Setti D. Warren
Mayor

City of Newton, Massachusetts
Department of Planning and Development
1000 Commonwealth Avenue Newton, Massachusetts 02459

Telephone
(617) 796-1120
Telefax
(617) 796-1142
TDD/TTY
(617) 796-1089
www.newtonma.gov

James Freas
Acting Director

CONTINUED PUBLIC HEARING MEMORANDUM

DATE: October 2, 2015

MEETING DATE: October 6, 2015

TO: Land Use Committee of the Board of Aldermen

FROM: Alexandra Ananth, Chief Planner for Current Planning

CC: Austin Street Partners
City Clerk
Law Department
Executive Department

PETITION #119-15 **28 AUSTIN STREET**

Request for Special Permit/Site Plan Approval to redevelop a municipal parking lot with a mixed-use building and 127 public parking stalls

The Land Use Committee (the "Committee") held public hearings on this project on June 2, June 9, July 21, and September 24, 2015, which were held open to be continued. In response to questions raised at the public hearings by Aldermen, the public and/or staff technical reviews, the Planning Department is providing the following information for the upcoming public hearing. This information is supplemental to staff analysis previously provided at prior public hearings. Additional public hearings will be scheduled as necessary, but are anticipated for October 20, October 27 or 29, November 10 and November 12, 2015.

The topic for the October 6th continued public hearing will be access and parking, and will include a presentation of the design for Walnut Street and how this project fits within that design. The applican'ts Traffic Consultant, as well as the City's Peer Reviewing Transportation Engeneer will both be present and are expected to give brief presentations and be available to answer questions.

The next meeting is scheduled for October 20th. This hearing will include time for left over topics and questions from the September 24th and October 6th meetings. If any Board members have questions or topics that they believe need to be discussed further please raise them at the end of the hearing on October 6th so that staff has sufficient time to prepare responses. The City's Consultant for the fiscal and economic impact is expected to be at this meeting and will be available to answer

questions. This meeting may conclude the applicant and the City's presentations on this project. If presentations are wrapped on on this night subsequent public hearings will focus on drafting a Board Order.

At both meetings there will be opportunity for additional Committee/Aldermen questions and for comments from the public.

The following is a response to some of the questions raised at previous public hearings.

How do we keep the Public Plaza area safe given its intention as an entrance to the municipal parking lot?

In the proposed site plan Philip Bram Way will continue to serve as a connection between Austin Street and Highland Avenue and provide one of three access and egress points to and from the municipal lot. The Planning Department recommends that this road not be closed to vehicle traffic, but be maintained as a two-way roadway with the traffic calming measures that are proposed i.e. raised shared pedestrian plaza, landscaping and pavement treatments and low bollards that separate the plaza from the drive aisle. We believe the design features and separation bollards will sufficiently slow vehicular traffic to create a safe shared roadway.
On the average day the public plaza between the bollards and the proposed building will be sufficient to accommodate a passive gathering area with benches, a fountain and perhaps some tables. On special occasions the City would have the ability to close this portion of Philip Bram Wat to vehicles if additional public gathering area is needed for a special event. Making this access one-way may increase the speed of traffic and make the connection feel more like a road which is the opposite intention for this area. The current site plan decreases the number of internal drive aisle connections in the municipal lot to Philip Bram Way from three to one, which is a significant safety improvement. If it is determined necessary, a chain that connects the bollards could serve as further separation of the plaza and the drive aisle. Further details for the plaza area will be presented at the October 20th continued public hearing.

Can the cost of parking be separated from tenant rents?

The applicant has stated that they would support separating monthly parking charges from the monthly apartment rent. Separating parking charges would reduce apartment rents by about $150 per month and will help to encourage alternative modes of transportation and minimize car ownership. This can be incorporated into a condition of the Board Order.

What is the working design for Walnut Street and how does this project fit in with that design?

The City's Director of Transportation, Bill Paille, will present the City's working design for improvements to Walnut Street at the continued public hearing on October 6th.

What are best practices for minimizing disruption to area businesses during construction?

Best practices for minimizing the impacts on businesses and visitors to Newtonville's village center during construction includes a mix of both physical improvements and parking management strategies that can be implemented in order to off-set the temporary loss of public parking in the area. Examples are relocating parking that can be moved, temporary use of one-way roadways to allow for the addition of on-street parking, restriping roadways to add or expand on-street parking, contracting for use of private parking areas, regulatory changes to allow for free one-hour parking and longer-term parking at lightly used parking facilities, etc. A clear and timely communication program advising customers, employees, businesses, commuters, and seniors of parking options, and coordination with business owners and managers is also critical. All aspects of an effective communication plan require coordination between the City and Austin Street Partners for the duration of the construction project. Social media technology as well as clearly visible temporary signage should also be utilized to further communication.

What is the plan for interim parking during construction when the municipal lot is not available?

A working group formed to address potential parking impacts during construction includes representatives from the Development Team, the Newtonville Area Council, two Newtonville businesses, and City staff including the Transportation Coordinator, the Economic Development Director, and two Sergeants from the Newton Police Department's Traffic Bureau. The Newtonville shopping area south of the MassPike has a total parking supply of approximately 448 spaces, of which the Austin Street Municipal Parking lot makes up approximately 28%. It is expected that construction of the project and new parking lot would necessitate a relocation of the public parking inventory to other viable locations for an estimated period of six to nine months.

The working group has come up with recommendations for both short-duration and longer-duration parking **(Attachment A).** Up to 100 parking spaces in the Aquinas School parking lot can be made available for longer-duration parking (commuters, employees working in the village and construction workers associated with the project). This lot is just a five minute drive from Newtonville and the working group has proposed establishing a shuttle service to be funded by the developer that would operate between the two locations throughout the day Monday through Saturday on a continuous 15-20 minute cycle. The developer has agreed to pay for this service during the construction period and the working group will work with retailers and landlords to understand employee shifts.

In addition to the above, a number of potential opportunities for short-duration parking are identified in the memo. The working group is committed to working with area merchants and landlords to post and distribute flyers to educate shoppers and visitors regarding temporary parking locations. Temporary signage and social media can also be used to direct parkers to convenient parking.

Can the Board allocate any surplus inflow and infiltration payment from the applicant towards undergrounding?

All inflow and infiltration payments are supposed to go towards sewer inflow and infiltration mitigation. In the case of this project the applicant's payment of $750,000 will directly pay for the installation of a new sewer and water main on Austin Street which was in the City's Capital Improvement Plan and is necessary regardless of this project. Any surplus funds from this payment would go towards other sewer inflow and infiltration projects in the immediate area. The concept behind the inflow and infiltration policy is that new projects add new flow to the system so other extraneous sewer flow must be removed to accommodate the newly added sewer flow. The Board can choose to redirect surplus inflow and infiltration funds, however it has not been their policy to do so before. Prior Board Orders have stated that these payments are for inflow and infiltration and not available generally.

ATTACHMENTS:

Attachment A: Recommendations for Parking During Construction
Attachment B: Applicant's Transportation Impact Study (TIS)
Attachment C: City's Peer Review of the TIS
Attachment D: Applicant's response to the City's Peer Review

Attachment A

MEMORANDUM

FROM: Working Group/Austin Street – Parking During Construction Recommendations

TO: James Freas, Acting Director – Planning and Development

SUBJECT: Parking during construction of Austin Street municipal lot

DATE: September 30, 2015

1. **Background**: The Austin Street Municipal Parking Lot accounts for about 28% of the parking supply of the village of Newtonville south of the MassPike[1] and has historically served several user groups:

   - shoppers visiting Star Market, CVS, Starbucks and other Newtonville retailers, services and restaurants –typically for 30 minutes to 2 hours
   - retail employees who park while working – often for four or more hours
   - senior citizens who park for free with senior parking permits while they attend classes and activities at the Senior Center – for two to three hours
   - MBTA commuters who utilize the 12-hour meters
   - high school students who park with permits while at Newton North High School
   - Goodwill trailer
   - overnight parking for postal trucks and residents [by permit].

   Most recently, there have been 127 publicly available spaces: 68 three-hour meters, 55 12-hour meters and 4 reserved for disability use. [2]

   Construction of the lot will necessitate a relocation of the public parking inventory to other viable locations for an estimated period of six to nine months.

   In response to the need for a parking management plan during construction, a working group[3] was formed in March 2015 to consider temporary parking options during the proposed construction of the Austin Street lot. The working group has agreed that two hour parking should be made available on side streets with the possible exception of portions of side streets closest to Walnut where one-hour parking is more suitable for short visits to area businesses. Long-term parking (i.e. 2 hours or more) should also be located outside of the immediate village center as described in sections 2 and 3 below.

[1] The Newtonville shopping area south of the MassPike has a total parking supply of approximately 449 spaces consisting of 153 private spaces (34%), 96 unmetered street spaces (21%), 73 metered street spaces (16%) and 127 spaces (28%) in the Austin Street Municipal Parking Lot.

[2] Until the summer of 2015, 32 additional parking spaces were reserved for Newton North High School students. The Goodwill trailer, which currently occupies the back corner of the lot, will be relocated to the Rumford Recycling Center.

[3] The working group consists of Nancy Hyde, William Paille, David Koses, Sgt. Babcock, Captain Gromada, Jayne Colino, Scott Oran (Dinosaur Capital), Tom Kraus (Newtonville Area Council), Justine Cohen (Down Under Yoga), and Fran Reardon (George Howell Coffee)

2. **Recommendations for long-term parking:** There are three primary groups who require the longest term parking in Newtonville – MBTA commuters, employees working in the village and construction workers associated with the Austin Street project. Given the City's acquisition of the Aquinas School, the working group recommends utilizing approximately 100 spaces in the existing large parking lot as a satellite long-term parking facility during construction of the Austin Street lot. It is our understanding that one of the school buildings will be put into service as soon as fall 2016. There will be ample parking for the school purposes as the lot is large enough to accommodate over 200 parking spaces.

   The Aquinas lot is located well within a five minute drive of Newtonville. The working group proposes establishing a shuttle service to be funded by the developer operating between the two locations throughout the day Monday through Saturday. The specific start and stop times for the shuttle will be set to optimize usage. In addition to servicing village employees, the added significant benefit is that the shuttle can also provide much needed parking for visitors to the Senior Center's weekday programming. The shuttle could be routed to include a stop right at the center to facilitate easy access to the building.

   Preliminarily, the working group recommends a free public shuttle operate on continuous 15 – 20 minute headway (cycle). The developer has agreed to pay for this service during the construction period. We also recommend working with retailers and landlords to help them relocate employees.

3. **Additional Parking Opportunities:** In addition to the recommendations above, the working group proposes expansion of the short-term parking opportunities within the village. Potential opportunities for additional short-term parking are as follows:
   - *Philip Bram Way* – By making this roadway temporarily one-way during construction, 3 parking spots can be added along the east side of the street closest to Highland Avenue while maintaining clearance for fire trucks and delivery vans. This will also leave the area along Starbucks available for deliveries, as is presently the case.
   - *Austin Street* – Similar to Philip Bram Way, by making this street temporarily one way from Walnut Street to Lowell Avenue, an estimated 13 parking spaces can be added to the north of Austin Street. Two additional spaces could be available if the taxi zone were to be relocated.
   - *Senior Center lot* – This lot has 13 parking spaces, 4 of which are designated as handicapped. These spaces are generally available on weekends and signed accordingly.
   - *Elm Road* by Newton North High School is a city street that is available anytime school is not in session. Over 50 spaces are available. On official schools days, staff permits are required. Competing demand may include any high school functions.
   - *Lowell Avenue by Elmwood Park* – There are 17 TIGER permit spaces that are available when school is not in session.
   - *Star Market lot* – A proposal to maximize parking on their customer lot and create a shared parking program with the city has been submitted to Star for their review. If

agreed to, this proposal could contribute approximately 20 public parking spaces in close proximity to stores in the village center.

In order to implement the preferred parking program, we will work the area merchants and landlords to post and distribute flyers to educate shoppers and visitors to the temporary parking locations. Temporary signage can also be used to direct parkers to convenient parking.

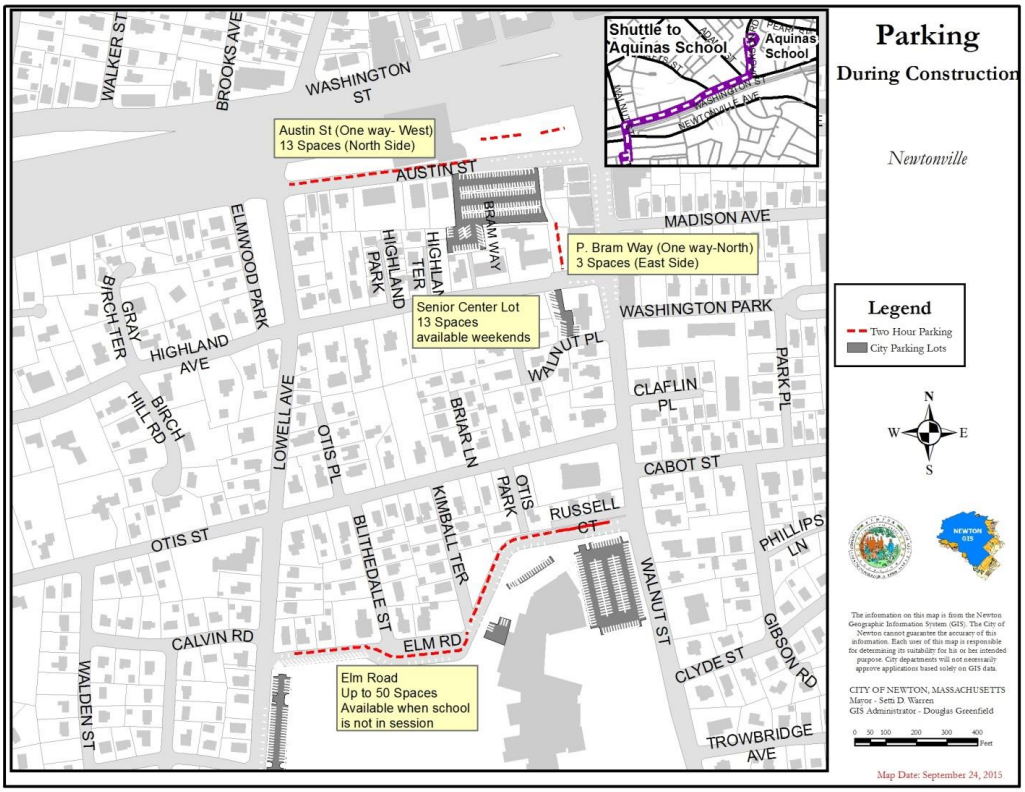
Chart summarizing parking additions during construction

	Additional Parking Spaces
Aquinas lot	100 +
Bram Way	3
Austin Street	13
Senior Center	13 on weekends
Elm Road	50+ on weekends/non-school days
Lowell Avenue nearest Elmwood Park (Tiger permitted spaces)	17 on weekends/non-school days
Star Market[4]	20
Totals: Weekdays Weekends	 136+ 216+

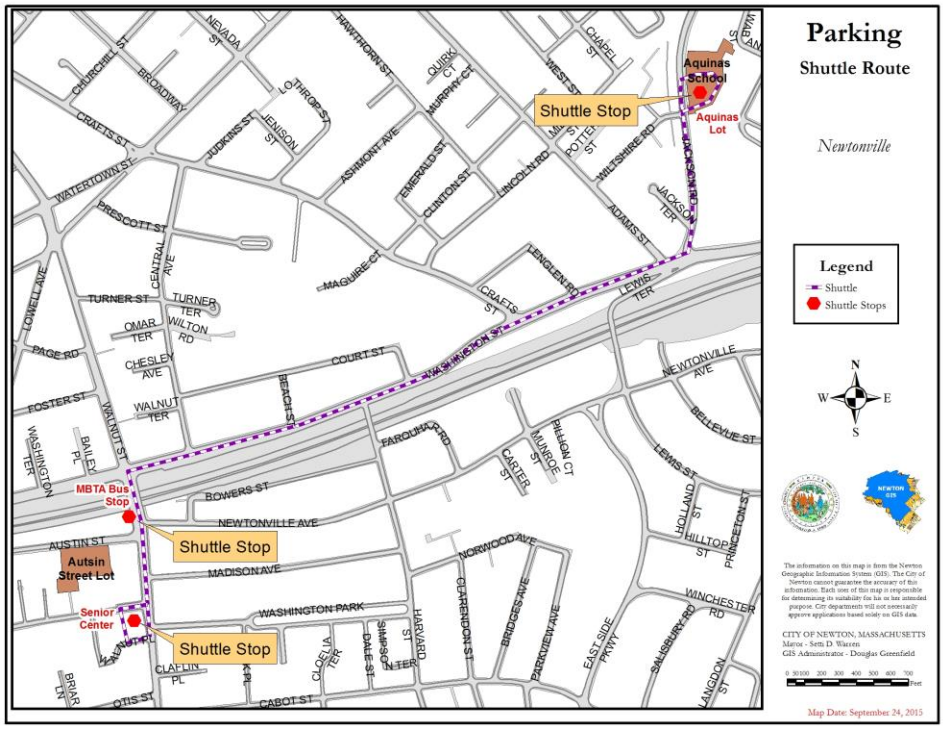
Miscellaneous - The working group focused on regular daytime and evening users. Tiger permits, the Goodwill trailer, postal trucks and permitted overnight parking have been or will be addressed separately by staff.

[4] Discussions are underway with Star Market to allow for 20 or more public parking spaces in Star lot. This involves developer funding the restriping of the existing lot and an onsite parking manager.

Additional Parking During Construction



Shuttle Route-Walnut Street (village) to Aquinas lot



Attachment B

MEMORANDUM

To: Austin Street Partners, LLC

From: Nelson\Nygaard Consulting Associates, Inc.

Date: May 12, 2015

Subject: 28 Austin Street – Transportation Impact Study

This technical memo is provided in support of the Special Permit Application for 28 Austin Street, and is intended to evaluate the potential transportation and parking impacts of the proposed development in the village of Newtonville. The basis for the transportation evaluation of the Development was coordinated with City of Newton staff and informed by Austin Street Partners LLC's continued conversation with the community and City staff. This memo will describe the general project plan, articulate existing transportation conditions and model the potential future transportation impacts given the site program, proposed uses, and the context of nearby transportation trends and opportunities. While the overall transportation impacts of the Development are minimal, the memorandum further includes a qualitative evaluation of potential area improvements that may be contemplated and completed by the City.

SUMMARY

In summary, the 28 Austin Street project will:

- Increase retail frontage on Austin Street, extending the street-wall and active environment of Newtonville.
- Widen sidewalks, add pedestrian connectivity and create additional pedestrian plaza areas and outdoor seating for Newtonville.
- Retain the existing public parking (127 spaces) for public use.
- Create additional parking (92 spaces) that will adequately serve the proposed program.
- Contribute to the vital, active, mixed-use, multimodal environment of Newtonville.
- Generate relatively few peak hour vehicle trips (32 AM peak; 46 PM peak).
- Maintains overall operations for all study area intersections as Level of Service (LOS) A in both Existing and Build scenarios.
- All intersection approaches operate below capacity (volume/capacity < 1.0), with minor changes in LOS for only two approaches, which are resulting from small (< 5 seconds) additional delay.
- Identify potential improvements to traffic circulation and operations in Newtonville.
- Evaluate options for additional parking during and post construction.
- Continue to coordinate with the City-led working group on Village-wide issues.

1.0 – PROJECT DESCRIPTION

In response to a Request for Proposals issued by the City of Newton, Austin Street Partners LLC was chosen as the developer to build a mixed-use residential development at 28 Austin Street in the village of Newtonville. The 28 Austin Street site currently serves as a municipal (surface) parking lot owned by the City of Newton and open to the public.

Newtonville is a dense, active, vibrant area of the City of Newton. It has local-serving retail, established adjacent residential neighborhoods, a solid walking environment, a supermarket, and good public transportation access. Its streets are active, and serve many types of transportation users. As proposed, the development will modestly expand the retail frontage in Newtonville along Austin Street, while being attractive to new apartment residents with a desire to take advantage of the amenities in the village. From a streetscape perspective, the proposed Development will add improved sidewalks, provide better pedestrian connections, retain public parking and contribute vitality, activity and amenities to Newtonville. The project will infill an underutilized area of the village fabric but it will also fulfill a need for diverse housing options in Newton, all with walkable access to local services, entertainment and transit. The development would be sited on what currently serves as a municipal-owned parking lot.

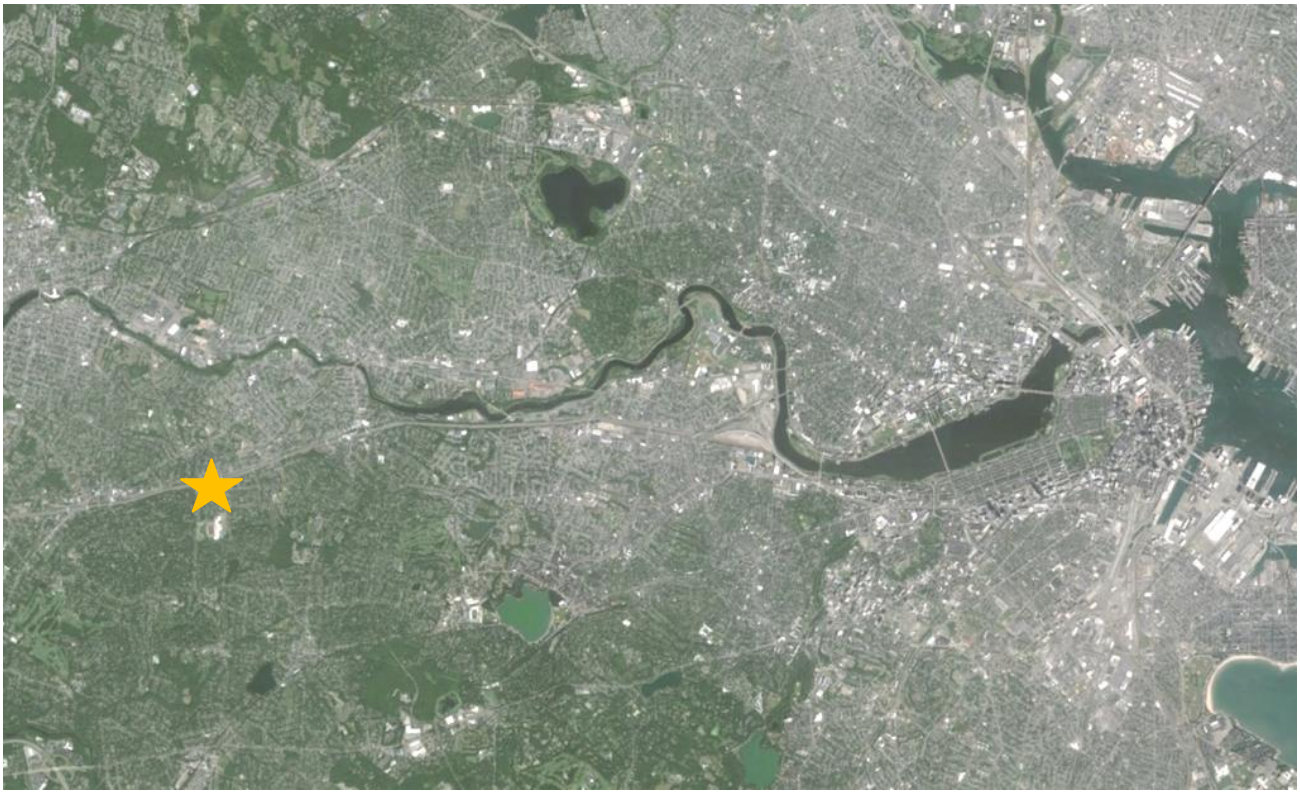
1.1 Project Location

The proposed 28 Austin Street development would be sited on the south side of Austin Street, just west of the Walnut Street commercial corridor. The Site, currently a City of Newton municipal parking lot, is bounded on the north side by Austin Street and on the east side by Philip Bram Way. The site is located in the commercial village of Newtonville, which is approximately ten miles west of Boston. Newtonville, and the site, are in close proximity of the Massachusetts Turnpike (I-90) corridor. Walnut Street, Lowell Avenue and Washington Streets provide good local and regional access. ***Figure 1*** identifies the general location of the proposed site.

Newtonville is a highly walkable environment. A Star Market supermarket is located across Austin Street from the site, with additional adjacent local-serving retail a short, pleasant walk away. The site is currently bounded by a bank on the west side, a church and apartments on the south side, a retail building on the east, and the Star Market across Austin Street.

Public transportation, including four (4) bus routes and the Newtonville MBTA Commuter Rail station are all within a short walk. Newtonville residents already enjoy ready access to all these amenities, and it is expected that project residents will be attracted to and use these as well. In fact, the project will expand local retail and recreational opportunities.

Figure 1: Project Location



1.2 Existing Use

The 28 Austin Street site currently serves as a municipal (surface) parking lot owned by the City of Newton and open to the public. The proponent, Austin Street Partners LLC, was chosen as the developer in response to a Request for Proposals issued by the City of Newton. In total, the lot provides 127 metered public parking spaces (4 of which are designated handicapped) and an additional thirty-two (32) spots which are restricted for use for Newton North High School "Tiger" student permit parking. The site is well used for access to Newtonville, and a recent study of parking supply and occupancy was completed by the City of Newton and is described in detail further in this memorandum.

Metered spaces in the Austin Street lot are in effect Monday through Friday from 8:00 am to 6:00 pm. Spaces are free on weekends, when incidentally they show higher utilization on Saturdays. Sixty-eight (68) meters have a three (3) hour time limit and are $0.75/hour. Fifty-five (55) meters are 12-hour meters and are $0.50/hour. There are four (4) handicapped spaces, and the additional thirty-two (32) Newton North High School "Tiger" restricted permit spaces located in the lot.

A desire for a new use on the site was first put forth in the City of Newton's 2007 comprehensive plan and, in 2010, the City issued a request for interest to redevelop the site. As envisioned, a redevelopment would transform the existing parking lot into a mixed use development not to exceed five stories. The development would also be required to retain existing public parking on the site, which is shown further in ***Figure 2***.

Figure 2: 28 Austin Street Site

1.3 Proposed Program and Uses

The development proposes a mixed-use four-story building that will be integrated into the Newtonville area. The project program is comprised of housing, with ground level retail and associated parking. Public parking on the site will also be retained. The project will greatly enhance the streetscape and access along Austin Street, providing wider sidewalks, outdoor seating, and an active, well-managed frontage. The program as proposed includes 68 housing units, to be located on the upper three floors. The ground level will have approximately 1,500 square feet of shared office space and 3,500 square feet of retail. A summary of the building program can be found in ***Table 1***.

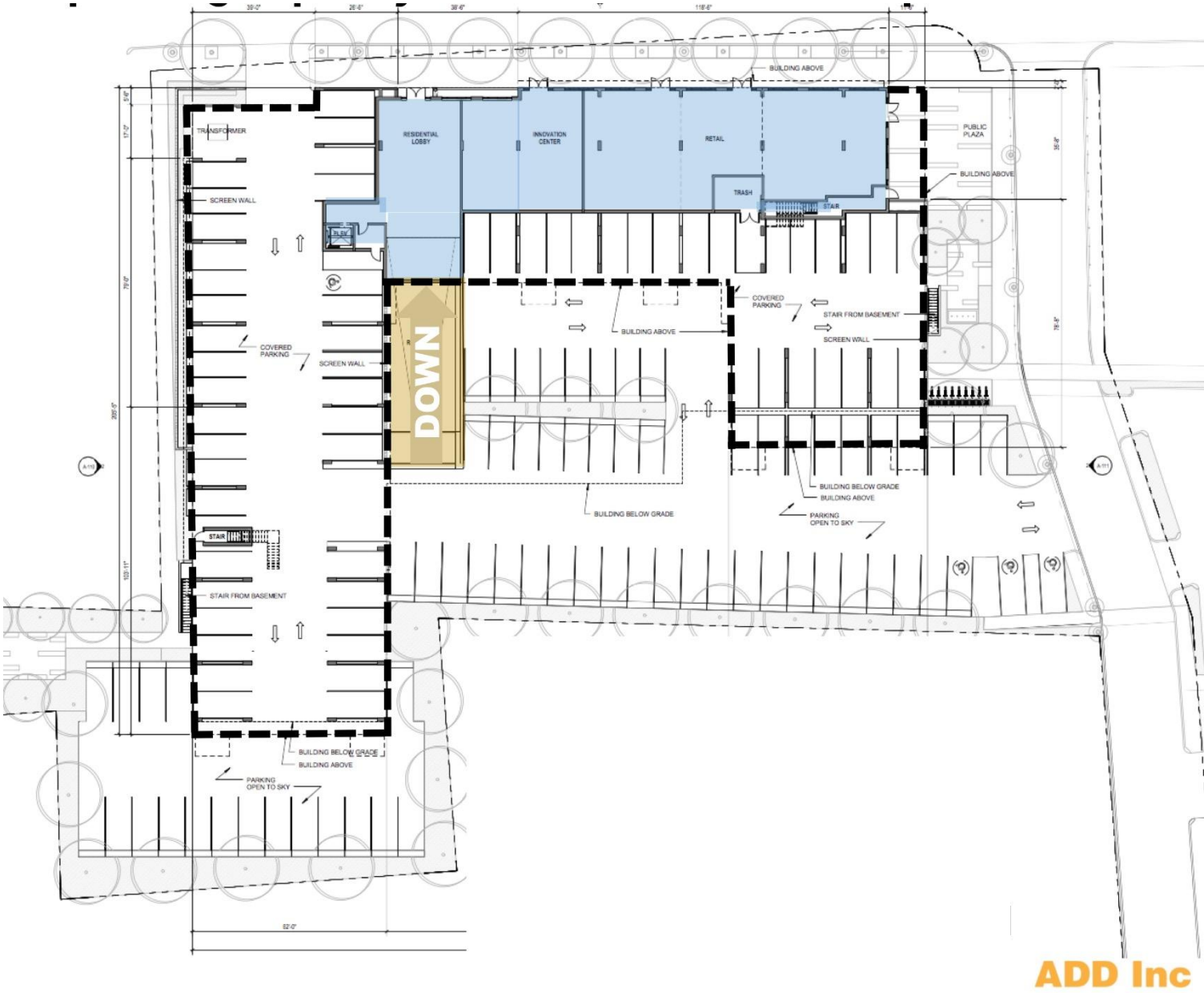
The project will have pedestrian friendly access to grocery, pharmacy, restaurants, and shopping. Vehicular site access is planned via a driveway on Austin Street and another driveway on Philip Bram Way. The site is also planned to allow for a future Hubway station, electric vehicle charging stations, car sharing (Zipcar, if possible), bicycle racks, and market pricing (for residents' second parking space) to minimize car ownership. The plan for parking will retain all of the current 127 public parking spaces at grade and an additional ninety (90) private parking spaces will be provided underground for residents and employees, accessible from the new public parking lot located behind the development.

Table 1: 28 Austin Street Development Program

Project Component	Units/Square Feet
Residential	68 units
Retail	3,500 SF
Shared Offices	1,500 SF
Parking - Private	90 spaces
Parking - Public	127 spaces

Figure 3: Current Concept Rendering, Credit: ADD Inc

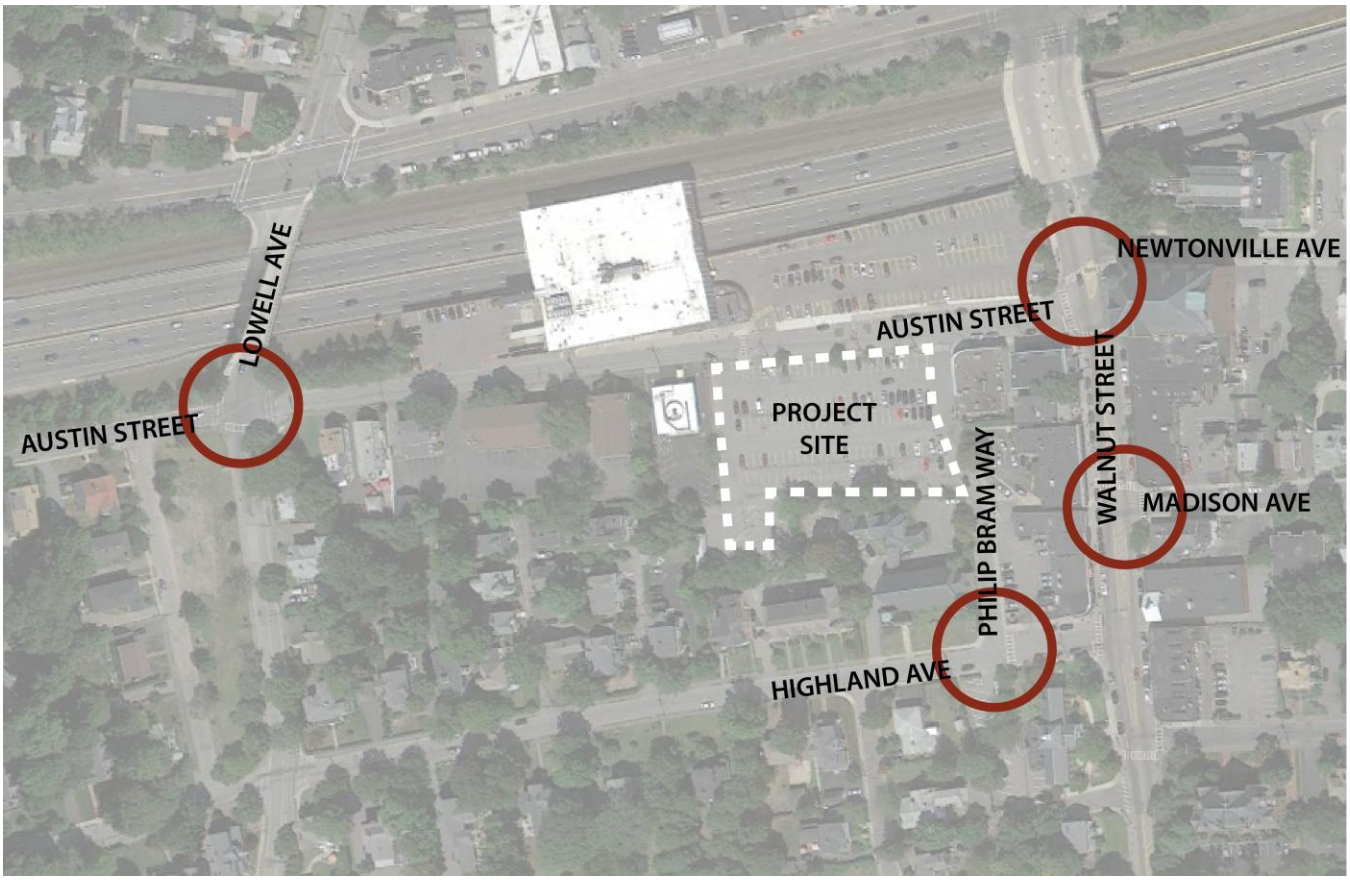
Figure 4: Ground Level Parking Program



2.0 – EXISTING CONDITIONS

The 28 Austin Street development site is located in the heart of Newtonville with frontage on Austin Street, as shown in ***Figure 5*** below. The project will be situated on the site of the municipal parking lot in Newtonville, just west of the Walnut Street intersection. Newtonville is one of the thirteen villages of Newton and contains a robust, local retail area which extends both on the North and South side of the Massachusetts Turnpike. As in most of Newton, the village area is surrounded by established residential blocks. The Newtonville area is blessed with good connectivity, with both Walnut and Lowell Streets extending across the Massachusetts Turnpike, and many local connecting streets crossing the neighborhood. The commercial area and the surrounding neighborhood are extremely walkable, with well-used sidewalks connecting neighbors to the amenities of village living. The site is well-situated near the commercial, retail and neighboring residential offerings of this part of the city, and is also well-served by multiple public transportation options. The combination of transit access, walkable neighborhood, vibrant retail, and a well-connected roadway network will continue to attract the kind of residents and merchants that seek a range of travel alternatives. A description and analysis of the existing roadways and intersections in the below study area are to follow.

Figure 5: Project Study Area



2.1 Existing Roadway Network

The current municipal parking lot (and thus the proposed development) site has primary frontage and access from Austin Street. As a mixed-use development, with primarily local serving uses, the project will most directly utilize the sidewalks, roadways and transit immediately surrounding the Site. These streets include a mix of local residential streets along with local collectors that provide connections to other Newton neighborhoods. The

following is a brief description of the principal study area roadways and intersections evaluated as part of this analysis.

Walnut Street

The project site is located a half block west of Walnut Street which is a two-way, two-lane urban collector that runs north to south from Crafts Street to Dedham Street. In the vicinity of the site, Walnut Street is a commercial street, lined with retail. Walnut Street also provides a connection across the Massachusetts Turnpike. The curb-to-curb width over the area between Austin Street and Washington Park varies between approximately 40 and 55 feet. On the bridge over the Mass Pike/I-90, Walnut Street is 72' and six lanes wide, with three lanes in each direction. There are 8 foot sidewalks on both sides of the street. One-hour parking is generally allowed between the hours of 7:00 am and 7:00 pm on both sides of the roadway from Austin Street to Washington Park, a stretch which also includes a striped median of varying width.

Austin Street

Austin Street is a two-way, two-lane local street that runs east-west, parallel to the Massachusetts Turnpike from Chestnut Street on the west to Walnut Street on the east. The current municipal lot (and development site) have frontage on the section of Austin Street between Lowell Avenue and Philip Bram Way. Across from the Site, Austin Street hosts a Star Market supermarket, with significant parking, while west of the site, Austin Street is primarily two and three-story commercial buildings with office with some residential further west. Parking is allowed on both sides of the street between Philip Bram Way and Walnut Street where the curb to curb width is around 40 feet. There is parking on the North side of the street only between the westerly curb cut to the main Star Market parking lot and Philip Bram Way, a stretch which is only 30' wide. Parking is not allowed between Lowell Avenue and the Star Market's parking lot curb cut. Two-way traffic on Austin Street is divided by a double yellow line. There are 8-foot sidewalks on both sides of the street.

Philip Bram Way

Philip Bram Way is a driveway that acts as a two-way local access street that runs north to south between Austin Street and Highland Avenue. Philip Bram Way functions as a public roadway, and is also used by local merchants to access the rear of the several properties fronting Walnut Street and extends along the backs of these properties from Highland Avenue to Austin Street. Prior agreement with the City established a right of way giving abutters rear access to their shops over the right of way. The paved driving way is 30' wide from Austin Street to the southerly edge of the Austin Street parking lot and the paved width varies from 22 to 24' from the Austin Street lot to where Philip Bram Way meets Highland Avenue. There is a six foot sidewalk running along the east side of Philip Bram Way and there is not a sidewalk on the west side. Parking is not currently allowed on either side of Philip Bram Way, which is also not divided by any pavement markings.

Lowell Avenue

Lowell Avenue is a two-way local collector that runs north to south from Watertown Street to Commonwealth Avenue. Lowell Avenue runs essentially parallel to Walnut Street and also provides a connection across the Massachusetts Turnpike. Land use along Lowell Avenue is primarily residential. Parking is prohibited on the west side of the street 7:00 am to 10:00 pm from Austin Street southerly to Otis Street. Parking is allowed on the east side of the street between Austin Street and Highland Ave with the exception of between 7:00 am and 9:00 am. The curb-to-curb width is 32' and there are five foot sidewalks on both sides of the road. Traffic on Lowell is divided by a double yellow line.

Newtonville Avenue

Newtonville Avenue is a two-way local street that runs west to east from Walnut Street to Centre Street. Newtonville Avenue ends at Walnut Street, offset, and just slightly north from the Austin Street terminus. From Walnut Street to just past Bowers Street, Newtonville Avenue is commercial and provides access to parking facilities for properties that front on Walnut Street. East of Bowers Street, it is primarily residential. Newtonville is

25' wide curb-to-curb and parking is only allowed on the south side of the street. The parking 120 feet easterly of Walnut Street on the south side is metered with a one-hour limit 8:00am to 6:00 pm, while parking between 120 feet east of Walnut Street to Bowers Avenue is free and time-limited to one hour between 8:00 am and 6:00 pm From Bowers Street to Harvard Street, parking has a two-hour limit during the 8:00 am to 6:00 pm period. Two-way travel on Newtonville Avenue is divided by a double yellow line. There are eight foot sidewalks on both sides of the street.

Madison Avenue

Madison Avenue is a two-way local street that runs from west to east from Walnut Street to Harvard Street. The curb-to-curb width is 26'. Parking is never allowed on the south side of the street in the study area and parking is only allowed on the north side of the street. On the north side, parking between Walnut Street and a point 95' east has a one-hour time limit from 7:00 am to 7:00 pm and eastward from a point 115' east of Walnut, parking is prohibited during the daytime from 7:00 am to 10:00 am. There are not any pavement markings dividing traffic directions on the Madison Ave. There are seven-foot sidewalks on both sides of the street.

2.2 Existing Intersections

Four intersections adjacent to the site have been evaluated as part of the analysis for the proposed Development. ***Figure 5*** identifies the location of the intersections and their relation to the project site.

Austin Street/Lowell Avenue

The intersection of Austin Street and Lowell Avenue is an unsignalized four leg intersection with vehicular approaches from all directions. The north and southbound approaches on Lowell Avenue allow for uncontrolled movements. Both the east and westbound movements on Austin Street are controlled by stop signs. Sidewalks are provided along all sides of the intersection. There are two crosswalks across Austin Street and one crosswalk across Lowell Avenue on the south side of the intersection. There are curb ramps on all legs of the intersection.

Austin Street/Walnut Street/Newtonville Avenue

The intersection of Austin Street, Walnut Street and Newtonville Avenue is an unsignalized intersection, comprised of two off-set intersections. Walnut Street runs north-south, while the Newtonville Avenue approach is on the east side of Walnut Street, located just north of Austin Street. Austin Street runs east-west and intersects Walnut on the west side. These essentially function as one intersection, with both the Newtonville and Austin components having three approaches and all ways permitting two-way travel.

The northbound approach to Austin Street on Walnut Street has one left turn lane and one through lane. The southbound approach on Walnut Street has one left turn lane to Newtonville Avenue, one through lane, and one right turn lane to Austin Street. Northbound traffic on Walnut Street, north of Newtonville Avenue, is received by three lanes in the northbound direction on the bridge over I-90. North and southbound movements on Walnut Street are uncontrolled. Both the eastbound approach to Walnut Street on Austin Street and the westbound approach to Walnut Street on Newtonville Avenue are stop-controlled and permit two-way travel with one lane in each direction.

There are sidewalks on all legs of the intersection and there are crosswalks across Austin Street and across Newtonville Avenue. There are also crossings of Walnut Street on both the south side of Austin Street and the area between Austin Street and Newtonville Avenue. The crosswalk across Walnut Street on the north side of Austin Street includes an accessible median protected refuge in the center of the street. There are curb ramps wherever there are crosswalks. There is one parking space within the intersection on the right side of Walnut Street.

Madison Avenue/Walnut Street

The intersection of Madison Avenue and Walnut Street is an unsignalized T intersection where Madison Avenue terminates at Walnut Street. Both Walnut Street and Madison Avenue permit two-way travel with one lane in each

direction. Madison Avenue is stop controlled at the intersection of Walnut Street. There are 8 foot sidewalks on all legs of the intersections. There is a crosswalk across Madison Ave and across Walnut Street on the north side of the intersection. There are curb ramps where there are crosswalks.

Highland Avenue/Philip Bram Way

The intersection of Highland Avenue and Philip Bram Way is an unsignalized T intersection with Philip Bram Way terminating at Highland Avenue. Both Highland Avenue and Philip Bram Way permit two-way travel with one lane in each direction. Both the east and west movements on Highland Avenue are uncontrolled. Philip Bram Way has no stop control, but essentially functions as such, with limited overall volumes. A driveway to the senior center opens on the intersection from the south side of Highland Avenue. There are sidewalks on all legs of the intersection and curb ramps at the northwest and northeast corners. There are not currently any crosswalks at this intersection.

2.3 Existing Bicycle and Pedestrian Accommodations

Generally, the public streets directly adjacent and in the vicinity of Newtonville are in good condition. The adjacent, surrounding streets connect the nearby residential neighborhood to Newtonville Village Center. This primarily local serving area works as a "park-once" environment, with many patrons apparently visiting multiple establishments. The area provides well-suited connections that create and enable a safe walking environment for pedestrians. Recognizing the attractiveness, utility and continued vitality of Newtonville, the City of Newton has plans to re-pave and widen sidewalks in a section of Walnut Street through Newtonville in the near future.

Generally, most streets within at least a quarter-mile radius of the Site provide continuous sidewalks on both sides of the road with adequate pedestrian curb ramps and crossings. The pedestrian ramps are in fair condition, but many do not meet current accessibility standards. Currently there is a sidewalk on only one side of Philip Bram Way and the existing municipal parking lot does not provide adequate accommodations for pedestrians or those in wheelchairs. The majority of commercial streets have eight foot wide sidewalks and residential side streets typically have six foot wide sidewalks.

While there are not currently any designated on-street bicycle facilities on the streets directly adjacent to the site, Lowell Ave and Walnut Street are both designated bicycle routes as part of the Newton Bike Network Plan. 1 There is a bicycle rack at Star Market and a bicycle rack in front of the adjacent Starbucks but generally Newtonville is otherwise underserved by bicycle parking options.

The section of Walnut Street that runs through Newtonville is slated to be repaved soon and this work might include a plan for sidewalk and crossing improvements, bicycle facilities and other streetscape improvements.

2.4 Existing Public Transportation

Newtonville is well served by public transportation, with local bus service, a commuter rail station, and express service to Downtown Boston all within an easy walk of the Site.

Newtonville Commuter Rail Station

The site is within a five minute walk from the MBTA's Newtonville station, which runs parallel to the Massachusetts Turnpike, and has pedestrian access from Walnut Street. Newtonville Station is on the MBTA's Framingham/Worcester Commuter Rail Line, which provides daily and weekend service. Newtonville Station is in Commuter Rail fare Zone 1, and provides a 10 minute ride to Yawkey Station, a 15 minute ride to Back Bay Station and a 20 minute connection to South Station in downtown Boston. Newtonville is served by 26 trains/day, with 10

[1] http://www.newtonma.gov/civicax/filebank/documents/45917p17

inbound and 16 outbound stops. In the AM and PM peak times, there are five trains each connecting Newtonville to Downtown Boston.

MBTA Bus Service

Newtonville is also served by four MBTA bus routes with stops in walking distance to the Site. A map of routes and stops is included as ***Figure 6***. Route 59 is a local route that runs north/south on Walnut Street and has a stop on Walnut Street, less than one block from the proposed development. The bus stop on the northwest corner of Walnut and Austin Streets, has a covered shelter for riders. Route 59 runs throughout Newton, and connects north to Watertown Square. To the south it runs to Needham connecting through Needham Center all the way to the commuter rail station at Needham Junction. It also connects with the MBTA's Green Line "D" branch at Newton Highlands. Route 59 runs on 30-40 minute peak hour headways.

MBTA Routes 553, 554 and 556, run along Washington Street and connect as Express Routes (using the Massachusetts Turnpike) to downtown Boston. These routes have combined stops within a short walk of the Site, over the Walnut Street bridge. Westbound these routes connect to Brandeis/Roberts commuter rail station, Waltham Center, Waltham Highlands and Waverly Station. Combined there are over 15 rush hour buses in each direction on Washington Street near the Site. These buses also operate locally, with local fares allowed for riders who do not travel on the MassPike portion of the trip. The details of the MBTA bus routes are further shown in ***Table 2*** below.

Figure 6: MBTA Transit Options Near Site

Table 2 Newtonville MBTA Bus Routes

Bus Route	Origin- Destination	Weekday Peak/ Off Peak	Weekend
Route 59	Needham Junction – Watertown Square	30-40 minutes/ 35-45 minutes	90 minutes
Route 553	Roberts - Downtown Boston	25-30 minutes/60 minutes	40-45 minutes
Route 554	Waverley Square – Downtown Boston	30-40 minutes/ 60 minutes	No weekend service.
Route 556	Waltham Highlands – Downtown Boston	30 minutes/ 60 minutes	No weekend service.

2.5 Existing Modesplit

Newtonville is a dense, diverse, well-connected village that provides ample opportunities to travel using transit, walking, and biking. To better understand how current residents travel, mode split data was extracted from the U.S. Census in order to provide a baseline from which to evaluate predicted travel patterns. American Community Survey mode split information, from 2013 for a 5-year period, was drawn for Census Tract 3734. While this tract comprises the core of Newtonville, it extends well beyond the heart of the Village to include the larger residential neighborhood. ***Figure 7*** shows the Site in relation to the larger census tract. The proposed development is located within close proximity to both public transportation options, and the local-serving retail of Newtonville.

Figure 7: Location of Newtonville Census Tract 3734

Table 3: Existing Modesplit in Newtonville, Tract 3734, and City of Newton

Source: 2013 American Community Survey, 5-Year Estimates

Mode of Travel to Work	Newtonville	City of Newton	State of Massachusetts
Drove Alone	66.2%	64.1%	72.1%
Carpooled	5.8%	8.6%	7.9%
Public Transportation	13.0%	11.5%	9.3%
Walked	3.4%	5.5%	4.7%
Bicycle	0%	1.3%	0.7%
Taxi, Motorcycle or Other	0.6%	0.7%	0.8%
Worked at Home	11.1%	8.3%	4.3%

The existing mode split for Tract 3734 is similar to that of the City of Newton at large, as seen in ***Table 3***. More people take public transportation and work from home in Newtonville, than the city at large and less people walk, bike, and carpool to get to work as compared to the city. The area also shows a lower driving rate than the State of Massachusetts, and can be expected to have a lower rate than typical developments captured in national analyses by the Institute of Transportation Engineers (ITE). Additionally, as the development will be located in the heart of the village, with many daily amenities (including a supermarket, drug store and other significant shops) nearby, it can be expected to attract tenants more likely to use non-auto travel than the larger census tract.

2.6 Existing Volumes

In order to document existing transportation patterns, vehicle, pedestrian and bicycle turning movement counts (TMC's) were conducted. Following consultation with City of Newton staff, it was determined that counts could be conducted on Thursday, April 16th and Saturday, May 2nd. Turning movement counts were collected between 7:00 am and 9:00 am and 4:00 pm and 6:00 pm on Thursday and between 11:00 am and 2:00 pm on Saturday.[2] Counts included heavy vehicles, buses, cars, pedestrians and bicyclists. The raw counts are included in the Appendix of this memo. The analysis herein documents the patterns in volumes and turning movement counts at the study area intersections near the site. The existing conditions network was then used as a baseline to create the future scenarios also documented in Section 3. Maps of peak vehicular volumes are documented in the graphics to follow.

Vehicles

All of the streets in the study area carry relatively low volumes of vehicular traffic. On weekdays, in AM and PM peak periods, Walnut Street and Lowell Avenue carry higher volumes in both directions. It should also be noted that about 60 cars make the offset through movement from Austin Street to Newtonville Avenue in the weekday AM peak. During Saturday peak, Walnut Street and Lowell Avenue still carry the majority of vehicular volumes, though Lowell Avenue carries slightly less traffic than weekday peak. Activity is comparable on weekends and weekdays in other areas with the exception of increased activity on weekends in both directions on Philip Bram Way and around the Senior Center at Philip Bram Way and Highland Avenue.

[2] The peak period times were selected based on a discussion with the transportation staff of the City of Newton as City of Newton Schools were in session on Thursday, April 16th. We note further that Newton North High School classes start at 7:50AM and end between 2:20 and 3:20PM depending on the school day.

Bicycles

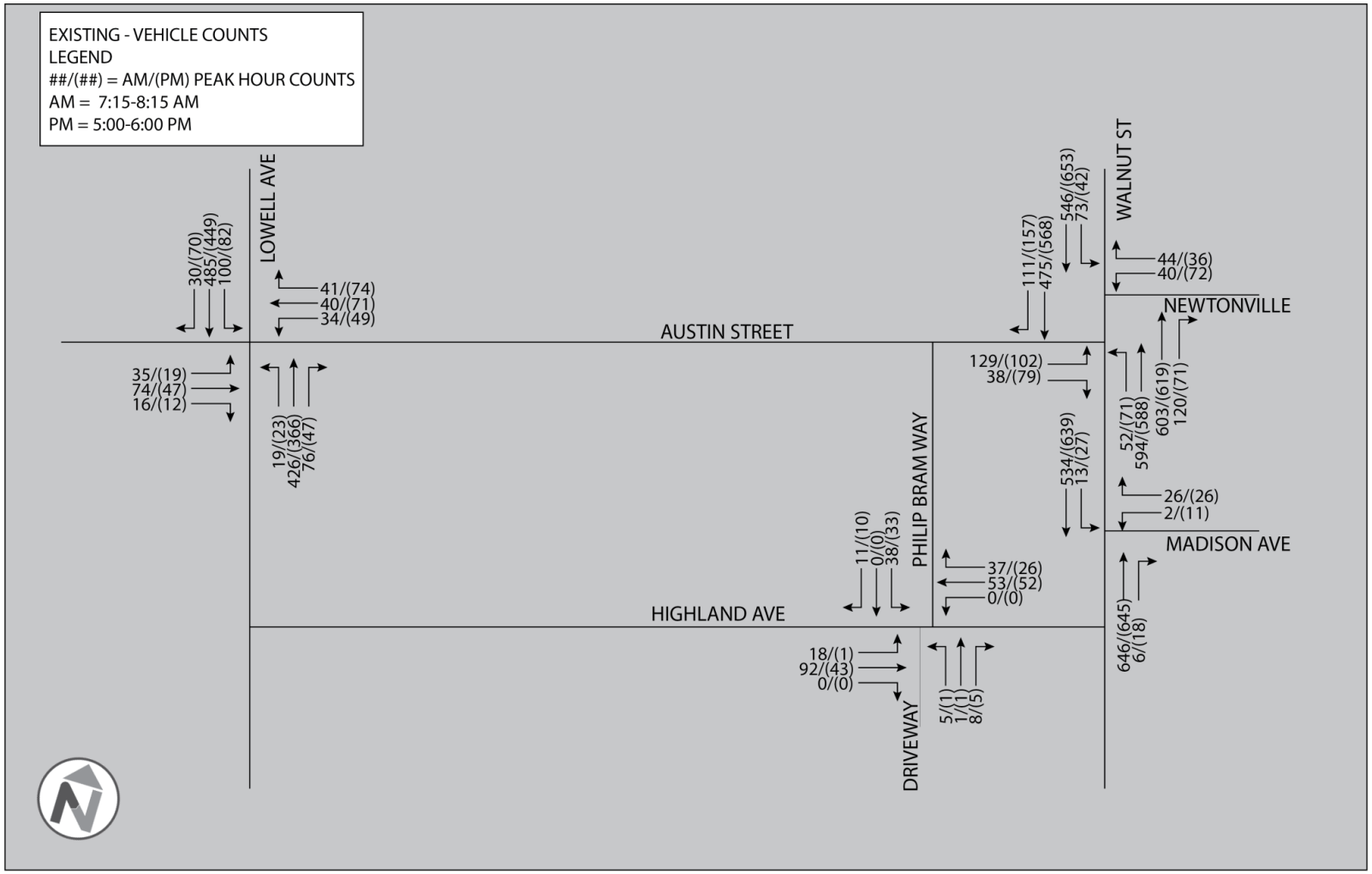
Peak hour bicycle volumes were observed and recorded as described above. The counts showed relatively low overall bicycle activity within the study area. The volume of bicycles is less than 1% of total intersection traffic, even at intersections with the most bicycling activity. The small volume of bicycles is mainly concentrated moving north and south on Walnut Street during the AM and PM peak. Currently there are not any striped on-street bicycle facilities within a ¼ mile walk radius from the site.

Pedestrians

Peak hour pedestrian counts were recorded as part of the transportation observations conducted on April 16th and May 2nd. Pedestrian volumes in the areas near the site indicate that PM peak activity is higher than AM peak on weekdays. On weekdays and weekends, the majority of pedestrian activity occurs along Walnut Street at both the intersection of Austin Street, Walnut Street and Newtonville Avenue and at Walnut Street and Madison Avenue.

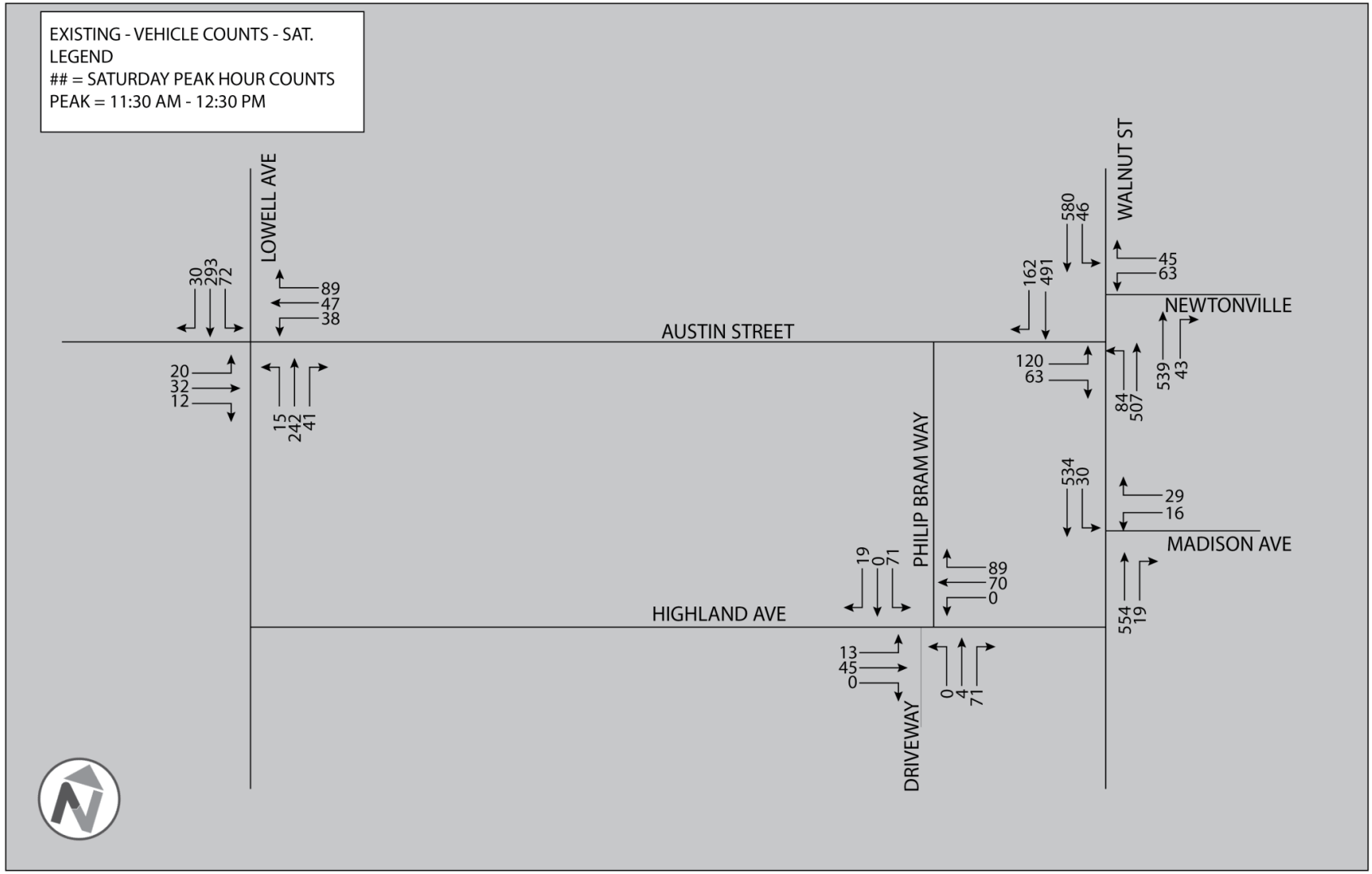
Figure 8 through Figure 11 show Vehicle, Bicycle and Pedestrian Turning Movements for the Peak Hour on a Weekday and Saturday respectively

Figure 8: Existing Peak Hour Vehicle Volumes – Weekday Peak



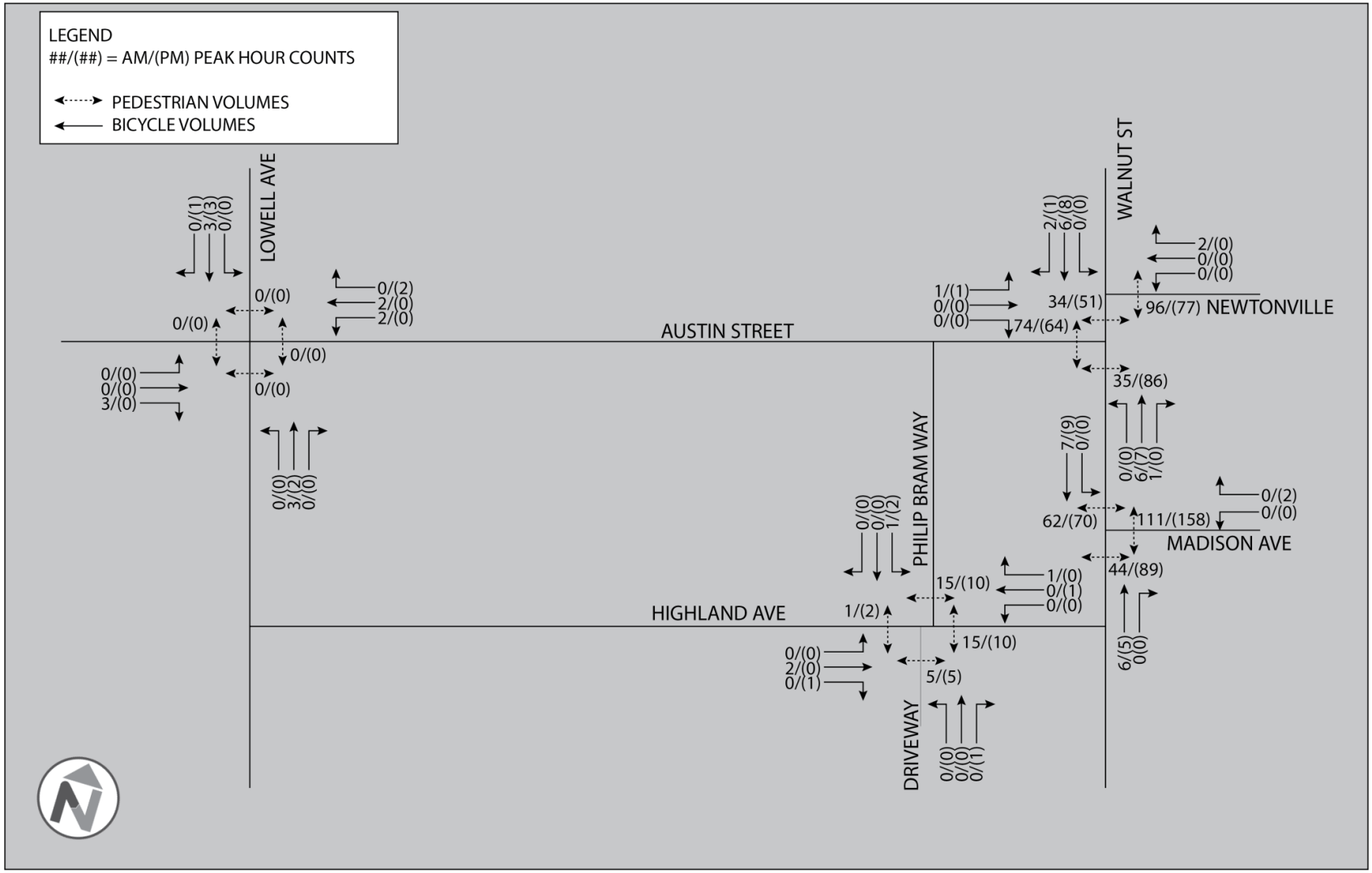
Note: Mapped based on overall study area activity peak.

Figure 9: Existing Peak Hour Vehicle Volumes – Saturday Peak



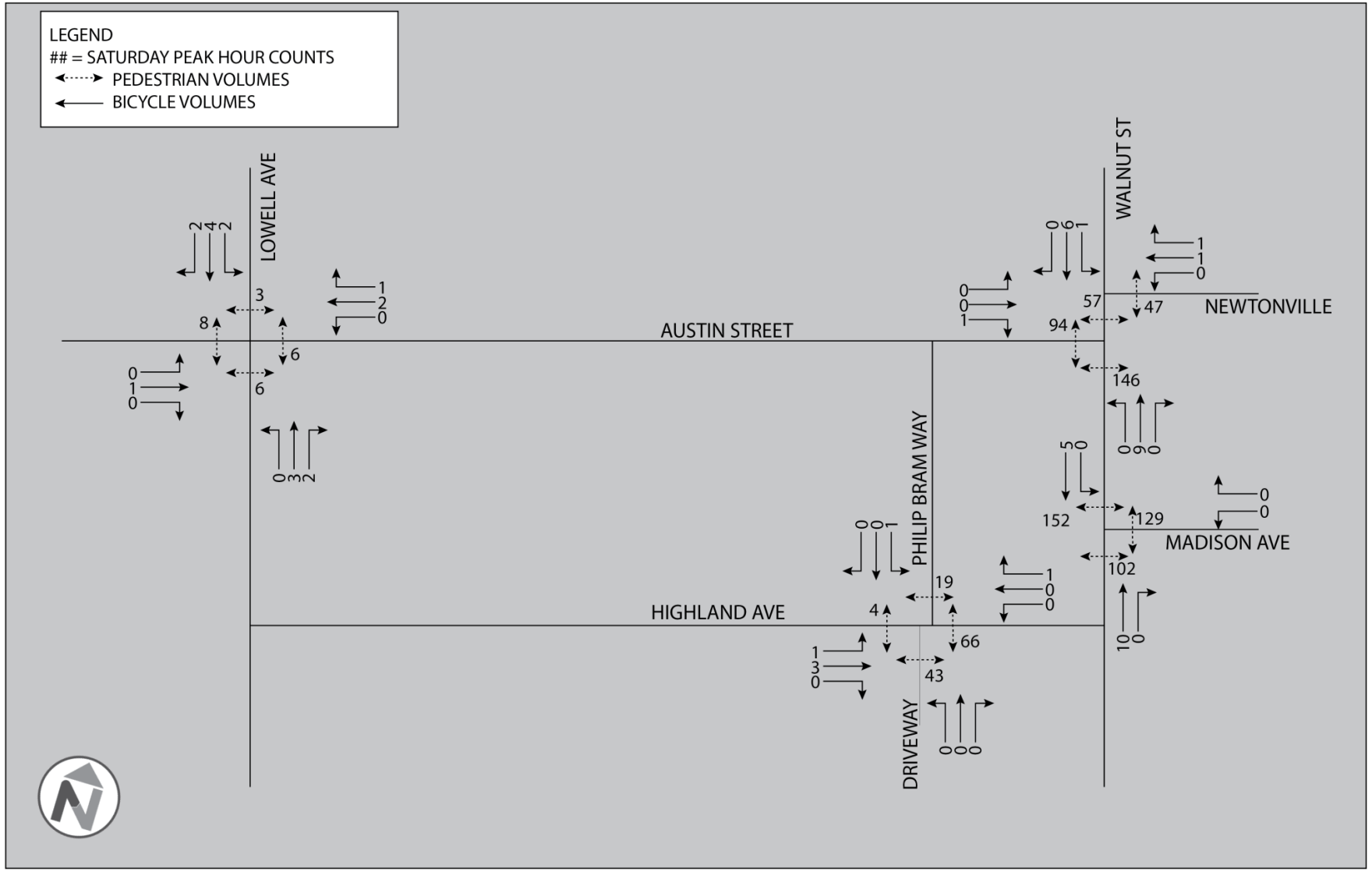
Note: Mapped based on overall study area activity peak.

Figure 10: Existing Bicycle/Pedestrian Volumes - Weekday



Note: Mapped based on peak for each intersection, rather than overall activity peak.

Figure 11: Existing Bicycle/Pedestrian Volumes - Saturday



Note: Mapped based on peak for each intersection, rather than overall activity peak.

2.7 Existing Traffic Capacity

To assess existing traffic operations at intersections, turning movement counts and volumes were compiled and evaluated utilizing the procedures outlined by the 2010 Highway Capacity Manual (HCM). Each intersection within the study area was analyzed for level-of-service (LOS), reporting the vehicular delay with a letter grade A to F, volume to capacity ratio (V/C), the average vehicle stop time delay in seconds and the 95th percentile queue lengths.

The capacity and performance of unsignalized intersections are very sensitive to the values of critical gap (headway) and follow-up headway parameters. In particular, in the case of unsignalized intersections controlled by two-way stops, there is often a need to calibrate these key parameters to suit local driver characteristics and conditions. In the case of Newtonville, it was found that the critical gaps and follow-up headways were shorter than the standard MUTCD definitions. As such, the traffic analysis was adjusted to reflect these findings and subsequently depict the conditions seen in the field.

A summary chart of the results of the existing traffic capacity analysis for weekday and Saturday peaks are in ***Table 4 & Table 5*** respectively. The intersection capacity analysis worksheets are provided in the Appendix of this memo. In the existing conditions, overall level of service at all study area intersections operates at LOS A, with minimal delay and queue lengths. This is largely due to the fact that the higher volumes approaches at these intersections generally operate without stop control. Certain approaches from cross streets to Walnut Street operate acceptably, but with delay due to both stop control and the volumes on Walnut Street. For example, the eastbound movement (left and right) from Austin Street operates at LOS D during both weekday peak hours, and at LOS E on weekends, though at well below capacity. Also, the westbound movement (left and right) from Madison Avenue to Walnut Street operates with delay (LOS C or worse), but at very low V/C ratios (0.29 on Saturday).

Table 4: Existing Level of Service Summary - Weekday

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %	LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	23.9	0.40	48	C	18.0	0.22	21
	WB LTR	C	19.3	.32	35	C	19.7	0.44	59
	SB LTR	A	2.4	0.09	8	A	1.9	0.07	6
	NB LTR	A	0.5	0.02	1	A	0.7	0.02	2
	Intersection	A	5.1	0.40		A	5.1	0.44	
Highland Ave at Philip Baum Way									
	EB LT	A	1.3	0.01	1	A	0.2	0	0
	WB TR	A	0	0.05	0	A	0	0	0
	SB LR	B	10.3	0.07	5	A	9.8	0.05	4
	NB LTR	A	9.5	0.02	1	A	9.1	0.01	1
	Intersection	A	3.0	0.07		A	2.9	0.05	
Walnut St at Madison Ave									
	WB LTR	C	18.7	0.10	8	D	32.1	0.22	21
	SB LT	A	0.5	0.02	1	A	1.0	0.04	3
	NB TR	A	0	0.38	0	A	0	0.39	0
	Intersection	A	0.6	0.38		A	1.4	0.39	
Walnut St at Austin St									
	EB LR	D	28.8	0.53	80	D	33.6	0.59	103
	SB T	A	0	0.28	0	A	0	0.33	0
	SB R	A	0	0.07	0	A	0	0.09	0
	NB T	A	0	0.35	0	A	0	0.35	0
	NB L	A	9.5	0.06	5	B	10.0	0.09	7
	Intersection	A	3.8	0.53		A	4.3	0.59	
Walnut St at Newtonville Ave									
	WB LR	C	16.4	0.21	20	C	20.0	0.31	33
	SB T	A	0	0.16	0	A	0	0.19	0
	SB L	B	10.4	0.10	8	A	9.8	0.05	4
	NB TR	A	0	0.24	0	A	0	0.24	0
	Intersection	A	1.5	0.24		A	1.7	0.31	

Table 5: Existing Level of Service - Saturday

Intersection	Movement	Saturday Existing Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	15.0	0.20	18
	WB LTR	B	14.3	0.35	39
	SB LTR	A	2.0	0.06	5
	NB LTR	A	0.5	0.01	1
	Intersection	A	5.0	0.35	
Highland Ave at Philip Baum Way					
	EB LT	A	1.8	0.01	1
	WB TR	A	0.0	0.11	0
	SB LR	B	14.3	0.21	20
	NB LTR	B	10.2	0.11	9
	Intersection	A	5.6	0.21	
Walnut St at Madison Ave					
	WB LTR	D	33.4	0.29	28
	SB LT	A	1.1	0.04	3
	NB TR	A	0.0	0.35	0
	Intersection	A	1.9	0.35	
Walnut St at Austin St					
	EB LR	E	48.6	0.74	134
	SB T	A	0.0	0.31	0
	SB R	A	0.0	0.10	0
	NB T	A	0.0	0.31	0
	NB L	B	10.3	0.12	10
	Intersection	A	7.0	0.74	
Walnut St at Newtonville Ave					
	WB LR	C	18.8	0.31	33
	SB T	A	0	0.18	0
	SB L	A	9.2	0.05	4
	NB TR	A	0.0	0.22	0
	Intersection	A	1.9	0.31	

2.8 Existing Parking Supply and Utilization

The 2014 Parking and Traffic Engineering Study for Newtonville, commissioned by the City of Newton and conducted by Greenman-Pedersen, Inc. (GPI), examined public parking (and parking at the Star Market's grocery parking lot) in an established study area surrounding the Austin Street development site. In the study area examined by GPI, there are 448 public parking spaces, including 172 metered on-street spaces, 117 un-metered on-street parking spaces, and 159 metered surface lot spaces in the Austin Street Lot (including 32 NNHS Tiger permit-only spots).[3]

The location of parking spaces surveyed is mapped in ***Figure 12***. Public on-street meters are priced currently from 8:00 am to 6:00 pm on Monday through Saturday. On-street metered spaces in the study area are free on Sundays and on holidays and the four handicapped on-street spaces are free of charge at all times. Ninety (90) on-street meters have a one (1) hour time limit and are $0.75/hour. Forty (40) on-street meters in the study area are two (2) hour time-limited and are $0.75/hour. Forty-two (42) on-street meters have a twelve (12) hour time limit and are $0.50/hour.

Metered spaces in the Austin Street lot are in effect Monday through Friday from 8:00 am to 6:00 pm. Spaces are free on weekends, when incidentally they show higher utilization. Sixty-eight (68) meters have a three (3) hour time limit and are $0.75/hour. Fifty-five (55) meters are 12-hour meters and are $0.50/hour. There are four (40 handicapped spaces, and an additional thirty-two (32) Newton North High School Tiger Permitted spaces located in the lot.[4]

The Newtonville Parking Study also completed a utilization analysis of these parking spaces between 7:00 am and 8:00 pm on a Tuesday, a Thursday and two typical Saturdays in March of 2014. The utilization counts found that peak parking accumulation occurs from 12:00 noon -1:00 pm on Saturdays. However, even at this time, overall parking is only 78% full, which means that ***there are almost 100 unused spaces*** within the Newtonville Study area. On weekdays, parking utilization peaks between 11:00 am and 2:00 pm and then approaches that peak utilization again only after 5:00 pm.

The Newtonville Parking study further examined the utilization of the 127 public spaces within the Austin Street parking lot itself and found that parking peaked on Saturdays around lunchtime. Based on the data presented in this study, the average utilization of this lot is 37% on weekdays and 45% on Saturdays. Utilization peaked at 66% on a weekday and 94% on a Saturday (this figure was 20% higher than all other Saturday peaks observed).[5]

The 116-space[6] Star Market parking lot, located directly across the street from the proposed development, was also examined as part of the 2014 parking study. The Star Market lot has a peak utilization of 83% on weekdays from 12:00 noon – 1:00 pm and of 75% on Saturdays during that same time period. The study also found that, on average, 39% of the demand is driven by the public (non-Star Market parking) on weekdays and 26% on weekends (when the Austin Street lot is free).[7] Since this study, Star Market has begun a closer monitoring of parking activity through the employment of a lot attendant.

[3] http://www.newtonma.gov/civicax/filebank/documents/60432, p4.

[4] http://www.newtonma.gov/civicax/filebank/documents/60432, p42.

[5] http://www.newtonma.gov/civicax/filebank/documents/59906, p1.

[6] Eastern lot has 106 striped spaces but ten unofficial spaces utilized on a regular basis and thus counted as supply in utilization counts, http://www.newtonma.gov/civicax/filebank/documents/60432, p25.

[7] http://www.newtonma.gov/civicax/filebank/documents/60432, p26.

Figure 12: Existing Parking Regulations in Newtonville, 2014

Credit: GPI for the City of Newton

3.0 – FUTURE BUILD ANALYSIS

3.1 Proposed Project

The development proposes a mixed-use, four-story building that will be integrated into the Newtonville area. The existing site is occupied by a public parking lot, making it an uninviting environment for pedestrians to walk down Austin Street or Philip Bram Way. Those who walk will be better accommodated by a shared use walkable accommodation along this street, the designs of which will help blend the development into the fabric of the greater village.

The project program is comprised of housing, with ground level retail and associated parking. Public parking on the site will also be retained. The project will greatly enhance the streetscape and access along Austin Street, providing wider sidewalks, outdoor seating, and an active, well managed frontage. The program as proposed includes 68 housing units, to be located on the upper three floors. The ground level will have approximately 1,500 square feet of shared office space and 3,500 square feet of retail. This program is summarized in ***Table 6***.

The project will have pedestrian-friendly access to grocery, pharmacy, restaurants, and shopping. Vehicular site access is planned via a driveway on Austin Street and another driveway on Philip Bram Way. The site is also planned to have a both outdoor bicycle parking with potential for a future Hubway bike sharing station, electric vehicle charging, a carsharing service like Zipcar, underground bicycle parking for residents, and market vehicle pricing (for residents' second parking space) to minimize car ownership. The plan for parking will retain the 127 public parking spaces and an additional 90 private parking spaces will be provided underground for residents and employees, accessible from the new public parking lot located behind the development.

Table 6: Austin Street Development Program

Project Component	Units/Square Feet
Residential	68 units
Retail	3,500 SF
Shared Offices	1,500 SF
Parking - Private	90 spaces
Parking - Public	127 spaces

Parking will be accessed from one curb cut on Austin Street just west of the development and one on Philip Bram Way, just south of the development. Exits from the parking lot will be stop-controlled. People who walk will be able to access the building through various entrances on Austin Street and Philip Bram Way. Bicyclists can access the development through the garage and also use various bicycle racks around the development. The proposed access improvements will continue to shift the area towards an environment that is friendly for all modes.

3.2 Trip Generation

To estimate the number of individual vehicle, transit, walk, and bicycle trips associated with the proposed development, trip generation analysis and estimates were developed based on the most recent data presented in the ITE Trip Generation Manual, 9th Edition. Because the project consists of three land use components including 68 residential units, 3,500 square feet of retail, and 1,500 square feet of shared office space, trip estimates were based on ITE trip rates for Land Use 220 (Apartment), Land Use 710 (General Office), and Land use 820

(Shopping Center)[8]. The three ITE land use categories and their corresponding trip rates used for analysis are shown in ***Table 7***.

Table 7: ITE Trip Generation Rates[9]

ITE Class	Apartment (220)	Office (710)	Shopping Center (820)
	Trips per Dwelling Unit	Trips per 1000 SF GFA	Trips per 1000 SF GLA
Weekday	6.65	11.03	42.70
Saturday	6.39	2.46	49.97
AM Peak Hour	0.51*	1.56	0.96*
PM Peak Hour	0.62*	1.49	3.71*

*Peak hour of adjacent street traffic

Trip generation estimates using ITE analyses, are vehicular-based. In mixed-use neighborhood environments, like Newtonville, trips are made by all modes, with the ability to walk, bicycle or take public transportation as a significant benefit and amenity to living, working or shopping in these neighborhoods. Travel data taken from the US Census bears this out, as the drive alone mode share in Newtonville is comparable to the rest of the City of Newton and shows that about one-third of all trips are non-single occupancy vehicle trips.

Ultimately, the transportation use of the proposed development will be multimodal, and measured in person trips. Thus, the following analysis uses the U.S. Census 2013 5-year mode splits credits to accurately divide person trips amongst the modes of driving, bicycling, and walking. The analysis also uses the 2013 average vehicle occupancy for Newtonville from the 2013 American Community Survey (1.1 vehicle occupancy) to convert vehicle trips to person trips. Finally, the site will have multiple uses and thus generate a certain rate of internal capture, especially since a grocery store, drugstore, and other amenities are in a less than five minute walk from the development. To remain conservative, this analysis does not take a reduction factor internally captured trips, which would otherwise reduce vehicular trips to and from the site slightly from the numbers in ***Table 7***.

As can be seen, the expected trip generation from the project can be seen as similar to the overall patterns exhibited in Newtonville itself. There is little difference between weekday and Saturday overall trip generation expected from the site. PM peak hour trip generation is somewhat higher than during the AM peak hour, largely due to the retail component of the proposal. We would note though that pedestrian trips are likely undercounted, both in census data and thus in the analysis included herein, as the ability to walk to additional retail and village amenities will undoubtedly be higher than the numbers shown in ***Table 7.***

3.3 Future Trip Distribution and Trip Assignment

A trip distribution was developed - characterizing the overall split of person trips by mode and then assigning the vehicle trips to the network. As shown in **Table 8**, the majority of site-generated trips for all uses and time periods are shown as person trips. To determine auto trips, person trips by automobile were re-calculated into vehicle trips using the same vehicle occupancy rate (1.1) used to derive overall person trips. The vehicle trip distribution was derived using 2013 Census 5-year mode shares as guidelines and based on assumptions about local traffic distribution based on the patterns in existing counts. These trips are summarized in ***Table 8***. Site generated trips are assumed to use both the Austin Street and Philip Bram Way entrances enter and exit to the site. Auto trips were then assigned to the network using the directional distribution shown in ***Figure 13 &***

[8] Exact retail user and office type user has not been defined. General urban retail and shared space/innovation centers are not classified in ITE. ITE Shopping center (820) and General Office (710) represent accurate approximations for representative trip generations

[9] ITE, Trip Generation, 9th Ed., Apartment (220), Vol. 2, p332-359, General office building (710), Vol. 3, p1250-1265, Shopping Center (820), Vol. 3, p1557-1567

Figure 14. Based on a review of the existing vehicle volumes, and area connectivity, it is assumed that a majority of exiting vehicles would be heading north on Walnut Street to head to Washington Street and the I-90 corridor. In the PM, a majority of vehicles would head south on Walnut Street back to the development. A majority of entering vehicles to the site would come from the north heading south on Walnut Street.

Table 8: Site-Generated Person and Vehicle Trips

	ENTERING				EXITING				
	Apartment	Shopping	Office	Total Person Trips	Apartment	Shopping	Office	Total Person Trips	TOTAL ENTER + EXIT
AM Peak Hour Mode Shares									
Auto	5	2	2	**9**	22	1	0	**23**	**32**
Transit	1	0	0	**2**	4	0	0	**4**	**6**
Walk	0	0	0	**0**	1	0	0	**1**	**2**
PM Peak Hour Mode Shares									
Auto	22	5	0	**27**	12	5	1	**19**	**46**
Transit	4	1	0	**5**	2	1	0	**3**	**8**
Walk	1	0	0	**1**	1	0	0	**1**	**2**
Daily 24 Hour Mode Shares									
Auto	179	60	7	**245**	179	60	7	**245**	**490**
Transit	32	11	1	**44**	32	11	1	**44**	**89**
Walk	8	3	0	**12**	8	3	0	**12**	**17**
Saturday Peak Hour Mode Shares									
Auto	14	7	0	**21**	14	6	0	**21**	**42**
Transit	3	1	0	**4**	3	1	0	**4**	**8**
Walk	1	0	0	**1**	1	0	0	**1**	**2**
Daily 24 Hour Saturday Mode Shares									
Auto	172	69	1	**243**	172	69	1	**243**	**486**
Transit	31	13	0	**44**	31	13	0	**44**	**88**
Walk	8	3	0	**11**	8	3	0	**11**	**23**

Figure 13: Vehicle Trip Distribution – Weekday Peak

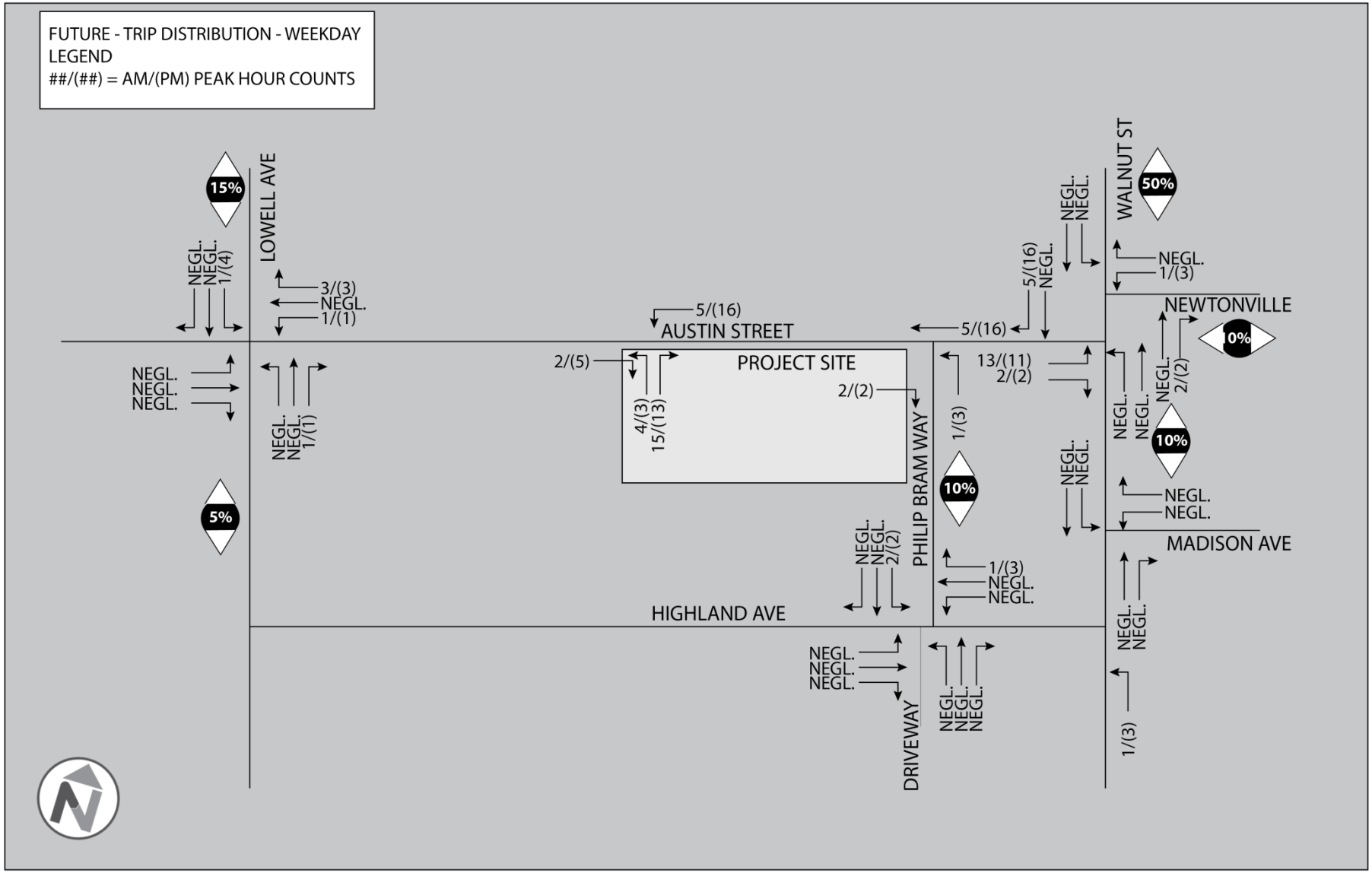
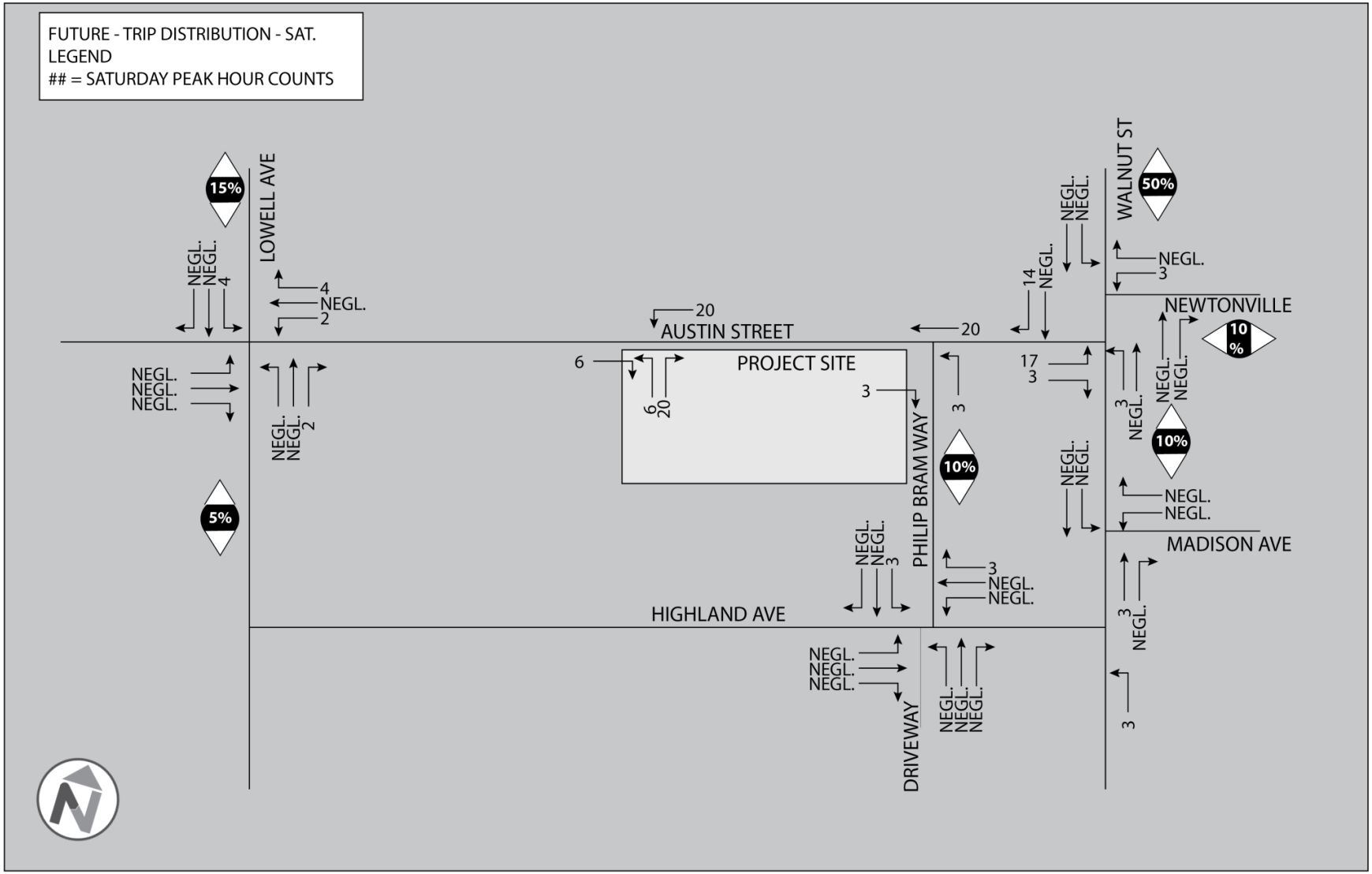


Figure 14: Vehicle Trip Distribution – Saturday Peak



3.4 Future Build Capacity Analysis

The future build scenario vehicle network was developed by adding the site-generated vehicle trips to the existing network described above. Each intersection within the study area was again analyzed for level-of-service (LOS), reporting the average vehicular delay with a letter grade A to F, volume to capacity ratio (V/C), the average vehicle stop time delay in seconds and the 95th percentile queue lengths. Based on a conversation with city staff, a growth rate was not used in modeling future volumes. And, as noted in the existing conditions analysis, the capacity and performance of unsignalized intersections are very sensitive to the values of critical gap (headway) and follow-up headway parameters. The traffic analysis was adjusted to reflect these findings and subsequently depict the conditions seen in the field. The intersection capacity analysis worksheets are provided in Appendix of this report. Summary charts of the results of this analysis are shown in ***Table 9*** & ***Table 10***. The future build analysis includes the proposed driveways and its intersections with Austin Street.

A review of traffic operations in the future build scenario conditions, shows that overall Level of Service at all study area intersections continue to operate at LOS A, with minimal delay and queue lengths. With the added project trips, almost all approaches at Study Area intersections show no degradation in LOS, with only minimal changes in other measurables. In the future build analysis, only the eastbound approach from Austin Street to Walnut Street shows a slight change in LOS (in both PM and Saturday peak). However, this result comes from a small additional delay in this move that decreases the LOS. The other vehicle measurables show that this approach still operates with acceptable volume/capacity (below 1.0) and experiences small additional queues on the order of five seconds (at the 95th percentile). This approach has potential to be mitigated, with several options presented later in this memorandum. Furthermore, as presently configured and proposed, options to avoid this approach exist, as vehicles could travel west on Austin Street to Lowell Street (which provides similar connectivity to Walnut Street) or south on Philip Bram Way. The westbound left, through, and right lane approach on Austin at Lowell Avenue also shows a slightly lower LOS, but with only a one-second increased delay, on Saturdays.

Table 9: Future Build Capacity Analysis – Weekday (Change in LOS Highlighted)

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %	LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	24.1	0.40	49	C	18.3	0.22	22
	WB LTR	C	19.8	0.33	36	C	20.1	0.46	62
	SB LTR	A	2.4	0.09	8	A	1.9	0.07	6
	NB LTR	A	0.5	0.02	1	A	0.7	0.02	2
	Intersection	A	5.1	0.40		A	5.2	0.46	
Highland Ave at Philip Baum Way									
	EB LT	A	1.3	0.01	1	A	0.2	0	0
	WB TR	A	0	0.05	0	A	0	0	0
	SB LR	B	10.3	0.07	5	A	9.9	0.05	5
	NB LTR	A	9.5	0.02	1	A	9.1	0.01	1
	Intersection	A	3.0	0.07		A	2.9	0.06	
Walnut St at Madison Ave									
	WB LTR	C	18.7	0.10	8	D	32.2	0.22	21
	SB LT	A	0.5	0.02	1	A	1.0	0.04	3
	NB TR	A	0	0.38	0	A	0	0.39	0
	Intersection	A	0.6	0.38		A	1.4	0.39	
Walnut St at Austin St									
	EB LR	D	31.1	0.57	93	E	38.9	0.65	129
	SB T	A	0	0.28	0	A	0	0.33	0
	SB R	A	0	0.07	0	A	0	0.09	0
	NB T	A	0	0.35	0	A	0	0.35	0
	NB L	A	9.5	0.06	5	B	10.1	0.09	8
	Intersection	A	4.3	0.57		A	5.2	0.65	
Walnut St at Newtonville Ave									
	WB LR	C	16.7	0.22	21	C	20.4	0.32	34
	SB T	A	0	0.16	0	A	0	0.19	0
	SB L	B	10.4	0.10	8	A	9.8	0.05	4
	NB TR	A	0	0.24	0	A	0	0.25	0
	Intersection	A	1.5	0.24		A	1.7	0.32	
Austin St at Site Access									
	WB TL	A	0.3	0.00	0	A	0.7	0.01	1
	EB TR	A	0	0.15	0	A	0	0.11	0
	NB LR	B	10.1	0.03	2	A	9.6	0.03	2
	Intersection	A	0.5	0.15		A	0.7	0.11	

Table 10: Future Build Capacity Analysis – Saturday (Change in LOS Highlighted)

Intersection	Movement	Saturday Future Build Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	16.5	0.22	21
	WB LTR	C	15.6	0.38	45
	SB LTR	A	2.1	0.07	5
	NB LTR	A	1.4	0.04	3
	Intersection	A	5.6	0.38	
Highland Ave at Philip Baum Way					
	EB LT	A	1.8	0.01	1
	WB TR	A	0.0	0.11	0
	SB LR	B	14.5	0.22	21
	NB LTR	B	10.2	0.11	9
	Intersection	A	5.6	0.22	
Walnut St at Madison Ave					
	WB LTR	D	33.6	0.29	28
	SB LT	A	1.1	0.04	3
	NB TR	A	0.0	0.35	0
	Intersection	A	1.9	0.35	
Walnut St at Austin St					
	EB LR	F	63.0	0.84	172
	SB T	A	0.0	0.31	0
	SB R	A	0.0	0.11	0
	NB T	A	0.0	0.31	0
	NB L	B	10.4	0.12	10
	Intersection	A	9.6	0.84	
Walnut St at Newtonville Ave					
	WB LR	C	19.2	0.33	35
	SB T	A	0	0.18	0
	SB L	A	9.2	0.05	4
	NB TR	A	0.0	0.22	0
	Intersection	A	2.0	0.33	
Austin St at Site Access					
	WB TL	A	0.9	0.02	1
	EB TR	A	0	0.10	0
	NB LR	A	9.7	0.04	3
	Intersection	A	1.2	0.10	

3.5 Future Parking Supply and Demand

The proposed 28 Austin Street development is mostly residential, providing sixty-eight (68) apartment units, along with ground level retail. Overall, the project will have a total of 217 parking spaces, which both replaces the 127 off-street surface public parking spaces and will provide 90 new spaces -- an additional eighty-five (85) spaces for the residential apartment units and five spaces for employees of the combined 5,000 square feet of retail and shared office space. The garage spaces will be accessible via one secure ramped entrance behind the building.

The Newton Zoning Code allows a minimum parking ratio of 1.25 spaces per residential unit in apartment houses by special permit. Newton zoning also requires 1 space per 300 square feet of retail (with an additional 1 space for the employee with the longest shift) and 1 per 250 square feet of office.[10] As shown in ***Table 11*** below, the proposed development corresponds with the city's special permit ratio for residential apartments but provides less than the recommended parking for retail and office.

In recent studies presented to the City of Newton, residential parking utilization has been shown to be comparable to the ratios proposed for 28 Austin Street. In two other large mixed income apartment communities, parking occupancy counts were taken during expected peak residential hours (9 pm – 12 midnight), and showed an average utilization that translated to 1.24 spaces per unit in larger apartment communities with even less favorable access to transit[11].

Like these other mixed income apartment communities, the project will only provide second parking spaces for residents at market rates –currently $150 per month, which will help to control the demand for parking. In addition, the project is intended to attract tenants for whom the walkable amenities of Newtonville, the easy access to public transportation, and the multimodal options of car-sharing, future bike-sharing and other amenities will encourage car-free living. The site is planned to provide a future Hubway station as well as ample bike parking for residents and visitors. In addition, as office and retail parking demand is complementary with residential demand, additional parking supply is likely to be unused and thus available for employees and other users during weekdays and weekends (i.e., residents go to work and vacate their parking spaces which can be used to satisfy weekday office and retail parking demand).

Moreover, the site will continually provide 127 public parking spaces, which will be available for use of office and retail employees and customers, similar to that of other users in Newtonville. As described in the 2014 Parking and Traffic Engineering Study for Newtonville[12], spaces within the existing municipal lot are never completely full, with typical average utilization of this lot of 37% on weekdays and 45% on Saturdays. Although demand in the Austin Street lot has increased with Star Market's recent enforcement of its shoppers-only policy in its parking lot, recently collected data show that the Austin Street municipal lot still has space available even at the peak hours on weekdays and weekends, which would continue to support existing and new uses. Moreover, average utilization of the lot and surrounding streets still shows general availability of parking at off-peak and on-peak times.

Table 11: Parking Ratio of Proposed Development

Use	Units/KSF	Number of On-Site Parking Spaces Provided	Number of Parking Spaces Required	Effective Project Parking Ratio
Residential	68	85	85 (by special permit)	1.25 space/ unit
Retail & Shared	5	5	18	1 space/ ksf

[10] Section 30-19 and 3-24, Newton Zoning Code, http://www.newtonma.gov/civicax/filebank/documents/44026

[11] http://www.newtonma.gov/civicax/filebank/documents/62425

[12] http://www.newtonma.gov/civicax/filebank/documents/60432

Office				

4.0 - QUALITATIVE ANALYSIS OF OTHER SCENARIOS

The City of Newton and the Newtonville neighborhood have been engaged in numerous discussions about the potential for transportation improvements on the streets surrounding the site. These were part of the planning that led to the issuance of the Request for Proposals for the site, have continued through the development of preliminary streetscape plans for Walnut Street, and certainly have been furthered through ongoing community discussions about the potential changes occurring with the Development.

The analysis of both existing and proposed conditions included in this memorandum, along with the previously completed Parking Analysis, provides a strong analytical basis from which those discussions can continue. While the potential transportation impacts of the proposed development are minimal, as shown in this memo, the analysis below includes a qualitative evaluation of several transportation and circulation scenarios that have been raised in previous discussions in light of the information presented herein. This evaluation is neither an endorsement, nor a proposal, nor a commitment of the development, but is included to further community discussion. We note further that though each of these opportunities are evaluated separately, making one change may impact how additional opportunities are evaluated, e.g. converting Austin Street to one-way eastbound may change the thinking about if a signal should be included at its intersection with Walnut Street. Ultimately, any additional changes to the surrounding street network or its operation would be completed at the discretion of the City of Newton.

4.1 Austin Street as One-way

Austin Street will already be improved as part of the 28 Austin Street development. At least along the site frontage, the character will change significantly, with retail frontage, wider sidewalks, improved streetscape and active edges. The potential conversion of Austin Street from two-way to one-way would create even further opportunities to enhance the street, and potentially add parking, greenspace or active space. Additionally, such a conversion might make room for improvements at any of the proposed or existing driveway access points. A possible conversion from two-way to one-way could occur along the entire length of the street from Walnut Street to Lowell Street or be established at Philip Bram Way, the Star Market driveway or the proposed Site driveway. The overall impacts described below will be similar regardless, while the opportunities for enhanced streetscape and parking may differ depending on the alternative pursued.

We note that the existing peak hour volumes on Austin Street are fairly balanced. The PM peak volumes are generally higher than AM peak, though AM eastbound from Lowell Street towards Walnut Street is the highest overall volume.

Austin Street as One-Way in East Direction

- Reconfiguration of Austin Street to one-way eastbound could enable separate Left Turn and Right Turn lanes at the intersection with Walnut Street, which would likely improve LOS and reduce delay on that eastbound approach
- Area circulation would be altered, possibly resulting in more circulating traffic, higher speeds, and reduced connectivity.
- Additional westbound traffic would likely utilize Lowell Avenue to access Austin Street or Highland Avenue as the alternate westbound movement.
- One-way eastbound would have the potential to significantly increase Austin Street traffic volumes at Walnut Street, potentially increasing the probability of the need for a traffic signal.

- The streetscape and right-of-way on Austin Street could be reconfigured to include additional sidewalk, mixed-use space, turning lanes or up to an additional [25]on-street parking spaces.
- Driveway access to the Site and Star Market could be altered to create efficiencies, improve safety and potentially add more on-site parking.

Austin Street as One-way in West Direction

- Reconfiguration of Austin Street to one-way westbound could enable separate Left Turn and Right Turn lanes at the intersection with Lowell Avenue, though this approach already operates effectively.
- Area circulation would be altered, possibly resulting in more circulating traffic, higher speeds, and reduced connectivity.
- Additional traffic would likely utilize Walnut Street to access Austin Street or Highland Avenue and Philip Bram Way as the alternate EB/NB movement.

- One-way westbound would have the potential to significantly increase Austin Street traffic volumes at Lowell Avenue, potentially increasing the probability of the need for a traffic signal at this location.
- The streetscape and right-of-way on Austin Street could be reconfigured to include additional sidewalk, mixed-use space, turning lanes or on-street parking.
- Driveway access to the site and Star Market could be altered to create efficiencies, improve safety and potentially add up to an additional [25]on-street parking spaces.

4.2 Philip Bram Way as One-way

The developer has shown that converting Philip Bram Way, which currently serves as a two-way right-of-way, is a possibility. If converted, Philip Bram Way could serve as a one-way "shared use" street, which may allow for different surface treatments, would make room for walking and could possibly add up to seven (7) additional on-street parking spaces. The intersection of Philip Bram Way and Highland Avenue operates well within acceptable Level of Service (LOS) in all directions today, but does carry 50+ vehicles (combined directions) during weekday peak hours and over 150 vehicles during the Saturday peak hour.

Philip Bram Way as One-Way in North Direction

- Would limit access to the site and to Highland Avenue.
- Would limit access to the land-uses along Phillip Bram Way.
- Southbound traffic would be forced to utilize Lowell Avenue or Walnut Street, exacerbating conditions at these approaches.
- Continue to provide relief for the Walnut Street northbound left to Austin Street.

Philip Bram Way as One-way in South Direction

- Would limit access to the site and to Austin Street.
- Northbound traffic would be forced to utilize Lowell Ave or Walnut Street. and turn on Austin Street.
- Would limit access to the land uses along Phillip Bram Way.
- Would reduce left turns from Walnut Street to Highland Avenue, but increase turns from Walnut Street to Austin Street.

4.3 Changes to the Intersection of Austin Street/Walnut Street/Newtonville Avenue

Many community discussions have centered around potential improvements to the off-set intersection of Walnut Street, Austin Street and Newtonville Avenue. Walnut Street runs uncontrolled today, with left and right turn lanes at certain approaches as described earlier. The proposed development adds little vehicular traffic to this intersection, but has now provided baseline data and the opportunity to re-evaluate previous discussions on how best to approach this intersection to the benefit of all users.

Removing Parking for Left Turn Pocket at Austin and Walnut Streets

The eastbound approach to Walnut Street experiences some delay in both the existing and build analysis. This is partially due to the fact there is one approach lane, which handles both left and right turning vehicles onto Walnut Street. Assuming Austin Street remains two-way, the potential exists to improve this approach by removing two or three parking spaces on Austin Street at its Walnut Street approach. Enough room could be made to create separate left and right turn lanes, which would minimize delay and potentially improve Level of Service for that maneuver.

Changes at Intersection of Newtonville Avenue and Walnut Street

The T-intersection of Newtonville Avenue and Walnut Street could be altered by either making this a right in/right out intersection and/or eliminating the southbound left turn from Walnut Street to Newtonville Avenue.

- Removal of southbound left turn lane would limit access and mobility along Newtonville Avenue.
- Southbound left turn traffic would be redirected via either Harvard Street or Madison Avenue bringing additional traffic to those roadways.
- The southbound Walnut Street left turn lane currently continues from the bridge, removal could enable reconfiguration on the bridge for parking, if permitted by MassDOT.
- Additional infrastructure (with costs) would be required to restrict movements to right-in/right-out.
- The right-in, right-out could be reinforced by a median allowing streetscape improvement potential and improved pedestrian refuge.

4.4 Scenarios Under Consideration for Walnut Street

The City and community have held meetings to envision conceptual improvements along the Walnut Street corridor. These activities have generated varied discussion about potential improvements that could include wider sidewalks, curb extensions, bicycle accommodations, and angled parking. The City has not conducted traffic counts, detailed engineering analysis nor full-fledged cost estimates for any of the concepts. Some of these conceptual scenarios result in streetscape improvements that may impact street width to a point where the northbound left turn lane from Walnut Street to Austin Street is not feasible. If this northbound left turn was removed, it could have the following implications:

- Would force the left-turning traffic to turn from a single lane combined with through traffic.
- Would increase the potential for northbound queuing along Walnut Street as through traffic waits for left-turning vehicles.
- Would enable the re-configuration of parking along Walnut Street.

5.0 – QUALITATIVE PARKING IMPACT SUMMARY

The current municipal parking facility is an important resource for Newtonville, and serves the shops, restaurants, services, commuters and employees of the village. The recent Parking and Traffic

Engineering Study for Newtonville shows that, even though never fully occupied, the parking lot is used at varying levels throughout the day and on weekends (when it is free). The site currently operates as a 127-space public parking lot with an additional 32 parking spaces being used for Newton North High School "Tiger" student permit parking, as described in the Existing Conditions section of this memorandum. The City of Newton has identified new locations and the Tiger permit parking will be relocated prior to construction. Prior usage levels of the Austin Street lot have increased with Star Market's recent enforcement of non-supermarket parkers but capacity still appears to remain adequate at almost all times.

As part of the City of Newton's Request for Proposals for the site, the need to retain public parking is important and a key consideration in any development. The project, as proposed, will restore the 127 public parking spaces as well as provide adequate parking for the project program. An analysis of the proposed condition is included in Section 3 of this memorandum. However, through the community conversation around the RFP and improvements in Newtonville, concerns around parking have been continually raised. So, even while the City's study showed that even at peak Saturday times (between 11 AM and 1 PM), overall parking was only 78% full and averages significantly less than that – opportunities to add parking in Newtonville exist and should be further explored. In response, the following sections show potential areas where parking could be expanded on either a temporary or permanent basis.

5.1 Parking Options during Construction

During the projected 12 months of site preparation and construction, replacements for the 127 current on-site parking spaces could be found within the Newtonville area. A Construction Period Parking Working Group consisting of representatives of Newtonville area merchants, the developer, the Newtonville Area Council, and the City Transportation and Economic Development departments have met regularly during March, April and May 2015 to identify suitable replacement parking during construction.

An initial planning level analysis of the streets around the Site showed numerous locations where parking could be added. Strategies for the temporary (or permanent) addition of parking include:

- Free one hour parking on Walnut Street to encourage quick turnover.
- Temporary one-way Austin Street to add up to 25 parking spaces.
- Temporary one-way Philip Bram Way to add up to 7 parking spaces.
- Relocating 35 commuter parking spaces to West Newton.
- Relocating up to 30 nearby private employee parking spaces to remote permit parking on Washington Street.
- Utilizing up to 100 parking spaces at Newton North High School's Walnut Street lot during the summer and weekends.
- Creating up to 30 spaces on Elm Road for summer and weekend parking.
- Creating 5 to 7 angle parking spaces on Bowkers Street.
- Contracting with private property owners for unused Saturday parking.
- Regulatory changes to convert lightly used one (1) hour parking on side streets near the village to longer term (but metered) parking.
- Physical re-striping to add spaces on nearby streets.
- Temporary installation of spaces on the Walnut Street bridge over the Massachusetts Turnpike, if permitted.
- Adding parking on Walnut Street.

In addition, these figures do not include the potential for alternative parking management strategies like working with Star Market to create a shared parking collaboration during the period of construction. In the Parking and Traffic Engineering Study for Newtonville, the Star Market lot was found to be under-utilized on average.

In addition to the potential changes described above, additional streets were evaluated for their potential to add long-term (employee) parking spaces. These spaces may be farther away from the village as spaces that are accessible to the commercial area of Newtonville, may be more desirable as customer or short-term parking,

5.2 Options for Relocating Tiger Permit Parking Spots

The City of Newton has recently identified locations that Tiger Permit parking spaces can be relocated to prior to construction, reducing the need to find locations for these current 32 spaces. Likewise, the Goodwill trailer (currently on-site) will reportedly be re-located to another location in the City.

Vanasse & Associates, Inc.
Transportation Engineers & Planners

35 New England Business Center
Suite 140
Andover, MA 01810-1066
Office: 978-474-8800
Fax: 978-688-6508
Web: www.rdva.com

Attachment C

Ref: 7057

September 15, 2015

Ms. Alexandra Ananth
Chief Planner for Current Planning
Planning and Development Department
City of Newton
1000 Commonwealth Avenue
Room 202, 2nd Floor
Newton MA, 02459

Re: Traffic Engineering Peer Review
Proposed Mixed-Use Development – 28 Austin Street
Newton, Massachusetts

Dear Alexandra:

Vanasse & Associates, Inc. (VAI) has completed a review of the materials submitted on behalf of Austin Street Partners LLC (the "Applicant") in support of a proposed mixed-use development to be located at 28 Austin Street in Newton, Massachusetts (hereafter referred to as the "Project"). Our review focused on the following areas as they relate to the Project: i) vehicle and pedestrian access and circulation; ii) Massachusetts Department of Transportation (MassDOT) design standards; iii) City Zoning requirements as they relate to access, parking and circulation; and iv) accepted Traffic Engineering and Transportation Planning practices.

In support the Project, the Applicant submitted the following materials which are the subject of this review:

1. *Transportation Impact Study*, 28 Austin Street; Nelson\Nygaard Consulting Associates, Inc; May 12, 2015; and
2. *Site Plans* for Special Permit Application, 28 Austin Street, Newtonville, MA; ADD Inc. now with Stantec, et al; May 12, 2015, last revised May 28, 2015.

In addition to the above materials, we also reviewed the July 2014 *Parking and Traffic Engineering Study* for Newtonville that was prepared by Greenman-Pedersen, Inc. (GPI) on behalf of the City of Newton Planning and Development Department.[1]

Based on our review of the information submitted in support of the Project, we have determined that the materials were prepared in a professional manner and following the applicable standards of care. That being said, we have requested that supplemental information and analyses be provided in support of the May 2015 *Transportation Impact Study* with respect to: i) defining future conditions within the study area; ii) safety; and iii) parking demands. In addition, we have requested that the Applicant's engineer evaluate specific elements of the design of the Project concerning access, parking and circulation.

[1]*Parking and Traffic Engineering Study*, Newtonville, Newton, Massachusetts; GPI; July 2014.

The following summarizes our review of the materials submitted in support of the Project. Our comments are indicated in *italicized* text, with those requiring responses or additional information ***bolded***.

PROJECT DESCRIPTION

The Project will entail the redevelopment of the existing City owned municipal parking lot located at 28 Austin Street in the Newtonville village of the City of Newton, Massachusetts, to accommodate a mixed-use development. As proposed, a four-story building would be constructed over a portion of the existing surface parking lot and will include the following uses: 3,500± square feet (sf) of ground level retail space; 1,500± sf of office space (also ground level); and 68 residential apartment units. The Project site currently provides 159 metered parking spaces consisting of 127 public parking spaces and 32 Newton North High School "Tiger" permit parking spaces. As proposed, the Project will retain the 127 public parking spaces that are currently located within the Project site and an additional 90 private parking spaces will be constructed one-level below grade; the "Tiger" permit parking spaces are planned to be relocated by the City prior to the construction of the Project.

The Project site encompasses approximately 1.71± acres of land bounded by Austin Street to the north; residential and commercial properties to the south; Philip Bram Way to the east; and commercial properties to the west. Access to the Project site will be provided by way of the existing driveway that that intersects the south side of Austin Street and a single driveway that will intersect the west side of a reconstructed Philip Bram Way.

In conjunction with the Project, landscape and streetscape improvements are planed around the perimeter of the Project site to include the creation of a pedestrian plaza fronting along Austin Street and the portion of Philip Bram Way along the Project site frontage. In addition and as noted above, the number of drive aisles intersecting Philip Bram Way will be reduced from three (3) to one (1).

MAY 12, 2015 TRANSPORTATION IMPACT STUDY

General

Comment: The May 12, 2015 *Transportation Impact Study* (the "May 2015 TIS") was prepared in a professional manner and following the applicable standards of care; however, the study was not stamped and signed by the Professional Engineer in responsible charge for the preparation of the document as required pursuant to Massachusetts General Law. ***A letter should be provided by the Professional Engineer attesting to their oversight in preparing the document and providing their Massachusetts Professional Engineer Registration number and discipline***.

Existing Conditions

Study Area

The study area evaluated for the Project consisted of Austin Street, Walnut Street and Highland Avenue in the vicinity of the Project site, and the following specific intersections:

- Austin Street at Walnut Street and Newtonville Avenue
- Austin Street at Lowell Avenue
- Walnut Street at Madison Avenue
- Highland Avenue at Philip Bram Way

Comment: *This study area is sufficient to evaluate the potential impact of the Project on the transportation infrastructure based on the expected trip-distribution pattern for the Project, and encompasses all major intersections located proximate to the Project site where the Project is expected to result in an increase in peak-hour traffic volumes by: i) five (5) percent or more; or ii) by more than 100 vehicles per hour.*

Traffic Volumes and Data Collection

Manual turning movement counts, vehicle classification counts, and pedestrian and bicycle counts were conducted at the study intersections in April and May 2015 during the weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods while public schools were in regular session, and during the Saturday midday peak period (11:00 AM to 2:00 PM). The data collection effort was coordinated with City of Newton transportation staff with respect to the dates that the data was collected and the observation time periods.

The Applicant's engineer noted the high level of pedestrian activity occurring along Walnut Street during both the weekday and Saturday peak periods, with the largest volume of pedestrian crossings occurring at the Walnut Street/Madison Avenue intersection. Bicycle activity was identified as being relatively low within the study area.

Comment: *The data collection effort was completed in accordance with standard Traffic Engineering and Transportation Planning practices, and we are in agreement with the resulting values. While not noted in the May 2015 TIS, traffic volume conditions in the months of April and May are considered to be representative of "average" or "above average" conditions and, as such, no adjustments were required to the raw traffic count data.*

The Applicant's engineer should review the Saturday midday peak-hour traffic volumes at the Walnut Street/Newtonville Avenue intersection as it appears that the northbound right-turn volume should be 88 vehicles vs. 43 vehicles as shown on Figure 9. In addition, the associated traffic operations analyses should be revised accordingly.

Pedestrian and Bicycle Facilities

A detailed inventory of pedestrian and bicycle facilities within the study area was included in the May 2015 TIS. As noted therein, sidewalks are provided along one or both sides of the study area roadways, with marked crosswalks provided at the study intersections. It was noted that Americans with Disabilities Act (ADA) compliant wheelchair ramps and detectable warning strips are not afforded on a consistent basis at the crossings within the study area.

The May 2015 TIS identified that both Lowell Avenue and Walnut Street are designated as bicycle routes as a part of the Newton Bike Network Plan. In addition, it was noted that planned improvements by the City along Walnut Street may incorporate bicycle accommodations. The presence of on-street parking along one or both sides of the study area roadways poses a challenge for bicyclists.

Comment: *The description of existing pedestrian and bicycle facilities within the study area is consistent with field observations and indicates that the existing transportation system affords opportunities for pedestrian and bicycle access to the Project site, and connections to available public transportation services in the area.*

Public Transportation

A description of available public transportation resources serving the study area was included in the May 2015 TIS. As noted therein, Newtonville Station on the Framingham/Worcester Line of the Massachusetts Bay Transportation Authority (MBTA) Commuter Rail system is located to the north of the Project site off Walnut Street and provides service to South Station in Boston. In addition, the following MBTA bus routes are available proximate to the Project site: Route 59, *Needham Junction - Watertown Square via Newtonville*; Route 553, *Roberts - Downtown Boston via Newton Corner & Central Square, Waltham*; Route 554, *Waverley Square - Downtown Boston*, and Route 556, *Waltham Highlands - Downtown Boston via Newton Corner & Central Square, Waltham & Newtonville*. Route 59 provides local bus service to Needham, Newton and Watertown, and provides a connection to the Green Line "D" branch at newton Highlands station. Routes 553, 554 and 556 provide express bus service to downtown Boston and offer local service along the non-MassPike portion of their routes. The closest MBTA bus stops to the Project site are located at Walnut Street/Austin Street (Route 59), and at Washington Street/Walnut Street (all routes serving the study area).

Motor Vehicle Crash Summary

Comment: ***A motor vehicle crash analysis was not completed for the study area intersections and should be provided by the Applicant's engineer. The analysis should include all reported crashes occurring within the study area for the most recent 3-year period available from MassDOT and/or the City of Newton Police Department. Motor vehicle crash rates should be calculated for the study intersections and compared to MassDOT statewide and District averages. Where an exceedance of the MassDOT crash rates is identified, the Applicant's engineer should provide a collision diagram and narrative detailing the potential contributing factors to the motor vehicle crashes and identifying appropriate corrective measures. Pedestrian and bicycle crashes should also be clearly identified and the Applicant's engineer should review MassDOT's pedestrian/bicycle crash cluster location list to determine if any of the study area intersections are listed.***

Future Conditions

Comment: ***The Applicant's engineer did not provide a future traffic volume projection for the Project. In order to facilitate proper planning for the study area and ensure that planned improvements will accommodate both current and near-term growth, including the Project, the Applicant's engineer should develop a 7-year future traffic volume projection in accordance with MassDOT's Transportation Impact Assessment (TIA) Guidelines. The future condition traffic volume projections should be developed by applying a background traffic growth rate to the 2015 Existing traffic volumes and then adding traffic associated with specific development projects by others as identified by the City of Newton Planning and Development Department that may increase traffic volumes within the study area beyond that accounted for by the background traffic growth rate. If traffic growth is identified as nominal or to have experienced a slight decline, a 0.5 percent per year compounded annual background traffic growth rate should be used. In addition, planned future transportation system improvements should also be identified and reflected in the future traffic volume projections to the extent that the improvements would impact traffic volumes or circulation patterns within the study area.***

Build Conditions

Traffic volume projections for the Project were developed by the Applicant's engineer following standard Traffic Engineering and Transportation Planning practices. In order to determine the base traffic characteristics of the Project, trip-generation methodologies established by the Institute of Transportation Engineers (ITE)[2] were used. The ITE provides trip-generation information for various types of land uses developed as a result of scientific studies that have been conducted over the past 50 plus years. This data includes trip estimates for land uses similar to the Project (retail, office and apartments). ITE Land Use Codes (LUC's) 220, *Apartment*; 710, *General Office Building*; and 820, *Shopping Center*; were determined to be the most appropriate ITE land use classifications to establish the traffic characteristics of the Project.

Given the availability of public transportation services to the Project site and the interconnected network of sidewalks in the area, the Applicant's engineer adjusted the base ITE traffic volume projections to account for the use of alternative modes of transportation to private automobiles. This adjustment was accomplished by reviewing travel mode data available from the U.S. Census and the American Community Survey. Based on the U.S. Census data, approximately 13 percent of residents in Newtonville use public transportation, with 66 percent driving alone, 3 percent walking, 6 percent carpooling, 1 percent using a taxi/motorcycle, and 11 percent working at home. The average vehicle occupancy ratio was reported to be 1.1 persons per vehicle. The Applicant's engineer did not apply a reduction for internal trips (i.e., trips that are made between the uses that are to be located within the Project site) which results in slightly conservative (high) traffic volume projections for the Project.

The table below summarizes the traffic volume projections for the Project developed by the Applicant's engineer using the aforementioned methodology and presented in Table 8 of the May 2015 TIS.

[2] *Trip Generation*, 9th Edition; Institute of Transportation Engineers; Washington, DC; 2012.

28 AUSTIN STREET
TRIP GENERATION SUMMARY

Time Period/Direction	Pedestrian/Bicycle Trips (Person Trips)	Transit Trips (Person Trips)	Automobile Trips (Vehicle Trips)[a]
Average Weekday:			
Entering	12	44	223
Exiting	12	44	223
Total	24	88	446
Weekday Morning Peak Hour:			
Entering	0	2	8
Exiting	1	4	21
Total	1	6	29
Weekday Evening Peak Hour:			
Entering	1	5	24
Exiting	1	3	18
Total	2	8	42
Saturday:			
Entering	11	44	221
Exiting	11	44	221
Total	22	88	442
Saturday Midday Peak Hour:			
Entering	1	4	19
Exiting	1	4	19
Total	2	8	38

[a]Auto person trips ÷ 1.1 persons per auto.

The traffic volumes (automobile trips) associated with the Project were assigned onto the study area roadway network based on a review of existing travel patterns within the study area and at the study intersections. Based on this review, the following trip-distribution was assumed for the Project:

TRIP-DISTRIBUTION SUMMARY

Roadway	Direction	Percent
Walnut Street	North	50
Walnut Street	South	10
Lowell Avenue	North	15
Lowell Avenue	South	5
Newtonville Avenue	East	10
Highland Avenue	East/West	10
TOTAL		100

In order to develop the Build (with the Project) condition traffic volumes, the additional traffic associated with the Project was added to the 2015 Existing traffic volumes using the trip assignment defined in the table above.

Comment: *We are in general agreement with the methodology that was used to develop the anticipated traffic characteristics of the Project, and concur with the methodology that was used to assign Project-related traffic onto the roadway network (existing traffic patterns); however,* ***we were not able to validate the projections based on the information that was provided in the May 2015 TIS. The Applicant's engineer should provide the back-up calculations for the information presented in Table 8, including the base ITE trip calculations, the mode split that was used to disseminate the ITE vehicle trips to the available modes of travel (auto, transit and walk) and the reconstitution of auto person trips to vehicle trips. In addition, the Applicant's engineer should review the resultant calculations and compare the reported values to those shown on Figures 13 and 14.***

Traffic Operations Analysis

In order to assess the potential impact of the Project on the transportation infrastructure, a detailed traffic operations analysis was performed for the study intersections under 2015 Existing and 2015 Build (with the Project) conditions. In brief, traffic operations are described by six "levels of service" which are defined by letter grades from "A" through "F", with a level-of-service (LOS) "A" representing the best operating conditions (average motorist delays of less than 10 seconds and little or no apparent vehicle queuing) and a LOS "F" representing constrained operating conditions (average motorist delays of 50 to 60 seconds or more and often with apparent vehicle queuing). A LOS of "E" is representative of an intersection or traffic movement that is operating at its design capacity, with a LOS of "D" typically representing the limit of acceptable traffic operations.

A review of the traffic operations analysis results indicates that the addition of Project-related traffic to the study area intersections did not result in a significant change in operating conditions over Existing conditions without the Project. The following impacts were identified as a direct result of the addition of Project-related traffic to the study area intersections:

Lowell Avenue/Austin Street – The Project was predicted to result in an increase in motorist delay of approximately 1.3 seconds resulting in a minor degradation for the Austin Street westbound approach from LOS "B" to LOS "C" during the Saturday midday peak-hour with no material increase in vehicle queuing reported.

Walnut Street/Austin Street – The Project was predicted to result in a minor increase in vehicle queuing of approximately one (1) to two (2) vehicles evidenced by a degradation in LOS from "D" to "E" during the weekday evening peak-hour and from "E" to "F" during the Saturday midday peak-hour for the Austin Street approach.

Project Site Driveways - All movements at the Project site driveway intersections with Austin Street and Philip Bram Way are predicted to operate at LOS "A" with negligible vehicle queuing predicted.

Comment: *The traffic operations analysis was completed using the appropriate methodologies and we are in agreement with the reported results and the overall conclusion that the addition of Project-related traffic to the study area intersections will not result in a significant impact on traffic operations (motorist delays or vehicle queuing) over Existing conditions.* ***The Applicant's engineer should provide a traffic operations analysis for the future No-Build and Build conditions requested as a part of this review (7-year projection).***

Sight Distance

Comment: ***An evaluation of sight distances at the Project site driveways intersections was not presented in the May 2015 TIS. A review of the Project site driveway locations along Austin Street and Philip Bram Way did not indicate any apparent obstructions that would impede lines of sight to or from the Project site driveway along Austin Street. That being said, the Applicant's engineer should review the Site Plans to ensure that the proposed streetscape features will be designed and located in a manner that will not inhibit sight lines.***

We would recommend that all signs and landscaping features that are to be installed as a part of the Project be designed and located so as not to impede lines of sight for motorists or pedestrians. Such features should not exceed 2.5-feet in height as measured from the surface elevation of the Project site driveways or, in the case of street trees, have a canopy that is a minimum of 7-feet in height as measured from the sidewalk surface.

Recommendations

The May 2015 TIS did not include specific recommendations related to the Project, but did provide a discussion of various roadway, intersection and traffic control improvements that have been discussed by the City of Newton with the Newtonville neighborhood and included the following:

- **Austin Street as One-Way** – This proposal would convert all or a portion of Austin Street to a one-way roadway in either the east or westbound direction in order to allow for the creation of additional green space, sidewalk width and on-street parking. Areas of consideration were identified as the potential for higher traffic speeds along Austin Street and impacts to Lowell Avenue, Walnut Street, and the Lowell Avenue/Austin Street (eastbound alternative) and

Walnut Street/Austin Street (westbound alternative) intersections as a result of the additional traffic.

- **Philip Bram Way as One-Way** – This proposal would convert Philip Bram Way from a two-way right-of-way to one-way in either the north or southbound directions. Areas of consideration were identified as access limitations to the Project and land uses along Philip Bram Way, and impacts to the Lowell Avenue, Walnut Street and the Walnut Street/Austin Street intersection as a result of the additional traffic.

- **Austin Street/Walnut Street/Newtonville Avenue** – Alternative improvements under discussion include: removing parking to provide two (2) approach lanes on the Walnut Street eastbound approach; reconfiguring the intersection to eliminate left-turn movements; and/or eliminating the Walnut Street southbound left-turn movement.

- **Walnut Street** – Improvements under discussion for Walnut Street include wider sidewalks, bicycle accommodations, curb extensions and the addition of angled parking.

Comment: *Newtonville Access and Circulation Alternatives*

The access and circulation alternatives defined by the Applicant's engineer in combination with the traffic volume (including pedestrians and bicycles) and parking data and the traffic operations analyses provide sufficient information from which to develop an initial approach to increasing the available parking supply in the Newtonville area, improving mobility and enhancing streetscape opportunities. In consideration of this data, we would suggest that the following access and circulation improvements be considered for advancement:

Austin Street – Convert Austin Street to a one-way westbound roadway with curbline bump-outs to define on-street parking along both sides of the roadway. It is envisioned that the bump-outs would be landscaped or otherwise incorporated into the sidewalk area and serve to: i) define parking areas; ii) shorten pedestrian crossing distances (if used at crosswalk locations); and iii) reduce travel speeds (traffic calming). Redefining Austin Street as a one-way westbound roadway offers the following potential benefits:

- *Increased on-street parking opportunities (potential to yield up to 25 new parking spaces as estimated by the Applicant's engineer)*
- *Reduction in conflicts at the Walnut Street/Austin Street and Walnut Street/Newtonville Avenue intersections (particularly the movement between Austin Street to Newtonville Avenue)*
- *Improved operating conditions at the Walnut Street/Austin Street and Walnut Street/Newtonville Avenue intersections*
- *Reduction in pedestrian and bicycle conflicts*

In addition, if and when a traffic control signal is installed at the Walnut Street/ Austin Street and Walnut Street/Newtonville Avenue intersections, having Austin Street function as a one-way departure from Walnut Street will simplify the traffic signal phasing and improve traffic operations. The conversion to one-way traffic flow will likely be

implemented on a temporary basis during construction activities associated with the Project and could serve as a test for the permanent conversion.

Philip Bram Way – Given the local access function of Philip Bram Way and its importance as a secondary connection between Austin Street and Highland Avenue, we would suggest that Philip Bram Way be maintained as a two-way roadway with the traffic calming measures that are proposed as a part of the Project (pedestrian plaza, landscaping, pavement treatment, etc.).

Walnut Street/Newtonville Avenue – Restriction of turning movements to/from Newtonville Avenue at Walnut Street would require alternate travel routes that are circuitous and sufficiently removed from Newtonville Avenue and may encourage cut-through traffic at locations that are not conducive to such activity. As such, we would not suggest modifying access to Newtonville Avenue.

Walnut Street – We agree with the concept of implementing streetscape improvements along Walnut Street; however, elimination of the northbound left-turn lane on the Walnut Street approach to Austin Street would likely need to be combined with the installation of a traffic control signal at the intersection in order to maintain the flow of traffic and reduce vehicle queuing on Walnut Street south of the intersection.

Project Access and Circulation

In consideration of the limited impact of the Project on the transportation infrastructure and the Applicant's commitment to reconstructing the public way along the Project site frontage on Austin Street and Philip Bram Way, we would suggest that the following recommendations be considered by the Applicant for the Project:

1. ***The Project site driveways should be a minimum of 24-feet in width and accommodate two-way traffic, with vehicles exiting the driveways placed under STOP-sign control.***

2. ***All Signs and pavement markings to be installed within the Project site shall conform to the applicable specifications of the Manual on Uniform Traffic Control Devices (MUTCD).***[3]

3. ***Signs and landscape features to be installed along the Project site frontage within the sight triangle areas of the Project site driveways should not exceed 2.5 feet in height as measured from the surface elevation of the driveways or, in the case of street trees, have a canopy that is a minimum of 7-feet in height as measured from the sidewalk surface.***

4. ***Snow windrows along the Project site frontage within the sight triangle areas of the Project site driveways shall be promptly removed where such accumulations would exceed 2.5 feet in height.***

[3] *Manual on Uniform Traffic Control Devices* (MUTCD); Federal Highway Administration; Washington, DC; 2009.

5. ***Sidewalks along the Project site frontage should be reconstructed or repaired where cracked or settled, and the crossings of the Project site driveways should be reconstructed as necessary for compliance with ADA requirements.***

6. ***Given the availability of public transportation resources to the Project site and the interconnected sidewalk network in the area, a Transportation Demand Management (TDM) program should be developed for the Project that should include the following elements:***

   - ***Information regarding public transportation services, maps, schedules and fare information should be posted in a central location;***
   - ***A "welcome packet" should be provided to new residents and employees of the Project detailing available public transportation services, bicycle and walking alternatives, and commuter options available through MassRIDES' and their NuRide program which rewards individuals that choose to walk, bicycle, carpool, vanpool or that use public transportation to travel to and from work;***
   - ***Pedestrian accommodations should be incorporated within the Project site consisting of sidewalks and pedestrian paths linking buildings and parking to on-site amenities and the sidewalk infrastructure;***
   - ***A mail drop should be provided in a central location;***
   - ***Secure bicycle parking should be provided, including both exterior bicycle racks adjacent to building entrances and weather protected bicycle parking in a secure area within the parking garage (accommodations are shown on the Site Plans);***
   - ***Electric vehicle charging stations should be incorporated into the Project; and***
   - ***The Applicant should coordinate with ZipCar to locate vehicles at the Project.***

SITE PLANS

The following comments are offered with respect to our review of the *Site Plans* prepared by ADD Inc. now with Stantec, et al, and dated May 12, 2015, last revised May 28, 2015, and are in addition to the suggested recommendations outlined above for the July 2015 TIAS that relate to the *Site Plans*.

1. ***A truck turning analysis should be completed for the Project using the following design parameters as guidance: i) the analysis should be completed using the AutoTurn® or similar analysis software for the following design vehicles: an SU-30/40 (small delivery/moving vehicle and trash/recycling vehicle) and the City of Newton Fire Department design vehicle; ii) the analysis should include the swept path for the front and rear tires of the design vehicles and any overhangs that may extend past the front and rear bumper of the vehicle (i.e., basket of the aerial ladder of the fire truck if so equipped); iii) the analysis should depict all maneuvers required to enter and exit the Project site by way of Austin Street and Philp Bram Way (both left and right-turn movements entering and exiting), and all turning and maneuvering required within the Project site; iv) Back-up maneuvers, where required, should be clearly identified.***

2. ***The Applicant should provide a narrative describing: i) how tenant moves will be managed and identifying the location of moving vehicle staging; and ii) how trash/recycling/deliveries will be managed at the Project site. The location of these accommodations should be reflected in the aforementioned truck turning analysis.***

3. ***Bicycle racks should be added to the Site Plans at appropriate location(s) convenient to building entrances.***

4. ***If not already specified, the four (4) parking spaces located proximate to Austin Street (designated as "S" spaces on the Site Plans) should be limited to employee parking in order to minimize the activity associated with these spaces.***

5. ***The parking layout should be re-evaluated to ensure that vehicles parked at the end of each row of parking have sufficient maneuvering area to enter and exit from the space assuming that a vehicle is parked in the adjacent space.***

6. ***A sign and pavement marking plan should be provided as a part of the Site Plans that indicates all signs and pavement markings that are to be installed within the Project site. In particular, the location of "No Parking" signs and pavement markings defining where parking is to be prohibited should be identified both for the garage and the surface parking lot.***

7. ***The use of compact parking spaces should be limited and ideally eliminated from the Site Plans as such spaces are impractical and result in parking inefficiencies when larger vehicles use the spaces, thereby reducing the effective parking supply that is afforded.***

8. ***The Applicant should clarify if the passageway between the parking lot and Highland Avenue (labeled as "12' Passageway" on the Site Plans) will be maintained and, if so, how the passageway will be accessed from the lot.***

9. ***The bollards to be installed on either side of Philip Bram Way that define the raised portion of the roadway should be extended southerly along the east side of the roadway to the end of the raised area in order to separate the sidewalk from the roadway.***

PARKING

At present, the Project site is occupied by a surface parking lot owned by the City of Newton that includes 159 metered parking spaces consisting of 127 public parking spaces and 32 Newton North High School "Tiger" permit parking spaces. As proposed, the Project will retain the 127 public parking spaces that are currently located within the Project site and an additional 90 private parking spaces will be constructed one-level below grade. The Applicant's engineer indicated that the City has identified new locations for the "Tiger" permit parking which will be relocated prior to the start of construction of the Project. Of the 90 new parking spaces, 85 spaces will be for the residential apartment units and five (5) parking spaces will be designated for use by employees of the retail and office space to be located within the Project site (5,000± sf). This results in an encumbered (spaces exclusively available to the Project) parking ratio of 1.25 spaces per residential unit and 1.0 space per 1,000 sf for the commercial component. The residential

parking ratio (1.25 spaces per unit) is consistent with the minimum parking ratio allowed by Special Permit under the Newton Zoning Code;[4] however, the commercial use would require 18 parking spaces.[5] In conjunction with the July 2014 *Parking and Traffic Engineering Study* for Newtonville that was prepared by GPI on behalf of the Planning and Development Department (the "Newtonville Parking Study"),[6] a total of 448 publically available parking spaces were identified to be located within a reasonable (5-minute) walking distance of the Project site and consisted of both metered and unmetered spaces. It was observed that during the peak parking demand period (Saturday from 12:00 noon to 1:00 PM), approximately 78 percent of the available public parking spaces were found to be occupied, leaving approximately 100 spaces available to accommodate increased parking demands within the Newtonville neighborhood.

With specific regard to the Austin Street parking lot (the Project site), the Newtonville Parking Study identified an average parking utilization of 37 percent on a weekday and 45 percent on a Saturday, with peak utilization of 66 percent on a weekday and 94 percent on a Saturday. The increase in the peak utilization of parking within the Austin Street lot was identified to be a result of enforcement of the customer only parking restriction in the Star Market parking lot. The Applicant's engineer indicated that recently collected parking demand data showed that the Austin Street parking lot has available parking spaces at peak hours on weekdays and weekends.

The Applicant's engineer cited recent studies that have been provided to the City for residential parking utilization in mixed-income apartment communities that have less favorable access to public transportation which documented average residential parking demands of 1.24 spaces per unit. It was also noted that residents of the Project will be charged market rates for a second parking space, which is currently $150 per month. Based on: i) the results of the Newtonville Parking Study which documented that approximately 100 public parking spaces are available within a reasonable walking distance of the Project site; ii) the additional 90 private parking spaces that are to be constructed as a part of the Project; and iii) the availability of public transportation services and the parking demand management strategies that will be implemented as a part of the Project; the Applicant's engineer concluded that sufficient parking will be available to accommodate the parking demands of the Project.

The Applicant's engineer has been participating in the Construction Period Parking Working Group established by the City for the Project which includes representatives of Newtonville area merchants, the Newtonville Area Council and the City Transportation and Economic Development departments. This working group has identified both physical improvements and parking management strategies that can be implemented in order to off-set the temporary loss of public parking within the Project site during construction, including: relocation of commuter parking; temporary use of one-way roadways to allow for the addition of on-street parking; restriping roadways to add or expand on-street parking; contracting for use of private parking; and regulatory changes to allow for free one-hour parking and longer-term parking at lightly used parking facilities. This working group will continue to meet as the Project is advanced.

[4]A minimum of 1.0 space per residential unit in an apartment house is allowed by Special Permit.
[5]One (1) space per 300 sf of retail use (plus one (1) space for the employee with the longest shift) and one (1) space per 250 sf of office space.
[6]Ibid 1.

Comment: *A review of parking demand data available from the Institute of Transportation Engineers (ITE)[7] for residential apartment communities located in an urban setting with access to public transportation indicated that such communities had an average parking demand of 1.20 spaces per dwelling unit on a weekday and an 85th percentile parking demand of 1.61 spaces per dwelling unit.[8] On a Saturday, the average peak parking demand was found to be 1.03 spaces per dwelling unit with an 85th percentile parking demand of 1.14 spaces per dwelling unit. Based on the ITE parking demand data and given the setting of the Project site in close proximity to public transportation, it would appear that the proposed parking ratio of 1.24 parking spaces per residential unit would be consistent with the parking demand ratio for similar apartment communities.*

With respect to the commercial parking for the Project (five (5) dedicated spaces for employees), we would suggest that the parking demands would be met by available parking within Newtonville, for which the Newtonville Parking Study has demonstrated that sufficient public parking is available within the village to accommodate the 13 parking additional spaces that are required to meet the Newton Zoning Code (18 spaces required, five (5) of which will be reserved within the Project site). Further, retention of the elements of the construction period parking plan on a permanent basis will yield additional public parking in the village.

The above being said, the Applicant should review the comments provided herein with respect to the design and layout of the parking facilities within the Project site as resolution of these comments may reduce the amount of available parking within the Project site. Further, the Applicant's engineer should consider the recommendations that have been offered as a part of this review with regard to opportunities to increase the amount of available on-street parking along Austin Street and within the Newtonville area.

In addition, the Applicant should commit to implementing specific Transportation Demand Management (TDM) and parking management strategies using the measures provided herein as a starting point. The specific elements of the program should be defined by the Applicant's engineer.

SUMMARY

VAI has completed a review of the materials submitted on behalf of Austin Street Partners LLC in support of the proposed mixed-use development to be located at 28 Austin Street in Newton, Massachusetts Our review focused on the following areas as they relate to the Project: i) vehicle and pedestrian access and circulation; ii) MassDOT design standards; iii) City Zoning requirements as they relate to access, parking and circulation; and iv) accepted Traffic Engineering and Transportation Planning practices.

[7] *Parking Generation*, 4th Edition; Institute of Transportation Engineers; Washington, D.C.; 2010.
[8] The 85th percentile parking demand is the parking demand at which 85 percent of the observed parking demands were at or below and 15 percent were above.

Based on our review of the information submitted in support of the Project, we have determined that the materials were prepared in a professional manner and following the applicable standards of care. That being said, we have requested that supplemental information and analyses be provided in support of the May 2015 TIS with respect to: i) defining future conditions within the study area; ii) safety; and iii) parking demands. In addition, we have requested that the Applicant's engineer evaluate specific elements of the design of the Project concerning access, parking and circulation. Written responses to our comments should be provided so that we may continue our review of the Project on behalf of the City.

This concludes our review of the materials that have been submitted to date in support of the Project. If you should have any questions regarding our review, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

Jeffrey S. Dirk

Jeffrey S. Dirk, P.E., PTOE, FITE
Principal

JSD/jsd

cc: File

Attachment D

NELSON
NYGAARD

MEMORANDUM

To: Ms. Alexandra Ananth

From: Nelson/Nygaard Consulting Associates, Inc

Date: October 2, 2015

Subject: 28 Austin Street, Newton , MA – Peer Review Response

This memorandum is provided in response to the peer review performed by Vanasse & Associates, Inc (VAI) of the Transportation Impact Study in support of the proposed 28 Austin Street development, and is intended to address the request for supplemental information and analyses. The following outlines the comments by VAI with responses provided beneath.

General

VAI Comment: The May 12, 2015 *Transportation Impact Study* (the "May 2015 TIS") was prepared in a professional manner and following the applicable standards of care; however, the study was not stamped and signed by the Professional Engineer in responsible charge for the preparation of the document as required pursuant to Massachusetts General Law. **A letter should be provided by the Professional Engineer attesting to their oversight in preparing the document and providing their Massachusetts Professional Engineer Registration number and discipline.**

NN Response: As per Chapter 30 of the Newton City Code, a traffic impact study is required when determined by the director of planning and development and the commissioner of public works (peer reviews may be required, hired by the city and paid for by the petitioner) with no specific requirement for preparation by a Professional Engineer.

Traffic Volumes and Data Collection

VAI Comment: The Applicant's engineer should review the Saturday midday peak-hour traffic volumes at the Walnut Street/Newtonville Avenue intersection as it appears that the northbound right-turn volume should be 88 vehicles vs. 43 vehicles as shown on Figure 9. In addition, the associated traffic operations analyses should be revised accordingly.

NN Response: The through volumes from Austin Street to Newtonville Avenue were added to the northbound right turn movement to equal 88 vehicles. The revised traffic operations analyses are below and show that the increase in volumes did not change the overall level of service or delay.

Intersection	Movement	Saturday Existing Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %
Walnut St at Newtonville Ave	WB LR	C	19.4	0.32	34
	SB T	A	0.7	0.18	0
	SB L	A	9.4	0.06	5
	NB TR	A	0.0	0.22	0
	Intersection	A	1.9	0.32	

Motor Vehicle Crash Summary

VAI Comment: A motor vehicle crash analysis was not completed for the study area intersections and should be provided by the Applicant's engineer. The analysis should include all reported crashes occurring within the study area for the most recent 3-year period available from MassDOT and/or the City of Newton Police Department. Motor vehicle crash rates should be calculated for the study intersections and compared to MassDOT statewide and District averages. Where an exceedance of the MassDOT crash rates is identified, the Applicant's engineer should provide a collision diagram and narrative detailing the potential contributing factors to the motor vehicle crashes and identifying appropriate corrective measures. Pedestrian and bicycle crashes should also be clearly identified and the Applicant's engineer should review MassDOT's pedestrian/bicycle crash cluster location list to determine if any of the study area intersections are listed.

NN Response: As per Chapter 30 of the Newton City Code, a traffic impact study is required when determined by the City. The agreed upon study scope with the director of planning and development and the commissioner of public works did not require a crash analysis.

Future Conditions

VAI Comment: The Applicant's engineer did not provide a future traffic volume projection for the Project. In order to facilitate proper planning for the study area and ensure that planned improvements will accommodate both current and near-term growth, including the Project, the Applicant's engineer should develop a 7-year future traffic volume projection in accordance with MassDOT's Transportation Impact Assessment (TIA) Guidelines. The future condition traffic volume projections should be developed by applying a background traffic growth rate to the 2015 Existing traffic volumes and then adding traffic associated with specific development projects by others as identified by the City of Newton Planning and Development Department that may increase traffic volumes within the study area beyond that accounted for by the background traffic growth rate. In addition, planned future transportation system improvements should also be identified and reflected in the future traffic volume projections to the extent that the improvements would impact traffic volumes or circulation patterns within the study area.

NN Response: The Future No-Build scenario was discussed with City staff when agreeing upon the scope for the transportation impact study. At that time it was agreed upon that the Future No-Build analyses would not be required as part of this study. It was also found that Future No

Build analyses were also not included in other Newton traffic impact studies, like those prepared for 75-83 Court Street and for Kesseler Woods. However, per additional city request, a future analysis was prepared and is submitted under separate memo. The analysis for the future No Build assumes 0.5% annual growth for 7 years per City specifications. The future Build was recalculated by adding the project trips to the No Build.

Build Conditions

VAI Comment: We are in general agreement with the methodology that was used to develop the anticipated traffic characteristics of the Project, and concur with the methodology that was used to assign Project-related traffic onto the roadway network (existing traffic patterns); however, we were not able to validate the projections based on the information that was provided in the May 2015 TIS. **The Applicant's engineer should provide the back-up calculations for the information presented in Table 8, including the base ITE trip calculations, the mode split that was used to disseminate the ITE vehicle trips to the available modes of travel (auto, transit and walk) and the reconstitution of auto person trips to vehicle trips. In addition, the Applicant's engineer should review the resultant calculations and compare the reported values to those shown on Figures 13 and 14.**

NN Response: The information presented in Table 8 was derived from the ITE Trip Generation Manual 9th Edition as well as the 2013 U.S. Census 5-year mode share estimates. The calculations are included as an attachment to this memorandum.

Traffic Operations Analysis

VAI Comment: The traffic operations analysis was completed using the appropriate methodologies and we are in agreement with the reported results and the overall conclusion that the addition of Project-related traffic to the study area intersections will not result in a significant impact on traffic operations (motorist delays or vehicle queuing) over Existing conditions**. The Applicant's engineer should provide a traffic operations analysis for the future No-Build and Build conditions requested as a part of this review (7-year projection).**

NN Response: As previously noted the Future No-Build scenario was discussed with City staff when agreeing upon the scope for the transportation impact study. At that time it was agreed upon that the Future No-Build analyses would not be required as part of this study. However, per additional city request, a future analysis was prepared and is submitted under separate memo. The analysis for the future No Build assumes 0.5% annual growth for 7 years per City specifications. The future Build was recalculated by adding the project trips to the No Build.

Sight Distance

VAI Comment: An evaluation of sight distances at the Project site driveways intersections was not presented in the May 2015 TIS. A review of the Project site driveway locations along Austin Street and Philip Bram Way did not indicate any apparent obstructions that would impede lines of sight to or from the Project site driveway along Austin Street. That being said, the Applicant's

engineer should review the Site Plans to ensure that the proposed streetscape features will be designed and located in a manner that will not inhibit sight lines.

We would recommend that all signs and landscaping features that are to be installed as a part of the Project be designed and located so as not to impede lines of sight for motorists or pedestrians. Such features should not exceed 2.5-feet in height as measured from the surface elevation of the Project site driveways or, in the case of street trees, have a canopy that is a minimum of 7-feet in height as measured from the sidewalk surface.

NN Response: The need for a sight distance evaluation was not included within the agreed upon scope for the transportation impact study as discussed with City staff. It is noted that the Applicant's civil engineer and architect will ensure that the proposed streetscape features will not inhibit sight lines.

Recommendations

VAI Comment: In consideration of the limited impact of the Project on the transportation infrastructure and the Applicant's commitment to reconstructing the public way along the Project site frontage on Austin Street and Philip Bram Way, we would suggest that the following recommendations be considered by the Applicant for the Project:

1. The Project site driveways should be a minimum of 24-feet in width and accommodate two-way traffic, with vehicles exiting the driveways placed under STOP-sign control.

2. All Signs and pavement markings to be installed within the Project site shall conform to the applicable specifications of the Manual on Uniform Traffic Control Devices (MUTCD).3

3. Signs and landscape features to be installed along the Project site frontage within the sight triangle areas of the Project site driveways should not exceed 2.5 feet in height as measured from the surface elevation of the driveways or, in the case of street trees, have a canopy that is a minimum of 7-feet in height as measured from the sidewalk surface.

4. Snow windrows along the Project site frontage within the sight triangle areas of the Project site driveways shall be promptly removed where such accumulations would exceed 2.5 feet in height.

5. Sidewalks along the Project site frontage should be reconstructed or repaired where cracked or settled, and the crossings of the Project site.

6. Given the availability of public transportation resources to the Project site and the interconnected sidewalk network in the area, a Transportation Demand Management (TDM) program should be developed for the Project that should include the following elements:

– Information regarding public transportation services, maps, schedules and fare information should be posted in a central location;

– A "welcome packet" should be provided to new residents and employees of the Project detailing available public transportation services, bicycle and walking alternatives, and commuter options available through MassRIDES' and their NuRide program which rewards individuals that choose to walk, bicycle, carpool, vanpool or that use public transportation to travel to and from work;

– Pedestrian accommodations should be incorporated within the Project site consisting of sidewalks and pedestrian paths linking buildings and parking to on-site amenities and the sidewalk infrastructure;

– A mail drop should be provided in a central location;

– Secure bicycle parking should be provided, including both exterior bicycle racks adjacent to building entrances and weather protected bicycle parking in a secure area within the parking garage (accommodations are shown on the Site Plans);

– Electric vehicle charging stations should be incorporated into the Project; and

– The Applicant should coordinate with ZipCar to locate vehicles at the Project.

NN Response: Nelson/Nygaard concurs with the recommendations and will outline a framework for the Applicant to provide a robust Transportation Demand Management program.

Site Plans

VAI Comment: The following comments are offered with respect to our review of the Site Plans prepared by ADD Inc. now with Stantec, et al, and dated May 12, 2015, last revised May 28, 2015, and are in addition to the suggested recommendations outlined above for the July 2015 TIAS that relate to the Site Plans.

1. A truck turning analysis should be completed for the Project using the following design parameters as guidance: i) the analysis should be completed using the AutoTurn® or similar analysis software for the following design vehicles: an SU-30/40 (small delivery/moving vehicle and trash/recycling vehicle) and the City of Newton Fire Department design vehicle; ii) the analysis should include the swept path for the front and rear tires of the design vehicles and any overhangs that may extend past the front and rear bumper of the vehicle (i.e., basket of the aerial ladder of the fire truck if so equipped); iii) the analysis should depict all maneuvers required to enter and exit the Project site by way of Austin Street and Philp Bram Way (both left and right-turn movements entering and exiting), and all turning and maneuvering required within the Project site; iv) Back-up maneuvers, where required, should be clearly identified.

2. The Applicant should provide a narrative describing: i) how tenant moves will be managed and identifying the location of moving vehicle staging; and ii) how trash/recycling/deliveries will be managed at the Project site. The location of these accommodations should be reflected in the aforementioned truck turning analysis.

3. Bicycle racks should be added to the Site Plans at appropriate location(s) convenient to building entrances.

4. If not already specified, the four (4) parking spaces located proximate to Austin Street (designated as “S” spaces on the Site Plans) should be limited to employee parking in order to minimize the activity associated with these spaces.

5. The parking layout should be re-evaluated to ensure that vehicles parked at the end of each row of parking have sufficient maneuvering area to enter and exit from the space assuming that a vehicle is parked in the adjacent space.

6. A sign and pavement marking plan should be provided as a part of the Site Plans that indicates all signs and pavement markings that are to be installed within the Project site. In particular, the location of “No Parking” signs and pavement markings defining where parking is to be prohibited should be identified both for the garage and the surface parking lot.

7. The use of compact parking spaces should be limited and ideally eliminated from the Site Plans as such spaces are impractical and result in parking inefficiencies when larger vehicles use the spaces, thereby reducing the effective parking supply that is afforded.

8. The Applicant should clarify if the passageway between the parking lot and Highland Avenue (labeled as "12' Passageway" on the Site Plans) will be maintained and, if so, how the passageway will be accessed from the lot.

NN Response: These comments have been forwarded to the Applicants Civil Engineer for review and consideration.

Parking

VAI Comment: A review of parking demand data available from the Institute of Transportation Engineers (ITE)7 for residential apartment communities located in an urban setting with access to public transportation indicated that such communities had an average parking demand of 1.20 spaces per dwelling unit on a weekday and an 85th percentile parking demand of 1.61 spaces per dwelling unit.8 On a Saturday, the average peak parking demand was found to be 1.03 spaces per dwelling unit with an 85th percentile parking demand of 1.14 spaces per dwelling unit. Based on the ITE parking demand data and given the setting of the Project site in close proximity to public transportation, it would appear that the proposed parking ratio of 1.24 parking spaces per residential unit would be consistent with the parking demand ratio for similar apartment communities.

With respect to the commercial parking for the Project (five (5) dedicated spaces for employees), we would suggest that the parking demands would be met by available parking within Newtonville, for which the Newtonville Parking Study has demonstrated that sufficient public parking is available within the village to accommodate the 13 parking additional spaces that are required to meet the Newton Zoning Code (18 spaces required, five (5) of which will be reserved within the Project site). Further, retention of the elements of the construction period parking plan on a permanent basis will yield additional public parking in the village.

The above being said, the Applicant should review the comments provided herein with respect to the design and layout of the parking facilities within the Project site as resolution of these comments may reduce the amount of available parking within the Project site. Further, the Applicant's engineer should provide updated parking demand observations within the Austin Street parking lot and along Austin Street, Walnut Street and Highland Avenue that document current parking conditions proximate to the Project site. The demand observations should be conducted on both a weekday and Saturday between 10:00 AM and 2:00 PM (the peak parking demand period identified in the Newtonville Parking Study).

In addition, the Applicant should commit to implementing specific Transportation Demand Management (TDM) and parking management strategies using the measures provided herein as a starting point. The specific elements of the program should be defined by the Applicant's engineer.

NN Response: The Applicant will review the site plan comments regarding parking design and layout and how that may affect available parking within the site. However, as VAI stated the anticipated parking demand is below the proposed parking supply. Utilizing national parking standards (ITE) for on-site parking demand, the site would demand 91 spaces which is much lower than the proposed parking supply (217 spaces). This demand would be lowered further with potential internal capture from mixed-uses and the proposed TDM strategies that the Applicant will program as part of the development.

Due in part to the information available from the Newtonville Parking Study, specific parking demand surveys of the adjacent roadways were not included as part of the study and were not discussed as part of the scoping agreement.

Summary

The above responds to the comments and recommendations highlighted by Vanasse & Associates, Inc within their peer review of the 28 Austin Street Mixed-Use Development. We trust that the responses enable VAI to continue their review of the project on behalf of the City. Should they have any further questions please let us know.

MEMORANDUM

To: Austin Street Partners, LLC

From: Nelson\Nygaard Consulting Associates, Inc.

Date: October 2, 2015

Subject: 28 Austin Street – Transportation Impact Study – Supplemental Analyses

---

This memorandum is provided in response to requests for supplemental information and analyses as part of the the peer review performed by Vanasse & Associates, Inc. (VAI) of the Transportation Impact Study in support of the proposed 28 Austin Street development. While a future no build analysis was not part of the original scoping discussions with the City of Newton, this supplemental analysis is provided upon request. This memorandum covers future no build conditions and an updated future build scenario for 2022, per City of Newton specifications, for the weekday AM and PM peak and Saturday midday peak periods evaluated in the original memorandum dated May 12, 2015.

Process:

No Build Analysis

- The future no build analysis uses a forecast network for the year 2022 that builds upon the existing traffic conditions as outlined in Section 2.7 of the 28 Austin Street – Transportation Impact Study Memorandum, dated May 12, 2015.
- Based on a conversation with city staff, this analysis takes into account a background growth rate of 0.5%/year growth rate for seven years. The results of this traffic operations analysis can be found in Table 2 below.

Future Build 2022 Analysis

- The future build scenario vehicle network has been developed by adding the site-generated vehicle trips to the future no build network described above.

Findings:

- Most intersections and approaches show minimal change in any scenario and continue to operate at an overall Level of Service (LOS) A.
- The assumed background growth rate in the 2022 no build scenario shows that the eastbound Austin Street approach to Walnut Street experiences increased delay, which, on Saturdays, changes from LOS E to LOS F, resulting in one extra car in the queue and eight seconds of delay from 48 to 56 seconds.
- The difference in delay and queues by intersection approach between the existing and initial future build scenario analysis (dated May 12, 2015) is generally consistent with the difference between the future no build scenario and future build scenario included in this analysis.

Summary:

- Changes in the adjusted Future Build condition (from the previous analysis) are due to general growth rate changes that also occur in the No Build condition.

Table 1: Existing Level of Service Summary - Weekday

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %	LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	23.9	0.40	48	C	18.0	0.22	21
	WB LTR	C	19.3	.32	35	C	19.7	0.44	59
	SB LTR	A	2.4	0.09	8	A	1.9	0.07	6
	NB LTR	A	0.5	0.02	1	A	0.7	0.02	2
	Intersection	A	5.1	0.40		A	5.1	0.44	
Highland Ave at Philip Baum Way									
	EB LT	A	1.3	0.01	1	A	0.2	0	0
	WB TR	A	0	0.05	0	A	0	0	0
	SB LR	B	10.3	0.07	5	A	9.8	0.05	4
	NB LTR	A	9.5	0.02	1	A	9.1	0.01	1
	Intersection	A	3.0	0.07		A	2.9	0.05	
Walnut St at Madison Ave									
	WB LTR	C	18.7	0.10	8	D	32.1	0.22	21
	SB LT	A	0.5	0.02	1	A	1.0	0.04	3
	NB TR	A	0	0.38	0	A	0	0.39	0
	Intersection	A	0.6	0.38		A	1.4	0.39	
Walnut St at Austin St									
	EB LR	D	28.8	0.53	80	D	33.6	0.59	103
	SB T	A	0	0.28	0	A	0	0.33	0
	SB R	A	0	0.07	0	A	0	0.09	0
	NB T	A	0	0.35	0	A	0	0.35	0
	NB L	A	9.5	0.06	5	B	10.0	0.09	7
	Intersection	A	3.8	0.53		A	4.3	0.59	
Walnut St at Newtonville Ave									
	WB LR	C	16.4	0.21	20	C	20.0	0.31	33
	SB T	A	0	0.16	0	A	0	0.19	0
	SB L	B	10.4	0.10	8	A	9.8	0.05	4
	NB TR	A	0	0.24	0	A	0	0.24	0
	Intersection	A	1.5	0.24		A	1.7	0.31	

Table 2: Existing Level of Service - Saturday

Intersection	Movement	Saturday Existing Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	15.0	0.20	18
	WB LTR	B	14.3	0.35	39
	SB LTR	A	2.0	0.06	5
	NB LTR	A	0.5	0.01	1
	Intersection	A	5.0	0.35	
Highland Ave at Philip Baum Way					
	EB LT	A	1.8	0.01	1
	WB TR	A	0.0	0.11	0
	SB LR	B	14.3	0.21	20
	NB LTR	B	10.2	0.11	9
	Intersection	A	5.6	0.21	
Walnut St at Madison Ave					
	WB LTR	D	33.4	0.29	28
	SB LT	A	1.1	0.04	3
	NB TR	A	0.0	0.35	0
	Intersection	A	1.9	0.35	
Walnut St at Austin St					
	EB LR	E	48.6	0.74	134
	SB T	A	0.0	0.31	0
	SB R	A	0.0	0.10	0
	NB T	A	0.0	0.31	0
	NB L	B	10.3	0.12	10
	Intersection	A	7.0	0.74	
Walnut St at Newtonville Ave					
	WB LR	C	18.8	0.31	33
	SB T	A	0	0.18	0
	SB L	A	9.2	0.05	4
	NB TR	A	0.0	0.22	0
	Intersection	A	1.9	0.31	

Table 3 Future 2022 No Build Conditions – Weekday Traffic Operations Summary

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %	LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	D	25.8	0.43	55	C	18.9	0.24	23
	WB LTR	C	20.9	0.34	39	C	21.1	0.47	66
	SB LTR	A	2.5	0.10	8	A	1.9	0.07	6
	NB LTR	A	0.5	0.02	1	A	0.7	0.02	2
	Intersection	A	5.4	0.43		A	5.4	0.47	
Highland Ave at Philip Baum Way									
	EB LT	A	1.3	0.01	1	A	0.2	0	0
	WB TR	A	0	0.05	0	A	0	0	0
	SB LR	B	10.3	0.07	5	A	9.9	0.06	4
	NB LTR	A	9.5	0.02	1	A	9.1	0.01	1
	Intersection	A	3.0	0.07		A	2.9	0.06	
Walnut St at Madison Ave									
	WB LTR	C	19.2	0.10	8	D	33.9	0.23	23
	SB LT	A	0.5	0.02	1	A	1.1	0.04	3
	NB TR	A	0	0.40	0	A	0	0.40	0
	Intersection	A	0.7	0.40		A	1.5	0.40	
Walnut St at Austin St									
	EB LR	D	31.6	0.56	91	D	37.9	0.63	120
	SB T	A	0	0.29	0	A	0	0.34	0
	SB R	A	0	0.07	0	A	0	0.10	0
	NB T	A	0	0.36	0	A	0	0.36	0
	NB L	A	9.6	0.06	5	B	10.1	0.09	8
	Intersection	A	4.1	0.56		A	4.8	0.63	
Walnut St at Newtonville Ave									
	WB LR	C	17.0	0.22	21	C	20.9	0.33	37
	SB T	A	0	0.17	0	A	0	0.20	0
	SB L	B	10.5	0.10	9	A	9.9	0.06	4
	NB TR	A	0	0.24	0	A	0	0.25	0
	Intersection	A	1.5	0.24		A	1.8	0.33	

Table 4 Future 2022 No Build Conditions – Saturday Traffic Operations Summary

Intersection	Movement	Saturday 2022 No Build Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	15.6	0.21	20
	WB LTR	B	14.8	0.37	42
	SB LTR	A	2.0	0.06	5
	NB LTR	A	0.6	0.02	1
	Intersection	A	5.1	0.37	
Highland Ave at Philip Baum Way					
	EB LT	A	1.8	0.01	1
	WB TR	A	0.0	0.11	0
	SB LR	B	14.6	0.23	21
	NB LTR	B	10.3	0.11	9
	Intersection	A	5.6	0.23	
Walnut St at Madison Ave					
	WB LTR	E	35.4	0.31	31
	SB LT	A	1.2	0.04	3
	NB TR	A	0.0	0.36	0
	Intersection	A	2.0	0.36	
Walnut St at Austin St					
	EB LR	F	56.8	0.80	152
	SB T	A	0.0	0.32	0
	SB R	A	0.0	0.10	0
	NB T	A	0.0	0.32	0
	NB L	B	10.5	0.12	10
	Intersection	A	8.1	0.80	
Walnut St at Newtonville Ave					
	WB LR	C	20.2	0.34	37
	SB T	A	0.7	0.19	0
	SB L	A	9.5	0.06	5
	NB TR	A	0.0	0.23	0
	Intersection	A	2.0	0.34	

Table 5: Future Build Capacity Analysis – Weekday (Developed May 2015)

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %	LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	24.1	0.40	49	C	18.3	0.22	22
	WB LTR	C	19.8	0.33	36	C	20.1	0.46	62
	SB LTR	A	2.4	0.09	8	A	1.9	0.07	6
	NB LTR	A	0.5	0.02	1	A	0.7	0.02	2
	Intersection	A	5.1	0.40		A	5.2	0.46	
Highland Ave at Philip Baum Way									
	EB LT	A	1.3	0.01	1	A	0.2	0	0
	WB TR	A	0	0.05	0	A	0	0	0
	SB LR	B	10.3	0.07	5	A	9.9	0.05	5
	NB LTR	A	9.5	0.02	1	A	9.1	0.01	1
	Intersection	A	3.0	0.07		A	2.9	0.06	
Walnut St at Madison Ave									
	WB LTR	C	18.7	0.10	8	D	32.2	0.22	21
	SB LT	A	0.5	0.02	1	A	1.0	0.04	3
	NB TR	A	0	0.38	0	A	0	0.39	0
	Intersection	A	0.6	0.38		A	1.4	0.39	
Walnut St at Austin St									
	EB LR	D	31.1	0.57	93	E	38.9	0.65	129
	SB T	A	0	0.28	0	A	0	0.33	0
	SB R	A	0	0.07	0	A	0	0.09	0
	NB T	A	0	0.35	0	A	0	0.35	0
	NB L	A	9.5	0.06	5	B	10.1	0.09	8
	Intersection	A	4.3	0.57		A	5.2	0.65	
Walnut St at Newtonville Ave									
	WB LR	C	16.7	0.22	21	C	20.4	0.32	34
	SB T	A	0	0.16	0	A	0	0.19	0
	SB L	B	10.4	0.10	8	A	9.8	0.05	4
	NB TR	A	0	0.24	0	A	0	0.25	0
	Intersection	A	1.5	0.24		A	1.7	0.32	
Austin St at Site Access									
	WB TL	A	0.3	0.00	0	A	0.7	0.01	1
	EB TR	A	0	0.15	0	A	0	0.11	0
	NB LR	B	10.1	0.03	2	A	9.6	0.03	2
	Intersection	A	0.5	0.15		A	0.7	0.11	

Table 6: Future Build Capacity Analysis – Saturday (Developed May 2015)

Intersection	Movement	Saturday Future Build Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	16.5	0.22	21
	WB LTR	C	15.6	0.38	45
	SB LTR	A	2.1	0.07	5
	NB LTR	A	1.4	0.04	3
	Intersection	A	5.6	0.38	
Highland Ave at Philip Baum Way					
	EB LT	A	1.8	0.01	1
	WB TR	A	0.0	0.11	0
	SB LR	B	14.5	0.22	21
	NB LTR	B	10.2	0.11	9
	Intersection	A	5.6	0.22	
Walnut St at Madison Ave					
	WB LTR	D	33.6	0.29	28
	SB LT	A	1.1	0.04	3
	NB TR	A	0.0	0.35	0
	Intersection	A	1.9	0.35	
Walnut St at Austin St					
	EB LR	F	63.0	0.84	172
	SB T	A	0.0	0.31	0
	SB R	A	0.0	0.11	0
	NB T	A	0.0	0.31	0
	NB L	B	10.4	0.12	10
	Intersection	A	9.6	0.84	
Walnut St at Newtonville Ave					
	WB LR	C	19.2	0.33	35
	SB T	A	0	0.18	0
	SB L	A	9.2	0.05	4
	NB TR	A	0.0	0.22	0
	Intersection	A	2.0	0.33	
Austin St at Site Access					
	WB TL	A	0.9	0.02	1
	EB TR	A	0	0.10	0
	NB LR	A	9.7	0.04	3
	Intersection	A	1.2	0.10	

Table 7 Future 2022 Adjusted Build Conditions – Weekday Traffic Operations Summary

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %	LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	D	26.1	0.43	55	C	19.2	0.24	24
	WB LTR	C	21.1	0.35	40	C	21.6	0.49	69
	SB LTR	A	2.5	0.10	8	A	2.0	0.08	6
	NB LTR	A	0.5	0.02	1	A	0.7	0.02	2
	Intersection	A	5.5	0.43		A	5.5	0.49	
Highland Ave at Philip Baum Way									
	EB LT	A	1.3	0.01	1	A	0.2	0	0
	WB TR	A	0	0.06	0	A	0	0.05	0
	SB LR	B	10.4	0.07	6	A	9.9	0.06	5
	NB LTR	A	9.5	0.02	1	A	9.1	0.01	1
	Intersection	A	3.0	0.07		A	2.9	0.06	
Walnut St at Madison Ave									
	WB LTR	C	19.2	0.10	9	D	33.9	0.23	23
	SB LT	A	0.5	0.02	1	A	1.1	0.04	3
	NB TR	A	0	0.40	0	A	0	0.40	0
	Intersection	A	0.7	0.40		A	1.5	0.40	
Walnut St at Austin St									
	EB LR	D	35.3	0.62	112	E	45.2	0.70	153
	SB T	A	0	0.29	0	A	0	0.34	0
	SB R	A	0	0.07	0	A	0	0.10	0
	NB T	A	0	0.36	0	A	0	0.36	0
	NB L	A	9.6	0.06	5	B	10.2	0.10	8
	Intersection	A	4.9	0.62		A	6.0	0.70	
Walnut St at Newtonville Ave									
	WB LR	C	17.3	0.23	22	C	22.0	0.35	40
	SB T	A	0	0.17	0	A	0	0.21	0
	SB L	B	10.6	0.10	9	A	10.0	0.06	4
	NB TR	A	0	0.25	0	A	0	0.25	0
	Intersection	A	1.6	0.25		A	1.9	0.35	
Austin St at Site Access									
	WB TL	A	0.3	0.00	0	A	0.7	0.01	1
	EB TR	A	0	0.15	0	A	0	0.11	0
	NB LR	B	10.1	0.03	2	A	9.7	0.03	2
	Intersection	A	0.5	0.15		A	0.7	0.11	

Table 8 Future 2022 Adjusted Build Conditions – Saturday Traffic Operations Summary

Intersection	Movement	Saturday 2022 Build Peak Hour			
		LOS	Delay	V/C	Queue(ft) 95th %
Lowell Ave at Austin St	EB LTR	C	15.8	0.22	20
	WB LTR	C	15.0	0.38	43
	SB LTR	A	2.1	0.07	6
	NB LTR	A	0.6	0.02	1
	Intersection	A	5.2	0.38	
Highland Ave at Philip Baum Way					
	EB LT	A	1.8	0.01	1
	WB TR	A	0.0	0.11	0
	SB LR	B	14.7	0.23	22
	NB LTR	B	10.3	0.11	10
	Intersection	A	5.7	0.23	
Walnut St at Madison Ave					
	WB LTR	E	35.6	0.31	31
	SB LT	A	1.2	0.04	3
	NB TR	A	0.0	0.36	0
	Intersection	A	2.0	0.36	
Walnut St at Austin St					
	EB LR	F	76.0	0.90	196
	SB T	A	0.0	0.32	0
	SB R	A	0.0	0.11	0
	NB T	A	0.0	0.32	0
	NB L	B	10.6	0.13	11
	Intersection	B	11.5	0.90	
Walnut St at Newtonville Ave					
	WB LR	C	20.6	0.35	39
	SB T	A	0	0.23	0
	SB L	A	9.2	0.06	5
	NB TR	A	0.0	0.19	0
	Intersection	A	2.1	0.35	
Austin St at Site Access					
	WB TL	A	0.9	0.02	1
	EB TR	A	0	0.10	0
	NB LR	A	9.7	0.04	3
	Intersection	A	1.2	0.10	

Austin Street Trip Generation

Census Mode Split for Newtonville, 2013 5-Year Estimates

Daily avg. mode shares	**Work**
Auto	72%
Transit	13%
Walk	3%
Work from Home	11%
Other	0.60%

Newtonville
Vehicle Occupancy 1.10 *American Community Survey 2013 5-Year*

Proposed: Austin Street

68 units
3500 Shopping Center (820)
1500 Office (710)

ITE Class	Apartment (220)					Shopping Center (820) trips per 1000 SF GLA					Office (710) trips per 1000 SF GFA					SUM	
Time	**ITE**	**VEH TRIPS**	**PERSON TRIPS**	**Entering**	**Exiting**	**ITE**	**VEH TRIPS**	**PERSON TRIPS**	**Entering**	**Exiting**	**ITE trips per 1000 sq feet GFA**	**VEH TRIPS**	**PERSON TRIPS**	**Entering**	**Exiting**	**Entering**	**Exiting**
Daily Weekday	6.65	452	497	249	249	42.94	150	165	83	83	11.03	17	18	9	9	340	340
Daily Saturday	6.39	435	478	239	239	49.97	175	192	96	96	2.46	4	4	2	2	337	337
AM Peak Hour*	0.51	35	38	8	31	1	4	4	2	1	1.56	2	3	2	0	12	32
PM Peak Hour*	0.62	42	46	30	16	3.73	13	14	7	7	1.49	2	2	0	2	37	26
Saturday Peak	0.52	35	39	19	19	4.82	17	19	10	9	0.43	1	1	0	0	29	29

*Peak hour of Adjacent Street Traffic

Assumption: .5 on Saturday peak hour of generator - not available for apartments

TRIP GENERATION

PROPOSED

Daily avg. mode shares	**Apartment +**	**Shopping**	**+Office**	**= TOTAL**
Auto	358	119	13	490
Transit	65	21	2	89
Walk	17	0	0	17
	440	141	15	
AM peak mode shares				
Auto	27	3	2	32
Transit	5	1	0	6
Walk	1	0	0	2
PM peak mode shares				
Auto	33	10	2	46
Transit	6	2	0	8
Walk	2	0	0	2
Daily Saturday Mode Shares				
Auto	344	139	3	486
Transit	62	25	1	88
Walk	16	7	0	23
Saturday Peak Mode Shares				
Auto	28	13	1	42
Transit	5	2	0	8
Walk	1	1	0	2

		ENTERING				EXITING			
		Apartment +	**Shopping**	**+Office**	**= TOTAL**	**Apartment +**	**Shopping**	**+Office**	**= TOTAL**
Daily avg. mode shares									
	Auto	179	60	7	245	179	60	7	245
	Transit	32	11	1	44	32	11	1	44
	Walk	8	3	0	12	8	3	0	12
AM peak mode shares									
	Auto	5	2	2	9	22	1	0	23
	Transit	1	0	0	2	4	0	0	4
	Walk	0	0	0	0	1	0	0	1
PM peak mode shares									
	Auto	22	5	0	27	12	5	1	19
	Transit	4	1	0	5	2	1	0	3
	Walk	1	0	0	1	1	0	0	1
Daily Saturday Mode Shares									
	Auto	172	69	1	243	172	69	1	243
	Transit	31	13	0	44	31	13	0	44
	Walk	8	3	0	11	8	3	0	11
Saturday Peak Mode Shares									
	Auto	14	7	0	21	14	6	0	21
	Transit	3	1	0	4	3	1	0	4
	Walk	1	0	0	1	1	0	0	1

SUMMARY TABLE

		Daily	AM	PM	units
Proposed Use:	ITE Unadjusted	619	41	57	VEHICLE TRIPS
Apartment (220)	Auto Person Trips	490	32	46	PERSON TRIPS
Shopping Center (820)	Transit Trips	89	6	8	PERSON TRIPS
Office (710)	Ped Trips	17	2	2	PERSON TRIPS