the new Collaborative Learning and Innovation Complex (CLIC) at 574 Boston Avenue lie to the east.

Beyond the Tufts campus, much of the area in close proximity to the intersection is residential, interspersed with pockets of commercial and industrial use. Based on current land use conditions, we can conclude that the main vehicular traffic flow of the College Avenue/Boston Avenue intersection is for daily commuting mixed with pedestrian traffic. Thus, both College Avenue and Boston Avenue tend to see relatively heavy traffic during rush hour, with heavy pedestrian flows from the Tufts community at peak times between classes throughout the day.

The municipal border between the City of Medford and the City of Somerville bisects the area surrounding the intersection. Although the intersection itself is entirely within the borders of Medford, the Somerville border lies just 200 feet to the south. This situation requires a higher level of coordination between municipal agencies and stakeholders in both cities.

Figure 3. Site of the College Avenue MBTA station
Image via Google Earth
Figure 4. Land use surrounding the College Avenue/Boston Avenue intersection
By Xiang Yu
Pedestrians

Sidewalks are currently located on both Boston Avenue and College Avenue and, with the exception of the brick sidewalk in front of Brown & Brew and the post office, are made of concrete. Sidewalks within the intersection are in generally good condition, but their narrow width makes it difficult for large volumes of pedestrians to move through the area during peak hours. The sidewalks on both sides of Boston Avenue north of College Avenue are in poor condition.

Four crosswalks, controlled by pedestrian traffic signals, are located at the intersection and connect all four approaches. These crosswalks, however, do not reflect pedestrians’ desired paths. As a result, crossings regularly occur outside of crosswalks between Anderson Hall and the Memorial Steps and between the northwest corner of Boston Avenue and College Avenue and Brown & Brew. Moreover, long pedestrian crossing distances (nearly 80 feet) and short crossing signals lead to a hurried crossing for pedestrians.

According to the traffic counts in the 2007 EIR, 328 pedestrians traveled through the intersection between 7:00 AM and 10:00 AM and 1,176 pedestrians traveled through the intersection between 3:00 PM and 6:00 PM on the assessed day. We expect that pedestrian volume through the intersection will continue to rise with increases in Tufts’ enrollment and with the arrival of the College Avenue Green Line station and other new buildings along the Boston Avenue corridor.
Bicycling

Boston Avenue and College Avenue are not currently bicycle friendly roadways due to high traffic volumes and a lack of bike accommodations. The only bicycle accommodations in the area are shared lane markings on College Avenue in Somerville, west of the intersection, which stop at the Medford border at the corner of Professors Row.

Bicycle parking racks accommodating approximately 45 bicycles are provided in front of Anderson Hall. During our field observations, this parking was usually at full capacity, with street signposts and handrails on the ramps leading to Anderson Hall being used as overflow parking, despite signs prohibiting such use. Additional bicycle parking is also located on the left side of Anderson Hall and in front of Robinson Hall.

According to the 2007 traffic analysis, 53 bicyclists traveled through the intersection between 7:00 AM and 10:00 AM, and 85 bicyclists traveled through the intersection between 3:00 PM and 6:00 PM. Bicyclists comprised 1.8% of all vehicle traffic within the intersection and 2% of all peak direction vehicle traffic.

Counts conducted more recently by the Medford Bicycle Advisory Commission in September 2013 and May 2014 suggest that bicycle use is increasing at the intersection. On average, 80 bicyclists traveled through the intersection during morning peak hours (7:00 AM - 9:00 AM), with the highest daily number being 98 and the lowest 69. During evening peak hours (4:00 PM - 6:00 PM), an average of 94 bicyclists traveled through the intersection, with the highest daily number being 130 and the lowest 71. This data suggests that the intersection is the single busiest location for bicycling within the City of Medford.

We expect that bicycle volumes will continue to increase and that bicycling will play a much larger role at the intersection with the arrival of the College Avenue station.
Vehicles

Driving is the dominant mode of transportation through the College Avenue/Boston Avenue intersection. Between 7:00 AM and 10:00 AM 3,489 vehicles traveled through the intersection, and between 3:00 PM and 6:00 PM 3,853 vehicles traveled through the intersection according to the 2007 traffic analysis.

Boston Avenue and College Avenue are two-way streets with one lane of vehicle travel in each direction, and they are both in relatively good condition. Parallel parking is available along both sides of the northern stretch of Boston Avenue and on the east side of Boston Avenue south. North of Boston Avenue, parallel parking is also available along the north side of College Avenue and on the south side of College Avenue between Dearborn Road and Boston Avenue. While street parking along Boston Avenue and College Avenue in Medford used to be free of charge, the City of Medford launched a city-wide parking program in January 2015 and installed solar-powered smart parking meters that currently charge $1/hour.

Due to the angles of the intersection, visibility is limited, especially for drivers turning from Boston Avenue north to College Avenue west and from Boston Avenue south to College Avenue east. In addition, the signal timing and offset geometry causes through-traveling vehicles going south on Boston Avenue to get stuck in the middle of the intersection. Often, vehicles are still in the intersection as the exclusive pedestrian interval begins, forcing them to either wait for pedestrians to pass or attempt to complete their maneuver through pedestrian traffic.
Transit

The College Avenue/Boston Avenue intersection is served by three local bus routes, all of which follow the same route through the intersection; outbound buses travel east on College Avenue, then turn left onto Boston Avenue north, while inbound buses travel south on Boston Avenue, then turn right onto College Avenue west. These buses are Route 80 (Arlington Center to Lechmere Station), Route 94 (Medford Square to Davis Square), and Route 96 (Medford Square to Harvard Station). These routes serve local commuter traffic in Medford, Arlington, Cambridge, and Somerville and are utilized by Tufts students and employees. Headways range from 15-20 minutes during peak hours to 45-50 minutes during off peak hours.

Inbound and outbound bus stops are located on College Avenue just west of Boston Avenue as well as roughly 300 feet west at the College Avenue/Dearborn Road/Professors Row intersection. All bus stops lack shelters or designated waiting areas with the exception of the inbound stop at Professors Row/College Avenue.

The Tufts campus is currently served by rapid transit via the MBTA Red Line at Davis Square. Depending on one’s destination on campus, the walk from the station to Tufts can range in distance from 0.8 miles to 1.2 miles and take 15-22 minutes. All walking routes are uphill from Davis Square to the Tufts campus, and some involve traversing the Powder House Square rotary.

The Route 94 and 96 buses and the Tufts Davis Square Shuttle (“The Joey”) provide an alternative for connecting travelers between Davis Square and campus, though off peak headways can make walking the faster alternative.

Tufts operates several private shuttle buses that provide access to various points on campus. However, none currently stop at the College Avenue/Boston Avenue intersection.
Use and Urban Design

The public way surrounding the intersection currently functions primarily as a passage between other destinations on campus and offers users little in the way of opportunities for lingering or social interaction. This is evidenced by the narrow sidewalks, which do not allow for standing without blocking traffic, and a general lack of places to sit. Benches and an open area in front of Anderson Hall do function as a space for social interaction, and the Brown & Brew Coffee House in Curtis Hall offers an outdoor patio with tables and chairs facing Boston Avenue south. These two locations are the only places where we observed people lingering during our field observations. Both of these locations are located on Tufts property and cater primarily to the Tufts community. The patio at Brown & Brew is located several feet away from Boston Avenue, which is often congested with queuing traffic and may limit its appeal as a place to linger.

Retail activity at the intersection is very limited. In addition to Brown & Brew, a post office is located in Curtis Hall. Neither establishment is open on weekends or past 6:00 PM on weeknights. As a result, there is
no activity to draw people to the intersection during evenings and weekends. Neither of these locations provide visual interest or activity facing the street. Brown & Brew is accessed through a side entrance off of Boston Avenue or through a hallway inside Curtis Hall. The post office door opens directly onto the sidewalk, but there is little signage to indicate that it is a post office.

The intersection and approaching streets are lit with overhead sodium vapor lights. These lights are at roadway scale and intended to provide general illumination of the roadway at night. No pedestrian-scale lighting is present. The sidewalk along the east side of Boston Avenue north of College Avenue is particularly poorly lit. In general, the lighting is not conducive to creating a safe and inviting space during the evening and nighttime hours.

Sustainable Transportation Infrastructure & Initiatives at Tufts University

The Tufts Medford/Somerville campus currently has an overall drive alone mode share of 42%. Drive alone mode share varies, however, between populations on campus. At 48%, walking is the dominant mode of transportation for students followed by transit (16%), driving alone (16%), other (10%), biking (9%), and vanpool or carpooling (1%). Driving alone is the dominant mode of transportation for faculty, at 54%, followed by other (21%), transit (10%), walking (6%), vanpool or carpooling (5%), and biking (4%). Drive alone mode share climbs even more within the staff population, at 68%, followed by transit (11%), walking (8%), other (6%), biking (3%), and vanpool or carpooling (3%).

Tufts has a number of existing TDM programs, infrastructural features that support sustainable transportation, and transportation outreach initiatives on the Medford/Somerville campus, many of which are described below.

Transit

Students can purchase semester MBTA passes at an 11% discount through the Bursar’s Office, and student groups can purchase $5 round-trip passes for $4 at the Campus Center.
Employees can purchase transit tickets, passes, and commuter parking with pre-tax funds through the Commuter Benefits Program, which is administered by Human Resources through Crosby Benefit Systems, Inc.

**Shuttles**

Three shuttles are available to members of the Tufts community during the academic year. The Davis Square shuttle ("The Joey") connects the campus to Davis Square and the MBTA station, the Boston Avenue shuttle connects 4 Colby Street ("Sci Tech") with 200 Boston Avenue, and the SMFA/NEC shuttle connects the campus with the School of the Museum of Fine Arts and the New England Conservatory.

A GPS shuttle tracker allows users to track the location of various shuttles in real time.

**Carpools/Vanpools and Car Sharing**

Preferred parking spaces for carpools/vanpools are located on the 5th floor of the Dowling Garage and behind Bendetson Hall.

Tufts employees can receive a monthly subsidy of up to $600 or 50% of their monthly lease cost for vanpools through the Massachusetts Commuter Vanpool Program.

Because Tufts is a partner of MassRIDES, its students and employees can find carpool and vanpool partners through NuRide.

Tufts students age 18+ can join ZipCar at the discounted rate of $15/year, and staff and faculty can join for $25. Eight ZipCars, including a van, are located on the Medford/Somerville campus.

Tufts also promotes RelayRides, a neighbor-to-neighbor car sharing program.

**Bicycling**

Bike racks, showers, and lockers are available to bicycle commuters at the Steve Tisch Sports and Fitness Center.

Over 40 open bike parking racks are located across campus. Several covered bike racks are located across campus, including in front of Miller Hall and at the Dowling Garage, and many residence halls have indoor bicycle racks or rooms.

Members of the Tufts community can borrow bikes, helmets, locks, and lights free of charge through Tufts Bikes, the student-run bike share program. Tufts Bikes also maintains...
a fully-equipped bicycle maintenance shop that is staffed regularly by mechanics.

Two seasonal Hubway stations, part of metro Boston’s bike sharing program, are located at the periphery of Tufts’ campus in Somerville. One is located at Powder House Square, while the other is located at the corner of Packard Avenue and Powder House Blvd.

Other

In the event of an emergency, commuters who take a “green” form of transportation at least two days a week can get reimbursed up to $100 the cost of getting home through the MassRIDES Emergency Ride Home (ERH) program.

Members of the Tufts community who make “green trips” can earn rewards, such as coupons and discounts at restaurants, through NuRide.

A Level 2 EV charging station is located in the Dowling Garage.

Outreach

Publications & Resources

The Office of Sustainability produces a number of transportation brochures and outreach materials.

- The “Traveling Green” brochure includes information about public transportation, MBTA discounts, shuttles, carpooling and vanpooling, biking, EV charging, ZipCar, and other commuter options and benefits.
- The “Eco-Map of Tufts” denotes MBTA bus stops, shuttle stops, the EV charging station, ZipCar locations, Hubway bike stations, covered bike racks, and Tufts Bikes locations and provides information on sustainable transportation options in addition to other sustainability-related points of interest on campus.
- The “Biking at Tufts” brochure includes information about Tufts Bikes and bicycle safety as well as a bike map of campus that shows bike rack and covered bike rack locations, suggested bike routes, topography, bike lanes, and sharrows.
- At least nine different Tufts websites and web pages dispersed across various departments such as the Office of Sustainability, Administrative Services, the Bursar’s Office, the Registrar’s Office, Human Resources, University Police, and the Office for Campus Life provide information about various transportation resources and programs for both students and employees.
- The Office of Sustainability’s electronic newsletter often contains transportation-related news and resources.
Events

Transportation is integrated into new student and new employee orientations to varying extents. Incoming employees and students often receive copies of the Tufts Eco-Map, and employees receive information about the pre-tax transit benefit as part of their benefits package. The Office of Sustainability tables at a number of new student orientation events for both undergraduate and graduate students and disseminates transportation resources such as bike maps, eco-maps, Charlie Cards, and information about resources such as NuRide, ZipCar, RelayRides, and Hubway.

Human Resources has often held a fall benefits open enrollment fair for employees, which includes information about the pre-tax transit benefit through Crosby Benefit Systems, Inc. A smaller “benefits” fair for employees was incorporated into the 2014 President’s Picnic and featured representatives from MassRIDES and ZipCar.

The Office of Sustainability promotes the annual Bay State Bike Week and Massachusetts Clean Air Challenge (formerly Car Free Week) and has held a number of transportation-related events, such as a Bike Week (March 2013).

TDM Assessment

Although Tufts offers a number of transportation-related programs, resources, and benefits, the University lags behind many of its peers in providing a truly comprehensive and robust portfolio of TDM programs and strategies. Despite outreach efforts by departments such as the Office of Sustainability, awareness of and participation in Tufts’ current transportation programs, resources, and benefits is very low, indicating extensive room for improvement.
“Traffic and road capacity are not the inevitable result of growth. They are the product of very deliberate choices that have been made to shape our communities around the private automobile. We have the ability to make different choices—starting with the decision to design our streets as comfortable places for people.”

» Project for Public Spaces (http://www.pps.org/reference/streets-as-places-how-transportation-can-create-a-sense-of-community/)
The College Avenue Green Line station presents a tremendous opportunity to re-envision the College Avenue/Boston Avenue intersection as a vibrant, pedestrian-oriented public space with a variety of uses that cater to both the Tufts community and surrounding communities. With due consideration to enhancing the public realm, Tufts can capture the value that transit connectivity will bring and leverage it to achieve its environmental and development-related goals.

In this chapter, we review design and placemaking elements that can be incorporated into a re-imagined College Avenue/Boston Avenue intersection. The first section, multi-modal design elements, reviews specific geometric and traffic control features aimed at improving safety and enhancing user experience for pedestrians, bicyclists, and drivers. We focus on features that are typically applied to arterials and higher volume streets and intersections. The second section reviews urban design and placemaking elements that can enhance public life for students, employees, and the community at large by providing opportunities for active and passive uses. Finally, we present several case studies focusing on universities that leveraged a combination of urban design, traffic management, and economic development strategies. These case studies describe how universities have created vital public spaces that enhance their value, attractiveness and competitiveness while also becoming community focal points and assets to the communities at large.

### Multimodal Design Elements

#### Traffic Calming

There are two primary strategies to consider when redesigning a street or intersection for improved pedestrian safety and access. The first is to reduce pedestrian exposure to vehicle traffic within the intersection by shortening pedestrian crossing distances. The less time a pedestrian has to spend crossing between curbs, the less likely she or he is to be hit by a moving vehicle. The second is to slow vehicle speeds at the intersection, especially for turning vehicles. Collisions between pedestrians and vehicles are less likely to be fatal or result in serious injury when vehicle speeds are lower. Specific methods for reducing pedestrian exposure and decreasing vehicle speeds include the following.

- **Bump-outs**, also known as neckdowns or curb extensions, widen sidewalk space at crosswalks, reduce the distance pedestrians have to cross, and increase pedestrian visibility to motorists.

- **Smaller turning radii** require vehicles to make turns at a lower speed.

- **Narrower travel lanes** are effective at reducing vehicle speeds. In an urban context, travel lanes that exceed 11 feet should be avoided as they have been shown to induce drivers to speed. Travel lanes 10-11 feet wide have been shown to carry the same capacity as wider lanes.
Raised crosswalks slow provide a safer crossing for pedestrians by making vehicles slow down as the enter the pedestrian crossing zone.

Raised intersections are intersections in which the roadway space is flush with the sidewalk level, and separation between sidewalk and roadway space is achieved with bollards or other vertical elements or through differently colored or textured paving. A local example is the intersection of Packard Avenue and Professors Row on Tufts’ Medford/Somerville campus, which is raised to sidewalk level.

Signal Phasing

Signal phasing refers to the timing of traffic signals and the movements allowed during certain phases. The following signal phasing alternatives are effective for multi-modal accommodation.

An exclusive pedestrian interval is one in which vehicular traffic in all directions is stopped and pedestrians are allowed to cross the intersection in all directions, including diagonally. This type of phasing is desirable in locations with high pedestrian volumes, where high volumes of turning vehicles pose risks to pedestrians or where roadway geometry is deemed hazardous to pedestrians.

A leading pedestrian interval is a variation on “concurrent” pedestrian intervals in which pedestrians cross the intersection at the same time as parallel roadway movements. With a leading pedestrian interval, pedestrians are given a several second head start and are usually halfway through the crosswalk when vehicle traffic gets the green. This makes pedestrians more visible to turning vehicles and reduces the likelihood of collision.

A leading bicycle interval uses bicycle-specific traffic signals (see page 36) to give bicyclists a head start at the beginning of a signal phase. This can help minimize the risk of a turning vehicle colliding with a bicyclist. A leading bicycle interval and leading pedestrian interval can be implemented at the same intersection during the same signal phase.

A protected bicycle interval refers to any number of signal phasing scenarios in which potential conflicts between through moving bicyclists and turning vehicles are minimized through the use of exclusive phasing and turn restrictions.
## Bicycle Accommodations

### Separated Bike Lanes

Separated bike lanes provide bicyclists an exclusive operating space separated from motor vehicle traffic by vertical features such as flex posts, parked cars, curbs, medians, vegetated buffers, or a variety of other methods. Separated bike lanes can be designed for both one-way and two-way travel. On two-way streets, a one-way separated bike lane on each side has the advantage of being easier to integrate into traffic operations, while a two-way separated bike lane requires additional design and signal considerations. On one-way streets, two-way separated bike lanes can enhance bicycle network connectivity by allowing bicyclists more direct travel and the ability to avoid circuitous routes.

### Standard Bike Lane

Standard bike lanes are an exclusive space on the road designated for bicyclists. Bike lanes are placed between the curb and general-use lanes or between parked cars and general-use lanes. They are easier to implement than separated bike lanes because they require less roadway space. Ideal width is 5.5-6 feet when placed next to an 8 foot parking lane, with 5 feet being the minimum. 4 feet is acceptable in constrained situations only when placed next to a curb.
Bicycle Accommodations

Shared Lane Markings

Shared lane markings (or “sharrows”) indicate bicyclist priority within a shared lane. Shared lane markings are appropriate on low-volume streets or as an interim solution on higher volume streets where greater separation is currently not attainable because of narrow roadway widths. Shared lane markings should be paired with “Bikes May Use Full Lane” signs. Ultimately, separated or buffered bike lanes should always be the default facility type on arterial streets with higher volumes and/or speeds. However, shared lane markings provide an opportunity to build interim bicycle connections in situations where standard or separated bike lanes are not currently feasible.

Two-Stage Queue Boxes

Two-stage queue boxes assist bicyclists with making turns in situations where making a vehicular-style turn may be difficult due to roadway geometry or heavy traffic volumes. Two-stage queue boxes are most typically used to help bicyclists make left turns, but they can also be used to help bicyclists make right turns if the bike lane is on the left side of the road. The queue box marks a dedicated safe place for bicyclists to wait and makes more bicyclists aware of this option for making turns. Two-stage queue boxes can provide additional network connectivity for bicyclists by allowing them to make left turns where cars are prohibited from doing so. The presence of a two-stage queue box does not prohibit bicyclists from making vehicular-style turns.
Bicycle Accommodations

Bike Boxes
Bike boxes are designated queuing spaces for bicyclists at the front of an intersection. They are typically painted bright green and have a bike lane leading into them. By allowing bicyclists to queue in front of cars during the red phase of the signal, left- or right-turning bicyclists can correctly position themselves in the intersection. By making bicyclists more visible to drivers at the front of the queue, bike boxes can also help avoid the “right-hook,” a common collision type in which a right-turning vehicle hits a through-moving bicyclist.

Bicycle Traffic Signals
Bicycle traffic signals are special signal heads that indicate when bicyclists are permitted to proceed through an intersection. Typically, they are distinguished from general traffic signals through the use of a bicycle icon and use the same green-yellow-red indications as general traffic signals. Bicycle traffic signals can be used to provide separation between bicyclists and turning vehicles at an intersection or allow bicyclists to proceed through an intersection before general traffic. This can increase safety and visibility for bicyclists. Bicycle traffic signals are already in use at several intersections in Cambridge, and more are planned for installation in Boston and Somerville.
Urban Design Elements

Seating

Adequate seating is an important feature when designing streets and sidewalks. Seating adds value to and enhances public spaces, and having places to sit can provide people with a needed respite, especially in busy areas. In order to achieve various objectives or attract different types of uses, seating can be configured in any number of ways. Chairs or benches configured in circular arrangements or around tables, for example, can provide an ideal setting for social interaction. By offering people a place to sit and eat, seating is particularly complimentary with programming such as farmers markets or food trucks and can be paired with tables, umbrellas, and other amenities. Creative and artistically designed seating can also enhance and define the aesthetic appeal of a public space.

Creative seating design on Broad Street, Boston, MA
Photo: Nathaniel Fink

A variety of different seating types available to users. Harvard Plaza, Cambridge, MA
Photo: Nathaniel Fink
Programming

Scheduled events and temporary retail such as food trucks, farmers markets, and craft markets can attract people to an area and create a lively environment. When programming a public space, no matter how large or small, attention should be given to attracting a variety of uses throughout the day and at all times of the year. For example, lunchtime food trucks are a great way to activate public space during the day but can leave the area feeling empty in the evening if there are no other activities to draw people in. An evening schedule of food trucks or other semi-temporary seasonal retail concessions could attract evening commuters and community members and create a lively public space into evening hours. At transit stations, the built-in flow of people throughout the day ensures that there will an audience for programmed activities.

Plan for a Diversity of Users

Vibrant public spaces are generally characterized by their ability to attract a wide range of people, including people of different ages and social backgrounds and a mixture of local residents and tourists. Activities for different user groups can be considered both through permanent features, such as a children’s play area, or through programming. Attention should also be given to areas suited for group activities, such as social seating areas, and to individual or passive pursuits. Given that the College Avenue station will become a transfer point between the Green Line and local buses, consideration should be given to how the experience of bus riders could be enhanced, such as through covered, heated bus shelters.

Temporary fire pits are a great example of how public space can be activated well into colder months. Location: Harvard Plaza, Cambridge, MA

Photo: Nathaniel Fink
**Technology**

Technology is an unseen but important part of fostering a vibrant public space. The provision of free and open wireless internet access can make the difference between whether or not people choose to linger in a public space and use it regularly for activities like group meetings or quiet studying. Charging stations for electronic devices are another important technology consideration. As part of its Office of New Urban Mechanics, the City of Boston recently debuted benches that include solar-powered charging stations for USB devices in several city parks. The benches themselves become an interesting feature, provide a needed service, and attract people to the space.

**Branding**

Creating a unique brand identity for a public space, or intersection can foster a sense of place and belonging, and is an important step in creating a unique and identifiable place. A brand identity can play to a location’s existing strengths or be an aspiration of what the place can become. People will know when they have arrived because of the unique combination of qualities that give the location its sense of place. For transit riders, this may be the first thing they see or experience as they exit the station and enter the street; for pedestrians, bicyclists, and motorists, arrival may be signaled by hardscape or green features that signal arrival.
Passive Zones

While it is important to provide spaces for social interaction and intrigue, providing areas for more passive pursuits, either for individuals or small groups, helps to enhance the public realm and attract a diversity of users. Areas that are welcoming to slightly longer stays should be incorporated into the design of public space, and on a university campus, this type of activity should especially be encouraged. During the warmer months, students can sit outside to study individually or in small groups. An example of a successful passive zone on Tufts’ Medford/Somerville campus is the President’s Lawn, which is well utilized by students as a place to congregate or engage in quiet study when the weather is warm.

Signage and Wayfinding

Signage and wayfinding is an important complement to branding. Signage can include maps and informational or historical placards, while wayfinding signs are geared toward pedestrians and help direct people toward key destinations and specify how long it will take to reach those locations. Providing this type of specific information can help make an area more inviting to pedestrians and encourage people to walk between destinations. Wayfinding can be developed for bicyclists as well and may include information on the estimated amount of time it will take to reach a destination by bike.
Shared Space

Shared space design bridges the gap between multimodal design elements and urban design strategies. It is an innovative approach to intersection design and traffic management that incorporates many aspects of placemaking and public realm enhancement.

Shared space re-imagines a traditional intersection as a public plaza in which vehicles are treated as guests rather than the dominant user. Pedestrians, bicyclists, drivers, and other users maneuver through the intersection slowly, using eye contact and cooperation. Traditional traffic controls, such as traffic lights, crosswalks, and signs, are removed, creating uncertainty and intrigue on the part of all users and slowing vehicle speeds down to walking speed. Because traffic moves at less than 15 mph, shared space environments are safer for pedestrians and bicyclists and can be designed to be accessible to people with disabilities.
An entire shared space is typically on the same level and uses attractive paving features such as brick, while gateway treatments are used on the approaching streets to signal to drivers that they are entering a shared space zone. Shared space intersections have been successfully implemented in European cities, where they have demonstrated an ability to handle large volumes of multimodal traffic safely and efficiently. Interest in shared space is increasing in the United States, and several streets in the Boston area have recently been redesigned as shared space, including Palmer Street and Winthrop Street in Cambridge.

New Road in Brighton, UK was redesigned as a shared space. The new design, accompanied by programming and public realm improvements, has breathed new life into the street and its businesses by attracting more foot traffic.

Shared spaces feature flush roadway and sidewalk areas. This image shows the drainage between two paving types. Location: Leeuwarden, Netherlands
Photo: Fietsberaad, Creative Commons Attribution-Non-commercial. Image cropped from original version. URL: https://www.flickr.com/photos/fietsberaad/4250059675/in/photostream/

New Road in Brighton, UK was redesigned as a shared space. The new design, accompanied by programming and public realm improvements, has breathed new life into the street and its businesses by attracting more foot traffic.
Photo: De Facto, Wikimedia Commons. Create Commons Attribution Non-Commercial.
Case Studies

Harvard Plaza, Harvard University, Cambridge, MA

Parties involved: Harvard University, Project for Public Spaces

Starting in 2008, Harvard University began experimenting with placemaking when it set out tables and chairs in Harvard Yard. These additions activated the space, made it a new hub for social activity, and launched planning efforts to bring placemaking to other sites across the university. Shortly thereafter, Harvard launched the Harvard Common Spaces initiative, under the auspices of the University Planning Office.

Formerly a grassy expanse crisscrossed by diagonal paths, the Harvard Plaza in front of the Science Complex was reconstructed using a hardscape surface that would provide flexibility for a variety of different programming configurations.

Active programming in the plaza includes food trucks, university and community events, an open market, and a farmers market. Other temporary features have included a giant chess set and a petting zoo. Permanent features include seating areas, creative bench designs, games, and a flexible hardscape design that lends itself well to a variety of uses. Planners have effectively considered year-round uses for the space, and during the winter, an ice skating rink and movable fire pits are added.
George Mason University
Campus Plaza, Arlington, VA

Parties involved: George Mason University, Project for Public Spaces, Arlington County Government, local resident stakeholders

When expanding its law school in the heart of a developing neighborhood in Arlington, VA, George Mason University incorporated a 20,000 square foot public plaza into the project. The plaza was intended to serve not just the university community but also the emerging residential community surrounding it. In order to adequately serve these diverse users, a collaborative public process was conducted. Planners involved the university, local government, local residents, and university faculty and staff in a series of stakeholder meetings and design charrettes to determine a design for the plaza that would be meaningful for the university and the surrounding community. The ultimate design of the plaza included a flexible hardscape area with active programming including fairs, events, and community and university celebrations, along with passive areas such as seating.
Arlington Commercial District, Poughkeepsie, NY

Parties involved: Vassar College, Arlington Business District, Town of Poughkeepsie, Project for Public Spaces, NY State DOT

The Arlington commercial district in Poughkeepsie, NY is the main commercial center serving the Vassar College campus. Starting around the year 2000, a planning process was launched to revitalize the center. While it contained a mix of uses and business types, there were also many commercial vacancies. Moreover, pedestrian connections between the Vassar campus and Arlington needed to be strengthened. A state highway running through the district was a barrier to pedestrian access and impeded the creation of a vibrant neighborhood.

The goal of the process was to create a vibrant commercial district to anchor the Vassar campus and become a shopping and dining destination. An economic development plan was created concurrently with a plan for major streetscape upgrades to enhance pedestrian safety and the public realm. Specific work included a traffic study, parking study, community and stakeholder meetings, economic analysis, interviews, and the creation of a business improvement district. These improvements included the replacement of several traffic signals with roundabouts, a landscaped median strip, new pedestrian paths and crosswalks, landscaping, pedestrian scale lighting, and seating.
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Chapter Six

KEY FINDINGS
Green T at Tufts Design Charrette

The following results represent the culmination of all feedback provided at each of the four topic area tables at the charrette. Participants rotated between the tables in ten-minute intervals, a structure designed to facilitate discussion and feedback from every participant on each topic area, despite perceived lack of experience or knowledge of a particular topic.

Figure 6. Charrette attendees by affiliation
Actual charrette attendance is estimated at 55. 37 people signed in, indicating affiliation.
Pedestrians

Several key themes emerged from participants’ discussion of pedestrian issues at the College Avenue/Boston Avenue intersection based on both current conditions and anticipated conditions with the arrival of the College Avenue Green Line station. Much of their conversation centered on solutions for addressing the lack of capacity, connectivity, accessibility, and poor sightlines of the current crosswalks, pathways, and sidewalks in the area.

Comments on Existing Conditions

Crosswalks are poorly configured through the intersection and do not reflect pedestrians’ desired paths.

Infrequent and short crossing signals make it difficult for pedestrians to traverse the intersection in a safe and timely manner.

Sidewalks are poorly designed - many are narrow, poorly maintained, obscured by telephone poles, not ADA accessible, difficult for strollers to navigate, and ill equipped to handle large volumes of foot traffic.

The stretch of sidewalk along Boston Avenue opposite Dowling Hall is a particularly unsafe and unpleasant area for pedestrians (especially females), with cracked, narrow sidewalks, overgrown trees, and poor lighting.

Ideas

Crosswalks should reflect pedestrians’ desired paths (e.g. between the Memorial Steps and Anderson Hall, between the hillside and Brown & Brew).

Improve connectivity between key points on campus and the station, particularly from the hillside (near the Lincoln Filene Center) and from Sci Tech through pedestrian pathways, elevated platforms/bridges, or even tunnels.

Install islands in the intersection to provide pedestrians with a safe place to stop mid-way through if they are unable to cross during a single cycle.

Install better lighting throughout the intersection to make pedestrians more visible at night and increase feelings of personal safety.

Remove the fence along the hillside to better facilitate pedestrian movement and flow between the hill and the intersection/station.

Install brick or raised crosswalks

Lengthen crossing signals

Widen sidewalks

Create curb bump-outs to extend sidewalks into the street and decrease crossing distances.
Bicycling

Participants had a variety of different backgrounds when it comes to bicycling, ranging from daily commuters to infrequent riders and those who do not ride at all. Despite this range, common themes emerged in the discussion. There was general agreement that the number of bicyclists traveling through the intersection would increase as a result of the College Avenue station. Participants discussed existing conditions, brainstormed ideas for short and long term improvements, and envisioned how the new station would incorporate and support bicycling among the Tufts community.

Comments on Existing Conditions

- Bicycling through the College Avenue/Boston Avenue intersection is challenging, even for people who do it frequently. The most challenging maneuvers are: turning left from College Avenue eastbound to Boston Avenue northbound; and going straight on Boston Avenue in either direction due to high volumes of right-turning traffic.
- Traffic signals are confusing and too short to complete crossing.
- Bicyclists cross the intersection during the exclusive pedestrian interval.
- Bicycle parking in the vicinity of the intersection is inadequate.
- Loop detectors at the Boston Avenue south approach do not detect bicyclists.

Ideas

- Design the College Avenue station plaza so bicyclists can ride directly to the bike parking area instead of having to dismount and walk in.
- Bicyclists could be allowed to use pedestrian intervals if they were courteous to pedestrians.
- If a two-way separated bike lane is built on one side of the street, consider how bicyclists will enter and exit the two-way facility to access destinations farther afield.
- Open a Tufts Bikes pick-up/drop-off location at the College Avenue station.
- More bike parking at Anderson Hall for people who park there and then walk up the hill.
- Greater separation between bicyclists and motor vehicles.
- Separate signal intervals for bicyclists.
- Showers and covered bike parking for bike commuters across campus.
- Expand Hubway on campus, including at the College Avenue station.
- A shared space may work in this area, but traditional traffic controls were generally preferred.
- “Squaring off” the intersection directly in front of Curtis Hall may be a desirable option.
- Add gutters along the sides of the Memorial Steps that allow people to wheel their bicycles up the hill.
- Robust bike parking facility at the College Avenue station with a repair stand and perhaps even a bike shop.
Vehicles

Participants focused on several key aspects of vehicle operations. These included their experience traveling through the intersection by car or interacting with cars as pedestrians or bicyclists, opinions about alternate traffic configurations such as a one-way loop or shared space, and thoughts on how vehicle flow and parking management can be improved. Participants discussed the impact that the Green Line station would have on traffic and vehicle operations at the intersection.

Comments on Existing Conditions

The green traffic light at the intersection is too short.

One traffic light is not sufficient to effectively control traffic flow.

Drivers often speed through yellow lights to avoid backing up at the intersection.

Vehicles regularly get stuck in the middle of the intersection when the light turns red, making it difficult for pedestrians to cross.

Vehicles travel through the intersection at high speeds.

Ideas

Consider alternative traffic patterns for the intersection. Certain configurations, however, such as a one-way loop may push traffic to nearby roads and confuse drivers who are unfamiliar with the area.

Install traffic calming measures such as speed bumps and reduced speed limits to improve safety and interactions between vehicles, pedestrians, and bicyclists.

A shared space may be feasible at the intersection, but fast-moving vehicles through the intersection, drivers’ bad etiquette, and heavy foot traffic at peak times of day could raise both safety and efficiency concerns.

Add a drop-off lane on the north side of Boston Avenue to separate drop-off traffic from through traffic and reduce potential negative impacts to traffic flow.

Adjust the timing of the traffic lights at the intersection.
Urban Design

When considering urban design, participants focused largely on how design elements could improve the built environment and support interconnected social and economic infrastructure. Participants wanted to create a welcoming and vibrant entrance to the Tufts campus at the College Avenue/Boston Avenue intersection.

Ideas

- Install signs welcoming visitors to the University, clear wayfinding, and perhaps even elephant footprints along the sidewalks.
- Add furniture, such as tables, chairs, and benches.
- Offer programming, such as public art and food trucks.
- Offer services and retail establishments.
- Include “Tufts University” in the name of the new station (e.g. “College Avenue/Tufts University”).
- Install countdown clocks for both the Green Line and the MBTA buses.
- Construct station entrances at all four corners of the intersection.
- Install covered and heated bus shelters.
- Add a Commuter Rail station at or near the College Avenue/Boston Avenue intersection.
- If a shared space is the preferred alternative for the intersection, conduct extensive outreach to the University and surrounding communities to educate people on how to use a shared space.
- Effective controls to help slow traffic and alert vehicle operators, pedestrians, bicyclists, and other users that they are entering a shared space, such as speed bumps, signage, and audio cues should be installed.
Online Survey Results

The Tufts online commuter survey went live on April 13, 2015. Over 4,000 members of the Tufts community participated, and 2,029 respondents opted into our portion of the survey. Our portion contained questions about Green Line utilization, multimodal design issues, and urban design at the College Avenue/Boston Avenue intersection.

While our portion of the survey was open to Tufts students, staff, and faculty on all three Massachusetts campuses, the majority of respondents (73%) indicated that they are primarily located on the Medford/Somerville campus. A mix of students (58%) and employees (39%) chose to participate in our extended survey.

Figure 7. Primary affiliation of online survey respondents

Figure 8. Primary campus of online survey respondents
Green Line Utilization

Q: How frequently would you imagine riding the Green Line to travel to and from Tufts’ Medford/Somerville campus?

Q: Please tell us why you would never ride the Green Line to travel to Tufts’ Medford/Somerville campus

51% of respondents indicated that they would use the Green Line to travel to and from Tufts’ Medford/Somerville campus frequently (daily, weekly, or monthly), and 84% indicated that they would use the Green Line at least several times a year or more. Respondents who indicated that they would never use the Green Line to travel to/from the Medford/Somerville campus were prompted to answer a question specifying why. Of them, 58% indicated that it does not connect to where they need to go, while 37% indicated other reasons, such as that they work on a different campus or that it would be inconvenient.
Intersection Utilization

Q: How frequently do you travel through the Boston Ave/College Ave intersection using the following modes of transportation? Please note that this is not necessarily the mode of transportation you use to get to and from campus. For example, you might drive to campus but once you’ve parked your car, you walk to every destination on campus.

Walking is the transportation mode that members of the Tufts community utilize most frequently to traverse the intersection, followed by driving and biking. The most common other mode of transportation that respondents use to travel through the intersection is the MBTA bus.

Figure 11. Intersection utilization by mode among online survey respondents

n=1887
Intersection Improvement Preferences

Pedestrian

Q: Consider your experience using the Boston Ave/College Ave intersection as a pedestrian. Which of the following features would most improve your experience?

<table>
<thead>
<tr>
<th>Pedestrian Preferences</th>
<th>Score</th>
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<tbody>
<tr>
<td>A pedestrian bridge connecting the new station and the hillside</td>
<td>2.61</td>
</tr>
<tr>
<td>Being able to cross diagonally through the intersection between Curtis Hall and the hillside</td>
<td>3.48</td>
</tr>
<tr>
<td>Less waiting time in between walk signals</td>
<td>3.98</td>
</tr>
<tr>
<td>A crosswalk between the Memorial Steps and Anderson Hall</td>
<td>4.01</td>
</tr>
<tr>
<td>More time to cross the intersection once the walk signal begins</td>
<td>4.36</td>
</tr>
<tr>
<td>A footpath up the hillside from the future station to the Lincoln Filene Center and Paige Hall</td>
<td>4.38</td>
</tr>
<tr>
<td>Wider sidewalks</td>
<td>4.98</td>
</tr>
<tr>
<td>Other</td>
<td>6.07</td>
</tr>
</tbody>
</table>

n=1589

Figure 12. Preferences for improvements to pedestrian conditions among online survey respondents

A pedestrian bridge between the new station and the hillside was by far the most highly ranked choice for pedestrian improvements. The most popular second choice was a diagonal crosswalk between Curtis Hall and the hillside. Wider sidewalks were ranked first by only 6% of respondents and ranked seventh by 32%. Based on our field observations and comments during the charrette, our group expected that respondents would rank wider sidewalks as a higher priority.
Intersection Improvement Preferences

Bicycling

Q: Which of the following features would most improve your experience bicycling through the intersection? If you are not a regular bicyclist, please consider which features would help you feel the most comfortable bicycling through the intersection. Please note that adding bike lanes would require the removal of parking from one or both sides of the street.

Separated bike lanes, either two-way or one-way, received the highest share of first and second place rankings. Left turn boxes and shared lane markings received the lowest rankings among respondents. Our group was not surprised to learn that respondents gave preference to separated bike lanes.
**Vehicles**

Q: Which of the following traffic configurations do you think would most enhance the intersection and nearby roads? Consider not just traffic flow but also enhanced safety for vehicle drivers and pedestrians.

![Vehicle Preferences Chart](image)

**Figure 15.** Preferences for improvements to vehicular circulation among online survey respondents

Respondents were shown a graphic depicting six different alternatives (Figure 16) for reconfiguring traffic patterns and intersection geometry. The top row contained alternatives that have been proposed by various consultants, while the bottom row contained conceptual alternatives that our group developed. These alternatives included a proposal developed by our team to convert Boston Avenue in front of Curtis Hall into a pedestrian plaza, with the stretch of road extending toward Dearborn Road allowing access to building driveways only.

Compared to the responses for pedestrians and bicycling, there existed less variation in the average rankings of options regarding traffic flow. A “squared-off” intersection received the highest average ranking, followed by a pedestrian plaza on Boston Avenue south of the intersection. The option to leave the current traffic circulation as-is received the lowest average ranking, indicating that respondents are universally dissatisfied with existing conditions.

![Vehicle Circulation Alternatives](image)

**Figure 16.** Vehicular circulation alternatives shown to online survey respondents
Vehicles

Q: Creating enhanced safety in roadways, such as expanded sidewalks, curb extensions, and/or bike lanes, can require the removal of on-street parking. Would you be willing to see some or all of the on-street parking on Boston Ave and College Ave in the vicinity of the intersection be removed if it meant enhanced safety features for pedestrians and bicyclists? The City of Medford has recently installed parking meters along Boston Avenue. Accessible parking would be relocated to a suitable nearby location.

Figure 17. Willingness to remove parking among online survey respondents

Members of the Tufts community were very receptive to the idea of removing on-street parking to enhance safety, with 59% indicating that they support as much parking removal as necessary and 78% supporting at least some parking removal in order to enhance safety at the intersection. Faculty, in particular, were receptive to enhancing safety by removing on-street parking along Boston Avenue and College Avenue.
Shared Space

Q: What do you think about a well-designed shared-space intersection for the Boston Ave/College Ave intersection?

Survey respondents had mixed feelings about the possibility of a shared space at the intersection of College Avenue and Boston Avenue. While 55% indicated that they were not supportive of a shared space, 45% were supportive or potentially supportive. Respondents who were interested in the idea but needed more information detailed a number of specific concerns and questions about shared spaces.

**Common Concerns and Questions Regarding Shared Space**

<table>
<thead>
<tr>
<th>Concern/Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>Could a shared space intersection handle the current and projected traffic volumes?</td>
<td>How will drivers be educated on how to use shared space?</td>
</tr>
<tr>
<td>How would it impact traffic on nearby roads?</td>
<td>How will vehicles be prompted to slow down?</td>
</tr>
<tr>
<td>Could Boston drivers handle such an intersection?</td>
<td>Are there examples of successful shared spaces in the U.S.?</td>
</tr>
<tr>
<td>What is the data on safety?</td>
<td>How does shared space function at night when pedestrians are less visible?</td>
</tr>
<tr>
<td>How can shared space be made accessible for the blind?</td>
<td>How can shared space be made accessible for the blind?</td>
</tr>
</tbody>
</table>

**Figure 18.** Receptiveness to shared space among online survey respondents

Survey respondents had mixed feelings about the possibility of a shared space at the intersection of College Avenue and Boston Avenue. While 55% indicated that they were not supportive of a shared space, 45% were supportive or potentially supportive. Respondents who were interested in the idea but needed more information detailed a number of specific concerns and questions about shared spaces.
Urban Design

Q: Which features, amenities, and/or programming do you feel would most enhance the experience of using the station and being in the intersection?

Figure 19. Preferences for improvements to urban design features among online survey respondents

While there was not extensive variation in the average rankings of amenities to improve the College Avenue/Boston Avenue intersection, places to sit received the highest average ranking, while small-scale retail received the lowest.
Traffic Analysis

Our group conducted a traffic analysis to determine the potential implications of converting Boston Avenue south of the intersection into a pedestrian plaza and disallowing through traffic. Local access to building driveways would be permitted via Dearborn Road. If this stretch of Boston Avenue was closed to vehicular traffic, thereby activating the space for pedestrians, vehicles currently traveling on this stretch of roadway would be rerouted along College Avenue to Dearborn Road. The traffic brought down to Dearborn Road has been analyzed based on 2007 data.

Users that would be traveling toward the stretch of Boston Avenue south of the College Avenue/Boston Avenue intersection would be traveling south on the stretch of Boston Avenue north of the intersection or from either direction on College Avenue. As such, 1,108 additional cars, 39 additional trucks, and 9 additional bicycles would be using Dearborn Road from College Avenue to Boston Avenue in the morning; in the afternoon, 1,131 additional cars, 24 additional trucks, and 19 additional bicycles would be doing the same.

In the opposite direction would be users traveling north on Boston Avenue and continuing north through the intersection or turning onto College Avenue. These users would also be diverted onto Dearborn Road via a left turn. In the morning, 522 additional cars, 12 additional trucks, and 8 additional bicycles would be going in this direction on Dearborn and in the afternoon 872, 14, and 15, respectively.

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<td>Bicycles</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>901</strong></td>
</tr>
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</table>

Figure 20. Results of traffic analysis

Figure 21. Conceptual illustration of Boston Ave pedestrian plaza
Illustration by Nathaniel Fink
Chapter Seven
RECOMMENDATIONS

“Communities need to first envision what kinds of places and interactions they want to support, and then plan a transportation system consistent with this collective community vision.”

» Project for Public Spaces (http://www.pps.org/reference/streets-as-places-how-transportation-can-create-a-sense-of-community/)
Making College Square

From Harvard Square and Central Square to Davis Square and Medford Square, Boston, Cambridge, Somerville, and Medford abound with iconic squares. These iconic squares serve as neighborhood focal points, with a vibrant and unique mix of shopping, dining, and entertainment opportunities. The most successful of these squares, including Kendall, Harvard, Porter, and Davis, share three important features in common: first, they are anchored by major academic institutions; second, they are well connected and walkable to nearby residential neighborhoods; and third, they are well served by public transit. The intersection of College Avenue and Boston Avenue currently fits the first two criteria, and with the arrival of the Green Line, will fit all of the criteria. To capitalize on this, we believe that a rebranding of the intersection is in order. We propose adopting the moniker College Square to refer to the intersection and any future development that takes place at the site. By choosing a name and beginning to brand the intersection, an identity can begin to coalesce as changes and improvements are made incrementally.

Short-Term Interventions

While respondents to our survey and attendees at our charrette had aspirations for placemaking and design features to enhance public life at the intersection, there was a strong desire to see basic safety improvements for pedestrians, bicyclists and vehicles implemented before further enhancements take place. **Short-term interventions** include actions that Tufts can begin to take immediately in coordination with the Cities of Medford and Somerville to increase multimodal safety and enhance public life at College Square.

Enhance multimodal safety

In addition to ideas that stemmed from our own field observations, we heard a number of suggestions from members of the Tufts community for improvements that could be taken in the near future to enhance the safety and comfort of walking and bicycling through the College Avenue/Boston Avenue intersection.
Add bicycle accommodations via restriping

As it is currently designed, the intersection is not safe or comfortable for bicyclists. While separated bike lanes should be considered as part of a long-term intersection redesign, we believe there are opportunities to enhance safety and comfort for bicyclists through restriping. The following bicycle accommodations could be added through restriping:

Climbing bike lane on College Avenue from Dearborn Road to the bus stop in front of Anderson Hall (Point A in Figure 22). Given the steep incline of this section, a bike lane would allow bicyclists to climb the hill at their own pace and avoid having to operate in a shared lane. We recommend a striped buffer and flexible plastic bollards to increase separation for bicyclists. This bike lane would replace approximately 11 on-street residential parking spaces. As our survey results indicated, however, members of the Tufts community were very receptive to giving...
up street parking for safety enhancements. In order to create a climbing bike lane in this location, coordination with both Medford and Somerville would be necessary, as the new facility would span the municipal border.

**Bicycle accommodations at the intersection (Point B in Figure 22).** College Avenue west of the intersection and Boston Avenue north of the intersection both have wide enough cross-sections to accommodate bike lanes without the removal of any travel lanes. The current travel lanes are in excess of 12 feet, wider than necessary in an urban context. Striping bike lanes provides an opportunity to accommodate bicycles while also reducing vehicle speeds. On Boston Avenue south of the intersection and College Avenue east of the intersection, the roadway cross-section is not wide enough for bike lanes in both directions, but shared lane markings can be added in these instances. Specific consideration should be given to making it easier for bicyclists to travel straight along the Boston Avenue corridor and to turn left from College Avenue eastbound to Boston Avenue northbound.

**Figure 23.** Conceptual illustration of proposed tactical sidewalk extension in front of Curtis Hall. The area shaded in orange shows the increase sidewalk area as a result of the tactical sidewalk extension. Point A shows the narrowed turning radius which would shorten crossing distance for pedestrians and slow vehicles as they enter the intersection. Proposed changes are compatible with proposed bicycle facilities shown in Figure 22. 
Illustration by Nathaniel Fink
Short-Term Interventions

Construct a tactical sidewalk extension in front of Curtis Hall

Drivers turning from Boston Avenue northbound onto College Avenue eastbound have a tendency to speed through the turn due to the very wide turning radius provided. Installing a sidewalk extension in front of Curtis Hall (Point A in Figure 23) would help slow vehicle traffic by narrowing the turning radius and would increase sidewalk space for pedestrians. The space could also feature tables and chairs or attractive temporary seasonal planters. A temporary sidewalk extension can be constructed inexpensively using flexible plastic bollards, planters, and paint. A temporary sidewalk extension would compatible with restriping the intersection with bike lanes.

Change vehicle signal phasing

The vehicle signal phasing as it currently exists causes drivers to frequently get stuck in the middle of the College Avenue/Boston Avenue intersection when trying to proceed southbound on Boston Avenue. Vehicles are often still trying to complete this maneuver when the pedestrian signal comes on and pedestrians begin to cross, putting pedestrians in jeopardy. We believe this is a major priority and that better signal phasing can increase pedestrian safety and reduce driver delay and frustration.

Focus on snow removal around bicycle parking

Bicycle parking should be maintained in usable condition throughout the year. To achieve this, Tufts Facilities Services should explore ways to incorporate snow removal around bicycle parking racks, such as those in front of Anderson Hall, into their regular snow removal operations.

Encourage People to Linger

In anticipation of coming development and the re-imagining of the College Avenue/Boston Avenue intersection as College Square, there are numerous near-term opportunities to start activating the intersection and encouraging people to linger. These strategies may include bringing food trucks to the intersection and providing tables, chairs, and benches for members of the Tufts and surrounding communities to start enjoying the space. Parklets could also be developed on a temporary basis to provide seating and attractive greenery.
Conduct an outreach and engagement process with external community stakeholders

Although our design charrette was intended for members of the Tufts community due to the scope and short time frame of our project, we received interest in it from several outside community members and groups who were eager to engage with the University and be part of Tufts’ planning process. Due to this existing interest and the profound way in which the College Avenue Green Line station and changes to the College Avenue/Boston Avenue intersection will impact external stakeholders and community members, we recommend that the University, in conjunction with the City of Medford and the MBTA, conduct a robust, targeted outreach and engagement process around the station and intersection for external stakeholders. These stakeholders may include members of Tufts’ host communities, abutters, neighbors, and other interested parties such as the Medford Bicycle Commission and the Medford Green Line Neighborhood Alliance. Methods may include design charrettes, community meetings, surveys, focus groups, and intercept interviews. By incorporating such efforts into the planning process, Tufts will ensure that its efforts are inclusive, transparent, and advance shared goals.

The following recommendations should be taken into consideration as planning and design for a redesigned College Avenue/Boston Avenue intersection and College Avenue station moves forward.

Enhance pedestrian access

The University and other stakeholders should focus on strengthening and enhancing pedestrian desire lines, especially diagonally across the intersection in front of Curtis Hall and between the Memorial Steps and Anderson Hall.

Provide bicycle accommodations

Many charrette participants and survey respondents expressed a desire to increase separation between bicyclists and motor vehicles through the intersection. We believe that separated bike lanes are possible on all of the approaches to the intersection with the right amount of design flexibility and creativity. Arguments for removing street parking to enhance bicycle safety are bolstered by the strong support for such changes voiced by participants in the online survey. Bicyclists can also be protected from potential conflicts with other intersection users through the creative use of signal phasing.

Short-Term Interventions
Design Considerations

Bring bike share to College Square
Tufts should work with the City of Medford to bring a Hubway bike share to the College Avenue station, with connections to other bike docks on campus and throughout Medford. A new Tufts Bikes station that caters specifically to members of the Tufts community should be installed at the College Avenue station as well to provide users with more options to travel from the intersection to other destinations on campus.

Utilize attractive hardscape
It should be made obvious to all users, whether they arrive by foot, bicycle, car, bus, or another mode of transportation, that they have arrived in College Square through the use of attractive hardscape such as brick, textured concrete, or other treatments. Hardscape is more flexible than green features and should be used for the main station plaza. Enough space for food trucks or a temporary market should be incorporated.

Install better lighting for the pedestrian scale
Pedestrian scale lighting should be installed throughout the intersection, especially along Boston Avenue north of the intersection, to increase the visibility of pedestrians at night and lead to feelings of enhanced personal safety for those traversing through the intersection by foot.

Maintain two-way traffic flow
Tufts stakeholders were potentially receptive to new, one-way traffic patterns around the intersection, such as a one-way loop traveling southwest on College Avenue, east on Dearborn Road, and north on Boston Avenue. One-way traffic patterns, however, tend to create less welcoming and safe environments for bicyclists and pedestrians and would be counter-productive to the goals of improving safety and usability at the College Avenue/Boston Avenue intersection. We recommend, therefore, that two-way traffic flow be maintained in the area.

One-way traffic flow would lead to more complex routing for vehicles, bicyclists, and buses/shuttles in the area, creating confusion, longer routes and travel times, and less direct access to key points on campus. Perhaps even more importantly, one-way roadways tend increase the number of turning movements for vehicles and bicyclists and, by extension, the number of potential conflicts between vehicles, pedestrians, and bicyclists, leading to increased accidents and injury rates. By removing an opposite-traveling lane of traffic, vehicle speeds also tend to increase on one-way roads. In a study comparing the safety of one-way and two-way streets referenced by Moudon, et al, for example, rates of injury to child pedestrians were found to be 2.5 times higher on one-way streets than on two-way streets.
Design Considerations

If one-way traffic flow is pursued in the vicinity of the College Avenue/Boston Avenue intersection, we recommend that contraflow bike lanes be installed to simplify bicycle movements and decrease the number of potential conflicts between bicyclists, vehicles, and pedestrians.

Bridging College Square

Preliminary designs for an air rights building atop the College Avenue station include a pedestrian footbridge that would connect the new building with the Tufts hill. The results of our online survey and charrette show that there is strong support for a footbridge. During the charrette, participants even conceptualized the idea of an elevated pedestrian bridge on their own without prompting from our team.

However, our research of best practices yielded a variety of opinions on footbridges and their implications for pedestrian safety and the public realm. While footbridges provide safety for the pedestrians using them, they can often exacerbate safety issues at the ground level. Pedestrian bridges are often privately owned and privately operated, siphoning users away from public spaces below, thereby denying sidewalks their mixed-use, dynamic potential.

Given that a pedestrian bridge at this location seems to be a possibility, we recommend that special attention be given to enhancing traffic safety and the public realm at street level to mitigate the potential negative effects of a footbridge. Although the footbridge will take some pressure off
Ideas Worth Considering

In conjunction with the recommendations for further study presented later in this section, we recommend that Tufts also consider the following ideas specifically related to the College Avenue/Boston Avenue intersection and the College Avenue Green Line station.

Boston Avenue Pedestrian Plaza

As confirmed by participants in our online survey, creating a pedestrian plaza on Boston Avenue south of the intersection between College Avenue and Dearborn Road/the Central Services Building at 520 Boston Avenue would be an intriguing way to activate and enhance place making at the College Avenue/Boston Avenue intersection.

Pedestrian traffic along this stretch of Boston Avenue is expected to increase with the opening of the College Avenue station, and such accommodations could substantially increase the safety and ease of pedestrian travel both to the station and between destinations along the Boston Avenue science and technology corridor, such as the SEC, CLIC, and Sci Tech. A pedestrian plaza at this location would provide a prime opportunity to install various design features and amenities that members of the Tufts community favored in our online survey, such as benches, tables, and chairs, and serve as a community-oriented space where both Tufts-affiliated and non-Tufts affiliated users could linger. Meanwhile, flexible hardscape could accommodate programming, such as food trucks, an art walk, or tables/kiosks for student groups.

In designing such a pedestrian-oriented space, accommodations could be made to allow for local vehicle drop-off and access for emergency and Tufts-related vehicles, particularly those servicing Brown & Brew, the post office, and the Central Services Building. Bicycle traffic should be allowed to pass through the pedestrian plaza, which would enhance connectivity between Tufts’ various new developments along the Boston Ave corridor.
Ideas Worth Considering

Shared Space

Tufts prides itself on being a leader, innovator, and pioneer amongst its peers, and for an illustrative example, one needn’t look further than the SEC, which is being designed as one of the most energy-efficient buildings of its kind in the country. Exploring, and even potentially creating, an innovative solution such as a shared space on campus would allow Tufts to stand out as a leader among its peer institutions and set a new standard for sustainable, visionary campus development.

Shared space is still a relatively new and innovative concept, there is understandable hesitation among members of the Tufts community regarding whether or not such a concept would work at the College Avenue/Boston Avenue intersection. In both our charrette and online survey, Tufts students, staff, and faculty expressed uncertainty about less traditional traffic solutions, but many were also receptive or potentially receptive to a shared space environment.

We recommend that Tufts further explore the possibility of a shared space at this location to assess its feasibility, practicality, and desirability. Respondents to our online survey raised a number of important issues, concerns, and questions regarding the safety and suitability of shared space at the College Avenue/Boston Avenue intersection, and addressing their comments, many of which are presented in Chapter 6: Key Findings, would be an excellent place for the University to start.

If shared space is deemed to be a tenable option, extensive outreach and education to the Tufts community and surrounding communities should be conducted throughout the planning, design, and construction phases.

Commuter Rail Access at College Square

In order to serve a greater portion of the Tufts community with increased transit options, especially those who live north of the Medford/Somerville campus, Tufts should work with the MBTA to explore the demand for and feasibility of constructing an MBTA Commuter Rail stop at or in the vicinity of the College Avenue Green Line station. Under current plans, the Lowell Commuter Rail line will pass through but not stop at College Avenue. Transfers between the Commuter Rail and Green Line will only be available at North Station, a significant distance from College Avenue. Many Tufts employees live in communities north of campus that are served by the Commuter Rail, so a Commuter Rail stop along the GLX, whether it is at College Avenue or another nearby station, would greatly facilitate transit commuting by Tufts employees. Specific tasks Tufts and/or the MBTA may engage in to explore this idea could include analyzing the demand for a Commuter Rail station based on employee residential zip code data and the route of the Lowell Commuter Rail line, surveying the Tufts community and neighboring residents about their potential usage of the Commuter Rail, and engaging in a dialogue with the MBTA and other key stakeholders.
Transportation Demand Management

With the introduction of the College Avenue Green Line station to Tufts’ Medford/Somerville campus, the University’s students, staff, and faculty will have a host of new options and choices when it comes to traveling to and from the University. The strategies and recommendations presented by Nelson\Nygaard in its 2015 report provide an excellent foundation for bolstering Tufts’ TDM programs. The following recommendations, therefore, build upon and supplement those suggested by Nelson\Nygaard. Because students have a much lower drive-alone rate than employees, several of these recommendations are solely employee-focused, though many are applicable to the student body as well. Due to the scope of this report, the TDM recommendations presented here focus on the Medford/Somerville campus, but many are applicable to the entire University. Taken together with the strategies developed by Nelson\Nygaard, these recommendations will help the University fully leverage the new station and the Green Line Extension to shift mode share away from single occupancy vehicles toward more efficient and environmentally-friendly alternatives.

Policy & Programmatic Recommendations

Set a quantitative transportation goal

In the 2013 Campus Sustainability Council Report, the University adopted a number of new, quantitative sustainability-related goals, such as reducing waste by 3% each year, on average, and reducing energy consumption by 5-7% each year for three years. In line with Massachusetts’ goal under the 2008 Global Warming Solutions Act, the University also set a goal to reduce emissions by 10-25% below 1990 levels by 2020. In other areas, however, such as water and transportation, the Council eschewed quantitative goals and set only vague qualitative goals such as to “develop transportation initiatives to reduce the impacts of campus vehicles (fleet), commuting, and business travel.”

Pursuant to the Massachusetts Rideshare Regulation (310 CMR 7.17), educational institutions with 1,000 or more applicable commuters are required to reduce commuter drive alone trips by 25% against a baseline established by the institution through a commuter survey. This reduction, however, has no set timeline or deadline associated with it. Though Tufts is bound by this goal, the University has not articulated a specific time frame in which to achieve it. Other universities, on the other hand, have successfully adopted quantitative transportation goals to better guide their...
efforts. In its 2008 report “A Sustainability Plan for Princeton,” Princeton University, for example, adopted the goal to “by 2020, decrease by 10% the number of cars commuting to campus on a daily basis, thereby reducing greenhouse gas emissions and parking demand.”

As Tufts advances new TDM strategies and seeks to leverage the new Green Line station in the coming years, it will be very difficult for the University to weigh and prioritize various strategies and track its progress without a quantitative goal to work toward. As the University begins the process of adopting new transportation programs, a time frame should be set for Tufts to meet the 25% reduction goal required by Massachusetts, and the goal should be formally approved and adopted by the Campus Sustainability Council. Setting a transportation goal with a specific numeric reduction and time frame will give direction, backing, and credibility to Tufts’ TDM efforts and demonstrate the University’s commitment to this important issue.

**Adopt a flex work policy**

Flex work arrangements such as flex time and condensed work weeks allow employees to shift or alter their work schedules from standard work arrangements (9:00 AM – 5:00 PM, Monday – Friday for many Tufts employees) in order to reduce commuting, avoid rush hour, fulfill family commitments, etc. American University, for example, adopted a “Flex Work Arrangement Policy” in 2009, which defines various flex arrangements such as flex time and compressed work weeks and lays out specific guidelines and responsibilities for these arrangements.

While Tufts employees can currently negotiate flexible work arrangements with their supervisors on an individual basis, there exists no formal flex work policy that articulates eligibility, guidelines, and responsibilities. When asked in the 2014 commuting survey what TDM programs and services they would be most likely to take advantage of, staff expressed the greatest interest in flextime, demonstrating a need and demand for a formal flextime program from the members of the Tufts community who are most often bound to set work schedules. As Tufts explores the strategy of creating a University-wide policy for telecommuting and telelecturing, as recommended by Nelson\Nygaard, it would be a natural pairing for the University to simultaneously pursue the creation of a flex work arrangement policy.

**Pilot year-round service of the Davis Square shuttle**

Staff and faculty demonstrate overall low participation in Tufts’ transportation programs, but 41% of staff and 48% of faculty have used the Tufts Davis Square Shuttle (“The Joey”), making it by far the best-used program by employees. The shuttle, however, only runs during the academic year and does not operate during
semester breaks, making it an unreliable mode of transportation for employees to rely on as part of their commute. When asked what changes they would most like to see to the Tufts shuttle buses, staff and faculty were most interested by a significant margin in year-round shuttle service, with 84% and 73% respectively indicating that it was important to them.

In its report, Nelson\Nygaard recommended as one of its catalytic strategies that Tufts engage in Joey Shuttle planning. In doing so, the University should pilot year-round service of the Davis Square Shuttle, such as during summer break, to determine if such service would be as well-utilized as the above numbers suggest.

Explore a Tufts ride matching platform

Nelson\Nygaard’s recommendations encompass a majority of the programs offered by Tufts’ peer institutions. One program not included in Nelson\Nygaard’s report, however, was the establishment of an online, Tufts-specific ride matching platform to connect both students and employees with carpool and/or vanpooling partners either for commuting or one-time trips. While ride matching is currently available to the Tufts community through the public NuRide platform, a best practice at other institutions such as American University, Princeton, and Harvard is to connect members of the university through a ridesharing platform available only to members of that institution, achieved most often through the sign-up requirement of a university email address.

The Office of Sustainability explored a number of ride matching platforms in 2013 and identified several that seemed feasible. The University’s efforts to expand ridesharing, such as through Nelson\Nygaard’s strategies of incentivizing carpools and vanpools and introducing HOV ridesharing permits, will be most viable and successful if members of the Tufts community have a safe, easy, and reliable platform through which they can connect. As other ridesharing programs are pursued, Tufts should further explore a University-wide ride matching platform through steps such as conducting in-depth evaluations of various platforms, surveying students and employees about their likelihood of using such a platform, and piloting.

Explore departmental bike shares for on-campus travel, especially at satellite locations

A number of Tufts employees on the Medford/Somerville campus work at “satellite” locations such as 200 Boston Avenue, the Tufts Administration Building (TAB) at 169 Holland Street, and the Science and Technology Center (Sci Tech) at 4 Colby Street. These employees have fewer options for green intra-campus travel and lack easy access to programs such as Tufts Bikes. When asked about how they travel from their office to the main campus, a
quarter of these employees cited driving as their most common method despite their relatively close proximity to campus (Sci Tech, for example, is only .6 miles – a 12-minute walk – from Ballou Hall at the heart of campus, while TAB is .7 and 200 Boston Avenue is .8 miles from Ballou Hall). Employees reported choosing their primary mode of intra-campus travel primarily based on speed (65%) and convenience (61%).

The Office of Sustainability gets periodic inquiries from employees interested in departmental bike shares. As part of the effort to shift transportation away from single-occupancy vehicles, exploring ways to facilitate the creation of departmental bike shares would help bring these requests to fruition. A number of tools could be created to help set up these programs, including a written general agreement template and use guidelines for all participants to sign, coordination of regular bicycle maintenance, and guidance on bike monitoring and check in/check out procedures. These are all features of Harvard’s Departmental Bike Share Program. Departmental bike shares would provide Tufts employees, especially those at satellite locations, with an alternative method to get around campus that would be both convenient and fast.

**Identify opportunities to package strategies and programs together**

While many of Tufts’ current programs are advertised together (e.g. through the “Traveling Green” brochure or on the Office of Sustainability’s website), there exists no actual link or connection between the sign-up for any of the programs, increasing the burden on individuals to easily participate in multiple programs. For example, in order for employees to register to purchase transit passes with pre-tax funds and register for the Emergency Ride Home Program, both of which are related to transit, individuals have to access and sign up for the former through the HR website and Crosby Benefit Systems, Inc. and separately access and sign up for the latter via the Office of Sustainability’s website and NuRide.

Linking related programs together would therefore streamline the process and make it much easier for the Tufts community to easily sign up for and participate in multiple related programs. Examples of programs that would be sensible to link together include the following:

- **Pre-tax transit passes and Emergency Ride Home**: A link to sign up for the Emergency Ride Home Program through NuRide could be displayed to employees after they sign up for pre-tax transit passes through Crosby Benefit Systems, Inc., or the Emergency
Ride Home sign up link could be sent to participants via email.

- **NuRide rewards and bicycle registration:** Individuals can be provided with information about signing up to receive rewards for bicycling through NuRide when they register their bicycles with TUPD.

### Engagement & Outreach Recommendations

**More deeply integrate a broader range of transportation benefits into new employee orientations**

Aside from the distribution of Eco-Maps to employees, the only transportation benefit that is effectively highlighted during new hire orientations is the ability to purchase transit tickets, passes, and commuter parking with pre-tax funds through the Commuter Benefits Program. Other institutions that experience higher participation in their programs more prominently feature TDM programs in their new hire orientations. Harvard, for example, shows new hires a PowerPoint presentation that comprehensively highlights benefits related to transit, carpooling, ZipCar, Emergency Ride Home, Hubway, and other bicycle programs. Between December 1, 2013 and November 30, 2014 42 presentations were given to more than 1,500 employees during Harvard New Employee Orientation sessions.

Because all new employees go through orientation and because starting a new job is an opportune time for individuals to adopt new commuting habits, Tufts is missing a prime opportunity to increase awareness of and participation in its TDM programs by not highlighting them more prominently. In addition to featuring the pre-tax transit benefits, opportunities such as discounted ZipCar memberships, the Emergency Ride Home program, preferential parking and incentives for carpoolers, ride matching and rewards through NuRide, free bike rentals through Tufts Bikes, and any future programs the University adopts should be integrated into new employee orientations through a short but comprehensive PowerPoint presentation or video.

#### Establish an annual signature transportation event

A number of different transportation events focused on raising awareness of Tufts’ various TDM programs have been hosted on the Medford/Somerville campus. The Office of Sustainability, for example, organized a bike week in March 2013, hosted several transportation-related tabling events in the Campus Center during April 2014, and facilitated tables for ZipCar and MassRIDES at the President’s Picnic in May 2014. While transportation events have been rather prevalent on campus, they have been sporadic and taken many different forms.
To establish predictability and provide students and employees with a designated and reliable time and place where they can access transportation information and sign up for programs, Tufts should supplement any intermittent transportation-related events with an annual signature transportation event that is held at the same time and in the same place each year. Similar annual events have been organized by Tufts’ peer institutions, such as MIT, which held its annual transportation fair on March 18. For Tufts, an opportune time to hold an annual event might be in conjunction with the Massachusetts Clean Air Challenge, an annual statewide challenge in late September that is focused on sustainable transportation. This timing would allow Tufts to capitalize on promotion for the challenge that is already conducted by the Office of Sustainability, MassRIDES, MassDOT, and others and to take advantage of a time of year when both students and employees alike are settling into new commuting routines for the academic year.

**Implement a robust safety campaign**

In the University’s annual commuting survey, members of the Tufts community regularly indicate that they would be more apt to take alternate forms of transportation, such as biking, if they felt it was safer. To help address this issue, Nelson\Nygaard recommended that the University implement a multimodal safety awareness campaign that could include posters, fliers, and online pledges. While these are excellent ideas, Tufts could create an even more robust campaign by broadening its strategies to include components such as in-person safety workshops, trainings, and outreach.

Similar campaigns have been implemented by other universities, such as Harvard. The LOOK safety campaign, for example, is a collaboration between the Harvard University Transportation Services, the Harvard University Police Department (HUPD), and the Cambridge Police Department (CPD) and is focused on fostering a safe environment for bicyclists, pedestrians, and drivers. To effectively convey safety messages to the community, representatives from the three departments were stationed in high-traffic, conflict-prone areas across campus in Spring 2014. They disseminated safety information and provided rewards, such as bike helmets, free Hubway memberships, and ZipCar credit, to those who exhibited safe behavior. LOOK stickers aimed at preventing “dooring” were also given to drivers to increase awareness of their surroundings.

While outreach materials and online pledges could be effective at fostering a culture of transportation safety at the University, complementing these efforts with in-person safety training and outreach would be prudent for the University. This in-person training and outreach could include engaging directly with members of the Tufts community at events, at high-traffic areas across campus such
as the College Avenue/Boston Avenue intersection, or through safety workshops, and these efforts could be supplemented with additional transportation and safety-related trainings and videos. As with the LOOK campaign, Tufts’ safety campaign would be a natural collaboration for groups such as the Tufts University Police Department (TUPD), Public Safety Administrative Services, and Tufts Bikes.

**Create a transportation newsletter or e-list**

Aside from the Office of Sustainability’s periodic newsletter, which sometimes contains transportation-related information and reaches only a subset of the Tufts population, the University has no easy way to regularly communicate information, news, and updates about transportation and TDM programs to students and employees. To address this issue, a number of other Universities have established transportation newsletters and e-lists to increase and streamline transportation communications. From 2009 to 2013, for example, Princeton University issued the semi-annual inMOTION electronic newsletter. The newsletter was distributed to all members of the community who had signed up for or were participating in TDM programs and provided extensive information about the University’s various transportation events and programs, including robust data on participation in various TDM initiatives. Harvard also disseminates electronic pedestrian and bicycle updates, which members of the community can sign up for online, while MIT has a bicycle e-list that facilitates the sharing of bicycle-related information within the University. Creating either a comprehensive transportation-focused newsletter, like Princeton’s, or an e-list that focuses on specific topics, like Harvard’s and MIT’s, would facilitate the dissemination of pertinent TDM information and news to the Tufts community and have the potential to both increase awareness of and participation in Tufts’ programs.

**Collect and publicize transportation testimonials or green commuter profiles**

The majority of Tufts’ current transportation outreach materials, both print and online, solely highlight information and details about the University’s various programs and incentives. Complementing these details with transportation testimonials or profiles of “green” commuters at the University would make the information more personal and interesting by demonstrating real people engaging in sustainable transportation behaviors.

Stanford University has several campaigns that highlight both students’ and employees’ real-life experiences with alternate modes of transportation. Two bicycle safety testimonials, for example, recount a staff member’s personal experience wearing a helmet during a serious bike accident and provide a trauma surgeon’s insight into the importance
of wearing a helmet for protecting the brain from irreversible injury. Two photo contests, “Why I Commute the Way I Do” and “Picture My Commute,” show photos from various community members’ commutes along with their names and departments. The “Why I Commute the Way I Do” photos also describe submitters’ modes of transportation and brief statements of why they chose and enjoy those transportation modes.

As reflected in Tufts’ annual commuting survey, a number of both students and employees at various levels in numerous departments across the University currently commute by alternate means such as taking the MBTA subway or bus, walking, and bicycling. Gathering photos, information, stories, and quotes from these commuters about why they choose their mode, why they enjoy it, and tips they have for others would be a great way for Tufts to increase the visibility and prominence of sustainable commuting habits at the University, help foster the creation of social norms around these behaviors, and provide recognition to those currently commuting in a “green” manner. These profiles or testimonials would provide a level of credibility and personality to the information currently disseminated by sources such as the Office of Sustainability and could be featured on websites, social media, in newsletters, and in print.

Market NuRide and the MassCommute Bicycle Challenge to bicycle commuters

When asked what bicycling incentives or infrastructure improvements they would be most interested in during the 2014 commuting survey, Tufts students, staff, and faculty were most interested in designated bike lanes. However, the next most popular option for both students and staff was the ability to earn rewards for bicycle commuting, with 69% of students and 80% of staff indicating that they were either likely or somewhat likely to use a bicycle rewards program. Rewards such as discounts and coupons for bicycling (and taking other green modes of transportation) are already available to the Tufts Medford/Somerville community through NuRide. Better marketing NuRide to bicycle commuters through the strategies presented in this report and in Nelson\Nygaard’s TDM plan would thus be a logical, low-cost way for the University to meet this demand. Rewards, prizes, and raffles are also available to Tufts bicyclists through the MassCommute Bicycle Challenge, which takes place each spring during Bay State Bike Week. Because the challenge typically coincides with senior week, a difficult time to garner student participation, the MassCommute Bicycle Challenge provides a particularly great opportunity to offer staff members the ability to earn rewards for their bicycling.
Leverage outside partnerships and resources

Tufts has established partnerships and relationships with personnel at MassRIDES, an organization within the Massachusetts Department of Transportation (MassDOT) that administers programs like NuRide and Emergency Ride Home for the Medford/Somerville and Grafton campuses, and A Better City Transportation Management Association (ABC TMA), a nonprofit organization that provides programs to promote sustainable transportation options for employees on Tufts’ Boston campus. In addition to providing programs that can be offered to the Tufts community, both organizations also specialize in outreach and marketing, and they offer extensive print and web-based resources as well as personnel who staff events. In addition, they have extensive knowledge of TDM best practices both within the industry and at peer institutions. As Tufts seeks to shift transportation modes and increase its transportation outreach efforts in an efficient and cost effective manner, the University should ensure that it is leveraging these organizations, as well as other transportation partners like ZipCar, and their resources to their full potential and not unnecessarily duplicating efforts.

For these same reasons, in addition to leveraging outside partnerships, Tufts should also make use of existing outside resources whenever possible, especially as it implements such strategies as establishing a TDM clearinghouse to centralize transportation information on the web. Information about Tufts’ TDM programs and resources is currently scattered across at least nine different websites. While this sounds extensive, very few external resources are highlighted on these pages. Best practice at other institutions is to highlight not only university-specific resources on their centralized transportation websites but also external resources. On its Commuting & Rideshare web page, for example, Boston College provides links to Yahoo! Maps, Mapquest, AAA, WBZ traffic reports, state police emergencies, the Weather Channel, and a variety of MBTA and MassPort resources. On its CommuterChoice website, Harvard also highlights a number of external resources, such as the MAPC’s Greater Boston Cycling & Walking Map and the City of Boston’s Urban Cycling Guide. Promoting similar existing resources will not only decrease the burden of creating extensive marketing materials and resources on Tufts, it will lessen the burden of information-searching on the Tufts community.
Recommendations for further study

Many of the recommendations above will require further study and work by the University. Based on our review of existing work around the College Avenue Green Line Station, the College Avenue/Boston Avenue intersection, and TDM at Tufts, and in addition to the recommendations made above, we recommend the following specific areas for further study.

- Develop bicycle network recommendations, programmatic enhancements, and on-campus infrastructure to promote bicycle commuting. Methods may include evaluating best practices from bicycle-friendly universities across the U.S., surveying existing conditions along key routes to and from campus, and GIS analysis (such as bicycle trip demand analysis based on employee residential zip code data, identification of the most important routes to and from campus, and level of stress analysis for major routes to and from campus).

- Develop detailed site plans and renderings for the College Avenue/Boston Avenue intersection incorporating the urban design elements discussed in this report.

Several of these recommendations, such as conducting an external stakeholder engagement process, exploring the demand for and feasibility of a Commuter Rail station, developing detailed bicycle recommendations, and preparing site plans for the College Avenue/Boston Avenue intersection, may be particularly well-suited as possible projects for future UEP Field Projects teams, although care should be taken to not duplicate efforts being undertaken by consultants or other groups the University or other stakeholders may engage.
References


