

**TRAFFIC IMPACT ANALYSIS
NEWTON CENTER FOR ACTIVE LIVING
NEWTON, MASSACHUSETTS**

SUBMITTED TO:
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JUNE 2022



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INTRODUCTION

The following report represents the traffic study completed for the proposed Center for Active Living to be located at 345 Walnut Street in Newton, Massachusetts. The site currently hosts the Newton Senior Center. The intention for the Center for Active Living is to enhance its prior use through the construction of a 32,070 square foot facility, including an 8,400 square foot gym/walking track. As part of the study, Pare has analyzed the surrounding roadways and intersections relative to traffic capacity and safety, and has assessed the parking needs and availability.

Presented within are existing conditions in the vicinity of the project site, a safety analysis of the study area, parking needs and availability, and an analysis of the traffic based on existing, future (2029) no-build and future (2029) build conditions. A locus map of the study area is provided in Figure 1 and the proposed site layout is shown in Figure 2.

DATA COLLECTION

Two study area intersections have been identified for analyses with regards to traffic capacity and safety as part of this study. These intersections are as follows:

- Highland Avenue at Walnut Street
- Highland Avenue at Philip Bram Way and the Senior Center Exit

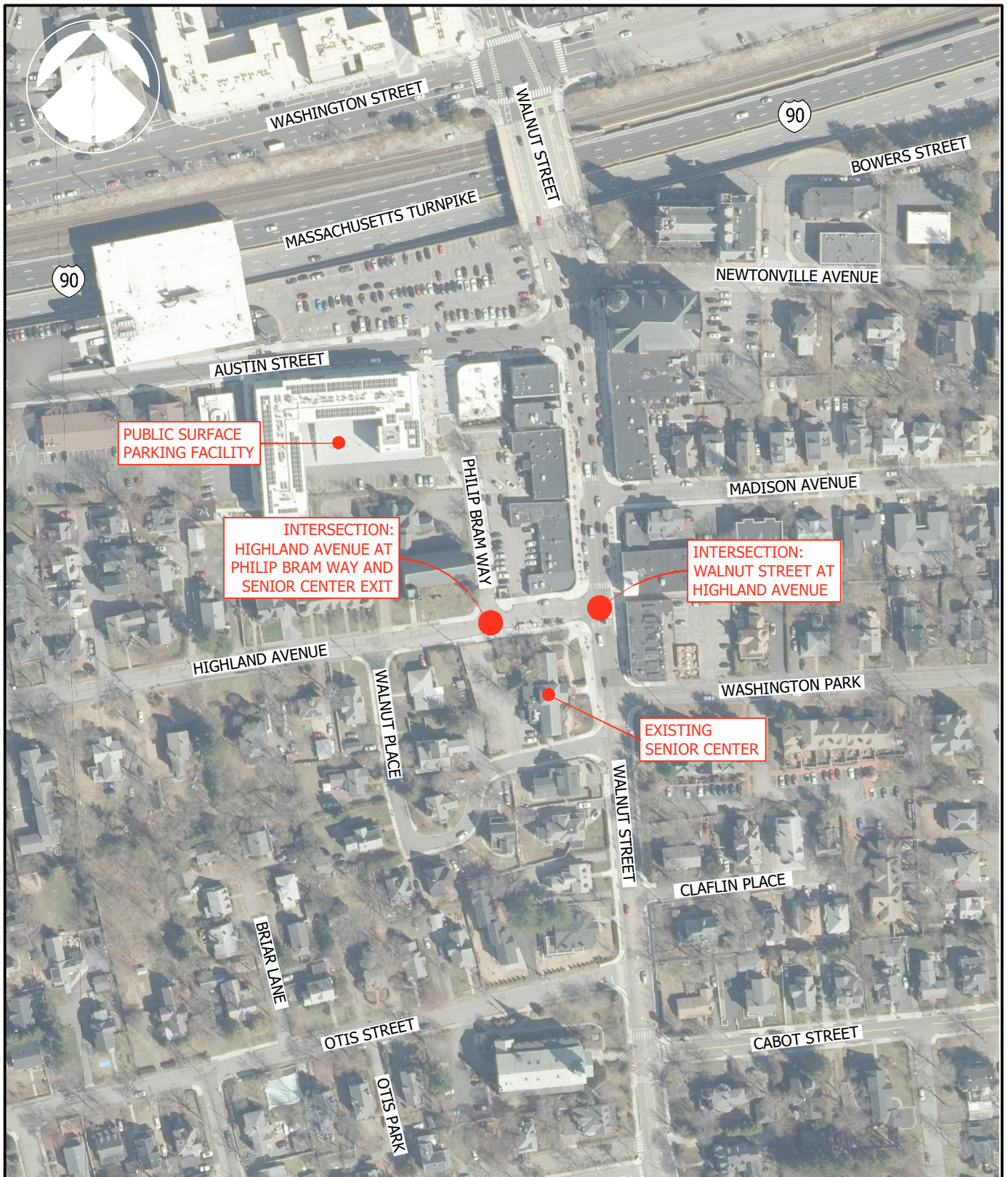
Manual turning movement counts (MTMCs) were conducted by Transportation Data Corporation on May 24, 2022 between the hours of 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM for the study area intersections. Automatic traffic recorder counts (ATRs) were placed along Highland Avenue, west of Philip Bram Way, for a 48-hour span between May 24, 2022 and May 25, 2022.

Crash data for the roadway network in the vicinity of the project site was retrieved from the Massachusetts Department of Transportation (MassDOT) Crash Data Portal for the period of May 1, 2017 through May 1, 2022. A crash review is included in this report to identify any potential trends that may require mitigation.

Pare performed two separate field reviews for the purpose of this study. To understand the existing parking provided within the study area, perform speed studies, and investigate site circulation at the senior center, a field review was conducted on September 29, 2020. To verify and expand on findings of the first field review and to determine roadway and intersection geometrics and dimensions, a second field review of the study area and surrounding intersections was conducted on June 2, 2022. The information obtained was used in the analysis of the study area intersections.

The Planning Department for the City of Newton was contacted to determine if there are currently any developments proposed whose trip generation information should be included in the study, to which four were noted. Two of the four sites were small, residential developments that are anticipated to generate a small amount of traffic and were considered to be incorporated in the assumed background growth for the study area. For the remaining two developments, the traffic generated from these sites were dispersed to the relevant intersections throughout the study area based on current traffic patterns for proposed future scenarios.





● = STUDY INTERSECTION



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FIGURE 1 LOCUS MAP

WALNUT STREET
NEWTON, MASSACHUSETTS



EXISTING CONDITIONS

The existing Senior Center, located at 345 Walnut Street, hosts all senior activities for the town, with various activities each day of the week from Monday through Friday. Activities begin as early as 8:30 AM and go as late as 4:00 PM. The facility contains several function rooms as well as a kitchen/cafeteria.

The current facility has a total of 15 striped parking spaces in a paved lot behind the building. In addition to the on-site parking, senior parking stickers are available to residents who have a registered vehicle in the City of Newton. The sticker allows seniors to park for up to three hours in any municipal lot within the city. To the north of the site, a surface parking lot exists under the newly constructed building at 28 Austin Street, capable of holding 125 spaces. There is also on-street parking along the south side of Highland Avenue permitted to seniors with the designated sticker between the hours of 8 AM and 6 PM, except on holidays or Sundays. The on-street parking extends to Lowell Avenue and accommodates approximately 25 vehicles. This totals approximately 165 eligible spaces within short walking distance at no expense. There is also currently metered parking along Walnut Street and the eastern end of Highland Avenue, near the intersection with Walnut Street.

A site visit was performed at the existing facility on Tuesday, September 29, 2020 from 11:00 AM until 1:30 PM; however, given the COVID-19 conditions at the time, limited observations could be made. Therefore, the following pertinent data was obtained through coordination with Jayne Colino, Newton Department of Senior Services:

- Due to the urban nature of the facility location, patrons arrive at the site using various means of transportation including walking, transit, rideshare (such as NewMo) and auto. A survey conducted by the senior center identified that 70 percent of patrons arrive by car. Applying a conservative 15 percent carpool factor, the current demand for parking spaces is approximately 60 percent of the participation.
- The current facility has six (6) full-time office staff.
- The maximum daily parking demand occurs during an overlap of two activities, with a calculated 32 spaces required including staff. Larger events occurring monthly can require up to 71 spaces.

An additional site visit was conducted on Thursday, June 2, 2022 to verify information obtained prior and to assess the study area. The study area is defined as the significant roadways and intersections in the vicinity of the site that may be impacted by the construction of the Center for Active Living. Listed below are the roadways and intersections included in the study area.

Study Area Roadways:

- Walnut Street between Washington Park and Austin Street
- Highland Avenue between Lowell Avenue and Walnut Street

Study Area Intersections:

- Highland Avenue at Walnut Street
- Highland Avenue at Philip Bram Way and the Senior Center Exit



Study Area Roadways

Walnut Street

Walnut Street is classified as an urban minor arterial under town jurisdiction and runs in the general north/south direction throughout the study area. The typical cross-section of the roadway consists of one 12-foot-wide travel lane and a seven-foot-wide parking lane in each direction. The roadway width narrows in areas where the parking lanes are terminated in advance of intersections to accommodate sidewalk bumpouts. Within the study limits, there are crosswalks across Walnut Street at the intersections with Washington Park, Highland Avenue, Madison Avenue and Austin Street. Land use in the study area includes a series of shops along both sides of the road.

Highland Avenue

Highland Avenue is classified as a local road under town jurisdiction and runs in the east/west direction throughout the study area. The typical cross section along Highland Avenue varies. To the west of Phillip Bram Way, the typical cross-section consists of one 12-foot-wide travel lane for eastbound travel and one 11-foot-wide travel lane for westbound travel. Permitted parking along Highland Avenue is scattered throughout its length by means of permit or metered parking. To the east of Philip Bram Way, Highland Avenue widens, providing a 13-foot-wide travel lane and seven-foot-wide metered parking lane in each direction. Sidewalks exist on both sides of Highland Avenue. Land use along Highland Avenue is primarily residential within the study area.

Study Area Intersections

Highland Avenue at Walnut Street

The intersection of Highland Avenue and Walnut Street forms a three-legged, unsignalized intersection. Walnut Street forms the north and south legs of the intersection and Highland Avenue forms the western leg. Highland Avenue is stop controlled, while Walnut Street operates freely.

The intersection is surrounded by shops, dining, and the existing Newton Senior Center. There are existing crosswalks and respective signage for each leg at the intersection. Sidewalks are present along both sides of each approach to the intersection.



Photo 1: Highland Avenue at Walnut Street

Highland Avenue at Philip Bram Way and the Senior Center Exit



**Photo 2: Highland Avenue at Philip Bram Way
and the Senior Center Exit**

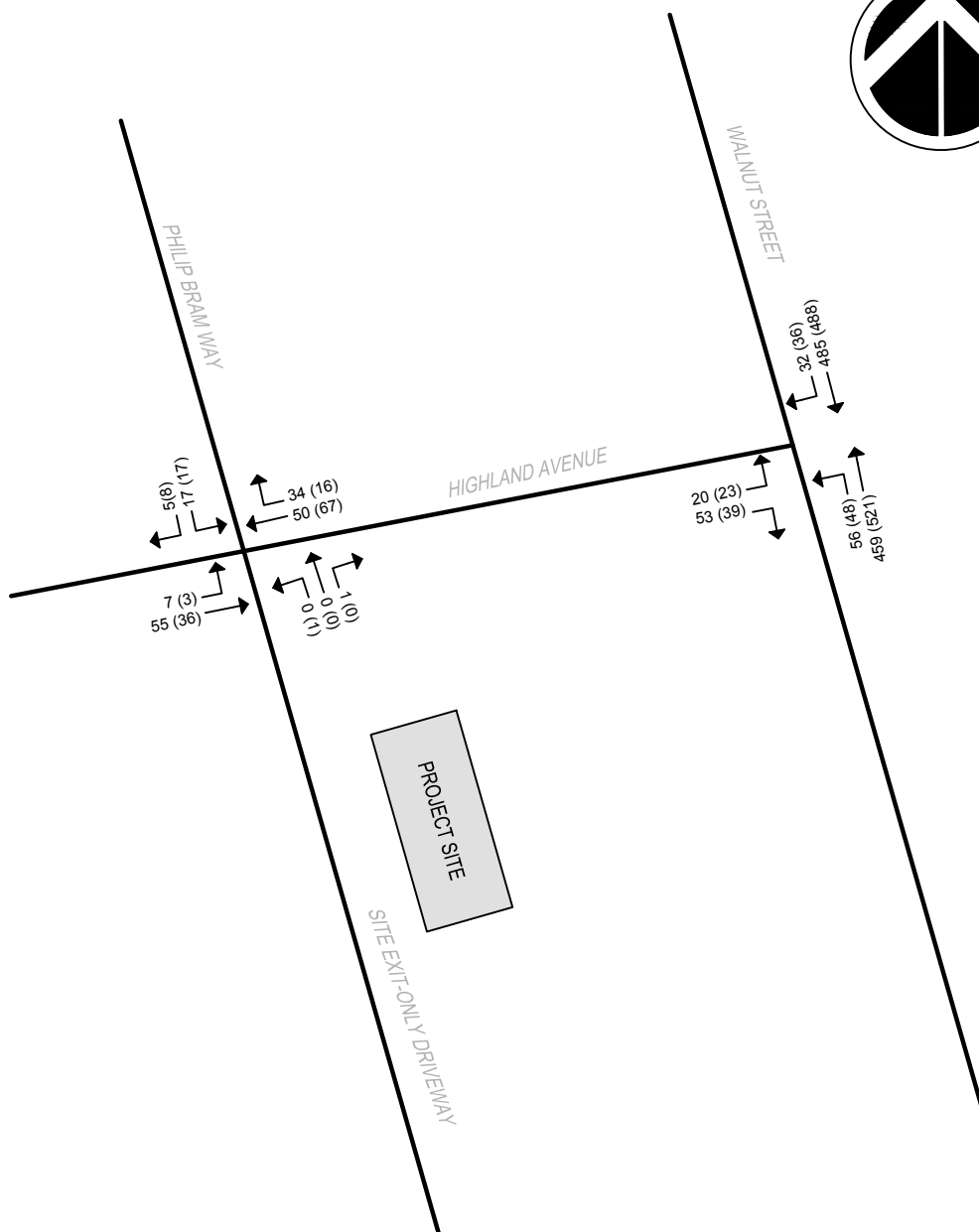
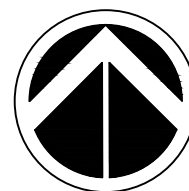
The intersection of Highland Avenue at Philip Bram Way and the Senior Center Exit forms a four-way unsignalized intersection with Highland Avenue comprising the east and west legs, Philip Bram Way approaching from the north and the Senior Center driveway approaching from the south. Philip Bram Way provides access to a municipal surface parking lot on Austin Street. Sidewalks are present along both sides of each approach to the intersection. Crosswalks exist across the northern and eastern legs.

EXISTING TRAFFIC VOLUMES

Manual turning movement counts (MTMCs) were conducted on May 24, 2022 during the hours of 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM for the study area intersections. Automatic traffic recorder counts (ATRs) were placed along Highland Avenue, west of Philip Bram Way, for a 48-hour span between May 24, 2022 and May 25, 2022.

Copies of all count data are provided in Appendix A. Existing traffic volumes for the morning peak hour and afternoon peak hour are shown in Figure 3.





AM VOLUMES (PM VOLUMES)



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FIGURE 3
EXISTING (2022) TRAFFIC VOLUMES
MORNING AND AFTERNOON PEAK HOURS
NEWTON, MASSACHUSETTS

SAFETY ANALYSIS

Crash Data

Crash data was retrieved from the Massachusetts Department of Transportation (MassDOT) Crash Data Portal for the most recent 5-year period, between May 1, 2017 through May 1, 2022 for the study area, including:

- Walnut Street between Washington Park and Austin Street
- Highland Avenue between Lowell Avenue and Walnut Street
- Philip Bram Way between Highland Avenue and the Austin Street Municipal Parking Lot

The table below provides a breakdown of the crashes based on type and severity. The complete crash data summary is provided in Appendix B.

Table 1: Crash Data Summary

Roadway/ Intersection	Total Crashes	Non-Fatal Injuries	Fatalities	Rear End	Angle	Sideswipe	Head On	Single Vehicle	Hit and Run
Walnut Street	18	0	0	7	4	3	0	1	3
Highland Avenue	1	0	0	0	0	1	0	0	0

Between May 2017 and May 2022, a total of 19 crashes occurred within the study area. The majority of these collisions (approximately 95%) occurred on Walnut Street, while only one collision occurred on Highland Avenue. Approximately 58% of the crashes were recorded as either angle collisions (where one vehicle is turning, and one vehicle is going straight through the intersection) or rear end collisions. There were no cases of head-on collisions and only one single vehicle collision. The remaining three collision types remain unknown but were noted to be hit and runs. Of the 19 crashes at this location, none resulted in injuries or fatalities. The study area sees less than four collisions per year, and no collisions occur at the study area intersections themselves. Based on the low frequency of collisions and low level of severity of incidents, no mitigation measures are recommended.

Proposed Site

The proposed Center for Active Living is to be located at 345 Walnut Street, the site of the existing Senior Center. The new facility will retain several characteristics of the current facility, including program rooms, meeting space, a general staff area, a kitchen/cafeteria, and a library, and will add a gymnasium with a basketball court and walking track. The total building size is anticipated to be 32,070 square feet, of which 6,490 square feet will be attributed to the gym with a track size of 1,910 square feet. Parking will be provided at ground level, with access to the site provided via a one-way drive entering from Walnut Place and exiting onto Highland Avenue. The on-site parking will include 31 striped spaces. With limitations for on-site parking due to the size of the site, some patrons will need to utilize available off-site space within close proximity to the facility, similar to



existing conditions. A designated drop off area is proposed along the south side of Highland Avenue east of the site exit, with capacity for three vehicles.

Sight Distance

A speed study was conducted along Highland Avenue west of the existing senior center driveway to capture free-flow speeds in the vicinity of the site egress. A summary of the speed data results is shown in Table 2.

Table 2: Highland Avenue Speed Study

	Posted Speed	Average Speed	True Median (50 th Percentile)	85 th Percentile	10 MPH Pace	% over Posted
Eastbound	25	24	24	27	18-27	34
Westbound	25	22	22	25	15-24	16

The 85th percentile speed is used to determine appropriate sight distances for driveways. According to the American Association of State Highway and Transportation Officials (AASHTO) publication *A Policy on the Geometric Design of Highways and Streets*, the minimum safe stopping sight distance (SSD) for a speed of 25 mph is 155 feet. The SSD requirements for a speed of 27 mph is interpolated to be 173 feet. The required intersection sight distance to avoid a collision is equal to the stopping sight distance. In addition, AASHTO gives guidance for a more desirable intersection sight distance (ISD) for these speeds, which will not only avoid collisions, but maintain vehicular flow of at least 70 percent of the original operating speed. Meeting the desirable criteria for sight distance is more applicable to heavily traveled, higher-speed facilities where maintaining steady traffic flow is important. The minimum intersection sight distance (ISD) for turning vehicles is 280 feet for speeds up to 25 mph, and interpolated to be 302 feet for a speed of 27 mph.

Though the roadway geometry is generally straight and flat, sight lines along Highland Avenue are limited to the east by the proximity of the intersection with Walnut Street and to the west by an array of obstacles including shrubs, fences, utility poles and on-street parking. A summary of the required and available sight distance at the two potential driveways can be seen below in Table 3.

Table 3: Sight Distance Summary

		Required SSD (ft)	Measured SSD (ft)	Required ISD (ft)	Measured ISD (ft)
Highland Avenue	To the East	155	160	280	160
	To the West	173	>500	302	100

According to AASHTO, adequate stopping sight distance is needed to ensure drivers have sufficient warning to anticipate and avoid collisions, while intersection sight distance is the distance needed to complete a maneuver without causing an oncoming vehicle to significantly alter their approach speed. The available sight distance to the east of the existing driveway on the south side of Highland Avenue is limited by the distance to the intersection of Walnut Street and Highland Avenue. However, the 85th percentile speed captures the free-flow movements of vehicles progressing along Highland Avenue. With the driveway this close to the intersection, drivers will just be completing turn movements onto the roadway and will not be traveling at free-flow speed. While the distance is just barely appropriate for speeds up to 25 mph, motorists will still be accelerating after they complete the turn and reasonably not yet reached this free-flow speed.



PARKING DEMAND

Parking generation is typically estimated for particular land uses by utilizing rates provided in the Institute of Transportation Engineers (ITE) *Parking Generation* manual. This manual provides parking demand rates for numerous land uses based on empirical data collected over many years. Average, 33rd percentile, and 85th percentile rates are provided for each use to indicate the potential ranges of parking rates. Separate rates for Weekday, Saturday, and Sunday are also provided. The expected parking demand for the proposed Newton Center for Active Living was determined through the use of the 5th edition of the manual for Land Use Code (LUC) 495: Recreational Community Center, which most closely matches the expected use of the proposed facility. It should be noted that considering the facility a recreational center leads to a conservative assessment, overall. Table 4 below provides a summary of the parking demand in terms of the 33rd percentile and the 85th percentile to provide a range of expected parking demand based on the gross floor area of 32,070 square feet for the proposed facility.

Table 4: Parking Demand via ITE Parking Generation Manual

	33rd Percentile Parking	85th Percentile Parking
Rate:	1.69	3.78
Parking Spaces:	55	121

As shown in table 4, the anticipated parking demand will range between 55 spaces and 121 spaces. The lower end of the spectrum has the potential to be marginally accommodated by the combined site parking and the street parking present on Highland Avenue, with 56 spaces total. However, as the street parking is not exclusive to the senior center, it is likely that drivers will need to utilize the surface parking lot on Austin Street. On the higher end of the spectrum, a large portion of the parking will be considered overflow parking from the site and will need to utilize the public parking facility on Austin Street.

Pare has completed a review and assessment of the City's zoning bylaws for parking regulations. Although the zoning also does not specify the use of Senior Center, it has uses of similar function. Based on the zoning, facilities offering a service to patrons requires one parking space per every three full-time employees during the peak shift. Additionally, clubs and halls require one parking space per 150 square feet of building space used for meeting functions. Given the current employee count of six full time office staff, and the non-gym space of the proposed building being approximately double the existing facility, four spaces are assumed for future staff. The remaining function space of the proposed facility totals 12,080 square feet, requiring up to 81 spaces. Finally, the gym is estimated to have up to 20 participants at a time, assuming a pick-up game with few spectators and a small group of walkers, requiring another 12 spaces. Also, peak use of the gym could include an event such as a lecture, large group exercise class or movie. These peaks could draw between 35 people for a large group exercise to 150 people for a movie or lecture. This would total a demand of up to 97 spaces during normal hours and possibly over 100 during special events.

Alternatively, Pare has reviewed the future parking demand relative to the existing parking demand based on programming. Again, assuming staff count will likely double, four spaces is appropriate. With expansion of the building, it is reasonable to assume that the facility will continue to hold its larger programs with up to four overlapping average programs, compared to the single overlap they can accommodate today. It is also fair to assume that with larger rooms and meeting spaces, each activity may draw up to 25 percent more participants. Therefore, the anticipated participation on a



daily basis is considered to be as high as 90 patrons (45-person program plus three 15 person programs). This would require up to 54 spaces. The gym use is assessed the same way as noted above, requiring up to 12 spaces. This would total a maximum daily demand of 70 spaces. It is also assumed that the future facility would still offer similar monthly meetings, with need for up to 97 spaces, assuming up to two added programs and/or moderate gym use may occur concurrently.

NO-BUILD CONDITIONS

Future no-build traffic volumes are determined by projecting the existing traffic volumes based on a determined annual growth rate and including known potential developments within the study area. The Newton Planning Department was contacted to determine if there are currently any developments proposed within the vicinity of the site whose trip generation information should be included in this study. The City of Newton provided traffic studies for:

- 60, 66, and 68 Austin Street - Medical Office Space – Prepared by VHB
- 1149 Washington Street – Mixed-Use Development – Prepared by VHB

Traffic generated from these facilities were distributed through the study area based on the distribution presented within the studies. Additionally, the city mentioned two residential developments occurring within the study area, totaling 38 dwelling units. As these are smaller residential developments and are anticipated to generate minimal traffic, Pare assumed that the respective increase in traffic would be encapsulated by the background growth rate in the area.

To account for background growth along the roadways within the vicinity of the project site, the existing traffic volumes were projected over a seven-year horizon from 2022 to 2029. Recent census data was reviewed to determine the appropriate growth rate. The census data showed a population increase of approximately 0.42% per year from 2010 to 2020 for the city of Newton. To provide a conservative analysis of the project area, a growth rate of 0.5 % per year was used for the seven-year projection.

A copy of the available census data is provided in Appendix D. Figure 4 provides the 2029 no-build volumes for the morning and afternoon peak hours.

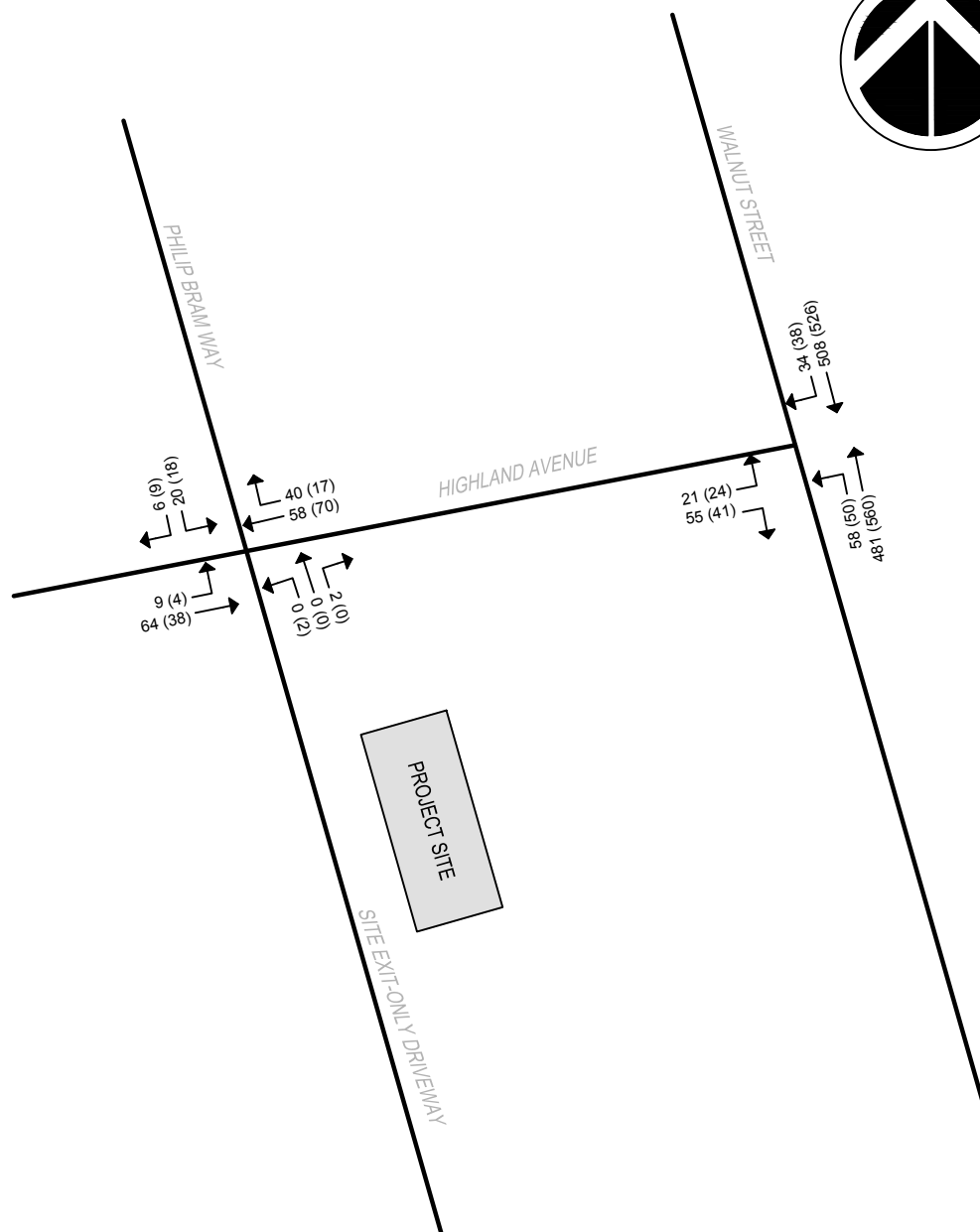
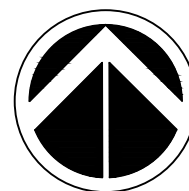
BUILD CONDITIONS

The future 2029 build condition represents the future 2029 no-build condition plus the anticipated trips due to the construction of the Center for Active Living.

Trip Generation

The expected trips for the proposed Center for Active Living were determined through the use of the 11th edition of the *Trip Generation Manual*, published by the ITE. Land Use Code (LUC) 495 for a Recreational Community Center with a gross floor area of 32,070 square feet was assessed. Table 5 below summarizes the expected trips for this facility throughout the day, during the morning peak, and afternoon peak hour. These trip generation values were selected as they most closely aligned with the proposed use, but it is noted again that this is a conservative approach. Further, the facility peaks are assumed to overlap the commuter peak hours; however, with the existing and proposed hours of operations and activities the site peaks are not expected to fully overlap the commuter peaks.





AM VOLUMES (PM VOLUMES)



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FIGURE 4
2029 FUTURE NO-BUILD VOLUMES
MORNING AND AFTERNOON PEAK HOURS
NEWTON, MASSACHUSETTS

Table 5: Trip Generation Summary

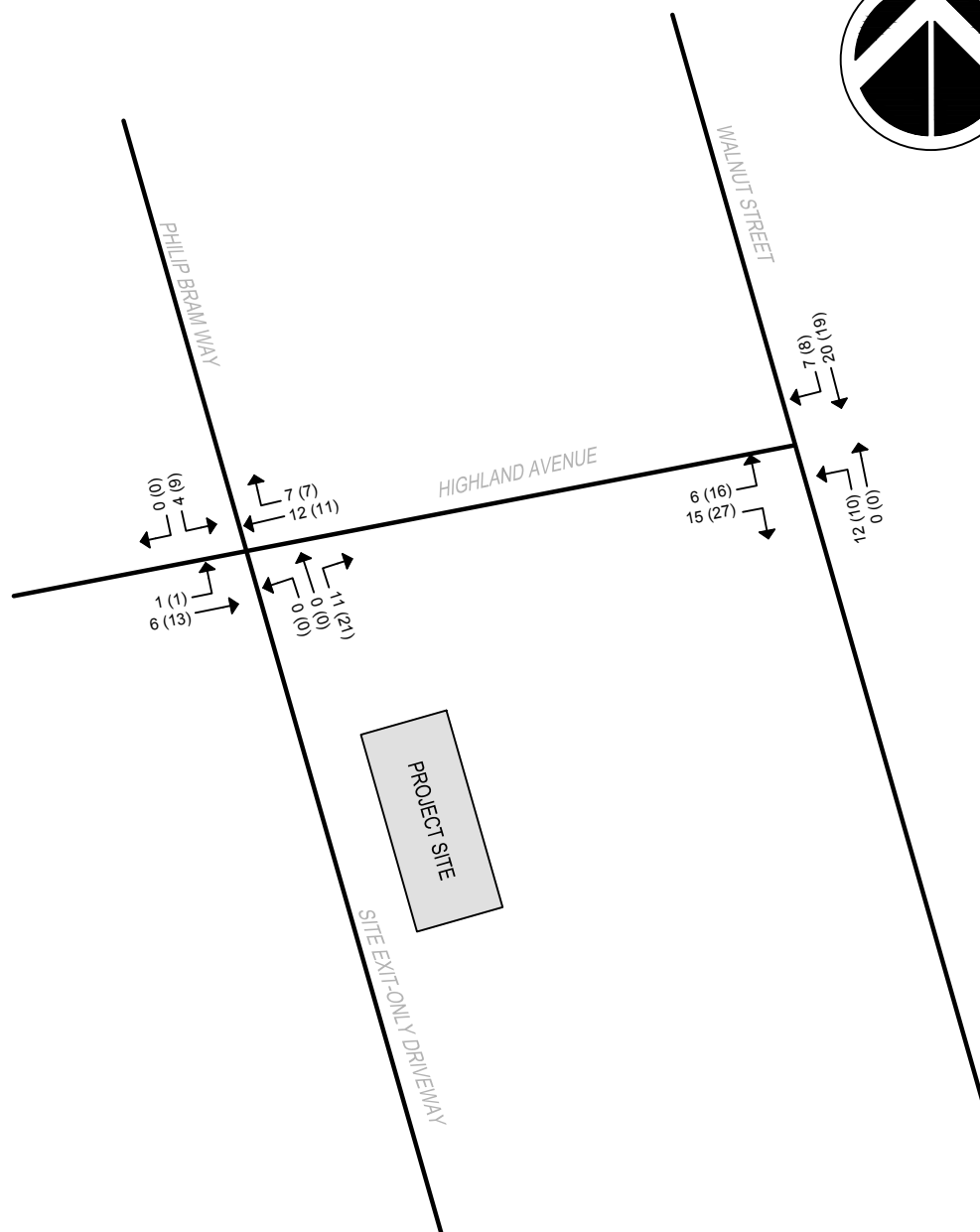
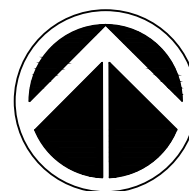
		Weekday	AM Peak	PM Peak
LUC 495 – Recreational Community Center – 32,070 SF	Entering	461	40	38
	Exiting	461	21	42
	Total	922	61	80

Trip Distribution

For trip distribution, Pare referenced the expected parking spaces that would be provided to accommodate traffic to and from the facility. It is anticipated that the site parking lot would be the first area vehicles would go to for site access with 31 spaces available, followed by the street parking along Highland Avenue with approximately 25 spaces available, and the final place vehicles would travel to would be the public parking lot to the north of the facility, along Philip Bram Way, with 125 spaces available. Based on parking availability and the driver's desired parking destinations outlined, it is assumed that 50 percent of trips would be destined to the site parking lot, 30 percent of trips would be destined to Highland Avenue (west of the site exit-only driveway) and 20 percent would be destined to the parking Austin Street lot, accessed via Philip Bram Way. The selection of LUC 495 is anticipated to lead to a conservative analysis in terms of trip generation. This conservative analysis is utilized as a way to capture the expected "duplicate" trips that would occur as drivers attempt to find a place to park. These trips occur as drivers cannot find a space at one parking area, leave and search elsewhere.

For vehicles arriving to and from the site, it is anticipated that trip distribution for traffic associated with the Center for Active Living will be consistent with the existing traffic patterns within the study area network. Site-generated traffic volumes are shown in Figure 5, while Figure 6 displays the future (2029) build volumes.





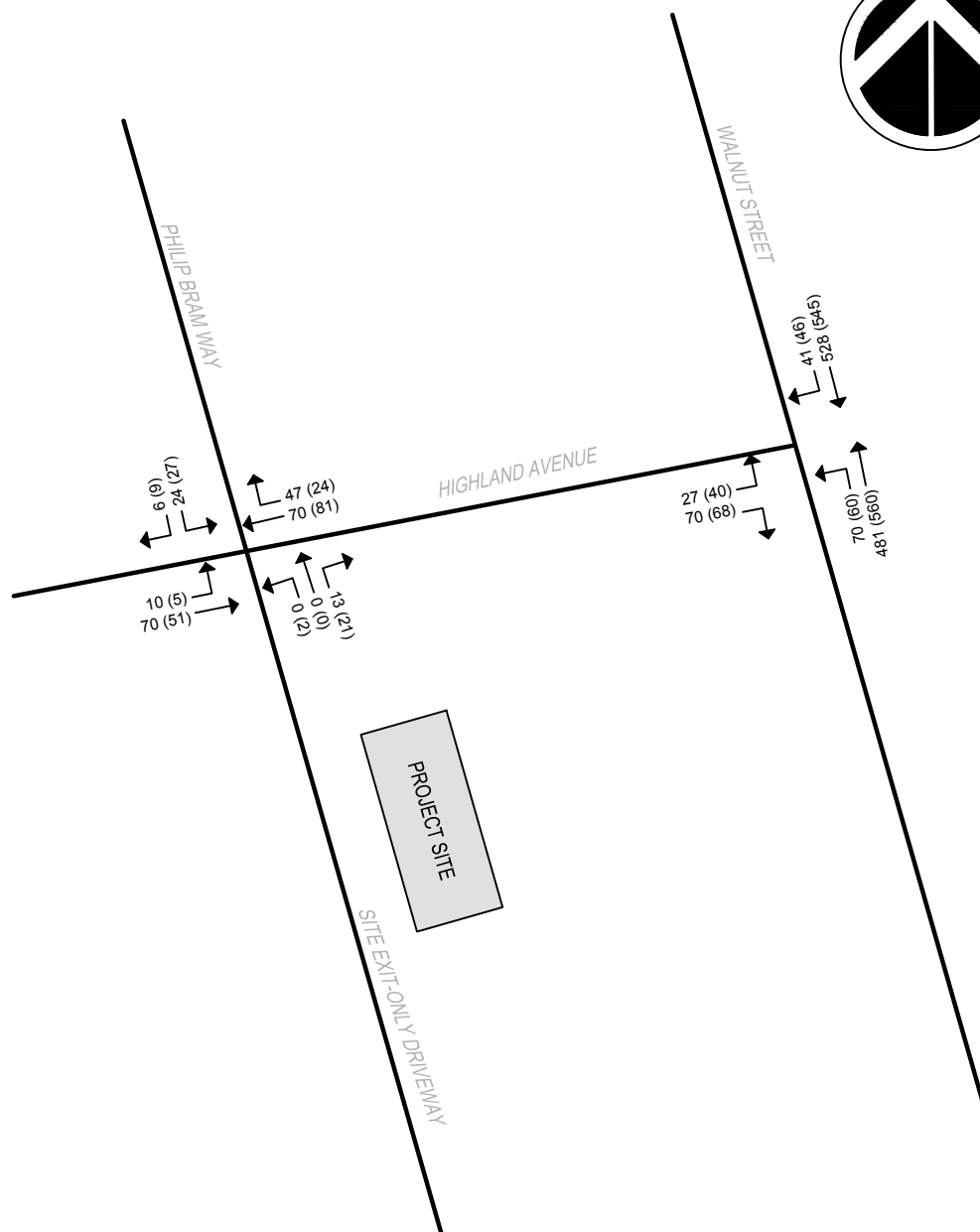
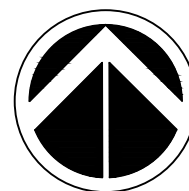
AM VOLUMES (PM VOLUMES)



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FIGURE 5
SITE GENERATED VOLUMES
MORNING AND AFTERNOON PEAK HOURS
NEWTON, MASSACHUSETTS



AM VOLUMES (PM VOLUMES)



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FIGURE 6
 2029 FUTURE BUILD VOLUMES
 MORNING AND AFTERNOON PEAK HOURS
 NEWTON, MASSACHUSETTS

CAPACITY ANALYSES

Capacity analyses were completed for all study area intersections for existing, future no-build, and future build conditions. Capacity analyses characterize intersections based on their level of service (LOS). LOS is a quality measure describing operational conditions within a traffic stream, generally in terms of service measures such as speed, travel times, traffic interruptions, etc. Six LOS values, from A to F, are defined for each type of facility, with A representing the best operating conditions and F representing the worst operating conditions. The LOS criteria for unsignalized intersections is provided in Table 6 below. Tables 7 and 8 summarize the capacity analysis results for the morning and afternoon peak hours, respectively.

Table 6: LOS Criteria for Unsignalized Intersections

LOS	Unsignalized Intersection
	Delay Time (sec/veh)
A	0-10
B	> 10-15
C	> 15-25
D	> 25-35
E	> 35-50
F	> 50



Table 7: Morning Peak Hour LOS Summary

Intersection	Movement		Existing (2022)		Future (2029) No-Build		Future (2029) Build	
			LOS (Delay ¹)	Queue Length ²	LOS (Delay ¹)	Queue Length ²	LOS (Delay ¹)	Queue Length ²
Walnut Street at Highland Avenue	NB	T,R	A (1.1)	0.2	A (1.0)	0.2	A (1.3)	0.3
	SB	L,T	A (0.0)	0.0	A (0.0)	0.0	A (0.0)	0.0
	EB	L,R	E (37.5)	3.4	D (25.9)	1.4	D (32.2)	2.2
Highland Avenue at Philip Bram Way and Site Exit Driveway	NB	L,T,R	A (8.8)	0.0	A (8.8)	0.0	A (8.9)	0.0
	SB	L, R	A (9.9)	0.1	B (10.0)	0.1	B (10.3)	0.1
	EB	L,T	A (0.8)	0.0	A (0.9)	0.0	A (0.9)	0.0
	WB	T,R	A (0.0)	0.0	A (0.0)	0.0	A (0.0)	0.0

1. Delay shown in seconds per vehicle.

2. Queue Length shown in vehicles

Table 8: Afternoon Peak Hour LOS Summary

Intersection	Movement		Existing (2022)		Future (2029) No-Build		Future (2029) Build	
			LOS (Delay ¹)	Queue Length ²	LOS (Delay ¹)	Queue Length ²	LOS (Delay ¹)	Queue Length ²
Walnut Street at Highland Avenue	NB	T,R	A (0.8)	0.2	A (0.8)	0.2	A (0.9)	0.3
	SB	L,T	A (0.0)	0.0	A (0.0)	0.0	A (0.0)	0.0
	EB	L,R	D (26.1)	1.1	D (28.9)	1.3	E (43.8)	3.1
Highland Avenue at Philip Bram Way and Site Exit Driveway	NB	L,T,R	A (9.5)	0.0	A (9.4)	0.0	A (8.8)	0.1
	SB	L, R	A (9.5)	0.2	A (9.4)	0.1	A (9.9)	0.1
	EB	L,T	A (0.6)	0.0	A (0.7)	0.0	A (0.7)	0.0
	WB	T,R	A (0.0)	0.0	A (0.0)	0.0	A (0.0)	0.0

1. Delay shown in seconds per vehicle.

2. Queue Length shown in vehicles

As shown in the tables above, there is only one approach at either of the two study area intersections that will feel a notable impact between the no-build and build scenarios. At the intersection of Walnut Street at Highland Avenue, the stop controlled, eastbound approach is anticipated to increase delay times by 6.3 seconds and 14.9 seconds in the morning and afternoon, respectively. In the afternoon, this delay increase leads to a LOS shift from LOS D to LOS E. However, the queue lengths during each build scenario are very minor, with only about two cars in the morning and three cars in the afternoon. It should be reiterated that assessing the site as a recreational center leads to an overall conservative assessment. This is attributed to a recreational center generating more traffic than the proposed Center for Active Living, and the peak demand times outlined by ITE are not expected to occur during the peak times of the facility based on activity programming and planning. All other approaches see minimal or negligible shifts in operations. No means of mitigation are recommended.



CONCLUSIONS

Pare Corporation conducted analyses of the potential impacts of the construction of the Newton Center for Active Living (NewCAL). The site is anticipated to utilize the existing driveways for the existing Senior Center currently located at the site, with entering movements provided via a driveway along Walnut Place and exiting movements directed towards a driveway leading to Highland Avenue.

Based on the safety analyses conducted for the most recent five-year period, there are no trends or severities in terms of crash frequency that would lend themselves to mitigation and the traffic being added to the network is not anticipated to alter these conditions. The stopping sight distance requirements are met for the driveway along Highland Avenue at the exit-only site driveway.

Parking demand was assessed via means of the Institute of Transportation Engineers *Parking Generation* manual, the City of Newton's zoning bylaws, and the anticipated event programming at the facility. In each scenario analyzed, the current site is unable to adequately accommodate the facility's parking. However, in addition to the 31 parking spots provided at the site, there are an additional 150 parking spaces provided along Highland Avenue and a surface parking lot on Austin Street, both of which are within walking distance to the existing senior center. Parking decals can be acquired from the city, free of charge, which allow parking at either of these locations and it is anticipated that the parking can be successfully captured with the cumulative parking available.

Capacity analyses were conducted at the two unsignalized intersections within the study area, including the site exit intersection. Analyses indicate that the Newton Center for Active Living will have an insignificant impact to the traffic flow on the surrounding roadway network.



APPENDIX A

Traffic Count Data



Transportation Data Corporation

Mario Perone, mperone1@verizon.net

tel (781) 587-0086 cell (781) 439-4999

N/S: Walnut Street
W: Highland Avenue
City, State: Newtonville, MA
Client: Pare/Amy Archer

File Name : 05568A
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Walnut Street From North			Walnut Street From South			Highland Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	5	83	2	58	1	1	5	0	7	162
07:15 AM	3	99	1	73	1	0	8	4	1	190
07:30 AM	4	96	1	88	1	0	6	1	4	201
07:45 AM	3	90	5	88	6	1	11	5	4	213
Total	15	368	9	307	9	2	30	10	16	766
08:00 AM	4	114	5	105	7	4	15	5	1	260
08:15 AM	9	116	5	104	21	0	12	6	13	286
08:30 AM	10	119	2	123	11	4	12	3	15	299
08:45 AM	9	136	9	127	17	5	14	6	64	387
Total	32	485	21	459	56	13	53	20	93	1232
Grand Total	47	853	30	766	65	15	83	30	109	1998
Apprch %	5.1	91.7	3.2	90.5	7.7	1.8	37.4	13.5	49.1	
Total %	2.4	42.7	1.5	38.3	3.3	0.8	4.2	1.5	5.5	
Cars & Peds	44	797	30	720	63	15	83	28	109	1889
% Cars & Peds	93.6	93.4	100	94	96.9	100	100	93.3	100	94.5
Trucks & Buses	3	29	0	32	1	0	0	2	0	67
% Trucks & Buses	6.4	3.4	0	4.2	1.5	0	0	6.7	0	3.4
Bikes by Direction	0	27	0	14	1	0	0	0	0	42
% Bikes by Direction	0	3.2	0	1.8	1.5	0	0	0	0	2.1

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	4	114	5	123	105	7	4	116	15	5	1	21	260
08:15 AM	9	116	5	130	104	21	0	125	12	6	13	31	286
08:30 AM	10	119	2	131	123	11	4	138	12	3	15	30	299
08:45 AM	9	136	9	154	127	17	5	149	14	6	64	84	387
Total Volume	32	485	21	538	459	56	13	528	53	20	93	166	1232
% App. Total	5.9	90.1	3.9		86.9	10.6	2.5		31.9	12	56		
PHF	.800	.892	.583	.873	.904	.667	.650	.886	.883	.833	.363	.494	.796
Cars & Peds	32	453	21	506	428	55	13	496	53	20	93	166	1168
% Cars & Peds	100	93.4	100	94.1	93.2	98.2	100	93.9	100	100	100	100	94.8
Trucks & Buses	0	10	0	10	22	1	0	23	0	0	0	0	33
% Trucks & Buses	0	2.1	0	1.9	4.8	1.8	0	4.4	0	0	0	0	2.7
Bikes by Direction	0	22	0	22	9	0	0	9	0	0	0	0	31
% Bikes by Direction	0	4.5	0	4.1	2.0	0	0	1.7	0	0	0	0	2.5

Transportation Data Corporation

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Client: Pare/Amy Archer

File Name : 05568A
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

Groups Printed- Cars & Peds

	Walnut Street From North			Walnut Street From South			Highland Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	4	78	2	57	1	1	5	0	7	155
07:15 AM	2	90	1	68	1	0	8	3	1	174
07:30 AM	3	89	1	82	1	0	6	1	4	187
07:45 AM	3	87	5	85	5	1	11	4	4	205
Total	12	344	9	292	8	2	30	8	16	721
08:00 AM	4	108	5	97	7	4	15	5	1	246
08:15 AM	9	109	5	99	20	0	12	6	13	273
08:30 AM	10	115	2	115	11	4	12	3	15	287
08:45 AM	9	121	9	117	17	5	14	6	64	362
Total	32	453	21	428	55	13	53	20	93	1168
Grand Total	44	797	30	720	63	15	83	28	109	1889
Apprch %	5.1	91.5	3.4	90.2	7.9	1.9	37.7	12.7	49.5	
Total %	2.3	42.2	1.6	38.1	3.3	0.8	4.4	1.5	5.8	

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	4	108	5	117	97	7	4	108	15	5	1	21	246
08:15 AM	9	109	5	123	99	20	0	119	12	6	13	31	273
08:30 AM	10	115	2	127	115	11	4	130	12	3	15	30	287
08:45 AM	9	121	9	139	117	17	5	139	14	6	64	84	362
Total Volume	32	453	21	506	428	55	13	496	53	20	93	166	1168
% App. Total	6.3	89.5	4.2		86.3	11.1	2.6		31.9	12	56		
PHF	.800	.936	.583	.910	.915	.688	.650	.892	.883	.833	.363	.494	.807

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Client: Pare/Amy Archer

File Name : 05568A
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

Groups Printed- Trucks & Buses

	Walnut Street From North			Walnut Street From South			Highland Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	1	5	0	1	0	0	0	0	0	7
07:15 AM	1	8	0	3	0	0	0	1	0	13
07:30 AM	1	5	0	5	0	0	0	0	0	11
07:45 AM	0	1	0	1	0	0	0	1	0	3
Total	3	19	0	10	0	0	0	2	0	34
08:00 AM	0	3	0	8	0	0	0	0	0	11
08:15 AM	0	5	0	3	1	0	0	0	0	9
08:30 AM	0	0	0	6	0	0	0	0	0	6
08:45 AM	0	2	0	5	0	0	0	0	0	7
Total	0	10	0	22	1	0	0	0	0	33
Grand Total	3	29	0	32	1	0	0	2	0	67
Apprch %	9.4	90.6	0	97	3	0	0	100	0	
Total %	4.5	43.3	0	47.8	1.5	0	0	3	0	

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	1	8	0	9	3	0	0	3	0	1	0	1	13
07:30 AM	1	5	0	6	5	0	0	5	0	0	0	0	11
07:45 AM	0	1	0	1	1	0	0	1	0	1	0	1	3
08:00 AM	0	3	0	3	8	0	0	8	0	0	0	0	11
Total Volume	2	17	0	19	17	0	0	17	0	2	0	2	38
% App. Total	10.5	89.5	0		100	0	0		0	100	0		
PHF	.500	.531	.000	.528	.531	.000	.000	.531	.000	.500	.000	.500	.731

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File Name : 05568A
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

Groups Printed- Bikes by Direction

	Walnut Street From North			Walnut Street From South			Highland Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	0	2	0	0	0	0	0	3
07:30 AM	0	2	0	1	0	0	0	0	0	3
07:45 AM	0	2	0	2	1	0	0	0	0	5
Total	0	5	0	5	1	0	0	0	0	11
08:00 AM	0	3	0	0	0	0	0	0	0	3
08:15 AM	0	2	0	2	0	0	0	0	0	4
08:30 AM	0	4	0	2	0	0	0	0	0	6
08:45 AM	0	13	0	5	0	0	0	0	0	18
Total	0	22	0	9	0	0	0	0	0	31
Grand Total	0	27	0	14	1	0	0	0	0	42
Apprch %	0	100	0	93.3	6.7	0	0	0	0	
Total %	0	64.3	0	33.3	2.4	0	0	0	0	

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	0	3	0	3	0	0	0	0	0	0	0	0	3
08:15 AM	0	2	0	2	2	0	0	2	0	0	0	0	4
08:30 AM	0	4	0	4	2	0	0	2	0	0	0	0	6
08:45 AM	0	13	0	13	5	0	0	5	0	0	0	0	18
Total Volume	0	22	0	22	9	0	0	9	0	0	0	0	31
% App. Total	0	100	0		100	0	0		0	0	0		
PHF	.000	.423	.000	.423	.450	.000	.000	.450	.000	.000	.000	.000	.431

Transportation Data Corporation

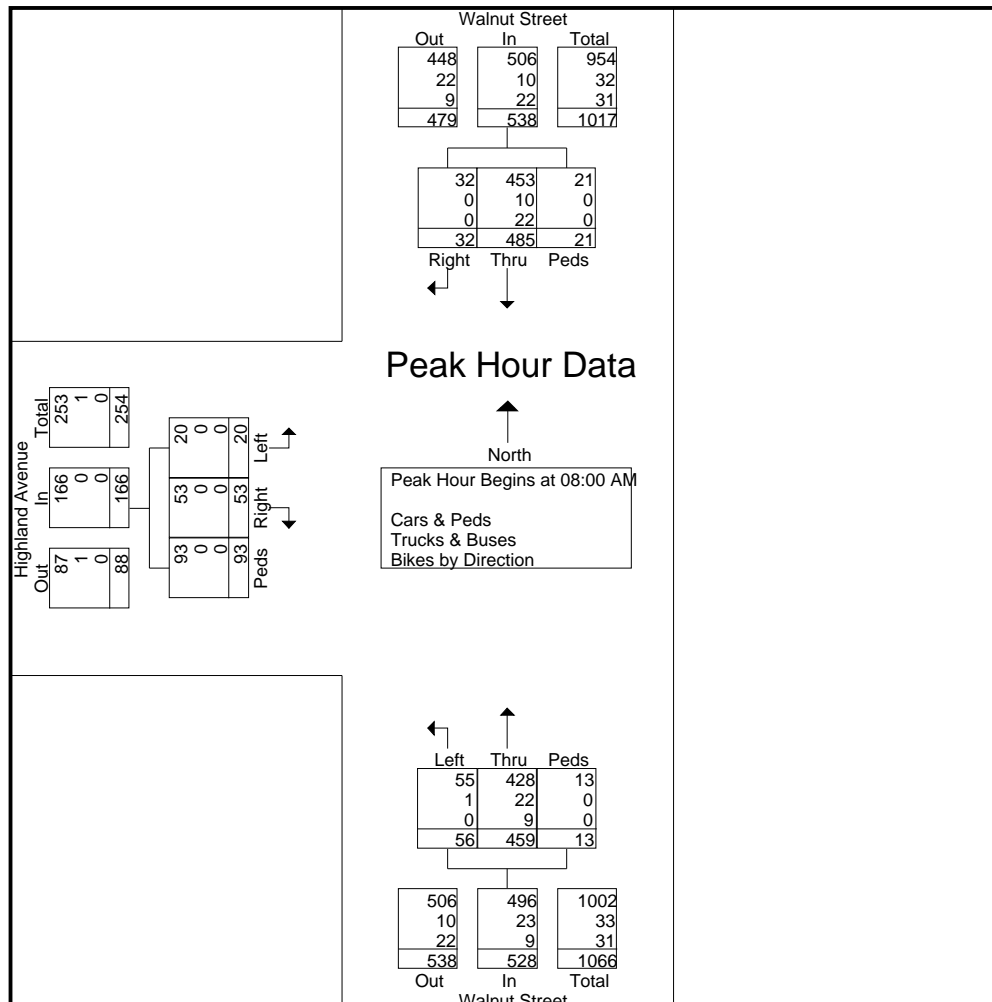
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Client: Pare/Amy Archer

File Name : 05568A
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	4	114	5	123	105	7	4	116	15	5	1	21	260
08:15 AM	9	116	5	130	104	21	0	125	12	6	13	31	286
08:30 AM	10	119	2	131	123	11	4	138	12	3	15	30	299
08:45 AM	9	136	9	154	127	17	5	149	14	6	64	84	387
Total Volume	32	485	21	538	459	56	13	528	53	20	93	166	1232
% App. Total	5.9	90.1	3.9		86.9	10.6	2.5		31.9	12	56		
PHF	.800	.892	.583	.873	.904	.667	.650	.886	.883	.833	.363	.494	.796
Cars & Peds	32	453	21	506	428	55	13	496	53	20	93	166	1168
% Cars & Peds	100	93.4	100	94.1	93.2	98.2	100	93.9	100	100	100	100	94.8
Trucks & Buses	0	10	0	10	22	1	0	23	0	0	0	0	33
% Trucks & Buses	0	2.1	0	1.9	4.8	1.8	0	4.4	0	0	0	0	2.7
Bikes by Direction	0	22	0	22	9	0	0	9	0	0	0	0	31
% Bikes by Direction	0	4.5	0	4.1	2.0	0	0	1.7	0	0	0	0	2.5



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Client: Pare/Amy Archer

File Name : 05568AA
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Walnut Street From North			Walnut Street From South			Highland Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	13	110	5	126	8	2	9	2	13	288
04:15 PM	7	104	10	128	8	4	13	4	17	295
04:30 PM	10	120	8	136	9	1	7	3	23	317
04:45 PM	11	116	4	127	11	7	8	8	12	304
Total	41	450	27	517	36	14	37	17	65	1204
05:00 PM	11	106	3	126	9	1	13	9	13	291
05:15 PM	5	127	7	138	14	6	7	4	23	331
05:30 PM	9	139	7	130	14	3	11	2	24	339
05:45 PM	15	111	5	109	9	3	3	7	23	285
Total	40	483	22	503	46	13	34	22	83	1246
Grand Total	81	933	49	1020	82	27	71	39	148	2450
Apprch %	7.6	87.8	4.6	90.3	7.3	2.4	27.5	15.1	57.4	
Total %	3.3	38.1	2	41.6	3.3	1.1	2.9	1.6	6	
Cars & Peds	79	909	49	995	82	27	71	39	148	2399
% Cars & Peds	97.5	97.4	100	97.5	100	100	100	100	100	97.9
Trucks & Buses	2	6	0	14	0	0	0	0	0	22
% Trucks & Buses	2.5	0.6	0	1.4	0	0	0	0	0	0.9
Bikes by Direction	0	18	0	11	0	0	0	0	0	29
% Bikes by Direction	0	1.9	0	1.1	0	0	0	0	0	1.2

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	11	116	4	131	127	11	7	145	8	8	12	28	304
05:00 PM	11	106	3	120	126	9	1	136	13	9	13	35	291
05:15 PM	5	127	7	139	138	14	6	158	7	4	23	34	331
05:30 PM	9	139	7	155	130	14	3	147	11	2	24	37	339
Total Volume	36	488	21	545	521	48	17	586	39	23	72	134	1265
% App. Total	6.6	89.5	3.9		88.9	8.2	2.9		29.1	17.2	53.7		
PHF	.818	.878	.750	.879	.944	.857	.607	.927	.750	.639	.750	.905	.933
Cars & Peds	35	476	21	532	508	48	17	573	39	23	72	134	1239
% Cars & Peds	97.2	97.5	100	97.6	97.5	100	100	97.8	100	100	100	100	97.9
Trucks & Buses	1	1	0	2	5	0	0	5	0	0	0	0	7
% Trucks & Buses	2.8	0.2	0	0.4	1.0	0	0	0.9	0	0	0	0	0.6
Bikes by Direction	0	11	0	11	8	0	0	8	0	0	0	0	19
% Bikes by Direction	0	2.3	0	2.0	1.5	0	0	1.4	0	0	0	0	1.5

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Client: Pare/Amy Archer

File Name : 05568AA
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

Groups Printed- Cars & Peds

	Walnut Street From North			Walnut Street From South			Highland Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	12	107	5	122	8	2	9	2	13	280
04:15 PM	7	101	10	123	8	4	13	4	17	287
04:30 PM	10	116	8	133	9	1	7	3	23	310
04:45 PM	10	114	4	123	11	7	8	8	12	297
Total	39	438	27	501	36	14	37	17	65	1174
05:00 PM	11	103	3	124	9	1	13	9	13	286
05:15 PM	5	126	7	134	14	6	7	4	23	326
05:30 PM	9	133	7	127	14	3	11	2	24	330
05:45 PM	15	109	5	109	9	3	3	7	23	283
Total	40	471	22	494	46	13	34	22	83	1225
Grand Total	79	909	49	995	82	27	71	39	148	2399
Apprch %	7.6	87.7	4.7	90.1	7.4	2.4	27.5	15.1	57.4	
Total %	3.3	37.9	2	41.5	3.4	1.1	3	1.6	6.2	

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	10	114	4	128	123	11	7	141	8	8	12	28	297
05:00 PM	11	103	3	117	124	9	1	134	13	9	13	35	286
05:15 PM	5	126	7	138	134	14	6	154	7	4	23	34	326
05:30 PM	9	133	7	149	127	14	3	144	11	2	24	37	330
Total Volume	35	476	21	532	508	48	17	573	39	23	72	134	1239
% App. Total	6.6	89.5	3.9		88.7	8.4	3		29.1	17.2	53.7		
PHF	.795	.895	.750	.893	.948	.857	.607	.930	.750	.639	.750	.905	.939

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Client: Pare/Amy Archer

File Name : 05568AA
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

Groups Printed- Trucks & Buses

	Walnut Street From North			Walnut Street From South			Highland Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	1	1	0	3	0	0	0	0	0	5
04:15 PM	0	2	0	3	0	0	0	0	0	5
04:30 PM	0	2	0	3	0	0	0	0	0	5
04:45 PM	1	0	0	2	0	0	0	0	0	3
Total	2	5	0	11	0	0	0	0	0	18
05:00 PM	0	0	0	1	0	0	0	0	0	1
05:15 PM	0	0	0	1	0	0	0	0	0	1
05:30 PM	0	1	0	1	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	3	0	0	0	0	0	4
Grand Total	2	6	0	14	0	0	0	0	0	22
Apprch %	25	75	0	100	0	0	0	0	0	
Total %	9.1	27.3	0	63.6	0	0	0	0	0	

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	1	1	0	2	3	0	0	3	0	0	0	0	5
04:15 PM	0	2	0	2	3	0	0	3	0	0	0	0	5
04:30 PM	0	2	0	2	3	0	0	3	0	0	0	0	5
04:45 PM	1	0	0	1	2	0	0	2	0	0	0	0	3
Total Volume	2	5	0	7	11	0	0	11	0	0	0	0	18
% App. Total	28.6	71.4	0		100	0	0		0	0	0		
PHF	.500	.625	.000	.875	.917	.000	.000	.917	.000	.000	.000	.000	.900

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tel (781) 587-0086 cell (781) 439-4999

N/S: Walnut Street
W: Highland Avenue
City, State: Newtonville, MA
Client: Pare/Amy Archer

File Name : 05568AA
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

Groups Printed- Bikes by Direction

	Walnut Street From North			Walnut Street From South			Highland Avenue From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	2	0	1	0	0	0	0	0	3
04:15 PM	0	1	0	2	0	0	0	0	0	3
04:30 PM	0	2	0	0	0	0	0	0	0	2
04:45 PM	0	2	0	2	0	0	0	0	0	4
Total	0	7	0	5	0	0	0	0	0	12
05:00 PM	0	3	0	1	0	0	0	0	0	4
05:15 PM	0	1	0	3	0	0	0	0	0	4
05:30 PM	0	5	0	2	0	0	0	0	0	7
05:45 PM	0	2	0	0	0	0	0	0	0	2
Total	0	11	0	6	0	0	0	0	0	17
Grand Total	0	18	0	11	0	0	0	0	0	29
Apprch %	0	100	0	100	0	0	0	0	0	
Total %	0	62.1	0	37.9	0	0	0	0	0	

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	0	2	0	2	2	0	0	2	0	0	0	0	4
05:00 PM	0	3	0	3	1	0	0	1	0	0	0	0	4
05:15 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
05:30 PM	0	5	0	5	2	0	0	2	0	0	0	0	7
Total Volume	0	11	0	11	8	0	0	8	0	0	0	0	19
% App. Total	0	100	0		100	0	0		0	0	0		
PHF	.000	.550	.000	.550	.667	.000	.000	.667	.000	.000	.000	.000	.679

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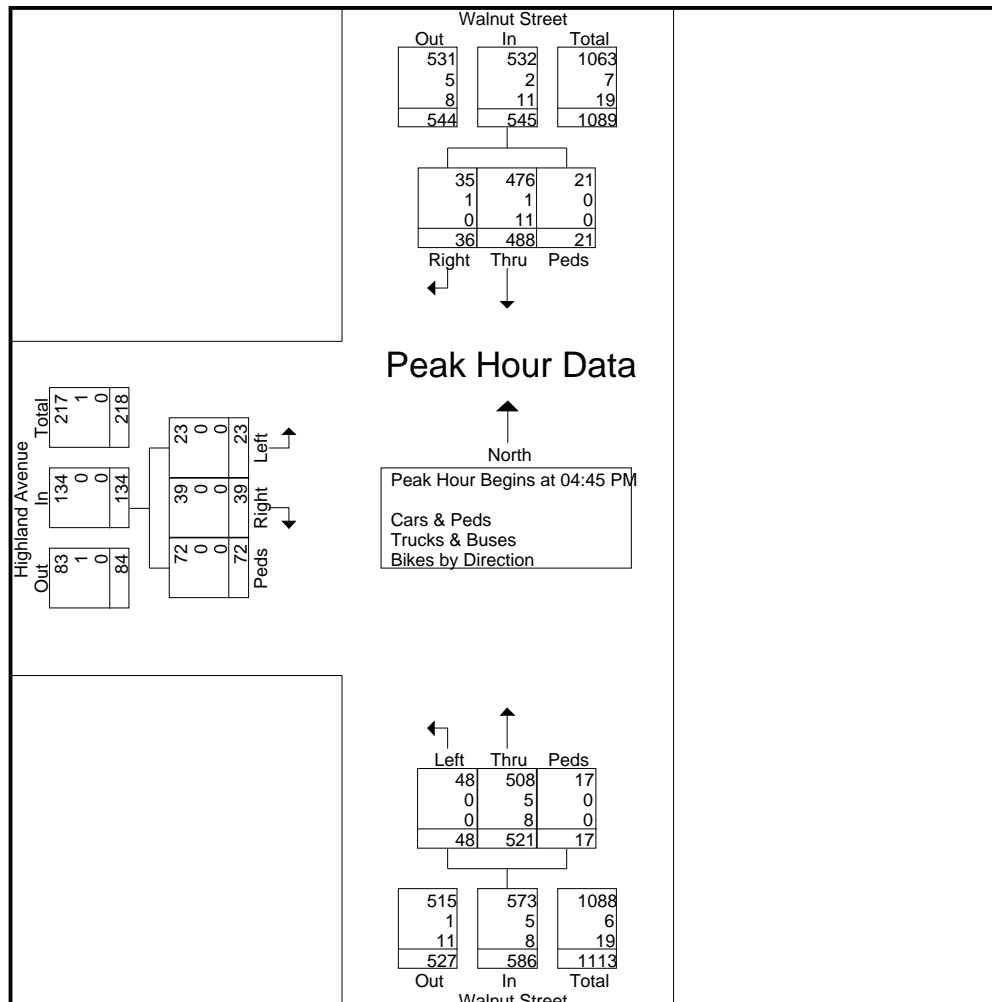
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N/S: Walnut Street
W: Highland Avenue
City, State: Newtonville, MA
Client: Pare/Amy Archer

File Name : 05568AA
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

	Walnut Street From North				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	11	116	4	131	127	11	7	145	8	8	12	28	304
05:00 PM	11	106	3	120	126	9	1	136	13	9	13	35	291
05:15 PM	5	127	7	139	138	14	6	158	7	4	23	34	331
05:30 PM	9	139	7	155	130	14	3	147	11	2	24	37	339
Total Volume	36	488	21	545	521	48	17	586	39	23	72	134	1265
% App. Total	6.6	89.5	3.9		88.9	8.2	2.9		29.1	17.2	53.7		
PHF	.818	.878	.750	.879	.944	.857	.607	.927	.750	.639	.750	.905	.933
Cars & Peds	35	476	21	532	508	48	17	573	39	23	72	134	1239
% Cars & Peds	97.2	97.5	100	97.6	97.5	100	100	97.8	100	100	100	100	97.9
Trucks & Buses	1	1	0	2	5	0	0	5	0	0	0	0	7
% Trucks & Buses	2.8	0.2	0	0.4	1.0	0	0	0.9	0	0	0	0	0.6
Bikes by Direction	0	11	0	11	8	0	0	8	0	0	0	0	19
% Bikes by Direction	0	2.3	0	2.0	1.5	0	0	1.4	0	0	0	0	1.5



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File Name : 05568B
Site Code : 05568
Start Date : 5/24/2022
Page No : 1

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tel (781) 587-0086 cell (781) 439-4999

N/S: Philip Bram Way/Senior Center

E/W: Highland Avenue

City, State: Newtonville, MA

Client: Pare/Amy Archer

File Name : 05568B

Site Code : 05568

Start Date : 5/24/2022

Page No : 1

Groups Printed- Cars & Peds

	Philip Bram Way From North				Highland Avenue From East				Senior Center Exit Only Driveway From South				Highland Avenue From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	0	0	2	2	3	2	0	0	0	0	0	2	0	3	2	0	16
07:15 AM	2	0	1	0	0	3	0	1	0	0	0	1	0	10	1	0	19
07:30 AM	0	0	4	3	2	2	0	1	0	0	0	2	0	3	1	1	19
07:45 AM	2	0	3	4	5	3	0	1	1	0	0	0	0	13	1	5	38
Total	4	0	10	9	10	10	0	3	1	0	0	5	0	29	5	6	92
08:00 AM	2	0	5	3	3	8	0	4	0	0	0	0	0	14	3	0	42
08:15 AM	1	0	4	1	13	13	1	2	0	0	0	0	0	14	2	0	51
08:30 AM	0	0	3	1	9	12	0	9	0	0	0	1	0	13	0	1	49
08:45 AM	1	0	5	5	9	16	0	10	1	0	0	2	0	14	2	0	65
Total	4	0	17	10	34	49	1	25	1	0	0	3	0	55	7	1	207
Grand Total	8	0	27	19	44	59	1	28	2	0	0	8	0	84	12	7	299
Apprch %	14.8	0	50	35.2	33.3	44.7	0.8	21.2	20	0	0	80	0	81.6	11.7	6.8	
Total %	2.7	0	9	6.4	14.7	19.7	0.3	9.4	0.7	0	0	2.7	0	28.1	4	2.3	

	Philip Bram Way From North					Highland Avenue From East					Senior Center Exit Only Driveway From South					Highland Avenue From West						
Start Time	Right			Peds	App. Total	Right			Peds	App. Total	Right			Peds	App. Total	Right			Peds	App. Total	Int. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 08:00 AM																						
08:00 AM	2	0	5	3	10	3	8	0	4	15	0	0	0	0	0	0	14	3	0	17	42	
08:15 AM	1	0	4	1	6	13	13	1	2	29	0	0	0	0	0	0	0	14	2	0	16	51
08:30 AM	0	0	3	1	4	9	12	0	9	30	0	0	0	1	1	0	13	0	1	14	49	
08:45 AM	1	0	5	5	11	9	16	0	10	35	1	0	0	2	3	0	14	2	0	16	65	
Total Volume	4	0	17	10	31	34	49	1	25	109	1	0	0	3	4	0	55	7	1	63	207	
% App. Total	12.9	0	54.8	32.3		31.2	45	0.9	22.9		25	0	0	75		0	87.3	11.1	1.6			
PHF	.500	.000	.850	.500	.705	.654	.766	.250	.625	.779	.250	.000	.000	.375	.333	.000	.982	.583	.250	.926	.796	

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N/S: Philip Bram Way/Senior Center

E/W: Highland Avenue

City, State: Newtonville, MA

Client: Pare/Amy Archer

File Name : 05568B

Site Code : 05568

Start Date : 5/24/2022

Page No : 1

Groups Printed- Trucks & Buses

	Philip Bram Way From North				Highland Avenue From East				Senior Center Exit Only Driveway From South				Highland Avenue From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	4
07:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
07:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	1	0	2	2	0	0	0	0	0	0	0	1	0	0	8
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Grand Total	3	0	1	0	2	3	0	0	0	0	0	0	0	1	0	0	10
Apprch %	75	0	25	0	40	60	0	0	0	0	0	0	0	100	0	0	
Total %	30	0	10	0	20	30	0	0	0	0	0	0	0	10	0	0	

	Philip Bram Way From North					Highland Avenue From East					Senior Center Exit Only Driveway From South					Highland Avenue From West					
Start Time	Right			Peds	App. Total	Right			Peds	App. Total	Right			Peds	App. Total	Right			Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	1	0	0	0	1	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	4
07:30 AM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
07:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	2	0	1	0	3	2	2	0	0	4	0	0	0	0	0	0	1	0	0	1	8
% App. Total	66.7	0	33.3	0		50	50	0	0		0	0	0	0		0	100	0	0		
PHF	.500	.000	.250	.000	.750	.500	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.500

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N/S: Philip Bram Way/Senior Center

E/W: Highland Avenue

City, State: Newtonville, MA

Client: Pare/Amy Archer

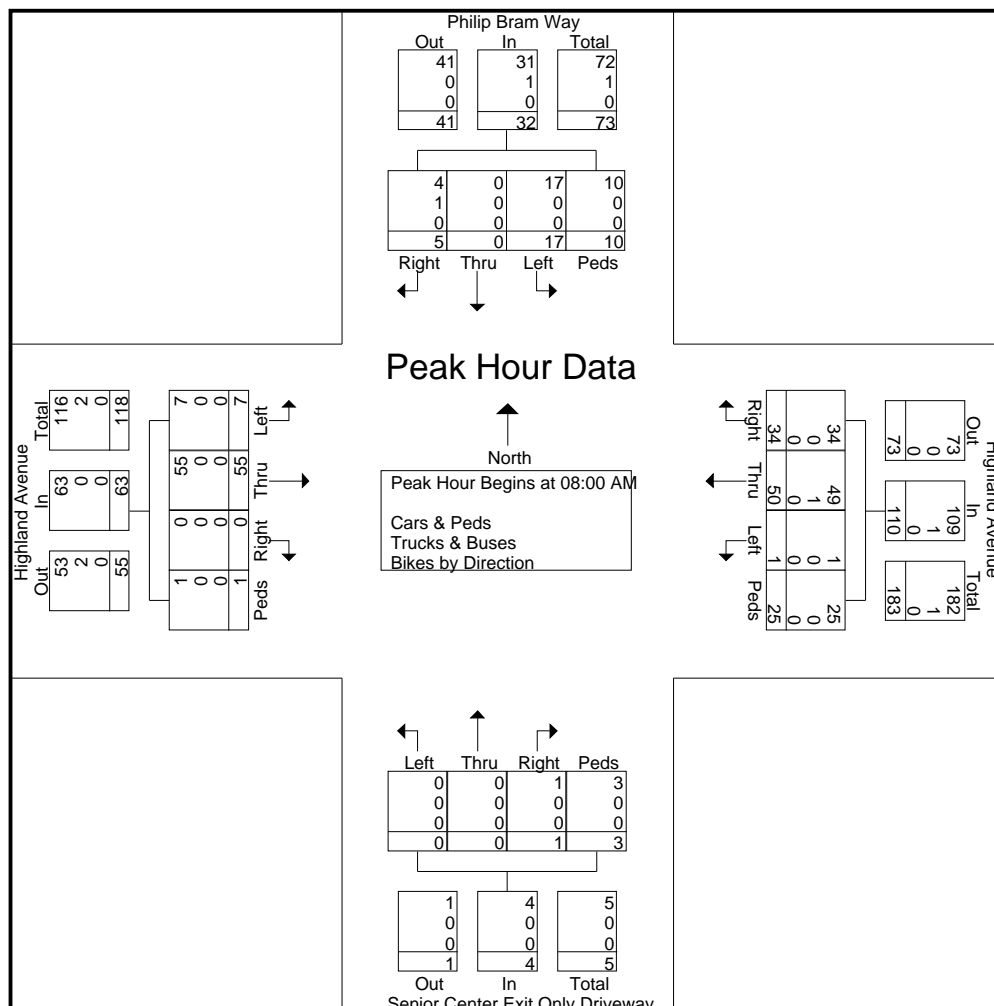
File Name : 05568B

Site Code : 05568

Start Date : 5/24/2022

Page No : 1

	Philip Bram Way From North					Highland Avenue From East					Senior Center Exit Only Driveway From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	2	0	5	3	10	3	8	0	4	15	0	0	0	0	0	0	14	3	0	17	42
08:15 AM	1	0	4	1	6	13	14	1	2	30	0	0	0	0	0	0	14	2	0	16	52
08:30 AM	1	0	3	1	5	9	12	0	9	30	0	0	0	1	1	0	13	0	1	14	50
08:45 AM	1	0	5	5	11	9	16	0	10	35	1	0	0	2	3	0	14	2	0	16	65
Total Volume	5	0	17	10	32	34	50	1	25	110	1	0	0	3	4	0	55	7	1	63	209
% App. Total	15.6	0	53.1	31.2		30.9	45.5	0.9	22.7		25	0	0	75		0	87.3	11.1	1.6		
PHF	.625	.000	.850	.500	.727	.654	.781	.250	.625	.786	.250	.000	.000	.375	.333	.000	.982	.583	.250	.926	.804
Cars & Peds	4	0	17	10	31	34	49	1	25	109	1	0	0	3	4	0	55	7	1	63	207
% Cars & Peds	80.0	0	100	100	96.9	100	98.0	100	100	99.1	100	0	0	100	100	0	100	100	100	100	99.0
Trucks & Buses	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
% Trucks & Buses	20.0	0	0	0	3.1	0	2.0	0	0	0.9	0	0	0	0	0	0	0	0	0	0	1.0
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Client: Pare/Amy Archer

Page No : 1

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N/S: Philip Bram Way/Senior Center

E/W: Highland Avenue

City, State: Newtonville, MA

Client: Pare/Amy Archer

File Name : 05568BB

Site Code : 05568

Start Date : 5/24/2022

Page No : 1

Groups Printed- Cars & Peds

	Philip Bram Way From North				Highland Avenue From East				Senior Center Exit Only Driveway From South				Highland Avenue From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	4	0	4	3	6	15	0	3	3	0	1	3	0	4	2	2	50
04:15 PM	1	0	4	2	0	15	0	1	0	0	1	3	0	13	1	1	42
04:30 PM	0	0	3	0	7	10	0	3	1	0	0	0	1	6	0	1	32
04:45 PM	3	0	5	0	7	14	0	1	0	0	0	2	0	8	0	2	42
Total	8	0	16	5	20	54	0	8	4	0	2	8	1	31	3	6	166
05:00 PM	3	0	8	2	4	15	0	1	0	0	1	1	0	12	1	0	48
05:15 PM	0	0	4	1	2	17	0	2	0	0	0	2	0	7	0	1	36
05:30 PM	2	0	2	1	5	16	0	5	0	0	0	3	0	9	1	0	44
05:45 PM	2	0	3	2	5	18	0	4	0	0	0	0	0	8	1	0	43
Total	7	0	17	6	16	66	0	12	0	0	1	6	0	36	3	1	171
Grand Total	15	0	33	11	36	120	0	20	4	0	3	14	1	67	6	7	337
Apprch %	25.4	0	55.9	18.6	20.5	68.2	0	11.4	19	0	14.3	66.7	1.2	82.7	7.4	8.6	
Total %	4.5	0	9.8	3.3	10.7	35.6	0	5.9	1.2	0	0.9	4.2	0.3	19.9	1.8	2.1	

	Philip Bram Way From North					Highland Avenue From East					Senior Center Exit Only Driveway From South					Highland Avenue From West					
Start Time	Right			Peds	App. Total	Right			Peds	App. Total	Right			Peds	App. Total	Right			Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	0	8	2	13	4	15	0	1	20	0	0	1	1	2	0	12	1	0	13	48
05:15 PM	0	0	4	1	5	2	17	0	2	21	0	0	0	2	2	0	7	0	1	8	36
05:30 PM	2	0	2	1	5	5	16	0	5	26	0	0	0	3	3	0	9	1	0	10	44
05:45 PM	2	0	3	2	7	5	18	0	4	27	0	0	0	0	0	0	8	1	0	9	43
Total Volume	7	0	17	6	30	16	66	0	12	94	0	0	1	6	7	0	36	3	1	40	171
% App. Total	23.3	0	56.7	20		17	70.2	0	12.8		0	0	14.3	85.7		0	90	7.5	2.5		
PHF	.583	.000	.531	.750	.577	.800	.917	.000	.600	.870	.000	.000	.250	.500	.583	.000	.750	.750	.250	.769	.891

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Client: Pare/Amy Archer

Page No : 1

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N/S: Philip Bram Way/Senior Center

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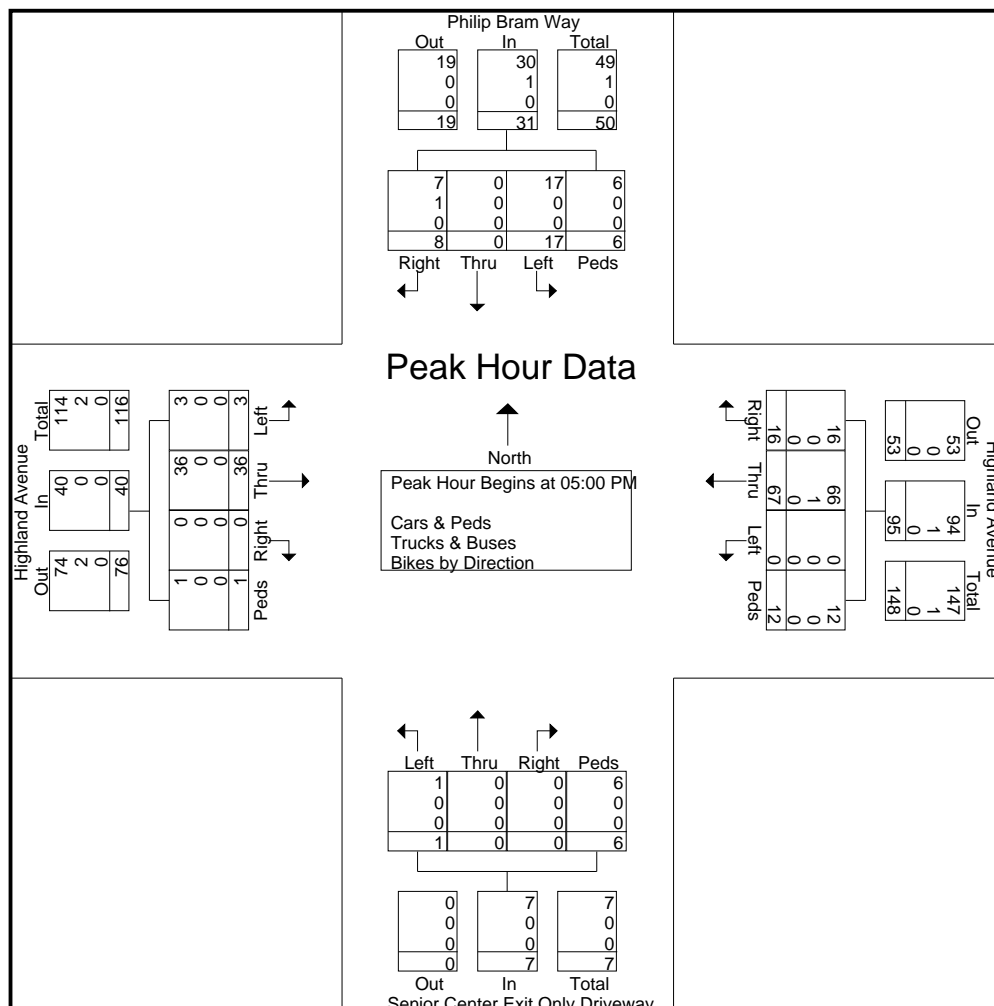
File Name : 05568BB

Site Code : 05568

Start Date : 5/24/2022

Page No : 1

	Philip Bram Way From North					Highland Avenue From East					Senior Center Exit Only Driveway From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	0	8	2	13	4	16	0	1	21	0	0	1	1	2	0	12	1	0	13	49
05:15 PM	1	0	4	1	6	2	17	0	2	21	0	0	0	2	2	0	7	0	1	8	37
05:30 PM	2	0	2	1	5	5	16	0	5	26	0	0	0	3	3	0	9	1	0	10	44
05:45 PM	2	0	3	2	7	5	18	0	4	27	0	0	0	0	0	0	8	1	0	9	43
Total Volume	8	0	17	6	31	16	67	0	12	95	0	0	1	6	7	0	36	3	1	40	173
% App. Total	25.8	0	54.8	19.4		16.8	70.5	0	12.6		0	0	14.3	85.7		0	90	7.5	2.5		
PHF	.667	.000	.531	.750	.596	.800	.931	.000	.600	.880	.000	.000	.250	.500	.583	.000	.750	.750	.250	.769	.883
Cars & Peds	7	0	17	6	30	16	66	0	12	94	0	0	1	6	7	0	36	3	1	40	171
% Cars & Peds	87.5	0	100	100	96.8	100	98.5	0	100	98.9	0	0	100	100	100	0	100	100	100	100	98.8
Trucks & Buses	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
% Trucks & Buses	12.5	0	0	0	3.2	0	1.5	0	0	1.1	0	0	0	0	0	0	0	0	0	0	1.2
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Page 2

Highland Avenue west of
Philip Bram Way
City, State: Newtonville, MA
Client: Pare/Amy Archer
Eastbound

05568Aclass
Site Code: 05568

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/25/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
06:00	0	8	1	0	1	0	0	0	0	0	0	0	0	10
07:00	0	26	2	0	1	0	0	1	0	0	0	0	0	30
08:00	0	67	3	0	0	0	0	0	0	0	0	0	0	70
09:00	0	43	2	1	0	0	0	0	0	0	0	0	0	46
10:00	0	30	1	0	1	0	0	0	0	0	0	0	0	32
11:00	2	45	0	0	0	1	0	0	0	0	0	0	0	48
12 PM	0	62	2	0	0	0	0	0	0	0	0	0	0	64
13:00	0	64	6	0	1	0	0	0	0	0	0	0	0	71
14:00	2	47	0	0	3	0	0	1	0	0	0	0	0	53
15:00	0	48	8	0	2	0	0	0	0	0	0	0	0	58
16:00	1	41	5	1	3	0	0	0	0	0	0	0	0	51
17:00	0	32	1	0	0	0	0	0	0	0	0	0	0	33
18:00	0	29	2	0	0	0	0	0	0	0	0	0	0	31
19:00	0	30	2	0	1	0	0	0	0	0	0	0	0	33
20:00	0	18	1	0	1	0	0	0	0	0	0	0	0	20
21:00	1	6	0	0	0	0	0	0	0	0	0	0	0	7
22:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Day Total	6	604	37	2	14	1	0	2	0	0	0	0	0	666
Percent	0.9%	90.7%	5.6%	0.3%	2.1%	0.2%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	08:00	08:00	09:00	06:00	11:00		07:00						08:00
Vol.	2	67	3	1	1	1		1						70
PM Peak	14:00	13:00	15:00	16:00	14:00			14:00						13:00
Vol.	2	64	8	1	3			1						71
Grand Total	10	1138	73	6	23	3	0	2	0	0	0	0	0	1255
Percent	0.8%	90.7%	5.8%	0.5%	1.8%	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	

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Highland Avenue west of
Philip Bram Way
City, State: Newtonville, MA
Client: Pare/Amy Archer
Westbound

05568Aclass
Site Code: 05568

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/25/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
07:00	0	12	3	0	2	0	0	0	0	0	0	0	0	17
08:00	0	32	4	0	2	0	0	0	0	0	0	0	0	38
09:00	0	33	6	0	1	0	0	0	0	0	0	0	0	40
10:00	0	39	8	0	0	1	0	0	0	0	0	0	0	48
11:00	0	45	2	1	0	0	0	0	0	0	0	0	0	48
12 PM	1	40	1	2	0	0	0	0	0	0	0	0	0	44
13:00	0	55	1	0	1	0	0	0	0	0	0	0	0	57
14:00	0	38	5	0	1	0	0	0	1	0	0	0	0	45
15:00	0	57	3	0	2	0	0	0	1	0	0	0	0	63
16:00	0	66	9	1	1	0	0	0	0	0	0	0	0	77
17:00	1	59	13	0	2	0	0	0	0	0	0	0	0	75
18:00	0	38	3	0	1	1	0	0	0	0	0	0	0	43
19:00	0	38	6	0	0	0	0	0	0	0	0	0	0	44
20:00	0	25	2	0	1	0	0	0	0	0	0	0	0	28
21:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
22:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
23:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
Day Total	2	595	68	4	14	2	0	0	2	0	0	0	0	687
Percent	0.3%	86.6%	9.9%	0.6%	2.0%	0.3%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.		11:00 45	10:00 8	11:00 1	07:00 2	10:00 1								10:00 48
PM Peak Vol.	12:00 1	16:00 66	17:00 13	12:00 2	15:00 2	18:00 1			14:00 1					16:00 77
Grand Total	6	1193	152	11	41	4	0	0	2	0	0	0	0	1409
Percent	0.4%	84.7%	10.8%	0.8%	2.9%	0.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	

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Site Code: 05568

Eastbound

[illegible]

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Page 2

Highland Avenue west of
Philip Bram Way
City, State: Newtonville, MA
Client: Pare/Amy Archer

05568Aspeed
Site Code: 05568

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	Total	85th Percent	95th Percent
05/25/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	29	29
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	1	1	0	0	0	0	0	0	0	0	0	2	28	29
06:00	1	2	3	4	0	0	0	0	0	0	0	0	0	10	28	29
07:00	0	5	13	10	2	0	0	0	0	0	0	0	0	30	28	31
08:00	5	13	25	22	5	0	0	0	0	0	0	0	0	70	28	31
09:00	11	13	14	7	1	0	0	0	0	0	0	0	0	46	25	29
10:00	6	10	11	5	0	0	0	0	0	0	0	0	0	32	25	28
11:00	26	12	7	3	0	0	0	0	0	0	0	0	0	48	21	25
12 PM	39	13	10	2	0	0	0	0	0	0	0	0	0	64	21	24
13:00	26	17	21	5	2	0	0	0	0	0	0	0	0	71	24	28
14:00	11	12	23	6	1	0	0	0	0	0	0	0	0	53	24	28
15:00	5	14	19	18	2	0	0	0	0	0	0	0	0	58	28	29
16:00	14	11	17	9	0	0	0	0	0	0	0	0	0	51	25	28
17:00	5	10	13	5	0	0	0	0	0	0	0	0	0	33	25	28
18:00	7	12	8	4	0	0	0	0	0	0	0	0	0	31	24	28
19:00	4	8	13	8	0	0	0	0	0	0	0	0	0	33	26	28
20:00	0	9	7	3	1	0	0	0	0	0	0	0	0	20	26	30
21:00	1	2	1	1	1	1	0	0	0	0	0	0	0	7	34	38
22:00	0	2	3	1	0	0	0	0	0	0	0	0	0	6	25	28
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	161	165	209	115	15	1	0	0	0	0	0	0	0	666		
Percent	24.2%	24.8%	31.4%	17.3%	2.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	08:00	08:00	08:00	08:00									08:00		
Vol.	26	13	25	22	5									70		
PM Peak	12:00	13:00	14:00	15:00	13:00	21:00								13:00		
Vol.	39	17	23	18	2	1								71		
Grand Total	254	333	439	204	23	2	0	0	0	0	0	0	0	1255		
Percent	20.2%	26.5%	35.0%	16.3%	1.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 11 MPH
50th Percentile : 20 MPH
85th Percentile : 25 MPH
95th Percentile : 29 MPH

Stats 10 MPH Pace Speed : 16-25 MPH

Number of Vehicles > 25 MPH : 229
Percent of Vehicles > 25 MPH : 18.2%
Mean Speed(Average) : 20 MPH

05568Aspeed

Site Code: 05568

Westbound

[illegible]

Transportation Data Corporation

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tel (781) 587-0086 cell (781) 439-4999

Highland Avenue west of
Philip Bram Way
City, State: Newtonville, MA
Client: Pare/Amy Archer

05568Aspeed
Site Code: 05568

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	Total	85th Percent	95th Percent
05/25/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1	24	24
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	29	29
06:00	0	1	0	0	2	0	0	0	0	0	0	0	0	3	33	34
07:00	1	3	6	3	3	1	0	0	0	0	0	0	0	17	32	35
08:00	9	6	12	8	3	0	0	0	0	0	0	0	0	38	28	31
09:00	2	12	21	4	1	0	0	0	0	0	0	0	0	40	24	28
10:00	15	18	13	2	0	0	0	0	0	0	0	0	0	48	23	24
11:00	11	18	19	0	0	0	0	0	0	0	0	0	0	48	23	24
12 PM	18	14	9	2	1	0	0	0	0	0	0	0	0	44	23	27
13:00	20	13	19	5	0	0	0	0	0	0	0	0	0	57	24	27
14:00	8	14	21	2	0	0	0	0	0	0	0	0	0	45	23	24
15:00	8	15	32	5	2	0	1	0	0	0	0	0	0	63	24	29
16:00	14	15	34	13	1	0	0	0	0	0	0	0	0	77	25	28
17:00	6	19	38	12	0	0	0	0	0	0	0	0	0	75	25	28
18:00	4	7	22	9	1	0	0	0	0	0	0	0	0	43	26	29
19:00	4	9	16	13	2	0	0	0	0	0	0	0	0	44	28	29
20:00	4	9	10	5	0	0	0	0	0	0	0	0	0	28	25	28
21:00	1	0	4	2	0	0	0	0	0	0	0	0	0	7	27	29
22:00	0	1	1	3	0	0	0	0	0	0	0	0	0	5	28	29
23:00	0	0	2	1	0	0	0	0	0	0	0	0	0	3	27	29
Total	125	174	280	90	16	1	1	0	0	0	0	0	0	687		
Percent	18.2%	25.3%	40.8%	13.1%	2.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	10:00	10:00	09:00	08:00	07:00	07:00								10:00		
Vol.	15	18	21	8	3	1								48		
PM Peak	13:00	17:00	17:00	16:00	15:00		15:00							16:00		
Vol.	20	19	38	13	2		1							77		
Grand Total	226	367	558	216	35	5	2	0	0	0	0	0	0	1409		
Percent	16.0%	26.0%	39.6%	15.3%	2.5%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 14 MPH
50th Percentile : 20 MPH
85th Percentile : 26 MPH
95th Percentile : 29 MPH

Stats 10 MPH Pace Speed : 16-25 MPH

Number of Vehicles > 25 MPH : 258
Percent of Vehicles > 25 MPH : 18.3%
Mean Speed(Average) : 20 MPH

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Highland Avenue west of
Philip Bram Way
City, State: Newtonville, MA
Client: Pare/Amy Archer

05568Avolume
Site Code: 05568

Start Time	24-May-22	EB		WB		Combined		25-Ma Wed	EB		WB		Combined	
	Tue	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		0	15	0	9	0	24		0	18	0	11	0	29
12:15		0	11	0	19	0	30		0	23	0	13	0	36
12:30		0	13	0	14	0	27		0	5	0	4	0	9
12:45		0	14	0	25	0	39		0	18	0	16	0	34
01:00		0	19	0	25	0	44		0	22	0	19	0	41
01:15		1	18	0	13	1	31		0	15	0	11	0	26
01:30		0	18	0	9	0	27		0	20	0	18	0	38
01:45		0	10	0	7	0	17		1	14	0	9	1	23
02:00		0	9	1	12	1	21		0	18	0	9	0	27
02:15		0	6	0	15	0	21		0	13	0	16	0	29
02:30		0	10	0	8	0	18		0	14	0	12	0	26
02:45		0	10	0	14	0	24		0	8	0	8	0	16
03:00		0	10	0	13	0	23		0	11	0	15	0	26
03:15		0	8	0	24	0	32		0	18	0	20	0	38
03:30		0	8	0	19	0	27		0	11	0	14	0	25
03:45		0	8	0	20	0	28		0	18	1	14	1	32
04:00		0	6	0	19	0	25		0	20	0	22	0	42
04:15		0	17	0	13	0	30		0	9	0	22	0	31
04:30		0	5	0	10	0	15		0	9	0	10	0	19
04:45		0	9	0	17	0	26		0	13	0	23	0	36
05:00		0	13	0	18	0	31		0	10	0	19	0	29
05:15		0	8	0	18	0	26		0	11	0	17	0	28
05:30		1	11	0	19	1	30		2	7	0	19	2	26
05:45		0	8	1	19	1	27		0	5	1	20	1	25
06:00		4	10	0	10	4	20		2	12	1	16	3	28
06:15		0	8	0	9	0	17		2	7	0	9	2	16
06:30		4	2	0	16	4	18		2	9	0	9	2	18
06:45		6	6	3	18	9	24		4	3	2	9	6	12
07:00		5	8	3	8	8	16		4	13	3	14	7	27
07:15		10	3	6	4	16	7		12	9	4	10	16	19
07:30		4	7	4	4	8	11		5	7	6	10	11	17
07:45		15	5	6	2	21	7		9	4	4	10	13	14
08:00		17	1	9	11	26	12		18	5	8	2	26	7
08:15		15	4	12	9	27	13		19	3	6	5	25	8
08:30		14	6	12	12	26	18		14	8	8	12	22	20
08:45		14	2	17	4	31	6		19	4	16	9	35	13
09:00		12	3	14	4	26	7		11	0	15	2	26	2
09:15		11	2	9	9	20	11		10	4	8	2	18	6
09:30		10	2	12	5	22	7		13	2	9	3	22	5
09:45		14	3	13	2	27	5		12	1	8	0	20	1
10:00		11	1	8	0	19	1		6	2	7	3	13	5
10:15		14	0	7	1	21	1		11	1	15	0	26	1
10:30		5	2	18	1	23	3		13	1	18	1	31	2
10:45		15	1	11	0	26	1		2	2	8	1	10	3
11:00		5	0	8	0	13	0		8	0	11	1	19	1
11:15		18	0	15	0	33	0		7	0	9	0	16	0
11:30		12	0	13	0	25	0		13	0	12	1	25	1
11:45		12	0	11	1	23	1		20	0	16	1	36	1
Total		249	340	213	509	462	849		239	427	196	491	435	918
Day Total		589		722		1311			666		687		1353	
% Total		19.0%	25.9%	16.2%	38.8%				17.7%	31.6%	14.5%	36.3%		
Peak	-	07:45	00:45	08:15	00:15	08:00	00:30	-	08:00	00:45	10:15	04:45	08:00	00:45
Vol.	-	61	69	55	83	110	141	-	70	75	52	78	108	139
P.H.F.		0.897	0.908	0.809	0.830	0.887	0.801		0.921	0.852	0.722	0.848	0.771	0.848
ADT	ADT 1,332	AADT 1,332												

Page 1

05568Volume

Site Code: 05568

Highland Avenue west of
Philip Bram Way
City, State: Newtonville, MA
Client: Pare/Amy Archer

[illegible]

Transportation Data Corporation

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Page 2

Highland Avenue west of
Philip Bram Way
City, State: Newtonville, MA
Client: Pare/Amy Archer

05568Avolume
Site Code: 05568

Start Time	25-May-22 Wed	EB		Hour Totals		WB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	18			0	11				
12:15		0	23			0	13				
12:30		0	5			0	4				
12:45		0	18	0	64	0	16	0	44	0	108
01:00		0	22			0	19				
01:15		0	15			0	11				
01:30		0	20			0	18				
01:45		1	14	1	71	0	9	0	57	1	128
02:00		0	18			0	9				
02:15		0	13			0	16				
02:30		0	14			0	12				
02:45		0	8	0	53	0	8	0	45	0	98
03:00		0	11			0	15				
03:15		0	18			0	20				
03:30		0	11			0	14				
03:45		0	18	0	58	1	14	1	63	1	121
04:00		0	20			0	22				
04:15		0	9			0	22				
04:30		0	9			0	10				
04:45		0	13	0	51	0	23	0	77	0	128
05:00		0	10			0	19				
05:15		0	11			0	17				
05:30		2	7			0	19				
05:45		0	5	2	33	1	20	1	75	3	108
06:00		2	12			1	16				
06:15		2	7			0	9				
06:30		2	9			0	9				
06:45		4	3	10	31	2	9	3	43	13	74
07:00		4	13			3	14				
07:15		12	9			4	10				
07:30		5	7			6	10				
07:45		9	4	30	33	4	10	17	44	47	77
08:00		18	5			8	2				
08:15		19	3			6	5				
08:30		14	8			8	12				
08:45		19	4	70	20	16	9	38	28	108	48
09:00		11	0			15	2				
09:15		10	4			8	2				
09:30		13	2			9	3				
09:45		12	1	46	7	8	0	40	7	86	14
10:00		6	2			7	3				
10:15		11	1			15	0				
10:30		13	1			18	1				
10:45		2	2	32	6	8	1	48	5	80	11
11:00		8	0			11	1				
11:15		7	0			9	0				
11:30		13	0			12	1				
11:45		20	0	48	0	16	1	48	3	96	3
Total		239	427			196	491			435	918
Combined Total		666				687				1353	
Percentage	0.0%										
Total Percent		488	767			409	1000			897	1767
		38.9%	61.1%			29.0%	71.0%			33.7%	66.3%
ADT		ADT 1,332		AADT 1,332							

APPENDIX B

Crash Data



Newton Center for Active Living

Newton, MA

Crash Data Summary

Pare Project No. 20147.00

June, 2022



Crash Ref. No.	Report No.	Date	Time	On Street	Intersecting Street	Directions of Travel	No. of Vehicles	Injuries	Fatalities	Weather Condition	Road Condition	Lighting	Crash Type
1	1700000522	05/08/2017	2:09 PM	Walnut Street		East	1	0	0	Cloudy	Dry	Daylight	Hit and Run
2	1700000919	08/11/2017	10:02 AM	Walnut Street		North/Unknown	2	0	0	Clear	Dry	Daylight	Rear-end
3	1700000977	08/25/2017	4:56 PM	Walnut Street		North/North/North	3	0	0	Clear	Dry	Daylight	Rear-end
4	1800000455	04/24/2018	10:34 AM	Walnut Street		North/North	2	0	0	Clear	Dry	Daylight	Angle
5	1800000618	06/02/2018	8:57 AM	Walnut Street		South/South	2	0	0	Clear	Dry	Daylight	Rear-end
6	1800000755	07/02/2018	8:07 PM	Walnut Street		North	1	0	0	Clear	Dry	Daylight	Hit and Run
7	1800000946	08/19/2018	7:00 PM	Walnut Street		South	1	0	0	Clear	Dry	Daylight	Rear-end
8	1800001196	10/21/2018	1:13 PM	Highland Avenue		East/West	2	0	0	Clear	Dry	Daylight	Sideswipe
9	1800000961	08/27/2018	6:03 PM	Walnut Street		South/South	2	0	0	Cloudy	Dry	Daylight	Rear-end
10	1800001460	12/22/2018	10:14 PM	Walnut Street		North/north	2	0	0	Clear	Dry	Dark - roadway not lighted	Rear-end
11	1900000931	09/11/2019	12:12 PM	Walnut Street		South	1	0	0	Clear	Dry	Daylight	Angle
12	1900001130	11/04/2019	2:33 PM	Walnut Street		South	1	0	0	Clear	Dry	Daylight	Single vehicle
13	2000000045	01/13/2020	2:14 PM	Walnut Street		South/South	2	0	0	Cloudy	Wet	Daylight	Rear-end
14	2100000535	07/20/2021	5:09 PM	Walnut Street		North/North	2	0	0	Clear	Dry	Daylight	Sideswipe
15	2100000531	07/20/2021	12:26 PM	Walnut Street		North/north	2	0	0	Clear	Dry	Daylight	Sideswipe
16	2100000621	08/21/2021	2:32 PM	Walnut Street		North/North	2	0	0	Clear	Dry	Daylight	Angle
17	2100000920	11/09/2021	8:04 AM	Walnut Street		North/north	2	0	0	Clear	Dry	Daylight	Angle
18	2100000801	10/09/2021	10:25 AM	Walnut Street		Unknown	1	0	0	Clear	Dry	Daylight	Hit and Run
19	22000212	03/10/2022	1:14 PM	Walnut Street		South/North	2	0	0	Clear	Dry	Daylight	Sideswipe

APPENDIX C

Speed Study Data



Pare Corporation

8 Blackstone Valley Place
Lincoln, RI 02865

www.parecorp.com

Roadway: Highland ave
Location: Newtonville MA
Weather: Sunny, 73 degrees
MSC

File Name : Newtonville Speed Study
Site Code : 20111
Start Date : 9/29/2020
Page No : 1

#	EB	WB
1	23	9
2	21	16
3	28	22
4	25	13
5	20	20
6	17	22
7	21	20
8	22	15
9	19	15
10	17	33
11	24	21
12	27	20
13	24	19
14	26	24
15	19	20
16	26	20
17	18	28
18	18	26
19	20	24
20	18	18
21	25	18
22	31	24
23	17	33
24	21	23
25	26	20
26	29	22
27	22	23
28	26	27
29	24	15
30	26	16
31	24	23
32	25	18
33	26	28
34	25	29
35	22	25
36	27	20
37	21	20
38	29	22
39	24	23
40	30	20
41	26	25
42	28	21
43	26	23
44	27	21
45	23	30
46	24	24
47	24	19
48	25	18
49	27	24
50	28	23
51		

Class	Vehicle Count	85 Percentile	10 MPH Pace Speed	Number in Pace	Percent in Pace	True Median (50th Percentile)	Average Speed	Number of Vehicles Over 30 MPH	Percent of Vehicles Over 30 MPH
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Pare Corporation

8 Blackstone Valley Place
Lincoln, RI 02865

www.parecorp.com

EB	50	27	18 - 27	40	80	24	24	1	2
WB	50	25	15 - 24	38	76	22	22	2	4
Summary	100	27	18 - 27	77	77	23	23	3	3

APPENDIX D

Census Data



NewCAL Traffic
Newton, MA
Background Growth Rate
PARE Project No. 22038.00
June 2, 2022



**US Census Data
City of Newton**

	Population
2020	88,787
2010	85146
Years	10

ANNUAL GROWTH RATE	0.42%
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SAY	0.50%
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<https://www.census.gov/quickfacts/newportcountyrhodeisland>

APPENDIX E

Trip Generation & Distribution Worksheets



Newton Center for Active Living
 Newton, MA
 Trip Generation
 PARE Project No. 20147.00
 June 8, 2022



Proposed Recreational Community Center
Land Use Code 495: Recreational Community Center
Peak Hour of Generator
1000 Sq. Ft. GFA

32.00 Units

On a: Weekday

Average Rate:	28.82*26	922
Fitted Curve Equation:	$\ln(T)=0.98\ln(26)+3.42$	913
Trips Entering	50% * 922	461
Trips Exiting	50% * 922	461
		922

On a: Weekday, AM

On a: Weekday Peak Hour of Adjacent Street Traffic between 7 AM and 9 AM

Average Rate:	1.91 * 26	61
Fitted Curve Equation:		
Trips Entering	66% * 61	40
Trips Exiting	34% * 61	21
		61

On a: Weekday, PM

On a: Weekday Peak Hour of Generator

Average Rate:	2.53 * 26	81
Fitted Curve Equation:	$\ln(T)=0.71\ln(26)+2.31$	118
Trips Entering	47% * 81	38
Trips Exiting	53% * 81	43
		81

2022-2029
TRAFFIC VOLUME SUMMARY
Future No-Build Growth Factor = 0.5%

Weekday AM Peak Hour					
Highland Avenue at Walnut Street					
	2022 Existing	Outside Developments	2029 Future No-Build	Site Generated	2029 Future Build
NB - L	56		58	12	70
NB - T	459	5	481	0	481
SB-T	485	5	508	20	528
SB-R	32		34	7	41
EB-L	20		21	6	27
EB-R	53		55	15	70

Weekday PM Peak Hour					
Highland Avenue at Walnut Street					
	2022 Existing	Outside Developments	2029 Future No-Build	Site Generated	2029 Future Build
NB - L	48		50	10	60
NB - T	521	20	560	0	560
SB-T	488	20	526	19	545
SB-R	36		38	8	46
EB-L	23		24	16	40
EB-R	39		41	27	68

Weekday AM Peak Hour					
Highland Avenue at Senior Center Exit and Philip Bram Way					
	2022 Existing	Outside Developments	2029 Future No-Build	Site Generated	2029 Future Build
NB - L	0		0	0	0
NB - T	0		0	0	0
NB-R	1		2	11	13
SB-L	17		20	4	24
SB-R	5		6	0	6
EB-L	7		9	1	10
EB-T	55		64	6	70
WB_T	50		58	12	70
WB-R	34		40	7	47

Weekday PM Peak Hour					
Highland Avenue at Senior Center Exit and Philip Bram Way					
	2022 Existing	Outside Developments	2029 Future No-Build	Site Generated	2029 Future Build
NB - L	1		2	0	2
NB - T	0		0	0	0
NB-R	0		0	21	21
SB-L	17		18	9	27
SB-R	8		9	0	9
EB-L	3		4	1	5
EB-T	36		38	13	51
WB-T	67		70	11	81
WB-R	16		17	7	24

APPENDIX F




Capacity Analysis Worksheets



HCM 6th TWSC

2: Walnut Street & Highland Avenue

Existing
AM Peak

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	53	56	459	485	32
Future Vol, veh/h	20	53	56	459	485	32
Conflicting Peds, #/hr	21	13	93	0	0	93
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	49	49	89	89	87	87
Heavy Vehicles, %	0	0	2	5	2	0
Mvmt Flow	41	108	63	516	557	37
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1332	682	687	0	-	0
Stage 1	669	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	172	453	907	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	127	408	827	-	-	-
Mov Cap-2 Maneuver	127	-	-	-	-	-
Stage 1	418	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	37.5	1.1		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	827	-	254	-	-	
HCM Lane V/C Ratio	0.076	-	0.587	-	-	
HCM Control Delay (s)	9.7	0	37.5	-	-	
HCM Lane LOS	A	A	E	-	-	
HCM 95th %tile Q(veh)	0.2	-	3.4	-	-	




HCM 6th TWSC
5: NewCal Exit Driveway/Philip Bram Way & Highland Avenue

Existing
AM Peak

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	7	55	0	0	50	34	0	0	1	17	0	5
Future Vol, veh/h	7	55	0	0	50	34	0	0	1	17	0	5
Conflicting Peds, #/hr	10	0	3	3	0	10	1	0	25	25	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	79	79	79	33	33	33	73	73	73
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	20
Mvmt Flow	8	59	0	0	63	43	0	0	3	23	0	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	116	0	-	-	-	0	164	191	84	197	170	96
Stage 1	-	-	-	-	-	-	75	75	-	95	95	-
Stage 2	-	-	-	-	-	-	89	116	-	102	75	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.48
Pot Cap-1 Maneuver	1485	-	0	0	-	-	805	708	981	766	727	913
Stage 1	-	-	0	0	-	-	939	836	-	917	820	-
Stage 2	-	-	0	0	-	-	923	803	-	909	836	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1471	-	-	-	-	-	795	697	958	735	715	903
Mov Cap-2 Maneuver	-	-	-	-	-	-	795	697	-	735	715	-
Stage 1	-	-	-	-	-	-	933	831	-	903	812	-
Stage 2	-	-	-	-	-	-	915	795	-	879	831	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0			8.8			9.9		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	958	1471	-	-	-	-	767					
HCM Lane V/C Ratio	0.003	0.005	-	-	-	-	0.039					
HCM Control Delay (s)	8.8	7.5	0	-	-	-	9.9					
HCM Lane LOS	A	A	A	-	-	-	A					
HCM 95th %tile Q(veh)	0	0	-	-	-	-	0.1					

HCM 6th TWSC
2: Walnut Street & Highland Avenue

No Build
AM Peak

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	55	58	481	508	34
Future Vol, veh/h	21	55	58	481	508	34
Conflicting Peds, #/hr	21	13	93	0	0	93
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	5	2	0
Mvmt Flow	23	60	63	523	552	37

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1334	677	682	0	-	0
Stage 1	664	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	171	456	911	-	-	-
Stage 1	516	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	127	410	830	-	-	-
Mov Cap-2 Maneuver	127	-	-	-	-	-
Stage 1	420	-	-	-	-	-
Stage 2	466	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.9	1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	830	-	254	-	-
HCM Lane V/C Ratio	0.076	-	0.325	-	-
HCM Control Delay (s)	9.7	0	25.9	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.2	-	1.4	-	-




HCM 6th TWSC
5: NewCal Exit Driveway/Philip Bram Way & Highland Avenue

No Build
AM Peak

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	64	0	0	58	40	0	0	2	20	0	6
Future Vol, veh/h	9	64	0	0	58	40	0	0	2	20	0	6
Conflicting Peds, #/hr	10	0	3	3	0	10	1	0	25	25	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	20
Mvmt Flow	10	70	0	0	63	43	0	0	2	22	0	7
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	116	0	-	-	-	0	179	206	95	211	185	96
Stage 1	-	-	-	-	-	-	90	90	-	95	95	-
Stage 2	-	-	-	-	-	-	89	116	-	116	90	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.48
Pot Cap-1 Maneuver	1485	-	0	0	-	-	787	694	967	750	713	913
Stage 1	-	-	0	0	-	-	922	824	-	917	820	-
Stage 2	-	-	0	0	-	-	923	803	-	894	824	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1471	-	-	-	-	-	777	682	944	720	701	903
Mov Cap-2 Maneuver	-	-	-	-	-	-	777	682	-	720	701	-
Stage 1	-	-	-	-	-	-	916	818	-	902	812	-
Stage 2	-	-	-	-	-	-	915	795	-	865	818	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.9		0			8.8			10			
HCM LOS						A			B			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1						
Capacity (veh/h)	944	1471	-	-	-	755						
HCM Lane V/C Ratio	0.002	0.007	-	-	-	0.037						
HCM Control Delay (s)	8.8	7.5	0	-	-	10						
HCM Lane LOS	A	A	A	-	-	B						
HCM 95th %tile Q(veh)	0	0	-	-	-	0.1						

HCM 6th TWSC
2: Walnut Street & Highland Avenue

Build
AM Peak

Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	70	70	481	528	41
Future Vol, veh/h	27	70	70	481	528	41
Conflicting Peds, #/hr	21	13	93	0	0	93
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	5	2	0
Mvmt Flow	29	76	76	523	574	45
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1386	703	712	0	-	0
Stage 1	690	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	159	441	888	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	114	397	809	-	-	-
Mov Cap-2 Maneuver	114	-	-	-	-	-
Stage 1	397	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	32.2	1.3		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	809	-	235	-	-	
HCM Lane V/C Ratio	0.094	-	0.449	-	-	
HCM Control Delay (s)	9.9	0	32.2	-	-	
HCM Lane LOS	A	A	D	-	-	
HCM 95th %tile Q(veh)	0.3	-	2.2	-	-	

HCM 6th TWSC
5: NewCal Exit Driveway/Philip Bram Way & Highland Avenue

Build
AM Peak

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	70	0	0	70	47	0	0	13	24	0	6
Future Vol, veh/h	10	70	0	0	70	47	0	0	13	24	0	6
Conflicting Peds, #/hr	10	0	3	3	0	10	1	0	25	25	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	20
Mvmt Flow	11	76	0	0	76	51	0	0	14	26	0	7




Major/Minor	Major1		Major2			Minor1		Minor2				
Conflicting Flow All	137	0	-	-	-	0	204	235	101	242	210	113
Stage 1	-	-	-	-	-	-	98	98	-	112	112	-
Stage 2	-	-	-	-	-	-	106	137	-	130	98	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.48
Pot Cap-1 Maneuver	1459	-	0	0	-	-	758	669	960	716	691	893
Stage 1	-	-	0	0	-	-	913	818	-	898	807	-
Stage 2	-	-	0	0	-	-	905	787	-	878	818	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1445	-	-	-	-	-	747	657	937	678	679	884
Mov Cap-2 Maneuver	-	-	-	-	-	-	747	657	-	678	679	-
Stage 1	-	-	-	-	-	-	906	811	-	883	799	-
Stage 2	-	-	-	-	-	-	897	779	-	837	811	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	8.9	10.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	937	1445	-	-	-	711
HCM Lane V/C Ratio	0.015	0.008	-	-	-	0.046
HCM Control Delay (s)	8.9	7.5	0	-	-	10.3
HCM Lane LOS	A	A	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	-	0.1

HCM 6th TWSC
2: Walnut Street & Highland Avenue

Existing
PM Peak

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	39	48	521	488	36
Future Vol, veh/h	23	39	48	521	488	36
Conflicting Peds, #/hr	21	17	72	0	0	72
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	93	93	88	88
Heavy Vehicles, %	0	0	0	1	0	3
Mvmt Flow	25	43	52	560	555	41
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1333	665	668	0	-	0
Stage 1	648	-	-	-	-	-
Stage 2	685	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	172	464	931	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	136	425	867	-	-	-
Mov Cap-2 Maneuver	136	-	-	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	469	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	26.1	0.8		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	867	-	238	-	-	
HCM Lane V/C Ratio	0.06	-	0.286	-	-	
HCM Control Delay (s)	9.4	0	26.1	-	-	
HCM Lane LOS	A	A	D	-	-	
HCM 95th %tile Q(veh)	0.2	-	1.1	-	-	




HCM 6th TWSC
5: NewCal Exit Driveway/Philip Bram Way & Highland Avenue

Existing
PM Peak

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	36	0	0	67	16	1	0	0	17	0	8
Future Vol, veh/h	3	36	0	0	67	16	1	0	0	17	0	8
Conflicting Peds, #/hr	6	0	6	6	0	6	1	0	12	12	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	88	88	88	58	58	58	60	60	60
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	13
Mvmt Flow	4	47	0	0	76	18	2	0	0	28	0	13
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	-	-	-	0	148	155	59	158	146	92
Stage 1	-	-	-	-	-	-	55	55	-	91	91	-
Stage 2	-	-	-	-	-	-	93	100	-	67	55	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.33
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.417
Pot Cap-1 Maneuver	1505	-	0	0	-	-	825	741	1012	813	749	936
Stage 1	-	-	0	0	-	-	962	853	-	921	823	-
Stage 2	-	-	0	0	-	-	919	816	-	948	853	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1496	-	-	-	-	-	810	734	1000	798	742	930
Mov Cap-2 Maneuver	-	-	-	-	-	-	810	734	-	798	742	-
Stage 1	-	-	-	-	-	-	959	850	-	913	818	-
Stage 2	-	-	-	-	-	-	905	811	-	934	850	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0			9.5			9.5		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1						
Capacity (veh/h)	810	1496	-	-	-	836						
HCM Lane V/C Ratio	0.002	0.003	-	-	-	0.05						
HCM Control Delay (s)	9.5	7.4	0	-	-	9.5						
HCM Lane LOS	A	A	A	-	-	A						
HCM 95th %tile Q(veh)	0	0	-	-	-	0.2						

HCM 6th TWSC
2: Walnut Street & Highland Avenue

No Build
PM Peak

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	41	50	560	526	38
Future Vol, veh/h	24	41	50	560	526	38
Conflicting Peds, #/hr	21	17	72	0	0	72
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	0	3
Mvmt Flow	26	45	54	609	572	41
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1403	682	685	0	-	0
Stage 1	665	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	156	453	918	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	415	855	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	28.9	0.8		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	855	-	220	-	-	
HCM Lane V/C Ratio	0.064	-	0.321	-	-	
HCM Control Delay (s)	9.5	0	28.9	-	-	
HCM Lane LOS	A	A	D	-	-	
HCM 95th %tile Q(veh)	0.2	-	1.3	-	-	




HCM 6th TWSC
5: NewCal Exit Driveway/Philip Bram Way & Highland Avenue

No Build
PM Peak

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	38	0	0	70	17	2	0	0	18	0	9
Future Vol, veh/h	4	38	0	0	70	17	2	0	0	18	0	9
Conflicting Peds, #/hr	6	0	6	6	0	6	1	0	12	12	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	13
Mvmt Flow	4	41	0	0	76	18	2	0	0	20	0	10
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	-	-	-	0	140	149	53	152	140	92
Stage 1	-	-	-	-	-	-	49	49	-	91	91	-
Stage 2	-	-	-	-	-	-	91	100	-	61	49	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.33
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.417
Pot Cap-1 Maneuver	1505	-	0	0	-	-	835	746	1020	820	755	936
Stage 1	-	-	0	0	-	-	969	858	-	921	823	-
Stage 2	-	-	0	0	-	-	921	816	-	955	858	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1496	-	-	-	-	-	823	739	1008	804	748	930
Mov Cap-2 Maneuver	-	-	-	-	-	-	823	739	-	804	748	-
Stage 1	-	-	-	-	-	-	966	855	-	913	818	-
Stage 2	-	-	-	-	-	-	910	811	-	941	855	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0			9.4			9.4		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	823	1496	-	-	-	-	842					
HCM Lane V/C Ratio	0.003	0.003	-	-	-	-	0.035					
HCM Control Delay (s)	9.4	7.4	0	-	-	-	9.4					
HCM Lane LOS	A	A	A	-	-	-	A					
HCM 95th %tile Q(veh)	0	0	-	-	-	-	0.1					

HCM 6th TWSC
2: Walnut Street & Highland Avenue

Build
PM Peak

Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	68	60	560	545	46
Future Vol, veh/h	40	68	60	560	545	46
Conflicting Peds, #/hr	21	17	72	0	0	72
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	0	3
Mvmt Flow	43	74	65	609	592	50
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1449	706	714	0	-	0
Stage 1	689	-	-	-	-	-
Stage 2	760	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	146	439	895	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	112	402	834	-	-	-
Mov Cap-2 Maneuver	112	-	-	-	-	-
Stage 1	412	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	43.8	0.9		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	834	-	205	-	-	
HCM Lane V/C Ratio	0.078	-	0.573	-	-	
HCM Control Delay (s)	9.7	0	43.8	-	-	
HCM Lane LOS	A	A	E	-	-	
HCM 95th %tile Q(veh)	0.3	-	3.1	-	-	

HCM 6th TWSC
5: NewCal Exit Driveway/Philip Bram Way & Highland Avenue

Build
PM Peak

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	51	0	0	81	24	2	0	21	27	0	9
Future Vol, veh/h	5	51	0	0	81	24	2	0	21	27	0	9
Conflicting Peds, #/hr	6	0	6	6	0	6	1	0	12	12	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	2	0	0	0	0	0	0	13
Mvmt Flow	5	55	0	0	88	26	2	0	23	29	0	10

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	120	0	-	-	-	0	172	185	67	196	172	108
Stage 1	-	-	-	-	-	-	65	65	-	107	107	-
Stage 2	-	-	-	-	-	-	107	120	-	89	65	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.33
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.417
Pot Cap-1 Maneuver	1480	-	0	0	-	-	796	713	1002	767	725	917
Stage 1	-	-	0	0	-	-	951	845	-	903	811	-
Stage 2	-	-	0	0	-	-	903	800	-	923	845	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1472	-	-	-	-	-	784	706	991	734	718	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	784	706	-	734	718	-
Stage 1	-	-	-	-	-	-	947	842	-	894	806	-
Stage 2	-	-	-	-	-	-	892	795	-	888	842	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0	8.8	9.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	969	1472	-	-	-	771
HCM Lane V/C Ratio	0.026	0.004	-	-	-	0.051
HCM Control Delay (s)	8.8	7.5	0	-	-	9.9
HCM Lane LOS	A	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	-	0.2