

# CITY OF CAMBRIDGE Traffic, Parking and Transportation

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# MEMORANDUM

| То:   | Cambridge Planning Board   |
|-------|--|
| From: | Joseph E. Barr, Director   |
| Date: | January 11, 2017   |
| Re:   | Kendall Square Urban Renewal Plan (KSURP), MXD Infill Development Concept Plan<br>(PB#315) |

The Traffic, Parking, and Transportation Department (TP&T) has been working with Boston Properties Limited Partnership on the Special Permit Application for the proposed Kendall Square Urban Renewal Plan (KSURP) Mixed Use Development District (MXD) Infill Development Concept Plan.

#### **Recommended Transportation Mitigation**

TP&T submitted a memo dated December 15, 2016 to the Planning Board with an overview of the transportation mitigation program that we were discussing with the applicant at that time. TPT&T has continued to work with the applicant since then and has completed a final proposed mitigation program for the KSURP MXD Infill Development Plan that is consistent with our December 15, 2016 memo but includes additional detail related to the expected scope of work and limits for reconstructions of streets, phasing for mitigation items, and trip generation triggers for the transportation monitoring program.

• Attached is TP&T's updated proposed transportation mitigation program for the Planning Board's consideration, to which the application has agreed.

#### Parking

In TP&T's earlier September 14, 2016 memo to the Planning Board we recommended that the applicant provide an updated parking demand analysis to reflect the current proposed project. On behalf of the applicant, VHB Inc., submitted the attached memo dated January 4, 2017 with updated trip generation and parking demand analysis for the project. TP&T has reviewed the memo and finds that it is adequate, and offers the Planning Board our parking recommendations for consideration as conditions to the Projects Planning Board Special Permit:

• TP&T supports the project providing a maximum of 785 net new parking spaces (reduced from 809 spaces previously presented in the TIS) to support the KSURP MXD Infill Development Concept Plan.

| Parking Facilities/Garages | Existing Parking | Proposed New<br>Parking for<br>Concept Plan | Future Parking |
|----------------------------|------------------|---|----------------|
| 135 Broadway/Blue Garage   | 1170             | (-215)                                      | 955            |
| Yellow Garage              | 734              | 0   | 734            |
| Green Garage               | 804              | 0   | 804            |
| Building A (145 Broadway)  | 0                | 350   | 350            |
| Building B (250 Binney)    | 0                | 650   | 650            |
| Total Parking              | 2,708            | 785   | 3,493          |

• The Kendall Square Urban Renewal Area parking supply will change from 2,708 total existing parking spaces to 3,493 total parking spaces as shown below.

- The project's parking ratios will meet the zoning under Article 14 for the project as follows:
  - Office Use: Maximum 0.9 spaces/1,000 GFA)
  - Residential Use: Minimum 0.4 spaces/dwelling unit

As proposed the project will have a Maximum of 528 office use parking spaces (0.84 spaces/1,000 sf based on approximately 627,134 net new Office space GFA, and a Minimum of 257 parking spaces dedicated to residential use (0.6 spaces/dwelling unit).

To ensure that the parking for the project's Office use does not exceed 0.9 spaces/1,000 GFA at . any time, the applicant must operate the garages in a manner that such restriction will be adhered to (i.e. if residential parking demand is less than 0.6 spaces per unit during the daytime then the parking spaces should not be offered to Office employees if doing so will increase the office parking supply to above 0.9 parking spaces/1,000 GFA. Because the KSURP parking is provided at multiple locations and serves multiple uses, the applicant should provide a proposed KSURP parking management plan and obtain approval from TP&T and CDD prior to the issuance of the project's first Occupancy Permit. This plan must describe the system and protocols in detail on how the project will not exceed a 0.9 parking ratio for Office use at Building A (145 Broadway) and Building B (250 Binney Street) plus the additional 14,000 GFA Office conversion at the Broad Institute. For example, garage access control gates could automatically inventory the number of Office parking spaces used in the garages; whenever the total number reaches the 0.9 parking ratio for the specific buildings or uses, a sign will illuminate that the garage entrance is closed for that use. The plan should include reports provided to TP&T on a schedule mutually agreed to by TP&T and the applicant. The plan should also permit representatives of TP&T to inspect the facility and confirm the parking plan is working as intended. Other potential options could be signing parking spaces as dedicated to residents only, to prevent over allocation of office use parking spaces that exceed the approved parking ratio.

#### Parking and Transportation Demand Management (PTDM) Plan

The proposed KSURP Infill Development PTDM Plan has been completed and approved.

Finally, TP&T wants to thank Boston Properties and the Cambridge Redevelopment Authority for working with us on this exciting project and we look forward to continuing to work with them as the project moves forward.

# KSURP – PB#315 MXD Infill Concept Plan

### 1/11/2017

| Mitigation   | Phasing   |
|--|---|
| Kendall Square Transit Enhancement Program (KSTEP). As described in the<br>Transportation Impact Study (TIS) and Planning Board Special Permit<br>application, the Applicant will provide funding for the KSTEP Fund through<br>an initial payment in the sum of six million dollars (\$6,000,000). The City and<br>KSTEP Working Group shall meet to decide on funding allocations, as defined<br>in the KSTEP MOU. Potential transit mitigation may include: MBTA Red Line<br>Kendall Square improvements, Kendall Station/Kendall Square Connection<br>Enhancements, MBTA Red Line Service Modernization Improvements, Long-<br>Range Feasibility Investigations, proposed MBTA Bus and EZRide Shuttle<br>Improvements, such as 2-3 years net operational cost of a bus route linking<br>Sullivan Square with Kenmore Square via Lechmere and Kendall stations.   | Phasing shall be as described in the MOU.   |
| <ul> <li>100% Design and Reconstruction of Binney Street and Galileo Galilei Way between Sixth Street and Broadway, including improvements at the intersection of Galileo Galilei Way/Broadway and respective approaches. Based on the 25% streetscape redesign plans currently underway by the CRA for Binney Street and Galileo Galilei Way, the Project should advance the 25% plans to 100% and build the street layout as designed in the ALTA plans along Binney Street/Galileo Galilei Way between 6<sup>th</sup> Street and Broadway. The plans will include items such as, traffic signal equipment and timing, real-time vehicle/bike count stations, continuous separated bike lanes (cycle tracks), safety improvements to approaches to the major cross streets and potential bus priority treatments. The Binney/Galilei Way/Broadway signal improvements may include new mast arms, signal controllers, audible pedestrian signals (APS), vehicle detection (loops or other technology) and real time vehicle and bike count station to include vehicles and bikes traveling north, south, east and west.</li> <li>The street layout is more specifically defined as including the following elements:</li> </ul> | 100% design shall be completed<br>prior to issuance of a Certificate<br>of Occupancy for the first<br>Commercial Building<br>constructed.<br>Construction shall be completed<br>prior to the issuance of the<br>Occupancy permit for the 2 <sup>nd</sup><br>Commercial building. An<br>Occupancy Permit may be<br>issued prior to complete<br>reconstruction, as approved by<br>the city, such as if the work is<br>substantially completed or work<br>is delayed due to circumstances<br>which are out of the control of<br>the developer. |
| <ul> <li>Surface Elements: <ul> <li>Sidewalks – fully ADA compliant (both sides of the street)</li> <li>Cycle Tracks – asphalt – evaluate porous asphalt (both sides of the street)</li> <li>Resetting and replacing Granite curbing as necessary (both sides of the street)</li> <li>Roadway reconstruction – potentially full depth (City Standard base course + Asphalt) curb to curb, depending on condition of the streets and the grading changes.</li> <li>Potential removal of median.</li> <li>Planting areas and street trees, depending on available space.</li> <li>Evaluate and install irrigation, depending on extent of plantings.</li> <li>Bus shelter, benches and trash cans</li> </ul> </li> <li>Utility Elements:</li> </ul>  |   |
| <ul> <li>New catch basins, manholes and laterals. Infiltrating catch basins<br/>will need to be evaluated.</li> </ul>  |   |

# KSURP MXP Infill Concept Plan

| Mitigation  | Phasing   |
|---|---|
| <ul> <li>Existing private utilities may have to be lowered, relocated or upgraded. These would not be at the expense of the permittee, but the permittee would need to coordinate their work.</li> <li>Street lighting – if the area has older-style Kendall Square lights, they will need to be replaced with the type of lights used on Main Street – 1907 (roadway scale lighting) and Se'Lux (pedestrian scale lighting) street light fixtures. Reuse or provide new conduit, control box and hand holes as necessary.</li> <li>Traffic signals – Galileo / Broadway, Binney / Galileo / Fulkerson, and Binney / Sixth intersections will need to be replaced and/or reconfigured.</li> </ul>   |   |
| The permittee will cooperate with the City if the design requires changes to the streetscape/sidewalk edge, including over the property line if necessary.  |   |
| The applicant will provide restriping, bicycle lane markings, and reflective<br>pylons on both sides of the street along Galileo from Broadway to Main<br>Street to facilitate the roadway-level connection for bicycles between the<br>intersections of Broadway and Galileo and Main and Galileo.   |   |
| <ul> <li>100% Design and Reconstruction of Broadway between Ames Street and Galileo Galilei Way. Based on the 25% streetscape redesign plans currently underway by the CRA, the Project should advance the 25% plans to 100% and build the street layout as designed in the ALTA plans along Broadway between and including, as needed, Ames Street and Galileo Galilei Way, including the crossing of the Grand Junction pathway on Broadway. Improvements may include items such as: traffic signal equipment and timing, real-time vehicle/bike count stations, road diets, transit priority treatments, bus/shuttle stop amenities, separated bicycle facilities/cycle tracks, pedestrian improvements, and reconfigured area for hotel dropoff/pick-up and taxi stand assuming the willing cooperation of impacted private property owners other than the permittee. The permitted will cooperate with the City if the design requires changes to the streetscape/sidewalk edge, including over the property line if necessary.</li> <li>The street layout more specifically defined as including the following elements:</li> </ul> | <ul> <li>100% design shall be completed<br/>prior to issuance of a Certificate<br/>of Occupancy for the first<br/>Commercial Building<br/>constructed.</li> <li>Construction shall be completed<br/>prior to the issuance of the<br/>Occupancy permit for the 2<sup>nd</sup><br/>Commercial building. An<br/>Occupancy Permit may be<br/>issued prior to complete<br/>reconstruction, as approved by<br/>the city, such as if the work is<br/>substantially completed or work<br/>is delayed due to circumstances<br/>which are out of the control of<br/>the developer.</li> </ul> |
| <ul> <li>Surrace Liements:</li> <li>Sidewalks – fully ADA compliant (both sides of the street)</li> <li>Cycle Tracks – asphalt – evaluate porous asphalt (both sides of the street)</li> <li>Resetting and replacing Granite curbing as necessary (both sides of the street)</li> <li>Roadway reconstruction – potentially full depth (City Standard base course + Asphalt) curb to curb, depending on condition of the streets and the grading changes.</li> <li>Potential removal of median.</li> <li>Planting areas and street trees, depending on available space.</li> <li>Evaluate and install irrigation, depending on extent of plantings</li> </ul>  |   |

### KSURP MXP Infill Concept Plan

| Mitigation   | Phasing  |
|--|--|
| Bus shelter, benches and trash cans  |  |
| <ul> <li>Utility Elements:</li> <li>New catch basins, manholes and laterals. Infiltrating catch basins will need to be evaluated.</li> <li>Existing private utilities may have to be lowered, relocated or upgraded. These would not be at the expense of the permittee, but the permittee would need to coordinate their work.</li> <li>Street lighting – if the area has older-style Kendall Square lights, they will need to be replaced with the type of lights used on Main Street – 1907 (roadway scale lighting) and Se'Lux (pedestrian scale lighting) street light fixtures. Reuse or provide new conduit, control box and hand holes as necessary.</li> <li>Traffic signals – Galileo / Broadway intersection will need to be replaced and/or reconfigured.</li> </ul> |  |
| Maintain sidewalks and protected bicycle facilities (i.e. cycle tracks) on<br>Binney Street and Galileo Galilei Way between/including 6 <sup>th</sup> Street and<br>Main Street, and Broadway between/including Ames Street to Galileo<br>Galilei Way. The Applicant shall be responsible for maintenance such as,<br>debris, snow and ice removal, crack repair, etc.   | Ongoing following construction of the cycle tracks.  |
| <b>Hubway Stations.</b> Finance the purchase and installation of either A.) Two (2) 19 dock Hubway stations or B.) One (1) 27 dock Hubway station and expand the existing Binney Street station to a 27 dock station. The City and BP shall identify mutually acceptable location(s) for the Hubway station(s).  | Initial payment for equipment<br>to be made to the City before<br>the first Building Permit,<br>excluding Demolition permits.  |
| <b>Hubway Maintenance and Operations.</b> Pay ongoing annual operations and maintenance fees to the City for the Hubway Station(s).  | Annual operations and<br>maintenance fees shall be paid<br>to the City before June 1st in the<br>year the Hubway Station is<br>expected to be installed, and<br>ongoing before June 1st<br>annually. |
| <b>Sixth Street Connector Pathway Improvement</b> . Improve the Sixth Street<br>Connector Pathway by providing separated pedestrian and bicycle facilities<br>while maintaining the mature trees along the existing pathway. The design<br>of the pathway shall be approved by the Community Development<br>Department, Department of Public Works and Cambridge Redevelopment<br>Authority, and shall align with the future cycle track on Ames Street. As<br>currently maintained today, the Applicant shall be responsible for<br>maintaining the Sixth Street Connector pathway for bicycles and<br>pedestrians.   | Construction to be completed<br>prior to the issuance of the<br>Occupancy Permit for the first<br>Commercial building<br>constructed.<br>Maintenance of pathway to be<br>ongoing.                    |
| Wayfinding and Real-time Transit and Hubway screens. Provide real-time transit screens in the public plaza framed by the Marriott Hotel and 50 Broadway, and 255 and 325 Broadway on Parcel 4. Transit screens shall also be provided in lobbies of new commercial buildings.  | Prior to the issuance of the<br>Occupancy Permit for the first<br>Commercial building<br>constructed.  |

### KSURP MXP Infill Concept Plan

| Mitigation   | Phasing  |
|--|--|
| <b>Grand Junction.</b> The Applicant shall continue to cooperate and coordinate with the City and CRA on the Grand Junction pathway connections at intersections.  | Ongoing.   |
| <b>MBTA Red Line Station on North Side of Main Street.</b> The Applicant should construct no more than \$400,000 in improvements to the MBTA Red Line Outbound Station on the north side of Main Street. These improvements shall be based on the MBTA's state of good repair needs assessment and shall include items such as safety and accessibility improvements, head house and platform flooring, walls and ceiling conditions, drainage, real-time transit screens on the outside (sidewalk side), climate resiliency, wayfinding, aesthetics improvements, etc.). Any feasible platform improve boarding/alighting from trains which may benefit train dwell times/headways/frequency/reliability. | Improvements to be approved<br>by the City and MBTA and<br>funded prior to the issuance of<br>the Occupancy Permit for the<br>first Commercial building<br>constructed, and shall be<br>substantially completed prior to<br>the issuance of the Occupancy<br>Permit for the second<br>Commercial building<br>constructed.<br>An Occupancy Permit may be<br>issued prior to completion of<br>this work, as approved by the<br>city, such as if the work is<br>substantially completed or work<br>is delayed due to circumstances<br>which are out of the control of |
|  | the developer.   |
| <b>Loading Dock and Traffic Management Plan.</b> The Permittee shall provide a loading dock and traffic management plan for City approval. The Property Owner shall monitor operations and if the operations cause issues on public users and infrastructure (e.g. vehicles blocking other users or parking illegally) then BP will work with the City to resolve it.  | Prior to the issuance of a<br>Certificate of Occupancy of the<br>commercial building and<br>ongoing. Plan may be later<br>amended with TP&T approval.  |

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| Residential Transportation Demand Management Measures (TDM).  | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.  |
|---|--|
| 1. Make available a minimum of 10 carsharing parking spaces in the Blue<br>(North) Garage for a vehicle-sharing company. As demand dictates<br>additional carsharing vehicles will be added over time. Provide additional<br>designated car-sharing parking spaces within and/or nearby by KSURP<br>parking garages, if deemed feasible. (These are designated and priority<br>spaces for carsharing users arriving for short-periods of time which is<br>different than carsharing spaces that "live" in the parking garages.  | Ongoing after issuance of<br>Occupancy Permit for the<br>residential building.   |
| Provide electric vehicle (EV) charging stations (1 EV space per 100 auto parking spaces, i.e. 10 EV spaces in the Blue Garage) and preferential parking to alternative fuel vehicles, as dictated by the market.  | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.  |
| 2. Offer each adult member of each household (up to 2) upon move-in a<br>Charlie Card valued at the cost of a 50% bus/subway pass (subject to fare<br>increases) for 3 consecutive months. This benefit will end after 3 months for<br>the household and begins anew upon unit turnover.  | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.  |
| <ol> <li>Offer each adult member of each household (up to 2) upon move-in a 1-<br/>year Gold-Level Hubway membership. This benefit will end after one year for<br/>the household and begins anew upon unit turnover.</li> <li>Provide air pumps and other bike tools in the bicycle storage room.</li> </ol>  | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.<br>Prior to the issuance of<br>Occupancy Permit of the<br>residential building |
| 5. Join the Charles River Transportation Management Association (TMA)   | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.  |
| 6. Provide free EZRide Shuttle sticker for each adult member of each household each year.   | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.  |
| 7. Charge parking (market rate) separately from the residential rent, in order to remind tenants how much they pay for parking. The Permittee shall provide the summary of on-site parking fees to the TP&T.  | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.  |
| <ul> <li>8. Either install a real-time multimodal transportation display screen to help people decide which mode to choose for each trip (transit, carsharing vehicle, Hubway bike share, etc.), or establish a transportation information center located in an area that is central, visible, convenient, and equally accessible to all residents and visitors. The center will feature information on: <ul> <li>a. Available pedestrian and bicycle facilities in the vicinity of the site</li> <li>b. MBTA maps, schedules, and fares</li> <li>c. Area shuttle map and schedule, if one exists</li> <li>d. "Getting Around in Cambridge" map and other CitySmart materials (available at the Cambridge Community Development office)</li> <li>e. Location of bicycle parking</li> <li>f. Hubway regional bikeshare system</li> <li>g. Carsharing</li> <li>h. Ride-matching</li> <li>i. Other pertinent transportation information</li> </ul> </li> </ul> | Prior to the issuance of<br>Occupancy Permit of the<br>residential building.   |

| <ul> <li>9. Designate a Transportation Coordinator (TC) for each residential building or the site to manage the TDM program. The TC will also oversee the marketing and promotion of transportation options to all residents at the site in a variety of ways:</li> <li>a. Posting information in a prominent location in the building and on the Project's website, social media, and property newsletters.</li> <li>b. Responding to individual requests for information in person and via phone and email</li> <li>c. Performing annual transportation surveys.</li> </ul>   | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.  |
|---|--|
| <ul> <li>10. Require the TC to compile and distribute up-to-date information<br/>explaining all transportation options to all new residents as part of their New<br/>Resident Packet. The packets will contain information on both the range of<br/>options available to any building manager programs to support the use of<br/>these options and will include: <ul> <li>a. Available pedestrian and bicycle facilities in the vicinity of the site</li> <li>b. MBTA maps, schedules, and fares</li> <li>c. Area shuttle map and schedule, if one exists</li> <li>d. "Getting Around in Cambridge" map and other CitySmart materials</li> <li>e. Location of bicycle parking</li> <li>f. Hubway regional bikeshare system</li> <li>g. Carsharing</li> <li>h. Ride-matching</li> <li>i. Other pertinent transportation information</li> </ul> </li> </ul> | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.  |
| 11. Require that the TC will be on-site during a minimum of 2 hours per week and will be available during other times to residents via email and telephone. Email and phone information for the TC will be posted in the transportation information center.   | Ongoing after issuance of<br>Occupancy Permit of the<br>residential building.  |
| <b>Loading Dock/Residential Move-In/Move-Out Traffic Management Plan.</b><br>The Permittee shall provide a loading dock/resident move-in/move-out, and traffic management plan for City approval. The Property Owner shall monitor operations and if the operations cause issues on public users and infrastructure (e.g. vehicles blocking other users or parking illegally) then BP will work with the City to resolve it.  | Prior to the issuance of a<br>Certificate of Occupancy of the<br>residential building and ongoing.<br>Plan may be later amended with<br>TP&T approval. |
| <b>Transportation Monitoring.</b> The Permittee shall commit to a transportation monitoring program and mitigation measures whose effectiveness is commensurate with the triggers established in the <b>Recommended</b><br><b>Transportation Monitoring Program</b> .   | Annual and Biennial monitoring<br>reports as described in the<br>Recommended Transportation<br>Monitoring Program.                                     |

#### Recommended Transportation Monitoring Programs for KSURP Infill Concept Plan

In order to be assured that the Kendall Square Urban Renewal Plan MXD Infill Concept Plan is meeting the traffic generation targets that are the basis for approval of the Concept Plan on an ongoing basis, the Project shall be required to monitor the project's traffic generation and mode splits as buildings are built and occupied.

#### **Residential Transportation Monitoring Program**

The residential buildings will have residential Transportation Demand Management measures.

To monitor the traffic generation, parking demand and utilization, the Permittee shall implement a monitoring program to include: annual monitoring of mode split for all trips; biennial garage driveway counts; biennial counts of parking space utilization (vehicles and bikes); and a detailed survey of the residents with regard to their pattern of trips, auto and bicycle ownership or leased, and where the residents customarily store such vehicles overnight. All surveys and counts shall be designed and conducted in a manner approved by the CDD and TP&T. Approval of the form of any survey instrument or monitoring method is required before issuance of the first Certificate of Occupancy for the Residential Building.

Monitoring and surveying shall begin when Occupancy of the residential building has reached fifty (50%) or within one year of the date of the issuance of the first Certificate of Occupancy, whichever is sooner. If the Certificate of Occupancy is issued between September 1<sup>st</sup> and February 29<sup>th</sup>, the monitoring should take place during the months of September or October and be reported to the City no later than November 30. If the Certificate of Occupancy is issued between March 1<sup>st</sup> and August 31<sup>st</sup>, monitoring should take place during the months of April or May and be reported to the City no later than June 30.

#### Non-Residential Transportation Monitoring Program

Using data collected as part of the PTDM Plan, KSURP traffic data collection as required under Section 61 Findings, and supplemented when necessary, the Permittee will provide to TP&T and CDD transportation monitoring reports. All surveys and counts shall be designed and conducted in a manner approved by the CDD and TP&T, and shall include the following information:

- Annual mode split surveys reported to CDD and TP&T (may use the annual PTDM monitoring reports).
- Biennial driveway counts, auto and bicycle parking utilization surveys (may use biennial PTDM driveway counts).
- Biennially when driveway counts and vehicle/bicycle parking counts are collected, a Project Vehicle and Transit Trip Generation report shall be provided to TP&T and CDD in a format approved by TP&T and CDD. The primary focus of the report will be to compare the TIS PM peak hour vehicle and transit trip generation estimates with actual trip generation. The trip generation monitoring and thresholds will be based on the Project's Office, Laboratory and Retail trips.

If any monitoring report submitted during the build-out of the project determines that trip generation for existing occupied office, lab and retail\_GFA exceeds **300 PM vehicle trips** or **exceeds 390 PM transit trips**, then new driveway counts and trip generation report must be provided the following year (instead of biennially), and if trip generation continue to exceed the vehicle trip or transit trip thresholds then additional TDM and infrastructure improvements commensurate with the level of exceedance, as described below must be implemented to keep trips at or below the levels projected in the January 4, 2017 trip generation update memo by VHB.

During the course of the project build-out, the PM vehicle and transit trips will be compared to the TIS estimates on a proportional basis related to project build-out or reflective of the building specific TIS trip generation estimates, to determine if the project trip generation is on target with the TIS assumptions. This will allow the permittee to make voluntary adjustments to its demand management programs to reduce the likelihood that the overall trip generation targets will be exceeded.

A final number of PM peak hour vehicle trips will be provided and certified by TP&T and CDD. The PM peak hour thresholds are as follows:

#### Trip Generation Thresholds (2015 Kendall Square Redevelopment TIS Estimates\*)

|         | <u>PM peak hour trips</u> |
|---------|---------------------------|
| Vehicle | 300                       |
| Transit | 390                       |

\*Vehicle and Transit trips calculations are based on VHB's January 4, 2017 updated TIS trip generation estimates for PM peak hour Office and Retail uses: 51 PM Peak hour retail vehicle trips + 250 PM Peak hour Office vehicle trips = 301, rounded to 300 PM Peak hour vehicle trips. 66 PM Peak hour retail transit trips + 326 PM Peak hour Office transit trips = 392, rounded to 390 PM Peak hour transit trips. Source is January 4, 2017 KSURP Infill Development Estimated Trip Generation. Residential trips are not included in the Trip Generation thresholds.

If monitoring indicates trip generation in excess of the thresholds above, and if MBTA and private (open to the public) transit capacity has not improved (a 5% or greater increase in calculated number of passengers accommodated in the PM peak hour), the proponent will work with the City staff to identify and implement additional mitigation measures intended to reduce auto mode share or peak hour vehicle trip generation or assist in improving transit options or shifting transit trips to walking and bicycle trips. The measures the proponent will consider include the following items or others that may have similar or better results and will be determined in consultation with the City of Cambridge. The proponent will commit to implement measures whose effectiveness is commensurate with the exceedance. Possible measures may include but are not limited to the following:

#### If exceeding vehicle trips threshold:

Shift vehicle trips to other modes and make sure that any measures that shift trips do not trigger other trip thresholds.

- Increase parking rate to market rate.
- Increased MBTA pass subsidies.
- Larger financial incentives for formation of vanpools/additional carpools.
- Acceleration of implementation of planned transit, bike infrastructure or TDM programs.
- Free bikes as rewards for not driving.
- Additional, reasonable measures as mutually agreed upon by the Permittee and the City.

**If exceeding Transit trips threshold** only if MBTA and private transit (open to the public) capacity has not been improved (a 5% or greater increase in calculated number of passengers accommodated in the peak hour):

- Contribute an additional \$500,000 to the City of Cambridge of KSTEP fund as approved by the City, to be established by the City, which shall be used to fund the cost of improving transit access to Kendall Square. The \$500,000 funds will be in addition to the initial \$6,000,000 for the KSTEP program and addition to other ongoing funding mechanism established by the KSTEP program for long-term sustainability of the KSTEP program.
- Shift transit trips to walking, bicycling and/or improve transit services.
- Provide additional bicycle parking facilities.
- Financial incentives for walking and biking.
- Additional, reasonable measures as mutually agreed upon by the Permittee and the City.

#### Methodology for determining Vehicle and Transit trip generation:

A combination of methods will be used to measure vehicle trips generated by the project including, but not limited to the following:

- Vehicle trips into and out of the project garages through actual car counts obtained from garage gates. Data should indicate the type/user of the vehicles entering/exiting (i.e. commercial office or laboratory employees or visitors, retail employees or patrons, academic uses, other). Data should be provided and summarized for daily, hourly, and peak hours. PM peak hour is the threshold.
- The counts will be supplemented with surveys of office and laboratory employees, visitors, and retail employees and patrons, to obtain information on number of vehicle trips during PM peak hour, location of parking (on-site or off-site), and whether dropped-off or picked up by vehicle.
- PM peak hour transit trips will be calculated based on number of employees, transit mode share, arrive/departure times, MBTA Charlie cards issued or subsidized will also be reported for office, laboratory and retail uses to help verify the PM transit trip information.

For the purposes of this agreement, the transit capacity of approximately 23,600 (23,679) passengers in the peak hour as presented in the KSRUP TIS (Table 10a.1 System Peak Hour Capacity (Per MBTA Data) from page 87 of the TIS, shown below, will be utilized as the base number of passenger accommodated on the MBTA and private transit (open to the public).

| Mada           | [roguopo(a) |       | # Passengers | # Cars | Resulting<br>Capacity <sup>(d)</sup><br>(# Passengers / |
|----------------|-------------|-------|--------------|--------|---|
| wode           | Frequency   |       | / venicie**  |        | Peak Hour)  |
| Red Line       |             |       |              |        |   |
| Inbound        | 13          | 0.848 | 167          | 6      | 11,046  |
| Outbound       | 13          | 0.848 | 167          | 6      | 11,046  |
| MBTA Bus       |             |       |              |        |   |
| 64 Inbound     | 2.5         | n/a   | 54           | n/a    | 135   |
| 64 Outbound    | 3           | n/a   | 54           | n/a    | 162   |
| 68 Inbound     | 2           | n/a   | 54           | n/a    | 108   |
| 68 Outbound    | 2           | n/a   | 54           | n/a    | 108   |
| 85 Inbound     | 2           | n/a   | 54           | n/a    | 108   |
| 85 Outbound    | 2           | n/a   | 54           | n/a    | 108   |
| CT2 Inbound    | 3           | n/a   | 54           | n/a    | 162   |
| CT2 Outbound   | 3           | n/a   | 54           | n/a    | 162   |
| EZRide Shuttle |             |       |              |        |   |
| Inbound        | 7           | n/a   | 40           | n/a    | 267   |
| Outbound       | 7           | n/a   | 40           | n/a    | 267   |

#### TABLE 10.A.1 SYSTEM PEAK HOUR CAPACITY (PER MBTA DATA)

Notes:

(a) Number of vehicles per hour, per MBTA published schedules (Red Line) and MBTA Ridecheck Fall 2014 (Buses)

(b) On Time Performance Factor from 2015 MBTA Annual Report

(c) Number of policy level capacity per MBTA Blue Book 14<sup>th</sup> Edition (Red Line and Buses) and EZ Ride Feasibility Study (March 2015)

(d) Calculated Capacity = #of Trains x OTP factor x # pax per vehicles x # cars – shown as number of passengers per peak hour



To: Joseph E. Barr, Director Cambridge Traffic, Parking and Transportation Department Date: January 4, 2017

Project #: 12959.00

From: Sean Manning, P.E. Sarah Wetmore. E.I.T. Re: KSURP Infill Development Trip Generation Update 2016 Concept Plan Program Comparison Analysis

# Introduction

On behalf of Boston Properties (the Proponent), Vanasse Hangen Brustlin, Inc. (VHB) is submitting an update to the previously certified Transportation Impact Study (TIS) for the Kendall Square Urban Renewal Plan (KSURP) Infill Development Concept Plan in Cambridge, Massachusetts (the Project). The original TIS was submitted to the Cambridge Traffic, Parking, and Transportation (TP&T) Department on June 23, 2016 and certified on July 14, 2016. Since the TIS filing and certification, the Proponent submitted a Special Permit application on behalf of the Project to the Planning Board, under Article 14, in August 2016. The Article 14 submission included minor updates to the Project program which are not reflected in the original TIS.

This memorandum is submitted as a minor amendment to the original TIS to reflect the current Proposed Development Program submitted for the Concept Plan that matches those program elements quantified within the Article 14 submission. An updated trip generation analysis and comparison was conducted to quantify and summarize the overall trip generating characteristics of the Project given this program refinement. In sum, the program has been reduced modestly, with this change resulting in a reflective modest decrease in overall traffic that is expected to be generated by the Project. The parking analysis which was included within the certified TIS has also been updated to reflect these modest program changes.

### Program Comparison

The proponent has been considering ways in which the existing Master Program can be improved in order to strengthen the public realm features of the Project, and accelerate the development schedule. The original Proposed Development Program involving two key phases of construction has been reworked to eliminate the phase type development. This reworking also resulted in an overall decrease in gross floor area in the Proposed Development. However, the development location and sites of the original Program are to remain the same.

The overall Proposed Development Program has decreased to reflect the additional refinement of the individual building designs and the incorporation of the City's and community's requests for additional two- and three-bedroom housing units. The major program changes include:

- Reduction in overall office GFA;
- Reduction in total residential units;
- Reduction in retail/active use spaces.

**Table 1** provides the updated, Article 14, program and a comparison to the certified TIS program. Compared to the original TIS program, the new Article 14 program provides an overall reduction of 28,700 GFA and 135 fewer residential units (although the overall GFA devoted to residential use has remained constant).

#### Table 1Program Comparison

| Project Component (GFA <sup>1</sup> )                | Certified TIS | Updated Article 14 | Difference |
|--|---------------|--------------------|------------|
| Building A – Office GFA                              | 315,600       | 365,095            | 49,495     |
| Building B – Office GFA                              | 315,600       | 248,039            | (-67,561)  |
| Broad Institute – Office Conversion <sup>5</sup> GFA | 14,000        | 14,000             | 0          |
| Total Office   | 645,200       | 627,134            | (-18,066)  |
| Building A – Retail/Active Use <sup>2</sup> GFA      | 10,000        | 10,037             | 37         |
| Building B – Retail/Active Use GFA                   | 20,000        | 8,029              | (-11,971)  |
| Res North – Retail/Active Use GFA                    | 0             | 1,300              | 1,300      |
| Total Retail/Active Use                              | 30,000        | 19,366             | (-10,634)  |
| Building South – Residential Units                   | 464           | 355                | (-109)     |
| Building North – Residential Units                   | 96            | 70                 | (-26)      |
| Total Residential Units <sup>3</sup>                 | 560           | 425                | (-135)     |
| Innovation Space <sup>4</sup> GFA                    | 105,200       | 105,200            | 0          |
| Total Development (Net-New)                          | 1,095,200     | 1,066,500          | (-28,700)  |

1 – GFA as defined in Article 2.0 of the Cambridge Zoning Ordinance

2 – Active Ground Floor Uses, can include retail uses and active public gathering space (whether open or enclosed) where that ground floor fronts Main Street, Broadway or Ames Street, per Article 14.38 of the Cambridge Zoning Ordinance.
3 – Overall residential GFA remains constant at 420,000 GFA. Unit count reduction is a function of increased percentage of ownership and family units (which are generally larger units), as specifically requested by the Planning Board and the CDD.
4 – Represents the redevelopment of 225 Main Street, this GFA is already incorporated within the commercial office GSF and does not contribute to the Estimated Trip Generation.

5 – Represents the conversion of existing mechanical space to be re-purposed/fit-out into leasable commercial/laboratory office space at the Broad Institute's 75 Ames Street location. The Applicant is not responsible for the execution of this component of the Project.

#### Trip Generation

#### Methodology

The trip generation estimates for the Project have been updated to reflect the reduction in programing from the original TIS to the latest updated Article 14 program. The same trip generation methodology used for the certified TIS is used to estimate the updated program's respective trip generation. These estimates were based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (9<sup>th</sup> Editions) rates for Apartment (LUC 220), Shopping Center (LUC 820), and General Office Building (LUC 710).

ITE unadjusted vehicle trips were converted into person trips by application of the national AVO of 1.13 for residential and work related trips and 1.78 for retail trips. While local AVOs were used to convert person trips back into vehicle trips once mode shares were applied. The same mode shares were applied to the new Article 14 program, as shown in **Table 2**. These characteristics are derived from both the City of Cambridge Kendall Square Planning Study (K2C2) Enhanced TDM Mode Shares and the Kendall Square Urban Renewal Area 2014 Traffic Count Program and Trip Generation Analysis Report from May 2014.

| Mode                 | <b>Residential</b> <sup>1</sup> | Office <sup>2</sup> | Retail <sup>2</sup> |
|----------------------|---------------------------------|---------------------|---------------------|
| Vehicle <sup>3</sup> | 32%                             | 34%                 | 34%                 |
| Transit              | 30%                             | 37%                 | 37%                 |
| Walk                 | 25%                             | 6%                  | 6%                  |
| Bike                 | 10%                             | 9%                  | 9%                  |
| Other                | 3%                              | 14%                 | 14%                 |

#### Table 2Project Mode Shares

Source: 1 – City of Cambridge K2 Plan Enhanced TDM Mode Shares

2 – Kendall Square Urban Renewal Area 2014 Report Mode Shares

3 - Vehicle mode share includes drive alone and carpool trips

#### Vehicle and Transit Trip Generation Comparison

The new trip generation estimates reflect the changes to GFA and residential units proposed in the Article 14 program. **Table 3** compares the resulting trip generation estimates.

|                 |       |               | Vehicle               |            | Transit       |                       |            |  |
|-----------------|-------|---------------|-----------------------|------------|---------------|-----------------------|------------|--|
|                 |       | Certified TIS | Updated<br>Article 14 | Difference | Certified TIS | Updated<br>Article 14 | Difference |  |
|                 | In    | 1,825         | 1,642                 | (-183)     | 2,212         | 2,008                 | (-204)     |  |
| Daily           | Out   | 1,825         | 1,642                 | (-183)     | 2,212         | 2,008                 | (-204)     |  |
|                 | Total | 3,650         | 3,284                 | (-366)     | 4,424         | 4,016                 | (-408)     |  |
|                 | In    | 277           | 264                   | (-13)      | 355           | 342                   | (-13)      |  |
| Morning<br>Peak | Out   | 113           | 93                    | (-20)      | 127           | 108                   | (-19)      |  |
|                 | Total | 390           | 357                   | (-33)      | 482           | 450                   | (-32)      |  |
|                 | In    | 145           | 124                   | (-21)      | 169           | 146                   | (-23)      |  |
| Evening<br>Peak | Out   | 284           | 265                   | (-19)      | 355           | 337                   | (-18)      |  |
|                 | Total | 429           | 389                   | (-40)      | 524           | 483                   | (-41)      |  |

#### Table 3 Vehicle and Transit Trip Generation Comparison

 Notes: Trip Generation estimates based on ITE Trip Generation Manual, 9th Edition, using: LUC 220 – Apartment; LUC 820 - Shopping Center; LUC 710 - General Office Building Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2

VOR stands for Vehicle Occupancy Rate from 2009 NHTS

Local VOR from American Community Survey 2006-2010; Census Track 3523 and 3524

The trip generation estimates for the updated Article 14 program show a reduction in daily, morning peak hour, and evening peak hour vehicle and transit trips compared to the original, certified TIS. The reduction in peak hour trips is reflective of the housing unit and retail GFA reductions. The trip generation shows an approximate 10 percent reduction during both morning and evening peak hour analysis periods. While this is a measurable decrease, we believe it does not materially change the overall transportation impacts that are expected and in the certified TIS. No changes in transportation mitigation actions are proposed in connection with this program reduction.

#### Vehicle Parking Analysis

A comprehensive vehicle parking assessment was conducted as part of the certified TIS to show that the proposed parking spaces being built with the Project comply with approved zoning requirements. Since the initial TIS submission, the proposed Project parking supply has decreased from 809 net-new spaces to 785 net-new parking spaces, a reduction of 24 spaces. The reduction in parking spaces is due to the refinement of the shared parking demand analysis included below.

The spaces will be provided in two underground garages at Buildings A, 145 Broadway, and Building B, 250 Binney Street, as originally discussed in the certified TIS. As indicated in Table 3 the number of vehicle trips generated by the Project has decreased, thus slightly reducing the parking demand of the Project. As defined in the K2 zoning recommendations, parking ratios have been defined for the Kendall Square area. The certified TIS provided minimum and maximum zoning parking spaces requirements based on the proposed Program; the number of parking spaces originally provided fell within this range. The zoning parking space minimum and maximum count has been updated to reflect the Article 14 Project program. **Table 4** presents a comparison of the two zoning parking spaces counts.

#### Table 4Vehicle Zoning Parking Comparison

| Project Component                     | Zoning Parking Rates                   | Certified TIS          | Updated<br>Article 14  | Difference              |
|---------------------------------------|--|------------------------|------------------------|-------------------------|
| Building A – Office GFA               | 0.9 spaces per 1,000 sf                | 284 (max)              | 329 (max)              | 45 (max)                |
| Building B – Office GFA               | (max)                                  | 284 (max)              | 223 (max)              | -61 (max)               |
| Building South –<br>Residential Units | 0.4 spaces per dwelling<br>unit (min)  | 185 (min)<br>348 (max) | 142 (min)<br>266 (max) | -43 (min)<br>-82 (max)  |
| Building North –<br>Residential Units | 0.75 spaces per dwelling<br>unit (max) | 38 (min)<br>72 (max)   | 28 (min)<br>53 (max)   | -10 (min)<br>-19 (max)  |
| Total Recommended Zo                  | oning Parking Supply                   | 223 (min)<br>988 (max) | 170 (min)<br>871 (max) | -53 (min)<br>-117 (max) |

Compared to the certified TIS the Project is required to provide between 170 (minimum) and 871 (maximum) parking spaces, 117 less spaces than the original TIS program could supply per zoning. The 785 vehicle parking spaces being provided falls within this updated zoning parking supply range and is supplying 86 less spaces than the maximum zoning allows.

#### **ULI Shared Parking**

The ULI Shared Parking analysis presented in the certified TIS has also been updated to reflect the Article 14 program. **Table 5** provides the updated ULI shared parking analysis, while **Table 6** show the comparison between the certified TIS and the updated Article 14 study.



# Memorandum

| Land Use – User<br>Group       | Size<br>(KSF or<br>Units) | ULI<br>Parking<br>Ratio | Unadjusted<br>Demand | Mode<br>Split     | Unshared<br>Demand | Non-<br>Captive<br>Factor | Monthly<br>Adjustment<br>(Dec) | Peak Hour<br>Adjustment<br>(2 PM) | Shared<br>Parking<br>Demand |
|--------------------------------|---------------------------|-------------------------|----------------------|-------------------|--------------------|---------------------------|--------------------------------|-----------------------------------|-----------------------------|
| Office - Employee              | 627,134 KSF               | 2.6                     | 1,631                | 34%               | 555                | 98%                       | 100%                           | 100%                              | 544                         |
| Office - Visitor               | 627,134 KSF               | 0.2                     | 125                  | 50% <sup>3</sup>  | 63                 | 100%                      | 100%                           | 100%                              | 63                          |
| Retail – Employee <sup>1</sup> | 19 KSF                    | 0.7                     | 0                    | 34%               | 0                  | 100%                      | 100%                           | 100%                              | 0                           |
| Retail – Visitor <sup>1</sup>  | 19 KSF                    | 2.9                     | 0                    | 34%               | 0                  | 50% <sup>6</sup>          | 100%                           | 95%                               | 0                           |
| Residential<br>(Shared)        | 340 units <sup>2</sup>    | 0.5                     | 170                  | 68% <sup>4</sup>  | 116                | 100%                      | 100%                           | 70%                               | 81                          |
| Residential<br>(Reserved)      | 85 units <sup>2</sup>     | 1.0                     | 85                   | 100% <sup>5</sup> | 85                 | 100%                      | 100%                           | 100%                              | 85                          |
| Total Parking<br>Space Demand  |                           |                         | 2,011                |                   | 819                |                           |                                |                                   | 773                         |

### Table 5 Weekday Peak Hour Parking Demand (Updated Article 14 Program)

1 - No parking is provided for retail therefore not included in the Project updated shared parking

2 – Based on zoning requirements at least 20% of the residential units (425) have to be owned. Owned units are assumed to have one reserved space per unit while rental units are assumed to participate in shared parking

3 – Assume half of office visitor's drive and half use other means of transportation

4 - Residential mode split is 32% therefore 68% leave their vehicle in a parking space

5 – Assume reserved spaces are not available

6 - Assumes most of the retail supports the office/residential and parking is already captured in these uses

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| Land Use – User Group          | Certified TIS | Updated Article 14 | Difference |
|--------------------------------|---------------|--------------------|------------|
| Office - Employee              | 560           | 544                | (-16)      |
| Office - Visitor               | 65            | 63                 | (-2)       |
| Retail – Employee <sup>1</sup> | 7             | 0                  | (-7)       |
| Retail – Visitor <sup>1</sup>  | 14            | 0                  | (-14)      |
| Residential (Shared) 106       |               | 81                 | (-25)      |
| Residential (Reserved)         | 112           | 85                 | (-27)      |
| Total Parking Space<br>Demand  | 864           | 773                | (-91)      |

#### Table 6 ULI Shared Parking Comparison

The updated analysis indicates that the Project should provide 773 parking spaces, 91 less than the certified TIS program. This number closely matches the proposed 785 net-new parking spaces. The retail component of the parking program has been eliminated, thus reducing the project specific parking demand; retail employees and patrons will park within the various public parking garages or on-street parking in the area. As discussed below and within the Article 14 submission, the unit count drops, while the number of bedrooms is approximately the same and therefore it is anticipated that the residential parking need is similar to that proposed in the certified TIS.

#### **Project Vehicle Parking**

The Project program will provide 785 net-new parking spaces, down from the certified 809 net-new spaces, in two underground parking structures at 145 Broadway and 250 Binney Street. 145 Broadway will provide 350 parking spaces and 250 Binney Street will provide 650 spaces. The garage at 145 Broadway was certified for 374 parking spaces in the original TIS, since the original submission the garage has been refined to provide only 350 spaces. A total of 215 spaces will be eliminated within the Blue Garage to support the construction of the residential buildings to include adequate lobbies and cores that can intercept the ground plane while maintaining existing adjacent open space. **Table 7** shows the allocation of parking spaces provided for the new Concept Plan program and **Table 8** presents the future parking supply within the KSUPR area, which is unchanged from the original, certified TIS.

#### Table 7 Concept Plan Vehicle Parking Allocation

| Project Component | Component Size | Allocated Parking Spaces | Parking Ratio             |  |  |
|-------------------|----------------|--------------------------|---------------------------|--|--|
| Office            | 627,134 GFA    | 528                      | 0.84 spaces per 1,000 GFA |  |  |
| Residential       | 425 units      | 257                      | 0.6 spaces per unit       |  |  |
| Retail            | 19,366 GFA     | 0                        | 0                         |  |  |
| Total             | 1,066,500 GFA  | 785                      | -                         |  |  |

#### Table 8Future Parking Supply in the KSURP Area

| Project<br>Component/Garage            | Existing Parking | Proposed New Parking<br>for Concept Plan | Future Parking |  |
|--|------------------|--|----------------|--|
| 135 Broadway<br>Residences/Blue Garage | 1,170            | (-215)                                   | 955            |  |
| Yellow Garage                          | 734              | 0  | 734            |  |
| Green Garage                           | 804              | 0  | 804            |  |
| Building A (145 Broadway)              | 0                | 350                                      | 350            |  |
| Building B (250 Binney St)             | 0                | 650                                      | 650            |  |
| Total Parking Demand                   | 2,708            | 785                                      | 3,493          |  |

The Proposed parking program complies with zoning recommendations and does not provide parking for retail patrons, but may provide ADA accessible parking for retail workers.

It should be noted that the reduction in residential units was a result of the Proponent understanding the needs and wants of the City and community for more two- and three-bedroom units and ownership units. While the unit count drops, the number of bedrooms is approximately the same and therefore it is anticipated that the need for the same number of parking spaces is needed. The larger unit sizes could still accommodate as many vehicle owning residents as the higher, one-bedroom unit count previously studied in the certified TIS. In addition, the ownership units many result in vehicle ownership needs met by maintaining the proposed number of spaces.

#### **Bicycle Parking**

The Project will provide 633 long-term bike parking spaces and 102 short-term spaces, compliant with the City of Cambridge Bicycle Parking Guidelines. On-going discussions through the Planning Board hearings and PTDM, as well as individual building design reviews will further refine the exact configuration and location of long- and short-term bicycle parking.

#### Conclusion

The new Project program submitted under Article 14 reflects the adaptations of furthering the building designs and the City and communities' desire to see more two- and three-bedroom housing units as well as ownership units included within the development proposal. Due to these changes in Project program, the trip generation and parking analysis from the certified TIS has been updated to quantify the impacts the program changes has on the transportation network.

The new program will generate less overall trips compared to the certified TIS. As explained above, the difference in vehicle and transit trip generation is small compared to the overall Project generated trips and the various analyses conducted as part of the TIS would only show nominal changes. The analyses in the certified TIS, LOS, queue, residential and transit analyses, do represent an accurate Project impact assessment and the Proponent is comfortable with mitigation measures being measured by the original, certified TIS analyses.

The proposed parking supply has slightly decreased since the Article 14 submission. This is due, in part, to the reduction in housing units, although the number of bedrooms and ownership units does not change measurable, as well as the elimination of retail parking, thus reducing the parking demand of the Project. With the addition of more two and three bedroom residential units, it is anticipated that the demand for residential parking is similar to the previously approved residential unit count with more one bedrooms. The number of proposed parking spaces, 785 (net-new), does comply with zoning, and provides 86 less spaces than the maximum zoning allows. The Project is providing a reasonable amount of parking to support the office and residential components and will work with tenants and residents, as well as the City, to reduce the reliance on vehicles within the KSURP area.

# **KSURP Upzoning Project Boston Properties Trip Generation Estimate** Article 14 Updated Program

# **KSURP Infill Development Estimated Trip Generation**

|                    |         |         |           | Unadjusted |      |        |         |         |      |      |       |       |                  |                  |      |      |       |
|--------------------|---------|---------|-----------|------------|------|--------|---------|---------|------|------|-------|-------|------------------|------------------|------|------|-------|
|                    |         | Distri- |           | Vehicle    |      | Person |         |         |      |      |       | Local |                  |                  |      |      |       |
|                    | Size    | bution  | Trip Rate | Trips      | VOR  | Trips  | Vehicle | Transit | Walk | Bike | Other | VOR   | Vehicle          | Transit          | Walk | Bike | Other |
| Daily Residential  |         |         | -         | 2,823      |      | 3,190  |         |         |      |      |       |       | 940              | 958              | 796  | 320  | 96    |
| In                 | 425     | 50%     | -         | 1,411      | 1.13 | 1,595  | 32%     | 30%     | 25%  | 10%  | 3%    | 1.11  | 470              | 479              | 398  | 160  | 48    |
| Out                | units   | 50%     | -         | 1,411      | 1.13 | 1,595  | 32%     | 30%     | 25%  | 10%  | 3%    | 1.11  | 470              | 479              | 398  | 160  | 48    |
| Daily Retail       |         |         | -         | 1,175      |      | 2,092  |         |         |      |      |       |       | 598              | 774              | 126  | 186  | 292   |
| In                 | 19.366  | 50%     | -         | 588        | 1.78 | 1,046  | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 299              | 387              | 63   | 93   | 146   |
| Out                | ksf     | 50%     | -         | 588        | 1.78 | 1,046  | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 299              | 387              | 63   | 93   | 146   |
| Daily Office       |         |         | -         | 5,462      |      | 6,172  |         |         |      |      |       |       | 1,746            | 2,284            | 370  | 554  | 862   |
| In                 | 627.134 | 50%     | -         | 2,731      | 1.13 | 3,086  | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 873              | 1,142            | 185  | 277  | 431   |
| Out                | ksf     | 50%     | -         | 2,731      | 1.13 | 3,086  | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 873              | 1,142            | 185  | 277  | 431   |
| Total Daily        |         |         |           | 9460       |      | 11453  |         |         |      |      |       |       | 3284             | 4016             | 1292 | 1060 | 1250  |
| In                 |         |         |           | 4730       |      | 5727   |         |         |      |      |       |       | 1642             | 2008             | 646  | 530  | 625   |
| Out                |         |         |           | 4730       |      | 5727   |         |         |      |      |       |       | 1642             | 2008             | 646  | 530  | 625   |
| AM Residential     |         |         | -         | 216        |      | 244    |         |         |      |      |       |       | 70               | 73               | 61   | 24   | 7     |
| In                 | 425     | 20%     | -         | 43         | 1.13 | 49     | 32%     | 30%     | 25%  | 10%  | 3%    | 1.11  | 14               | 15               | 12   | 5    | 1     |
| Out                | units   | 80%     | -         | 173        | 1.13 | 195    | 32%     | 30%     | 25%  | 10%  | 3%    | 1.11  | 56               | 58               | 49   | 19   | 6     |
| AM Retail          |         |         | -         | 28         |      | 50     |         |         |      |      |       |       | 13               | 19               | 3    | 5    | 7     |
| In                 | 19      | 62%     | -         | 18         | 1.78 | 31     | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 8                | 12               | 3    | 3    | 4     |
| Out                | ksf     | 38%     | -         | 11         | 1.78 | 19     | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 5                | 7                | 0    | 2    | 3     |
| AM Office          |         |         | -         | 854        |      | 965    |         |         |      |      |       |       | 274              | 358              | 58   | 86   | 137   |
| In                 | 522     | 88%     | -         | 752        | 1.13 | 850    | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 242              | 315              | 51   | 76   | 120   |
| Out                | ksf     | 12%     | -         | 103        | 1.13 | 116    | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 32               | 43               | 7    | 10   | 17    |
| Total AM Peak Hour |         |         |           | 1098       |      | 1260   |         |         |      |      |       |       | 357              | 450              | 122  | 115  | 151   |
| In                 |         |         |           | 813        |      | 930    |         |         |      |      |       |       | 264              | 342              | 66   | 84   | 125   |
| Out                |         |         |           | 286        |      | 330    |         |         |      |      |       |       | 93               | 108              | 56   | 31   | 26    |
| PM Residential     |         |         | -         | 269        |      | 304    |         |         |      |      |       |       | 88               | 91               | 76   | 30   | 10    |
| In                 | 425     | 65%     | -         | 175        | 1.13 | 198    | 32%     | 30%     | 25%  | 10%  | 3%    | 1.11  | 58               | 59               | 49   | 20   | 6     |
| Out                | units   | 35%     | -         | 94         | 1.13 | 106    | 32%     | 30%     | 25%  | 10%  | 3%    | 1.11  | 30               | 32               | 27   | 10   | 4     |
| PM Retail          |         |         | -         | 100        |      | 178    |         |         |      |      |       |       | <mark>51</mark>  | <mark>66</mark>  | 12   | 16   | 25    |
| In                 | 19      | 48%     | -         | 48         | 1.78 | 86     | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 24               | 32               | 6    | 8    | 12    |
| Out                | ksf     | 52%     | -         | 52         | 1.78 | 92     | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 27               | 34               | 6    | 8    | 13    |
| PM Office          |         |         | -         | 781        |      | 882    |         |         |      |      |       |       | <mark>250</mark> | <mark>326</mark> | 53   | 79   | 123   |
| In                 | 522     | 17%     | -         | 133        | 1.13 | 150    | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 42               | 55               | 9    | 13   | 21    |
| Out                | ksf     | 83%     | -         | 648        | 1.13 | 732    | 34%     | 37%     | 6%   | 9%   | 14%   | 1.19  | 208              | 271              | 44   | 66   | 102   |
| Total PM Peak Hour |         |         |           | 1150       |      | 1365   |         |         |      |      |       |       | 389              | 483              | 141  | 125  | 158   |
| In                 |         |         |           | 355        |      | 434    |         |         |      |      |       |       | 124              | 146              | 64   | 41   | 39    |
| Out                |         |         |           | 794        |      | 931    |         |         |      |      |       |       | 265              | 337              | 77   | 84   | 119   |

Notes:

Trip Generation based on ITE Trip Generation Manual, 9th Edition, using:

LUC 220 - Apartment

LUC 820 - Shopping Center

LUC 710 - General Office Building

Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2 VOR stands for Vehicle Occupancy Rate from 2009 NHTS

Local VOR from American Community Survey 2006-2010; Census Track 3523 and 3524

Trip Generation Thresholds: PM Peak Hour Vehicle: 51 + 250 = 301, rounded to 300 Vehicle Trips PM Peak Hour Transit: 66 + 326 = 392, rounded to 390 Transit Trips



# **CITY OF CAMBRIDGE** Traffic, Parking and Transportation

344 Broadway

Cambridge, Massachusetts 02139

www.cambridgema.gov/traffic

Joseph E. Barr, Director Brooke McKenna, Assistant Director for Street Management Phone: 617-349-4700 Fax: 617-349-4747

# MEMORANDUM

| То:   | Cambridge Planning Board   |
|-------|--|
| From: | Joseph E. Barr, Director 捉   |
| Date: | December 15, 2016 /  |
| Re:   | Kendall Square Urban Renewal Plan (KSURP), MXD Infill Development Concept Plan<br>(PB#315) |

The Traffic, Parking & Transportation Department (TP&T) has been working with Boston Properties Limited Partnership on the proposed Special Permit Application for the Kendall Square Urban Renewal Plan (KSURP) Mixed Use Development District (MXD) Infill Development Concept Plan.

TP&T submitted a memo dated September 14, 2016, to the Planning Board with our initial comments on the proposed project. Since then, we had several productive meetings with Boston Properties discussing the project's site plan, trip generation, transportation impacts, and a transportation mitigation program, which we are currently working to finalize.

The goals of the transportation mitigation program are to reduce overall vehicle trips by shifting trips to sustainable modes, promote and support transit use while taking into account existing congestion on the transit network, improve safety at intersections for all modes, manage parking supply and auto demand (TDM), monitor trips, and manage loading and deliveries. An overview of the transportation mitigation program being discussed with the applicant is provided below. TP&T expects to have a final proposed mitigation package for the Planning Board before the Planning Board Special Permit decision for this project is made.

#### **Recommended Transportation Mitigation Overview:**

**Roadway Design and Reconstruction.** The Project will be expected to design and reconstruct segments of Binney Street and Galileo Galilei Way, and Broadway. The details of the scope and phasing schedule of this work is being discussed with the applicant, but we expect it will include streetscape and intersection improvements, traffic signal equipment and timing, protected bicycle facilities, safety improvements at major cross streets, and potential bus priority treatments.

**Kendall Square Transit Enhancement Program.** As part of the Massachusetts Environmental Policy Act review, the project will contribute an initial payment of \$6 million for a "Kendall Square Transit Enhancement Program" (KSTEP), to preserve, enhance and expand transit access and mobility in the Kendall Square area. It is envisioned that funding will be used for immediate, intermediate and long range

transit enhancements that provide direct benefits to the Kendall Square area. The KSTEP funds will be governed by the multiple parties in the MOU, including the City, which has signed the MOU. The MOU is currently awaiting signatures from MassDOT and the MBTA.

**MBTA Red Line Station on North Side of Main Street.** In addition to the KSTEP funds, TP&T recommends that the applicant construct functional improvements to the main entrance to the MBTA Red Line Outbound Station on the north side of Main Street. Improvements may include, safety and accessibility improvements, head house and platform flooring, walls and ceiling conditions, drainage, real-time transit screens on the outside (sidewalk side), climate resiliency, wayfinding, aesthetics improvements, etc. The scope of this work and amount of funds continues to be discussed with the applicant.

**Sixth Street Connector Pathway Improvement.** The Project has committed to improve the Sixth Street Connector Pathway by providing separated pedestrian and bicycle facilities while maintaining the mature trees along the existing pathway. The pathway shall align with the future cycle track on Ames Street. As currently maintained today, the applicant will be responsible for maintenance of the Sixth Street Connector for bicyclist and pedestrian travel (i.e. debris, snow and ice removal).

**Hubway Stations.** The applicant should pay for the purchase and installation of either A.) Two (2) 19 dock Hubway stations or B.) One (1) 27 dock Hubway station and expand the existing Binney Street station to a 27 dock station. The City and Boston Properties shall identify mutually acceptable location(s) for the Hubway station(s). The applicant should also fund ongoing annual operations and maintenance fees for the Hubway Station(s).

**Grand Junction Coordination.** The Applicant should continue to cooperate and coordinate with the City and CRA on the Grand Junction pathway connections at intersections.

**Loading and Management Plans.** As typically required for most large projects, the applicant should provide a loading dock and traffic management plan for City approval for all new buildings.

**Parking and Transportation Demand Management (PTDM) Plan.** The proposed KSURP Infill Development PTDM Plan is currently being reviewed be the City. A PTDM plan was triggered because of new non-residential parking spaces being created. The PTDM plan sets a single-occupancy vehicle mode split goal of 29% for the project's office components and requires the project to implement TDM measures that will reduce the number of cars traveling to the KSURP area. PTDM measures include items such as: Employee Transportation Coordinator, Membership in the Charles River TMA, Ride Matching/Car Pool/Vanpool programs, Emergency Ride Home program, Car-sharing program, EZ Ride Shuttle Service, Transit subsidy program, Flexible Work Schedules, Monitoring and Reporting.

**Residential Transportation Demand Management Measures (TDM).** To reduce the transportation impacts from the project's residential component, the project should implement a residential TDM program. TP&T expects the TDM measures will be similar the 88 Ames Street residential project, including: Transit pass subsidies, Hubway membership, Access to EZ Ride Shuttle, Transportation Coordinator, and Promotion of non-automobiles modes of transportation.

**Transportation Monitoring.** In order to be assured that as the project unfolds its meeting the traffic generation targets that are the basis for approval of the Concept Plan, the Projects should be required to monitor the project's traffic generation and mode splits as buildings are built and occupied. TP&T is working with the applicant on a transportation monitoring program, which we expect to be similar to the

MIT Kendall Square Special Permit monitoring threshold mitigation requirements. The monitoring program will be coordinated with the PTDM annual transportation monitoring reports for non-residential uses. The Special Permit monitoring program will also include trip generation thresholds for the project's vehicle and transit generated trips.

#### Parking

As stated in our September 14, 2016 memo to the Planning Board, TP&T believes that the proposed 809 net new parking spaces for approximately 1 million square feet of development may be reasonable, however TP&T continues to work with the applicant on the final number and allocation of spaces. The applicant has also indicated that the number of net new spaces may be slightly reduced, which we think is positive because limiting parking reduces vehicle trips.

As stated in TP&T's February 13, 2016 memo, and worth noting again, the overall total proposed parking spaces will be less than the 4,300 parking spaces originally approved in 1977 for the Kendall Square Urban Renewal Area, as well as the 3,545 parking spaces approved under Amendment No. 3 in 1993 by the Massachusetts Environmental Policy Act (MEPA).

Finally, TP&T wants to thank Boston Properties and the Cambridge Redevelopment Authority for working with us on this exciting project and we look forward to continuing to work with them as the project moves forward.



# CITY OF CAMBRIDGE Traffic, Parking and Transportation

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# MEMORANDUM

| То:   | Cambridge Planning Board                 | 1   |
|-------|--|---|
| From: | Joseph E. Barr, Director                 |   |
| Date: | September 14, 2016                       |   |
| Re:   | Kendall Square Urban Renewal<br>(PB#315) | Plan (KSURP), MXD Infill Development Concept Plan |

The Traffic, Parking & Transportation Department (TP&T) has been working with Boston Properties Limited Partnership on the proposed Special Permit Application for the Kendall Square Urban Renewal Plan (KSURP) Mixed Use Development District (MXD) Infill Development Concept Plan.

The project proposes to demolish the existing 78,636 sf Eleven Cambridge Center office building at 145 Broadway and 62,576 sf 14 Cambridge Center office building at 250 Binney Street and construct a total of 754,346 sf of office space at 145 Broadway and 250 Binney Street, 420,000 sf residential space (up to 425 units), and 19,366 sf ground floor retail space. In parallel, a separate project will also convert 14,000 sf of existing mechanical space at 75 Ames Street Broad Institute into office space. Overall, the project coupled with this expansion at 75 Ames Street will create 1,066,500 net new sf of gross floor area. The project will also repurpose 105,000 sf of existing office space into Innovation space. A summary of the project is shown below.

|              | 145 Broadway | 250 Binney | Res South | Res North | Broad Inst. | Total     |
|--------------|--------------|------------|-----------|-----------|-------------|-----------|
| Office       | 443,731      | 310,615    | 0         | 0         | 14,000      | 768,346   |
| Retail       | 10,037       | 8,029      | 0         | 1,300     | 0           | 19,366    |
| Residential  | 0            | 0          | 350,000   | 70,000    | 0           | 420,000   |
| Total        | 453,768      | 318,644    | 350,000   | 71,300    | 14,000      | 1,207,712 |
|              |              |            |           |           |             |           |
| Demolish GFA | 78,636       | 62,576     |           |           |             | 141,212   |
|              |              |            |           |           |             |           |
| Net New      | 375,132      | 256,068    | 350,000   | 71,300    | 14,000      | 1,066,500 |

The project proposes to add 809 new automobile parking spaces, 633 long-term bicycle parking spaces, and 102 short-term bicycle parking spaces.

TP&T certified the project's Transportation Impact Study (TIS) on July 14, 2016. The TIS indicated that the project had 31 planning board special permit transportation exceedances (out of 445 data points evaluated), and the project will generate the following trips:

- 3,650 daily vehicle trips including, 390 AM and 429 PM peak hour vehicle trips,
- 4,424 daily transit trips (482 AM/524 PM peak hour transit trips),
- 1,546 daily pedestrian trips (143 AM/163 PM peak hour pedestrian trips) and,
- 1,184 daily bicycle trips (125 AM/137 PM peak hour bicycle trips).

The TIS summary sheets are attached and the TIS is available on the City's web site under PB315 located at <u>http://www.cambridgema.gov/CDD/zoninganddevelopment/specialpermits/specialpermits</u>. The TIS reported the following key transportation impacts:

- Weekday Daily, AM and PM peak hour vehicle trips exceeded the planning board special permit criteria thresholds.
- The project will degrade vehicle level of service at the Broadway/Hampshire Street, Binney Street/Third Street, Broadway/Galileo Galilei Way, and Broadway/Third Street intersections.
- The project exceeded the Planning Board criteria threshold for increased traffic on residential streets for Third Street between Charles Street and Spring Street.
- The Planning Board pedestrian level of service criteria threshold was exceeded at the intersections of O'Brien Highway/Land Blvd., Binney Street/First Street, and Binney Street/Land Blvd (note that these exceedance are due to signal timing and not directly because of the project).

The TIS, like all Cambridge Traffic Impact Studies, evaluated a Future 5-year Build scenario condition, which takes into account other area development projects and a general 0.5% per year background traffic growth rate. The TIS accounted for 11 other development projects in various stages of development, including: MIT Kendall Square Redevelopment project, Courthouse Redevelopment project, 300 Massachusetts Avenue project, 610-650 Main Street project, North Point, First Street Planned Unit Development (PUD), 249 Third Street project, 88 Ames Street Residential project, 181 Massachusetts Avenue project, 399 Binney Street project, and Alexandria Center at Kendall Square.

It should be noted that the TIS evaluated a different development program than currently proposed in the special permit application, including 30,000 sf retail space evaluated in the TIS versus 19,366 sf retail space currently proposed, 560 residential units versus up to 425 units currently proposed, and 645,200 net new sf office space versus 627,134 net new sf office space currently proposed. The difference between the TIS and the currently proposed project is that the TIS represents a conservative estimate for the number of trips that the project will generate (i.e., the number of trips estimated in the TIS is higher than would be generated by the updated development program).

TP&T has been working with the Applicant over the past several months and has reviewed the Special Permit Application in detail, and we offer the Planning Board the following initial comments on the proposed project for your consideration.

#### General Comments

Overall, TP&T believes that the project is consistent with the City goals for mixed use development in Kendall Square, including residential, retail, office uses and open space. New housing will enable more

people to live and work in Kendall Square resulting in less overall vehicle commute trips. New housing and retail uses will also help make Kendall Square more vibrant and active (especially in the evenings) which will support pedestrian and bicycle activity.

TP&T believes there are many positive aspects to the proposed project, including funding commitments for transit improvements, enhancements to the 6<sup>th</sup> Street Connector, and others. TP&T will be working with the Applicant on a transportation mitigation program, which we expect to be able to present to the Planning Board for review and comment at a future hearing.

#### Site Access and Loading

The project is primarily bounded on the south by Broadway and on the north by Binney Street. Vehicle and loading access and egress will use the existing east and west private service driveways, therefore loading will occur off public streets. TP&T believes that the loading dock locations for the 145 Broadway and 250 Binney Street buildings, and the Blue garage are appropriate.

TP&T is very supportive of the proposed 6<sup>th</sup> Street Connector improvements, including separating the bicycle and pedestrian facility and aligning the 6<sup>th</sup> Street Connector with the Ames Street two-way cycle track, which will be constructed as part of the 88 Ames Street project. TP&T will continue to work with the Applicant on the details of the 6<sup>th</sup> Street Connector design.

The TIS had proposed the idea of a new Broadway mid-block pedestrian crossing by the Daniel Lewin Park. This idea is not currently being pursued by the Applicant, but for the record, TP&T had concerns about adding a mid-block crosswalk at this location, which is only about 250 feet away from existing crosswalks. TP&T does believe that more work is needed on a redesign plan for Broadway, which should also evaluate loading and drop-off/pick-up activity on both sides of Broadway between Ames Street and Binney Street/Galileo Galilei Way. This street segment has a number of issues related to safety and walkability/bikeability (such as cars sometimes illegally blocking the bicycle lane), and these issues would need to be improved as part of a reimagining and redesign of this street.

Additional analysis and design is also needed on the proposed east-west pedestrian connections between the 6<sup>th</sup> Street Connector and Galileo Galilei Way, including connections through the Blue garage. Planning and mitigation commitments, if needed, should also consider any need to connect to the future Volpe site development.

#### Parking

The Kendall Square Urban Renewal Area currently has 2,708 parking spaces located in three parking garages. The project proposes 809 net new parking spaces for a total of 3,517 parking spaces. It should be noted that the proposed parking is less than the maximum 4,300 parking spaces originally approved in 1977 for the Kendall Square Urban Renewal Area, as well as the revised 3,545 parking spaces under Amendment No. 3 in 1993 by the Massachusetts Environmental Policy Act (MEPA).

TP&T believes the proposed 809 net new parking spaces for approximately 1 million square feet of development in Kendall Square may be reasonable, however since the proposed project is different from the parking analysis in the TIS (i.e. The TIS evaluated 560 housing units compared to 425 units currently proposed), TP&T believes an updated parking demand analysis is needed before we can make a final determination regarding the appropriateness of the proposed parking supply.

#### **Bicycle Facilities**

The project will meet the City zoning requirements for short and long-term bicycle parking spaces, however the exact locations for the long-term and short-term bicycle parking spaces need additional work. For example, TP&T believes that not all the long-term bike parking spaces for residents should be located on the upper floors of the Blue garage because some everyday bicycle commuters will want to store their bike at a location that is more easily accessible, such as on the ground floor of the garage. The exact locations for the short-term bicycle parking spaces also need more review, as well as final location and commitments for the Hubway bikeshare system.

The Cambridge Redevelopment Authority will be completing a 25% design streetscape concept plan including bicycle facilities—for Binney Street and Galileo Galilei Way from Third Street to Main Street and for Broadway from Galileo Galilei Way to Ames Street. TP&T's expectation is that the Project will contribute substantially to the advancement of the concept plan to 100% design and then construction of the improvements, for the segment of Binney Street/Galileo Galilei Way from Sixth Street to Broadway and the segment of Broadway from Galileo Galilei Way to Ames Street. The details of this mitigation still need to be determined. TP&T also expects that the Applicant will continue to coordinate with the City on the Binney Street Park parcel and the Grand Junction Greenway, building on the segment of the Greenway that the CRA completed between Main Street and Broadway in June 2016.

#### Kendall Square Transit Enhancement Program

Kendall Square's ability to accommodate economic growth over the past decade or so can be partly credited on the mode shares in Kendall Square – 70 percent of trip making is by transit, walking, biking, shuttle and carpooling. The Applicant recognizes the importance of a low drive-alone automobile use and is committed, as is the City, to preserving and enhancing the favorable transportation mode split. The Cambridge Redevelopment Authority has been taking a leading role, in coordination with the City, in engaging the state, MBTA and other stakeholders on short-term and long-term transportation enhancements, especially focused on transit. TP&T commends them for their work to-date.

One of the most positive aspects of the proposed project is the commitment made as part of the Massachusetts Environmental Policy Act review, to contribute an initial payment of \$6 million for a "Kendall Square Transit Enhancement Program" (KSTEP), to preserve, enhance and expand transit access and mobility in the Kendall Square area. The City is currently working with the Cambridge Redevelopment Authority on a Memorandum of Understanding (MOU) for KSTEP. It is envisioned that funding will be used for immediate, intermediate and long range transit enhancements that provide direct benefits to the Kendall Square area. TP&T is working with CDD and other City departments to finalize this MOU before the Planning Board Special Permit decision for this project is made.

#### **Items Requiring Further Work:**

Below is a summary of key items that TP&T believes need additional work before the Planning Board reaches a final decision on the Infill Development Concept Plan:

- The TIS trip generation analysis should be updated with a technical memorandum to reflect the current proposed plan. It should also be determine if there are any changes to the Planning Board special permit criteria exceedences from the certified TIS.
- The Project needs to complete a Parking and Transportation Demand Management (PTDM) Plan.
- A final conceptual plan for the locations of short- and long-term bicycle parking spaces should be completed (subject to more detailed plan approval during the continuing design review process).
- The final proposed location for the Hubway stations needs to be approved by the City.

- A supporting technical memorandum with updated parking demand analysis and final minimum and maximum number of automobile parking spaces should be determined, including a standalone parking management plan.
- The TIS and Special Permit provided a good starting point for project transportation mitigation. TP&T will continue to work with the Applicant on a final mitigation program, including transportation monitoring.

Finally, TP&T wants to thank Boston Properties and the Cambridge Redevelopment Authority for working with us on this exciting project and we look forward to continue to work with them as the project moves forward.



#### **PROJECT**

| Project Name:         | KSURP Infill Development Concept Plan                   |
|-----------------------|---|
| Project Address:      | 135 Broadway, 145 Broadway, 250 Binney Street, 255 Main |
|                       | Street  |
|                       | Cambridge, MA   |
| Owner/Developer Name: | Boston Properties                                       |
| Contact Person:       | Michael Tilford   |
| Contact Address:      | 800 Boylston Street, Suite 1900                         |
|                       | Boston, MA 02199  |
| Contact Phone Number: | (617) 236-3329  |
|                       |   |

#### <u>SIZE</u>

| ITE sq. ft. :  | 1,095,200 GSF               |
|----------------|-----------------------------|
| Land Use Type: | Office, Residential, Retail |

#### **PARKING**

| Existing Parking Spaces*:              | 2,708       | Use: Office, Retail, Public              |  |  |  |  |  |  |
|--|-------------|--|--|--|--|--|--|--|
| New Parking Spaces**:                  | +809        | Use: Office                              |  |  |  |  |  |  |
| Net New Parking Spaces***:             | 3,517       | Use: Office, Residential, Retail, Public |  |  |  |  |  |  |
| *Existing parking spaces in KSURP area |             |  |  |  |  |  |  |  |
| **Net-new spaces constructed with      | the Project |  |  |  |  |  |  |  |

#### **TRIP GENERATION:**

|         | Daily | AM Peak Hour | PM Peak Hour |
|---------|-------|--------------|--------------|
| Vehicle | 3,650 | 390          | 429          |
| Transit | 4,424 | 482          | 524          |
| Walk    | 1,546 | 143          | 163          |
| Bike    | 1,184 | 125          | 137          |
| Other   | 1,326 | 158          | 167          |

#### MODE SPLIT

|         | Residential | Office | Retail |
|---------|-------------|--------|--------|
| Vehicle | 30%         | 29%    | 29%    |
| Transit | 30%         | 37%    | 37%    |
| Walk    | 25%         | 6%     | 6%     |
| Bike    | 10%         | 9%     | 9%     |
| Other   | 3%          | 14%    | 14%    |

#### **TRANSPORATION CONSULTANT**

| Company Name:         |  |
|-----------------------|--|
| Contact Name:         |  |
| Contact Phone Number: |  |

VHB, Inc. Sean M. Manning, P.E., P.T.O.E. (617) 728-7782

Date of Building Permit Approval:

#### **Total Data Entries = 445**

Total Number of Criteria Exceedances = 31



# **Criteria A – Project Vehicle Trip Generation**

| Time Period       | Criteria (trips) | Build | Exceeds Criteria? |
|-------------------|------------------|-------|-------------------|
| Weekday Daily     | 2,000            | 3,650 | Yes               |
| Week AM Peak Hour | 240              | 390   | Yes               |
| Week PM Peak Hour | 240              | 429   | Yes               |

### Criteria B – Vehicular LOS

|   |           | AM Pe     | ak Hour  |           | PM Peak Hour |           |          |           |  |
|---|-----------|-----------|----------|-----------|--------------|-----------|----------|-----------|--|
|   | Existing  | Build     | Traffic  | Exceeds   | Existing     | Build     | Traffic  | Exceeds   |  |
| Intersection  | Condition | Condition | Increase | Criterion | Condition    | Condition | Increase | Criterion |  |
| O'Brien Highway at<br>Third Street                      | F         | F         | 1.2%     | No        | F            | F         | 1.3%     | No        |  |
| Cambridge Street<br>at Third Street                     | D         | D         | 2.2%     | No        | F            | F         | 2.4%     | No        |  |
| Cambridge Street<br>at First Street                     | F         | F         | 3.3%     | No        | F            | F         | 2.9%     | No        |  |
| O'Brien Highway at<br>Cambridge Street/<br>East Street  | с         | с         | 1.2%     | No        | В            | В         | 1.3%     | No        |  |
| O'Brien Highway at<br>Land Boulevard/<br>Gilmore Bridge | F         | F         | 1.7%     | No        | F            | F         | 1.9%     | No        |  |
| Broadway at<br>Portland Street                          | D         | D         | 2.2%     | No        | D            | D         | 1.8%     | No        |  |
| Broadway at<br>Hampshire Street                         | D         | E         | 3.0%     | Yes       | D            | D         | 3.2%     | No        |  |
| Binney at Galileo<br>Galilei<br>Way/Fulkerson<br>Street | С         | С         | 6.3%     | No        | С            | С         | 4.1%     | No        |  |
| Binney Street at<br>Third Street                        | С         | С         | 7.6%     | No        | D            | D         | 9.5%     | Yes       |  |
| Binney Street at<br>First Street                        | С         | С         | 5.1%     | No        | с            | С         | 5.3%     | No        |  |
| Binney Street at<br>Land Boulevard                      | С         | С         | 1.8%     | No        | с            | С         | 1.9%     | No        |  |
| Broadway at Galileo<br>Galilei Way                      | F         | F         | 6.5%     | Yes       | F            | F         | 7.7%     | Yes       |  |
| Broadway at Ames<br>Street                              | E         | E         | 6.9%     | No        | E            | E         | 4.9%     | No        |  |
| Broadway at Third<br>Street                             | D         | E         | 5.0%     | Yes       | D            | D         | 5.3%     | No        |  |

|  | AM Peak Hour          |                    |                     |                      | PM Peak Hour          |                    |                     |                      |  |
|--|-----------------------|--------------------|---------------------|----------------------|-----------------------|--------------------|---------------------|----------------------|--|
| Intersection   | Existing<br>Condition | Build<br>Condition | Traffic<br>Increase | Exceeds<br>Criterion | Existing<br>Condition | Build<br>Condition | Traffic<br>Increase | Exceeds<br>Criterion |  |
| Main Street at<br>Galileo Galilei<br>Way/Vassar Street | С                     | с                  | 6.0%                | No                   | С                     | с                  | 7.7%                | No                   |  |
| Main Street at<br>Ames Street                          | С                     | С                  | 2.8%                | No                   | С                     | С                  | 1.1%                | No                   |  |

#### **Criteria C – Traffic on Residential Streets**

|  |                                      |                          |          | AM Peak Ho       | our                  | PM Peak Hour |                  |                      |  |
|--|--------------------------------------|--------------------------|----------|------------------|----------------------|--------------|------------------|----------------------|--|
| Roadway                                    | Reviewed<br>Segment                  | Amount of<br>Residential | Existing | Project<br>Trips | Exceeds<br>Criteria? | Existing     | Project<br>Trips | Exceeds<br>Criteria? |  |
| O'Brien<br>Highway                         | Land Blvd to East<br>St/Cambridge St | 1/2 or<br>more           | 2399     | 33               | No                   | 2237         | 36               | No                   |  |
| Broadway                                   | Clark St to Windsor<br>St            | 1/2 or<br>more           | 841      | 32               | No                   | 980          | 30               | No                   |  |
| Hampshir                                   | Medeiros Ave to<br>Webster Ave       | 1/3 or less              | 534      | 13               | No                   | 689          | 20               | No                   |  |
| e Street                                   | Webster Ave to<br>Clark St           | >1/3 but<br><1/2         | 534      | 13               | No                   | 689          | 20               | No                   |  |
| Memorial<br>Drive                          | Ames Street to<br>Wadsworth          | 1/2 or<br>more           | 2744     | 26               | No                   | 3126         | 11               | No                   |  |
| Broadway<br>St<br>Binney St 1<br>Rodgers S | Broadway to Binney<br>St             | 1/3 or less              | 817      | 25               | No                   | 859          | 68               | No                   |  |
|  | Binney St to<br>Rodgers St           | >1/3 but<br><1/2         | 778      | 33               | No                   | 898          | 44               | No                   |  |
|  | Rogers St to Bent<br>St              | 1/3 or less              | 778      | 33               | No                   | 898          | 44               | No                   |  |
|  | Bent St to Charles<br>St             | >1/3 but<br><1/2         | 778      | 33               | No                   | 898          | 44               | No                   |  |
|  | Charles St to Hurley<br>St           | 1/2 or<br>more           | 778      | 33               | No                   | 898          | 44               | Yes                  |  |
| Third<br>Street                            | Hurley St to Spring<br>St            | 1/2 or<br>more           | 778      | 33               | No                   | 898          | 44               | Yes                  |  |
|  | Spring St to<br>Thorndike St         | 1/3 or less              | 778      | 33               | No                   | 898          | 44               | No                   |  |
|  | Thorndike St to<br>Otis St           | 1/2 or<br>more           | 778      | 33               | No                   | 1239         | 38               | No                   |  |
|  | Otis St to<br>Cambridge St           | 1/3 or less              | 785      | 33               | No                   | 898          | 44               | No                   |  |
|  | Cambridge St to<br>Gore St           | 1/3 or less              | 831      | 26               | No                   | 1239         | 38               | No                   |  |
|  | Gore St to O'Brien<br>Highway        | 1/2 or<br>more           | 826      | 26               | No                   | 1260         | 38               | No                   |  |



|                  |                                 |                          |          | AM Peak Ho       | bur                  | PM Peak Hour |                  |                      |  |
|------------------|---------------------------------|--------------------------|----------|------------------|----------------------|--------------|------------------|----------------------|--|
| Roadway          | Reviewed<br>Segment             | Amount of<br>Residential | Existing | Project<br>Trips | Exceeds<br>Criteria? | Existing     | Project<br>Trips | Exceeds<br>Criteria? |  |
|                  | Binney St to Bent St            | 1/3 or less              | 126      | 4                | No                   | 298          | 7                | No                   |  |
| Second<br>Street | Bent St to Hurley               | >1/3 but<br><1/2         | 288      | 4                | No                   | 350          | 7                | No                   |  |
|                  | Hurley St to<br>Thorndike       | 1/3 or less              | 272      | 4                | No                   | 290          | 7                | No                   |  |
|                  | Thorndike St to<br>Cambridge    | >1/3 but<br><1/2         | 272      | 4                | No                   | 290          | 7                | No                   |  |
|                  | Cambridge St to<br>O'Brien Hwy  | 1/3 or less              | 272      | 4                | No                   | 290          | 7                | No                   |  |
|                  | Binney St to Bent               | >1/3 but<br><1/2         | 338      | 13               | No                   | 388          | 6                | No                   |  |
|                  | Bent St to Hurley               | >1/3 but<br><1/2         | 338      | 13               | No                   | 388          | 6                | No                   |  |
| Sixth<br>Street  | Hurley St to<br>Thorndike       | 1/2 or<br>more           | 338      | 13               | No                   | 388          | 6                | No                   |  |
|                  | Thorndike St to<br>Cambridge St | >1/3 but<br><1/2         | 338      | 13               | No                   | 388          | 6                | No                   |  |
|                  | Cambridge St to<br>Gore St      | 1/2 or<br>more           | 338      | 13               | No                   | 388          | 6                | No                   |  |

## Criteria D – Lane Queue (for signalized intersections)

|                   |                    | AM Peak Hour |       |                      | PM Peak Hour |       |                      |  |
|-------------------|--------------------|--------------|-------|----------------------|--------------|-------|----------------------|--|
| Intersection      | Movement           | Existing     | Build | Exceeds<br>Criteria? | Existing     | Build | Exceeds<br>Criteria? |  |
|                   | NB Left/Right      | 1            | 2     | No                   | 5            | 5     | No                   |  |
| O'Brien Highway   | SEB Thru/Right     | ~26          | ~27   | No                   | ~21          | ~22   | No                   |  |
|                   | NWB Left/Thru      | 1            | 2     | No                   | ~14          | ~14   | No                   |  |
|                   | EB Left/Thru/Right | 8            | 8     | No                   | ~14          | ~14   | No                   |  |
| Cambridge         | WB Left/Thru/Right | 7            | 7     | No                   | ~16          | ~16   | No                   |  |
| Street at Third   | NB Left/Thru/Right | 3            | 4     | No                   | 7            | 8     | No                   |  |
| Street            | SB Left            | 2            | 2     | No                   | 0            | 0     | No                   |  |
|                   | SB Thru/Right      | 15           | 16    | No                   | 4            | 4     | No                   |  |
|                   | EB Thru/Right      | ~9           | ~9    | No                   | ~10          | ~10   | No                   |  |
| Cambridge         | WB Left            | ~9           | ~10   | No                   | 3            | 3     | No                   |  |
| Street at First   | WB Thru            | ~4           | ~5    | No                   | 3            | 3     | No                   |  |
| Street            | NB Left            | 1            | 1     | No                   | 4            | 4     | No                   |  |
|                   | NB Right           | 3            | 3     | No                   | ~13          | ~13   | No                   |  |
| Cambridge         | EB Left            | 3            | 3     | No                   | 1            | 1     | No                   |  |
| Street at O'Brien | EB Thru            | 14           | 14    | No                   | 1            | 1     | No                   |  |
| Highway           | EB Right           | 3            | 3     | No                   | 1            | 1     | No                   |  |



|                  |                        | AM Peak Hour |       | PM Peak Hour         |          |       |                      |
|------------------|------------------------|--------------|-------|----------------------|----------|-------|----------------------|
| Intersection     | Movement               | Existing     | Build | Exceeds<br>Criteria? | Existing | Build | Exceeds<br>Criteria? |
|                  | WB Left                | 5            | 6     | No                   | 2        | 3     | No                   |
|                  | WB Thru/Right          | 4            | 4     | No                   | 9        | 9     | No                   |
|                  | NB Left/Thru           | 1            | 1     | No                   | 5        | 5     | No                   |
|                  | NB Right               | 0            | 0     | No                   | 0        | 0     | No                   |
|                  | SB Left/Thru/Right     | 2            | 2     | No                   | 2        | 2     | No                   |
|                  | SEB Left               | 4            | 5     | No                   | ~16      | ~17   | No                   |
|                  | SEB Thru               | ~15          | ~15   | No                   | 7        | 7     | No                   |
|                  | SEB Right              | 0            | 0     | No                   | 0        | 0     | No                   |
|                  | NWB Left               | 4            | 4     | No                   | 4        | 4     | No                   |
| Land Boulevard   | NWB Thru               | ~11          | ~12   | No                   | ~11      | ~11   | No                   |
| at O'Brien       | NWB Right              | 1            | 1     | No                   | 4        | 4     | No                   |
| Highway          | NEB Left               | 5            | 5     | No                   | ~17      | ~17   | No                   |
|                  | NEB Thru               | ~9           | ~9    | No                   | ~24      | ~24   | No                   |
|                  | NEB Right              | 0            | 0     | No                   | 4        | 3     | No                   |
|                  | SWB<br>Left/Thru/Right | ~26          | ~27   | No                   | ~14      | ~15   | No                   |
|                  | EB Left/Thru/Right     | 13           | ~15   | No                   | ~14      | ~15   | No                   |
|                  | WB Left/Thru/Right     | 8            | 8     | No                   | 11       | ~16   | No                   |
| Broadway at      | NB Left                | 1            | 1     | No                   | 2        | 2     | No                   |
| Portland Street  | NB Thru/Right          | 7            | 7     | No                   | 9        | 9     | No                   |
|                  | SB Left                | 1            | 1     | No                   | 1        | 1     | No                   |
|                  | SB Thru/Right          | 2            | 2     | No                   | 2        | 2     | No                   |
|                  | EB Left/Thru           | 12           | 13    | No                   | 12       | 12    | No                   |
|                  | EB Right               | 3            | 3     | No                   | 1        | 1     | No                   |
|                  | WB Left                | ~5           | ~6    | No                   | 1        | 1     | No                   |
| Broadway at      | WB Thru                | 3            | 3     | No                   | 6        | 6     | No                   |
| Hampshire        | WB Right               | 1            | 1     | No                   | 5        | 5     | No                   |
| Street           | NB Left                | 1            | 1     | No                   | ~3       | ~3    | No                   |
|                  | NB Thru/Right          | 1            | 1     | No                   | 3        | 3     | No                   |
|                  | SB Left                | ~6           | ~7    | No                   | 5        | 5     | No                   |
|                  | SB Thru/Right          | 1            | 1     | No                   | 1        | 1     | No                   |
|                  | EB Thru                | 4            | 4     | No                   | 7        | 9     | No                   |
| Binney Street at | WB Thru/Right          | 5            | 4     | No                   | 6        | 6     | No                   |
| Galileo Galilei  | SB Right               | 7            | 7     | No                   | 4        | 4     | No                   |
| street           | SB Left                | 5            | 5     | No                   | 7        | 7     | No                   |
|                  | SB Right               | 1            | 1     | No                   | 2        | 2     | No                   |
|                  | EB Left                | 2            | 2     | No                   | 8        | 8     | No                   |
| Binney Street at | EB Thru/Right          | 4            | 3     | No                   | 7        | 9     | No                   |
| Third Street     | WB Left                | 4            | 5     | No                   | 2        | 2     | No                   |



|                  |                    | AM Peak Hour |       |                      | PM Peak Hour |       |                      |
|------------------|--------------------|--------------|-------|----------------------|--------------|-------|----------------------|
| Intersection     | Movement           | Existing     | Build | Exceeds<br>Criteria? | Existing     | Build | Exceeds<br>Criteria? |
|                  | WB Thru/Right      | 6            | 7     | No                   | 3            | 4     | No                   |
|                  | NB Left/Thru       | 3            | 3     | No                   | 10           | 10    | No                   |
|                  | NB Right           | 1            | 1     | No                   | 4            | 4     | No                   |
|                  | SB Left/Thru/Right | 14           | 15    | No                   | 9            | 9     | No                   |
|                  | EB Left            | 2            | 2     | No                   | 5            | 6     | No                   |
|                  | EB Thru/Right      | 1            | 2     | No                   | 2            | 2     | No                   |
| Binnev Street at | WB Left/Thru/Right | 13           | 14    | No                   | 2            | 2     | No                   |
| First Street     | NB Left/Thru/Right | 1            | 1     | No                   | 1            | 1     | No                   |
|                  | SB Left/Thru       | 5            | 4     | No                   | 9            | 9     | No                   |
|                  | SB Right           | 4            | 5     | No                   | 3            | 3     | No                   |
|                  | EB Left/Right      | 3            | 3     | No                   | 3            | 3     | No                   |
|                  | NB Left            | 7            | 7     | No                   | 7            | 7     | No                   |
| Binney Street at | NB Thru            | 3            | 3     | No                   | 7            | 7     | No                   |
| Land Boulevard   | SB Thru            | 15           | 15    | No                   | 15           | 15    | No                   |
|                  | SB Right           | 9            | 10    | No                   | 4            | 5     | No                   |
|                  | EB Left            | 4            | 5     | No                   | 3            | 4     | No                   |
|                  | EB Thru            | ~17          | ~17   | No                   | 8            | 8     | No                   |
|                  | EB Right           | 2            | 2     | No                   | 1            | 1     | No                   |
|                  | WB Left            | 3            | ~4    | No                   | ~7           | ~12   | No                   |
| Broadway at      | WB Thru/Right      | 6            | 6     | No                   | 8            | 8     | No                   |
| Galileo Galilei  | NB Left            | 3            | 2     | No                   | 4            | 4     | No                   |
| vvay             | NB Thru/Right      | 5            | ~16   | Yes                  | 8            | 8     | No                   |
|                  | SB Left            | 3            | 3     | No                   | 2            | 2     | No                   |
|                  | SB Thru            | 11           | 11    | No                   | 9            | 9     | No                   |
|                  | SB Right           | ~6           | ~6    | No                   | ~6           | ~6    | No                   |
|                  | EB Thru            | ~20          | ~20   | No                   | ~17          | ~17   | No                   |
|                  | EB Right           | 2            | 3     | No                   | 1            | 1     | No                   |
| Broadway at      | WB Left            | 2            | 2     | No                   | 2            | 3     | No                   |
| Ames Street      | WB Thru            | 8            | 10    | No                   | 9            | 10    | No                   |
|                  | NB Left            | 2            | 3     | No                   | 4            | 5     | No                   |
|                  | NB Right           | 1            | 0     | No                   | 3            | 3     | No                   |
|                  | EB Left            | 7            | 7     | No                   | 4            | 5     | No                   |
|                  | EB Thru/Right      | 5            | 5     | No                   | 9            | 9     | No                   |
| Broadway at      | WB Thru            | 12           | ~16   | No                   | 9            | 10    | No                   |
| Third Street     | WB Riaht           | 8            | 8     | No                   | 4            | 4     | No                   |
|                  | SB Left/Thru       | 4            | 4     | No                   | ~10          | ~14   | No                   |
|                  | SB Right           | 2            | 3     | No                   | 3            | 3     | No                   |
| Main Street at   | EB Left            | 4            | 6     | No                   | 5            | 6     | No                   |
| Galileo Galilei  | FB Thru/Right      | 6            | 6     | No                   | 6            | 6     | No                   |



|                               |                    | AM Peak  | Hour  |                      | PM Peak  |       |                      |
|-------------------------------|--------------------|----------|-------|----------------------|----------|-------|----------------------|
| Intersection                  | Movement           | Existing | Build | Exceeds<br>Criteria? | Existing | Build | Exceeds<br>Criteria? |
| Way/Vassar                    | WB Left            | 2        | 2     | No                   | 1        | 1     | No                   |
| Street                        | WB Thru/Right      | 5        | 5     | No                   | 2        | 2     | No                   |
|                               | NB Left/Thru/Right | 6        | 6     | No                   | 6        | 6     | No                   |
|                               | SB Left            | 2        | 2     | No                   | 2        | 2     | No                   |
|                               | SB Thru            | 10       | 10    | No                   | 9        | 10    | No                   |
|                               | SB Right           | 7        | 7     | No                   | 4        | 6     | No                   |
| Main Street at<br>Ames Street | EB Left/Thru/Right | 6        | 6     | No                   | 10       | 10    | No                   |
|                               | WB Left/Thru/Right | 1        | 1     | No                   | 1        | 1     | No                   |
|                               | NB Left/Thru/Right | 3        | 3     | No                   | 4        | 4     | No                   |
|                               | SB Left/Thru       | 3        | 3     | No                   | 2        | 2     | No                   |
|                               | SB Right           | 4        | 4     | No                   | 2        | 2     | No                   |

### Criteria E – Pedestrian Delay

|                            | Crosswalk | AM Peak Hour |       |                      | PM Peak Hour |       |                      |
|----------------------------|-----------|--------------|-------|----------------------|--------------|-------|----------------------|
| Intersection               |           | Existing     | Build | Exceeds<br>Criteria? | Existing     | Build | Exceeds<br>Criteria? |
| O'Brien                    | East      | D            | D     | No                   | D            | D     | No                   |
| Highway at                 | West      | D            | D     | No                   | D            | D     | No                   |
| Third Street               | South     | D            | D     | No                   | D            | D     | No                   |
| Cambridge                  | East      | В            | В     | No                   | В            | В     | No                   |
| Street at Third            | West      | В            | В     | No                   | В            | В     | No                   |
| Street                     | North     | В            | В     | No                   | В            | В     | No                   |
|                            | South     | В            | В     | No                   | В            | В     | No                   |
| Cambridge                  | East      | D            | D     | No                   | D            | D     | No                   |
| Street at First            | West      | D            | D     | No                   | D            | D     | No                   |
| Street                     | South     | D            | D     | No                   | D            | D     | No                   |
| O'Brien                    | East      | D            | D     | No                   | D            | D     | No                   |
| Highway at                 | West      | D            | D     | No                   | D            | D     | No                   |
| Cambridge<br>Street / Fast | North     | D            | D     | No                   | D            | D     | No                   |
| Street                     | South     | С            | С     | No                   | С            | С     | No                   |
| O'Brien                    | East      | E            | E     | Yes                  | E            | E     | Yes                  |
| Highway at                 | West      | E            | E     | Yes                  | E            | E     | Yes                  |
| Land<br>Boulevard          | North     | E            | E     | Yes                  | E            | E     | Yes                  |
| Broadway at<br>Portland    | East      | В            | В     | No                   | В            | В     | No                   |
|                            | West      | В            | В     | No                   | В            | В     | No                   |
| Street                     | North     | В            | В     | No                   | В            | В     | No                   |
|                            | South     | В            | В     | No                   | В            | В     | No                   |
|                            | East      | D            | D     | No                   | D            | D     | No                   |



|                         |           | AM Peak Hour |           | PM Peak Hour         |          |          |                      |
|-------------------------|-----------|--------------|-----------|----------------------|----------|----------|----------------------|
| Intersection            | Crosswalk | Existing     | Build     | Exceeds<br>Criteria? | Existing | Build    | Exceeds<br>Criteria? |
| Broadwav at             | West      | C            | С         | No                   | C        | С        | No                   |
| Hampshire               | North     | C            | C         | No                   | C        | C        | No                   |
| Street                  | South     | C            | C         | No                   | C        | C        | No                   |
| Binnev Street           | East      | D            | D         | No                   | D        | D        | No                   |
| at Galileo              | West      | D            | D         | No                   | D        | D        | No                   |
| Galilei                 | Northeast | D            | D         | No                   | D        | D        | No                   |
| Way/Fulkerson<br>Street | Northwest | D            | D         | No                   | D        | D        | No                   |
| Binney Street           | Fast      | D            | D         | No                   | D        | D        | No                   |
| at Third Street         | West      | D            | D         | No                   | D        | D        | No                   |
| •                       | North     | D            | D         | No                   | D        | D        | No                   |
| -                       | South     | D            | D         | No                   | D        | D        | No                   |
| Binney Street           | Fact      | F            | F         | Vec                  | F        | F        | Vec                  |
| at First Street         | West      | F            | F         | Voc                  | F        | F        | Voc                  |
|                         | North     | F            | F         | Voc                  | F        | F        | Voc                  |
|                         | South     | с<br>с       | <u></u> Е | Voc                  | <u>с</u> | с<br>с   | Voc                  |
| Binney Street           | Fact      | F            | F         | Voc                  | F        | F        | Voc                  |
| at Land                 | North     | с<br>С       |           | Voc                  | с<br>С   | <u>с</u> | Voc                  |
| Boulevard               | South     | с<br>С       | E         | Voc                  | <u>с</u> | E        | Voc                  |
| Broadway at             | East      |              |           | No                   |          | D        | No                   |
| Galileo Galilei         | Wost      |              |           | No                   |          |          | No                   |
| Way                     | North     |              |           | No                   |          |          | No                   |
|                         | South     |              |           | No                   |          |          | No                   |
| Proadwayat              | Fact      |              |           | No                   |          |          | No                   |
| Ames Street             |           |              |           | No                   |          |          | No                   |
|                         | South     | <u>с</u>     | C D       | No                   | C        | С        | No                   |
| Broadway at             | Eact      |              |           | No                   |          |          | No                   |
| Third Street            | Wost      |              |           | No                   |          |          | No                   |
| P                       | North     | <u>с</u>     | <br>      | No                   | <u>р</u> | C        | No                   |
|                         | South     | C            | <br>      | No                   | C        | C        | No                   |
| Main Streat at          | Eact      | C            | <br>      | No                   | C        | C        | No                   |
| Galileo Galilei         |           | с<br>С       | <br>      | No                   | <u>с</u> | C        | No                   |
| Way/ Vassar<br>Street   | North     | с<br>С       |           | No                   | <u>с</u> | C        | No                   |
|                         | South     | с<br>С       | <br>      | No                   | C        | C        | No                   |
| Main Street at          | Fact      |              |           | No                   |          |          | No                   |
| Ames Street             | EdSL      | ע            |           | No                   | ע        |          | No                   |
|                         | North     | C            | C C       | NO                   | C        | C        | No                   |
| P                       | NOIT      | C<br>C       |           | NO<br>No             |          | C        | No.                  |
|                         | South     | L            | L         | INO                  | L        | L        | INO                  |



| Adjacent Street     | Link (between)                                       | Sidewalk or<br>Walkway<br>Present | Exceeds<br>Criteria? | Bicycle Facilities or<br>Right of Ways Present | Exceeds<br>Criteria? |
|---------------------|--|-----------------------------------|----------------------|--|----------------------|
| Diana Charat        | Galileo Galilei Way and<br>Third Street (north side) | Yes                               | No                   | Yes  | No                   |
| Binney Street       | Galileo Galilei Way and<br>Third Street (south side) | Yes                               | No                   | Yes  | No                   |
|                     | Galileo Galilei Way and<br>Ames Street (north side)  | Yes                               | No                   | Yes  | No                   |
| Deserver            | Galileo Galilei Way and<br>Ames Street (south side)  | Yes                               | No                   | Yes  | No                   |
| вгоадway            | Ames Street and Third<br>Street (north side)         | Yes                               | No                   | Yes  | No                   |
|                     | Ames Street and Third<br>Street (south side)         | Yes                               | No                   | Yes  | No                   |
|                     | Broadway and Main Street<br>(north side)             | Yes                               | No                   | Yes  | No                   |
| Ames Street         | Broadway and Main Street (south side)                | Yes                               | No                   | Yes  | No                   |
|                     | Main Street and Broadway<br>(west side)              | Yes                               | No                   | Yes  | No                   |
|                     | Main Street and Broadway<br>(east side)              | Yes                               | No                   | Yes  | No                   |
| Gallieo Galliei Way | Broadway and Binney<br>Street (west side)            | Yes                               | No                   | Yes  | No                   |
|                     | Broadway and Binney<br>Street (east side)            | Yes                               | No                   | Yes  | No                   |
|                     | Galileo Galilei Way and<br>Ames Street (north side)  | Yes                               | No                   | Yes  | No                   |
| Main Church         | Galileo Galilei Way and<br>Ames Street (south side)  | Yes                               | No                   | Yes  | No                   |
| Main Street         | Ames Street and Broadway (north side)                | Yes                               | No                   | Yes  | No                   |
|                     | Ames Street and Broadway (south side)                | Yes                               | No                   | Yes  | No                   |

**Criteria E – Pedestrian and Bicycle Facilities**