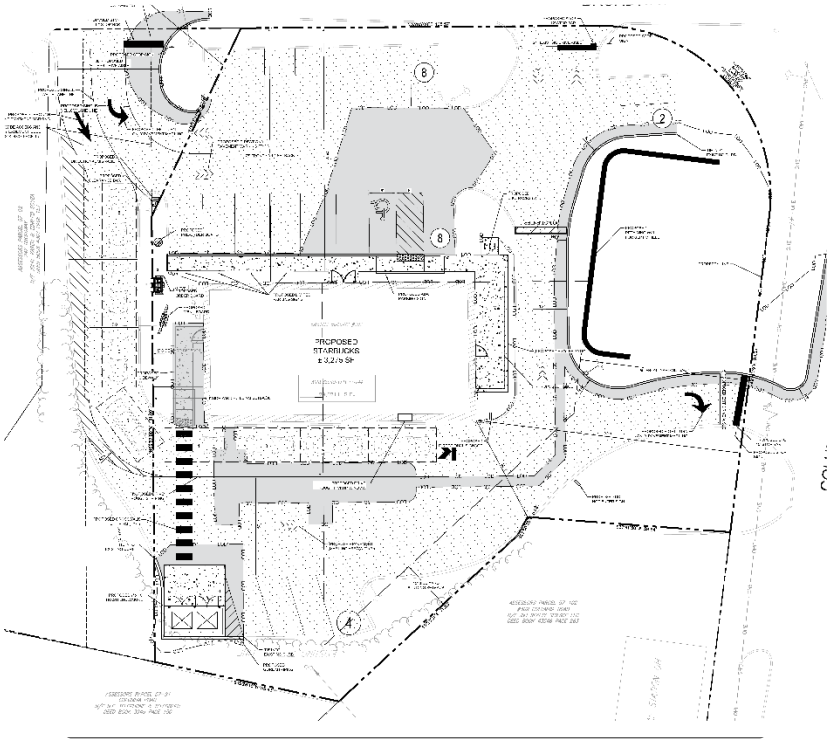
Traffic Impact & Access Study
For Submittal to the
Town of Hanover

PROPOSED STARBUCKS
HANOVER, MASSACHUSETTS



Kimley»Horn

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February 2023
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PROPOSED STARBUCKS
HANOVER, MASSACHUSETTS
TRAFFIC IMPACT & ACCESS STUDY

PREPARED FOR
STARBUCKS COFFEE COMPANY

FEBRUARY 2023

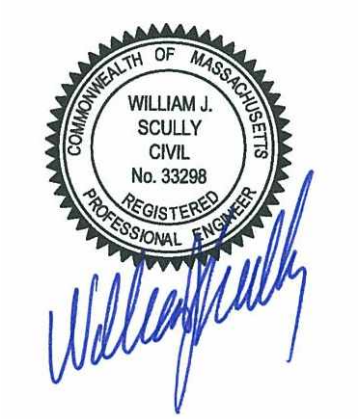
Prepared By:

Kimley»Horn

Prepared under the Supervision of:

Bill Scully, P.E.
Kimley-Horn and Associates, Inc.
Email: Bill.Scully@Kimley-Horn.com

404 Wyman Street, Suite 385
Waltham, MA 02451
Phone: (617) 466-6347



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EXECUTIVE SUMMARY

PURPOSE OF REPORT AND STUDY OBJECTIVES

This report presents the results of a traffic impact and access study for the redevelopment of a former bank office to a new coffee/donut shop with drive-through, located in the Town of Hanover. At the request of Starbucks Coffee Company, the purpose of the study is to assess the redevelopments' impact on the roadway network, site access, and circulation as part of the local approval process. This report describes the area transportation system, existing traffic volumes and analysis, and the calculation of Future No-Build and Future Build traffic volumes and analysis. The Future Build for this project is 2029. The methodology is consistent with MassDOT traffic analysis guidelines.

SITE LOCATION AND STUDY AREA

The proposed redevelopment is located at 303 Columbia Road in the Town of Hanover, Massachusetts. The proposed redevelopment is at the southeast quadrant of the signalized intersection of Columbia Road & Broadway. This is a redevelopment of an existing 3,868 square feet vacant commercial building, formally a branch bank office. The two (2) existing driveways along Broadway currently permit all movements and one (1) driveway along Columbia Road permits right-turn only egress, under both the former use and the proposed use at this time. The proposed coffee/ shop with drive-through will use the existing building footprint and contain 48 seats (34 indoor seating and 14 outdoor seating). The proposed redevelopment will include a total of twenty-two (22) parking spaces with four (4) designated as mobile order parking spaces and there will also be one (1) handicapped space.

PRINCIPAL FINDINGS AND CONCLUSIONS

Under Existing Conditions, the intersection of Columbia Road & Broadway operates with high delays and congestion during the AM and PM peak hours, respectively. The intersection experiences high traffic volumes, particularly along Columbia Road with limited lane capacity. As a result, high vehicle delays are incurred and low associated levels of service. The intersection, however, is under MassDOT jurisdiction and any improvements or changes at this location need to be initiated by them.

The calculated overall intersection crash rate at Columbia Road & Broadway, 0.61, is below the MassDOT District 5 average crash rate, 0.75. The most frequent crash types were angle crashes and the crashes occurred mostly during dry conditions.

The analysis of traffic with respect to the development of a new coffee shop with a drive-through located at 303 Columbia Road in the Town of Hanover was completed following standard practice. The key findings of this traffic impact and access study are as follows:

- The proposed redevelopment is expected to generate 1,239 new daily vehicle trips to the surrounding network. This includes both entering and existing trips and accounts for pass-by traffic as well. Of this, there will be a total of 100 net new vehicle trips (entering and exiting) during the AM peak hour and 32 net new vehicle trips (entering and exiting) during the PM peak hour. As would be expected for this type of land use, a significantly high portion of site trips will be made up of motorists already on the road (i.e., pass-by trips).

- The existing site contains a 3,868 square feet vacant commercial building that was formally a branch bank office. The proposed project is expected to generate an additional 62 net new vehicle trips during the AM peak hour and a reduction of 49 net new vehicle trips during the PM peak hour, when compared between the former bank use and proposed redevelopment. Note that the values of these net new vehicle trips were not utilized in the analysis since the site was vacant during the data collection.
- The Columbia Road/Broadway intersection operations will worsen in the future as traffic volumes normally grow over time and if no improvements are implemented by MassDOT. Improvements beyond signal timing changes would be needed to alleviate the peak hour delays experienced at this location.
- The study intersections are expected to perform similarly under the 2029 Build Conditions as they do under the No-Build Conditions with no changes in levels of service and small increases in approach vehicle. The proposed redevelopment project is not expected to create any new deficiencies.
- The proposed Site Driveways along Broadway and Columbia Road are expected to operate at LOS C or better during the AM and PM peak hours indicating that vehicles will be able to enter and exit the site with fairly short delays and thereby minimizing impacts to the through movements along the abutting streets. This is partially due to travel patterns and traffic restrictions to be proposed and/or maintained at the stie drives.
- Although the analysis shows that the proposed project will not increase traffic volumes substantially, particularly when accounting for the previous bank use on the site, there is a recognition of high volumes on the abutting streets and the concerns at the adjacent signalized intersection, a set of recommended actions have been identified in relation to the site related traffic control as follows:
    - East Driveway & Broadway: Restrict movement at the driveway to right-in/right-out (RIRO) only
    - West Driveway & Broadway: Full movement access (no change)
        - To prevent any spillback onto Broadway, the West Driveway should widen to include two (2) inbound lanes, one (1) lane to the drive-thru and one (1) to the parking spaces.
    - Site Driveway & Columbia Road: Retain right-turn egress only (no change)
- Install pavement markings and posted signs of “Do Not Block the Box” at the South Driveway & Broadway so the westbound left-turn vehicles can enter the site without delay and minimal impact to westbound thru movement.
- Four (4) mobile parking spaces will be designated in front of the building.
- There is storage space for seven (7) vehicles in the queue between the pick-up window and the order board with an additional three (3) spaces behind the order board. During the AM peak hour, the average queue length is estimated to be three (3) vehicles. The probability of the queue extending past the order board is estimated to be approximately six percent (5.6%) during the AM peak hour and the site will provide for a vehicle queue capacity of 10 vehicles.

INTRODUCTION

This report has been prepared by Kimley-Horn and Associates, Inc. to document the potential traffic impacts associated with the proposed redevelopment of an existing 3,868 square feet vacant commercial building, formally a branch bank office to a Starbucks with drive-through, which will consist of 3,868 square feet with 48 seats (34 indoor seating and 14 outdoor seating) located at 303 Columbia Road in the Town of Hanover, Massachusetts. The proposed redevelopment is at the southeast quadrant of the signalized intersection of Columbia Road & Broadway. The two (2) existing driveways along Broadway permit all movements and one (1) driveway along Columbia Road permits right-turn only egress, under both the former use and the proposed use at this time. The purpose of the study is to assess the redevelopments' impact on the roadway network, site access, and circulation. **Figure 1** illustrates the location of the proposed redevelopment and study intersections.

This report summarizes the data collection, trip generation, trip distribution and assignment, and intersection capacity analysis.

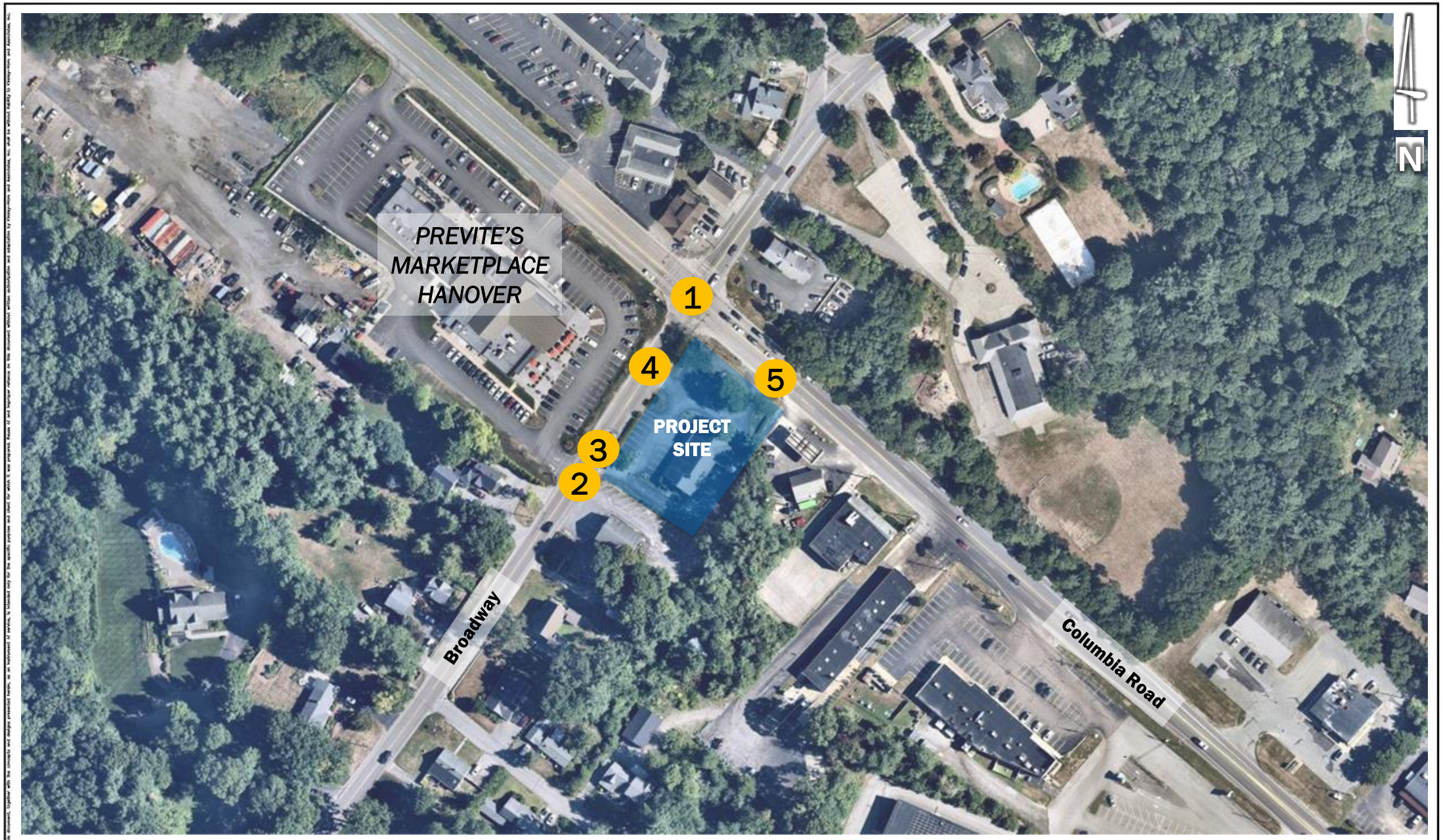
EXISTING CONDITIONS

ROADWAY NETWORKS

Evaluation of the traffic impacts associated with the redevelopment on the surrounding roadway network in the project vicinity requires a thorough understanding of the existing roadway system in the vicinity of the site. The existing conditions observed in the study area include an inventory of the roadways, speed limits, intersection geometry, and traffic control devices. Key roadways in the study area include Columbia Road and Broadway. It was assumed that Columbia Road is northbound/southbound, and Broadway is eastbound/westbound.

Columbia Road (Route 53) is a north-south, four-lane undivided roadway with a posted speed limit of 35 miles per hour (MPH). It is classified by Massachusetts Department of Transportation (MassDOT) as a Principal Arterial – Other and is under the jurisdiction of MassDOT.

Broadway is an east-west, two-lane undivided roadway with a posted speed limit of 25 MPH. It is classified by the MassDOT as a Minor Arterial and is under the jurisdiction of the Town of Hanover.



Kimley»Horn	PROPOSED STARBUCKS HANOVER, MA	SITE VICINITY AND STUDY INTERSECTIONS	FIGURE 1

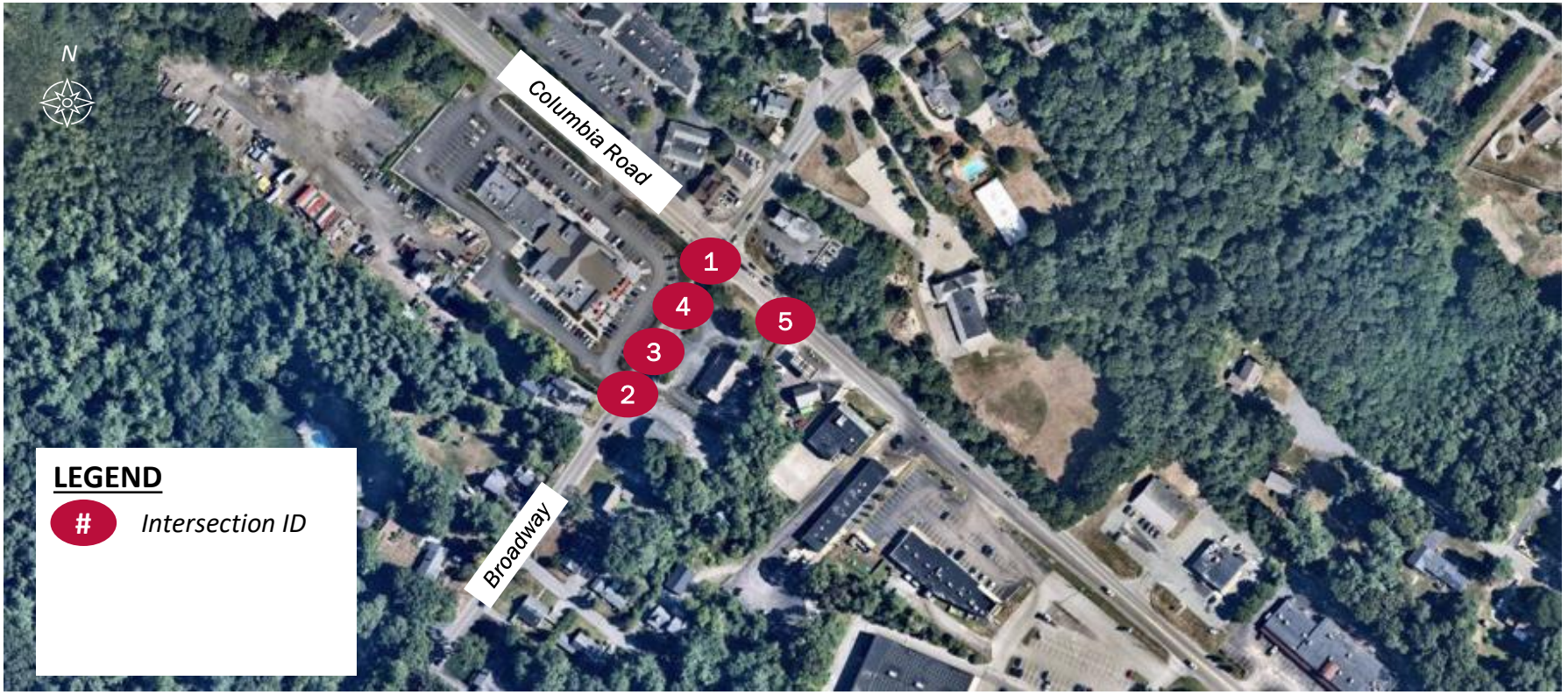
DESCRIPTION OF STUDY INTERSECTIONS

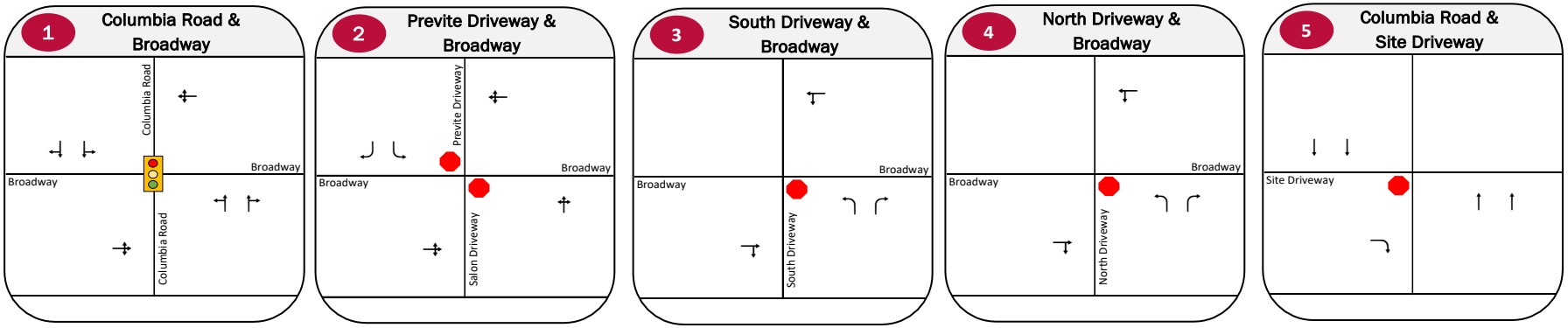
Columbia Road & Broadway is a four-legged signalized intersection and is owned and maintained by MassDOT. The northbound approach provided by Columbia Road permits all movements via one (1) shared thru/left-turn lane and one (1) shared thru/right-turn lane. The northbound left-turn is a protected-permissive movement. The southbound approach provided by Columbia Road permits all movements via one (1) shared thru/left-turn lane and one (1) shared thru/right-turn lane. The eastbound approach provided by Broadway permits all movements via one (1) shared left/thru/right-turn lane. The westbound approach provided by Broadway permits all movements via one (1) shared left/thru/right-turn lane. The existing crosswalk markings on all legs of the intersection are worn off. There are pedestrian signal heads on all legs of the intersection.

Previte Driveway/Salon Driveway & Broadway is a four-legged unsignalized intersection. The eastbound and westbound approach is provided by Broadway and permits all movements via one (1) shared left/thru/right-turn lane. The southbound approach provided by Previte Driveway permits left turn movements via one (1) left-turn lane and right-turn movements via one (1) right-turn lane. The northbound approach provided by Salon Driveway permits all movements via one (1) shared left/thru/right lane. The northbound and southbound approaches are stop-controlled. There are no crosswalk markings or pedestrian signal heads on any approach.

The study intersections with the intersection geometry and traffic controls at each of the two (2) study intersections are provided graphically in **Figure 2**. Additionally, there are two (2) site driveways along Broadway, which are assumed to be full access movements and one (1) site driveway along Columbia Road, which is assumed right-turn only egress.

Figure 2: Lane Designations and Traffic Control





PEDESTRIAN, BICYCLE, AND TRANSIT FACILITIES

Sidewalk and bicycle facilities are not provided within the site vicinity. However, there are faded crosswalk markings and pedestrian signal heads on all legs of the signalized intersection of Columbia Road & Broadway.

The Greater Attleboro and Taunton Regional Transit Authority (GATRA) operates in Plymouth County, but public transportation is not provided within the vicinity of the site.

TRAFFIC DATA COLLECTION

Existing traffic volumes were based upon turning movement counts (TMCs) collected on Thursday, December 1, 2022, at the two (2) study intersections as part of this analysis. TMCs were conducted during the AM peak period (7:00 AM – 9:00 AM) and PM peak period (4:00 PM – 6:00 PM) at the following two (2) intersections.

- Columbia Road & Broadway
- Previte Driveway/Salon Driveway & Broadway

The AM peak hour occurred between 7:30 – 8:30 AM and the PM peak hour occurred between 4:00 – 5:00 PM.

The December traffic volumes along Broadway, an Urban Minor Arterial Roadway, are less than average conditions, thus a seasonal adjustment factor of 1.04 was applied to the existing traffic volumes along Broadway. The December traffic volumes along Columbia Road, a Principal Arterial, are within average conditions, thus a seasonal adjustment factor was not needed along Columbia Road. **Figure 3** presents the existing turning movement volumes at the study intersections during the AM and PM peak hours.

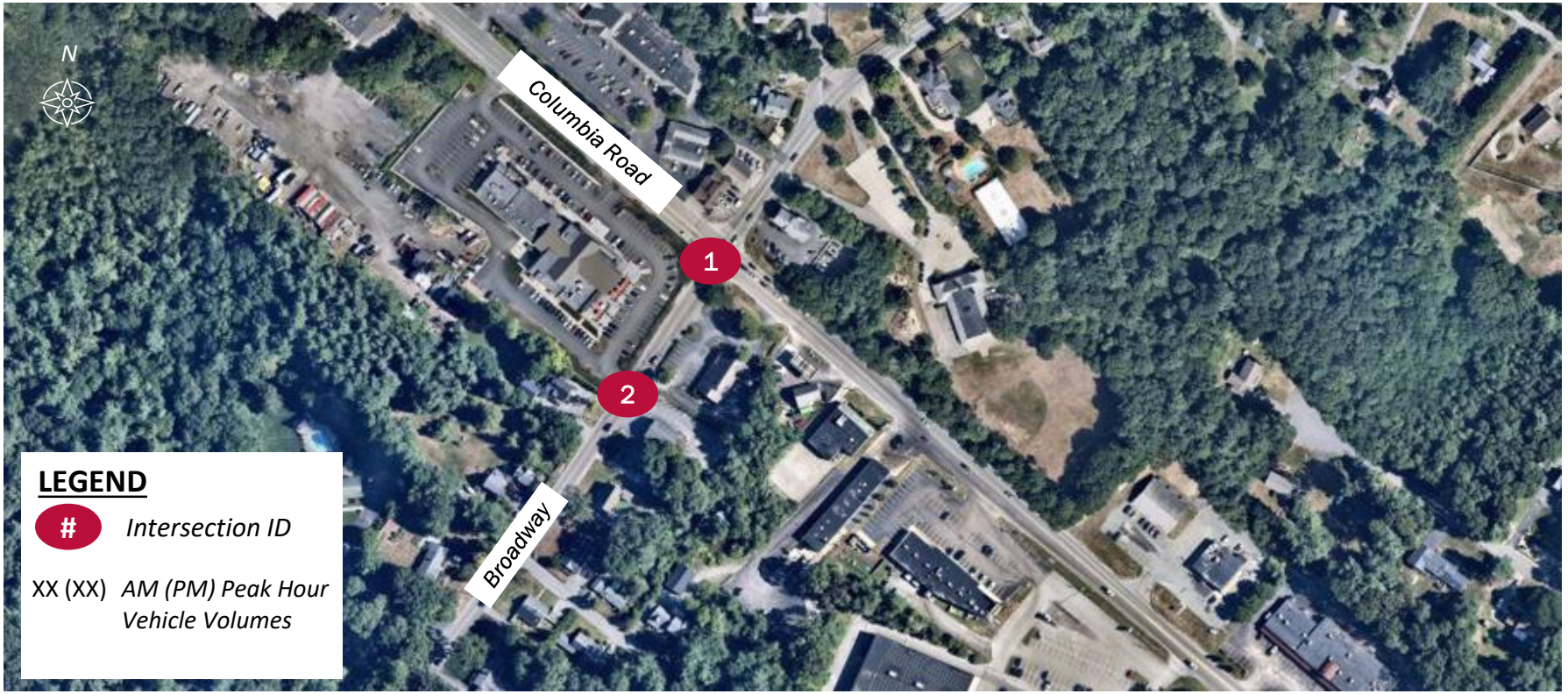
Automatic traffic recorders (ATRs) for 48-hours were collected on Wednesday, November 30, 2022, to Thursday, December 1, 2022, at two (2) locations to understand the travel patterns.

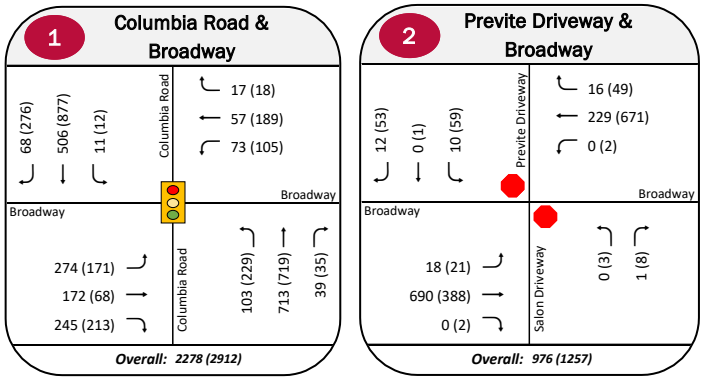
- Columbia Road south of Broadway
- Broadway west of Columbia Road

For the 85th percentile speed along Columbia Road is 41 MPH and the posted speed limit is 35 MPH and the 85th percentile speed along Broadway is 33 MPH and the posted speed limit is 25 MPH. Both of the 85th percentile speed is higher than the posted speed limit. However, the 50th percentile speed along Columbia Road is 36 MPH and along Broadway is 28 MPH, both within close range of the posted speed limit. The average volume along Columbia Road is 24,420 vehicles per day, with the northbound direction of 11,570 vehicles per day (47%) and the southbound direction of 12,850 vehicles per day (53%). The average volume along Broadway is 12,130 vehicles per day, with the eastbound direction of 6,030 vehicles per day (50%) and the westbound direction of 6,100 vehicles per day (50%).

The turning movement counts, 48-hour continuous counts, and seasonal factor are included in **Appendix A**.

Figure 3: Existing Conditions AM & PM Peak Hour Vehicle Volumes





CRASH HISTORY

Crash data was obtained from the MassDOT Crash Data Portal for the most recently completed three-year period from January 1, 2017, to December 31, 2019, at the two (2) study intersections. For the period between 2017 and 2019, there was a total of 23 crashes, which occurred a Columbia Road & Broadway. There were no crashes at the intersection of Previte Driveway/Salon Driveway & Broadway. A review of the data is provided in **Table 1**.

Please note that data from 2020 was during the pandemic when traffic volumes were significantly reduced were not included in the analysis of crash data. Data from 2021 is not yet considered complete by MassDOT and therefore, has not been incorporated into the crash analysis.

Approximately, 11 crashes (48%) resulted in an injury and one (1) crash resulted in a fatality. The one (1) fatality was an angle crash that occurred at 8:13 PM with dark and dry roadway conditions. The most frequent crash type that occurred were angle crashes, 13 crashes (56%) with no collision with pedestrian and bicyclists and 18 crashes (78%) occurred during dry conditions. However, nine (9) crashes (39%) occurred during dark (lit) lighting conditions. An intersection crash rate was calculated at Columbia Road & Broadway and was compared to MassDOT District 5 average crash rate to determine if potential safety issues exist. The MassDOT District 5 crash rate for a signalized intersection is 0.75. The crash rate at the intersection of Columbia Road (Route 53) & Broadway was calculated to be 0.61, which is below the MassDOT District 5 average crash rates.

The crash history and intersection crash rate worksheet can be found in **Appendix B**.

Table 1. Crash Data Summary	
	Columbia Road & Broadway
Total Number of Crashes	**23**
Property Damage	10
Injury	11
Fatality	1
Not Reported	1
Type of Crashes	
Rear End	2
Angle	13
Side Swipe	4
Head On	3
Single Vehicles	1
Collision with Ped/Bike	0
Other/Unknown	0
Time of Day	
6:01 AM - 10:00 AM	6
10:01 AM - 4:00 PM	6
4:01 PM - 7:00 PM	2
7:01 PM - 6:00 AM	9
Year	
2017	4
2018	10
2019	9
Weather Conditions	
Clear	12
Cloudy	6
Wet	3
Snow/Ice	2
Other/Unknown	0
Light Conditions	
Daylight	13
Dawn/Dusk	0
Dark (Unlit)	0
Dark (Lit)	9
Unknown	1
Annual Average Crashes	**8**
Intersection Crash Rate	**0.61**
MassDOT District 5 Average Crash Rate	**0.75**
Signal Control	**Signalized**

FUTURE NO-BUILD CONDITIONS

Future No-Build traffic conditions are defined as expected traffic conditions on the roadway network in the year 2029 without the construction of the redevelopment. Future No-Build traffic volumes used in the analysis are the sum of the existing traffic, vicinity development traffic, and additional traffic generated by growth in the study area. Refer to **Figure 4** for the future 2029 peak hour No-Build traffic volumes.

BACKGROUND TRAFFIC GROWTH

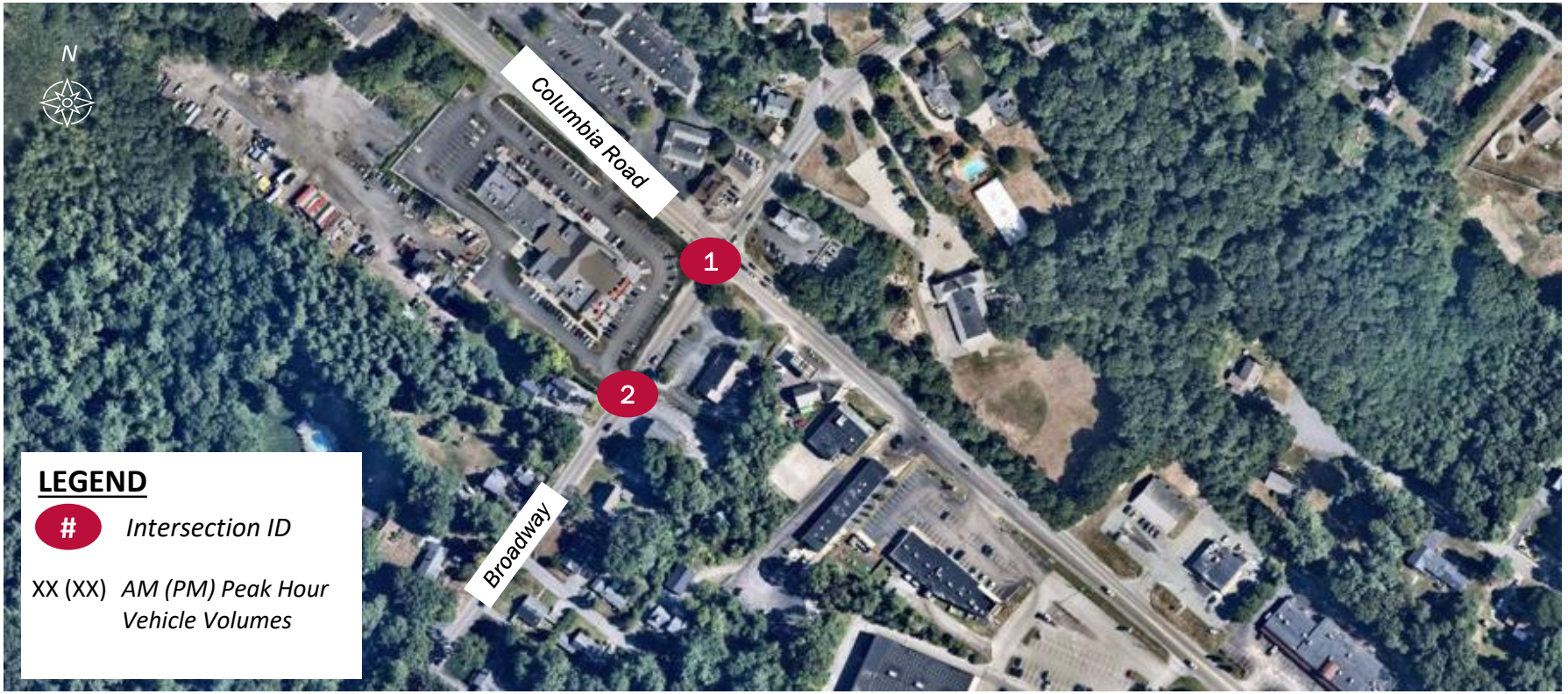
Traffic growth on the transportation network was determined based upon the Supplemental Transportation Impact Assessment (STIA) for the *Pembroke Country Club Age-Qualified Village, dated October 28, 2022,* utilizing an annual growth rate of one percent (1.0%). This *STIA* was for a proposed Age-Qualified Residential Development, located at 94 West Elm Street in the Town of Pembroke and includes the study intersection of Columbia Road & Broadway. Therefore, an annual growth rate of one percent (1.0%) will be applied annually to the existing traffic volumes for future (2029) No-Build conditions to be consistent. The excerpt of the growth rate from the *STIA for the Pembroke Country Club Age-Qualified Village* is included in **Appendix C**.

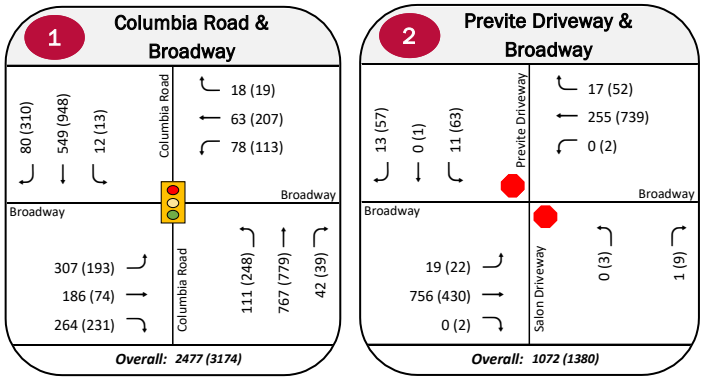
VICINITY DEVELOPMENTS

Per the previously prepared *STIA for the Pembroke Country Club Age-Qualified Village*, four (4) developments are within close proximity to the site and are to be included in the Future No-Build conditions, including the Pembroke Country Club Age-Qualified Village. The trip assignment for these four (4) developments are included in the Future No-Build Conditions and are described below as well as included in **Appendix D**.

- Pembroke Country Club Age-Qualified Village – 172 dwelling units located at 94 West Elm Street, Pembroke, which is south of the redevelopment.
- Previte's Marketplace Expansion – 3,000± square feet expansion located at 385 Columbia Road, Hanover, which is west of the redevelopment.
- Oakland Estates Residential Development – nine (9) lot subdivision located along Oakland Street, Hanover, which is north of the redevelopment.
- Nathan Estates Residential Development – six (6) lot subdivision located along Broadway, Hanover, which is south of the redevelopment

Figure 4: Future No-Build Conditions AM & PM Peak Hour Traffic Volumes





PROJECT TRAFFIC

Project traffic used in this analysis is defined as the vehicle trips expected to be generated by the redevelopment and the distribution and assignment of that traffic over the study roadway network.

TRIP GENERATION

Trip generation calculations for the proposed redevelopment were performed using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 11th Edition*. The trip generation for the former use was determined using ITE Land Use Code (LUC) 912 (Drive-in Bank). The trip generation for the proposed redevelopment was determined using ITE LUC 937 (Coffee/Donut Shop with Drive-Through Window). Project trips were estimated for the weekday AM and PM peak hours. The forecasts are described below while detailed trip generation information is included in **Appendix E**.

Pass-By Capture

Pass-by trips are a subset of trips traveling along a roadway that stops by a near-by commercial development. They are motorists (or patrons) already on the roadway and are not new trips being generated. Pass-by capture trip rates were determined based on average rates provided in the ITE's, *Trip Generation Handbook, 3rd Edition*. Pass-by rates are not provided for LUC 937 (Coffee/Donut Shop with Drive-Through Window); therefore, pass-by rates for LUC 934 (Fast Food Restaurant with Drive-Through Window) were utilized. The average pass-by rate for LUC 934 (Fast Food Restaurant with Drive-Through Window) is fifty percent (50%) during the AM peak hour and fifty-five percent (55%) during the PM peak hour. The pass-by rates for daily trips were assumed forty percent (40%).

Net New Project Trips

Net new project trips are equal to the gross total project trips minus the pass-by capture trips. The net new project trips represent the additional vehicles on the roadway network. **Table 2** summarizes the project's trip generation potential for the AM and PM peak hours. As shown in **Table 2**, the proposed redevelopment is expected to generate 100 net new vehicle trips (52 entering and 48 exiting) during the AM peak hour and 32 net new vehicle trips (14 entering and 18 exiting) during the PM peak hour. The percentages of this use are approximately 50% entering and 50% exiting as shown in **Table 2** .

Table 2: Trip Generation					
AM Peak Hour (PM Peak Hour)					
Land Use Code (ITE Code)	**Scale**	**Daily**	**Net External Trips**	**Entering**	**Exiting**
				Trips	**Trips**
Existing Development					
Drive-in Bank (912)	3,868 square feet	387	38 (81)	22 (41)	16 (40)
Proposed Redevelopment					
Coffee/Donut Shop with Drive-Through Window (937)	48 seats	2,065	199 (72)	103 (32)	96 (40)
Estimated Pass-By Trips[1]					
		826	-99 (-40)	-51 (-18)	-48 (-22)
Net New Redevelopment[2]					
Net New Vehicle Trips		**1,239**	**100 (32)**	**52 (14)**	**48 (18)**

[1]The pass-by rates for the AM peak hour are 50% and PM peak hour is 55%; LUC 934 (Fast Food Restaurant with Drive-Through Window). The pass-by rate for the daily trips was assumed to be40% although it could be higher.
[2]The net new redevelopment does not take in account the existing development since it was not occupied at the time of this analysis.

TRIP DISTRIBUTION AND ASSIGNMENT

The anticipated distribution of project traffic was forecasted for the trips expected to be generated by the redevelopment. The distribution was estimated for all vehicles who may access the site. For the facility's general traffic, the trip distribution estimate was based on existing traffic volumes. The trip distribution along the roadway network is provided in **Table 3**.

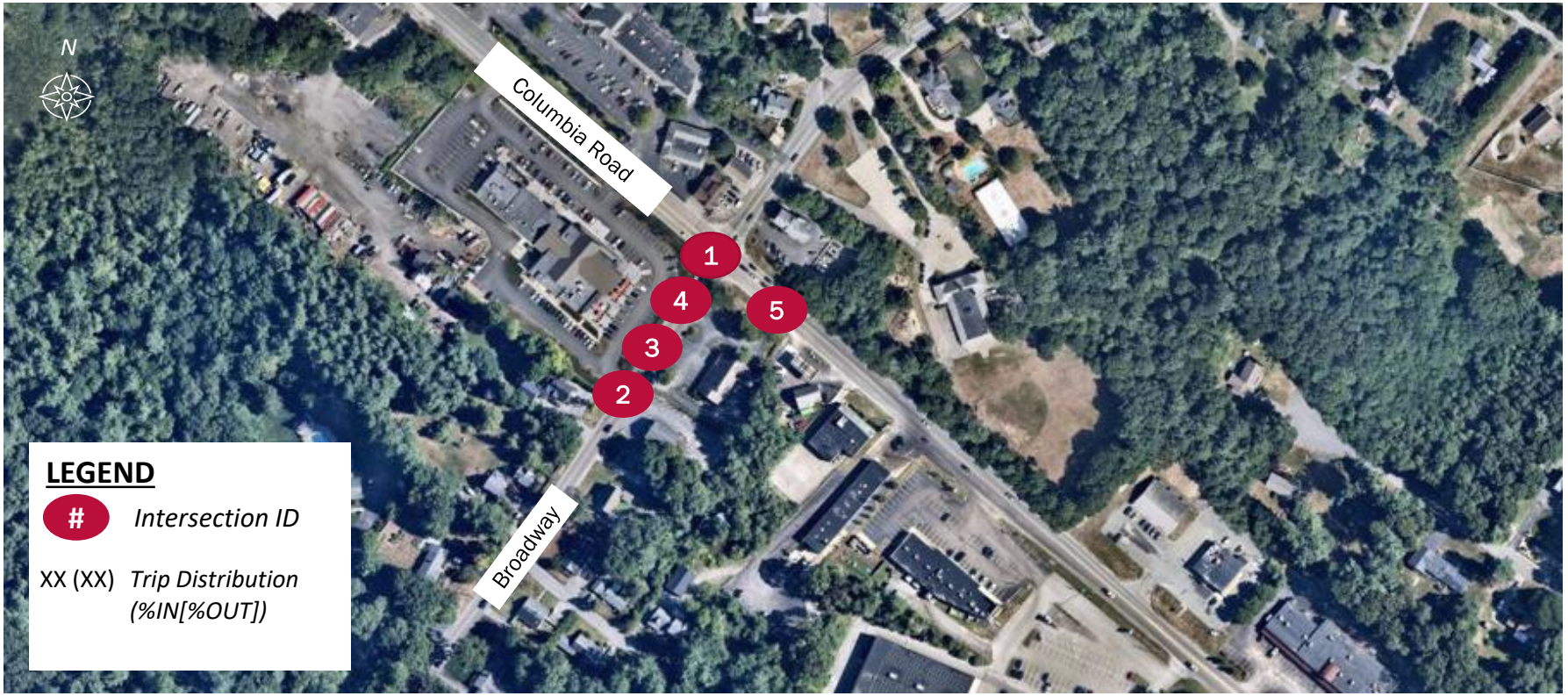
Table 3. Cardinal Trip Distribution

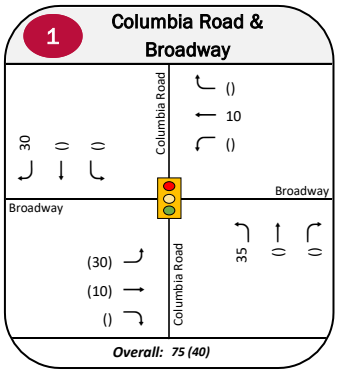
Direction	Percentage of Trips
Coming to/From the North (Columbia Road)	30%
Coming to/From the South (Columbia Road)	35%
Coming to/From the West (Broadway)	10%
Coming to/From the East (Broadway)	25%
Total	**100%**

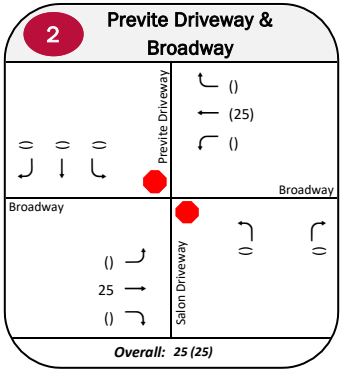
The site access is assumed to be full access movements along Broadway and right-turn only egress along Columbia Road. There are two (site driveways) along Broadway, East Driveway and West Driveway. The distance between the signalized intersection of Columbia Road & Broadway and East Driveway is approximately 75 feet and the distance between the signalized intersection of Columbia Road & Broadway and West Driveway is approximately 210 feet.

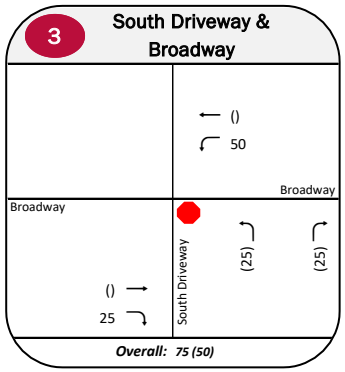
Figure 5 presents the trip distribution and road trip assignment for the weekday AM and PM peak hours is shown in **Figure 6**. **Figure 7** presents the pass-by trip distribution and **Figure 8** depicts the pass-by trip assignment along the roadways. **Figure 9** present the total trip assignment for the weekday AM and PM peak hours for Build Conditions.

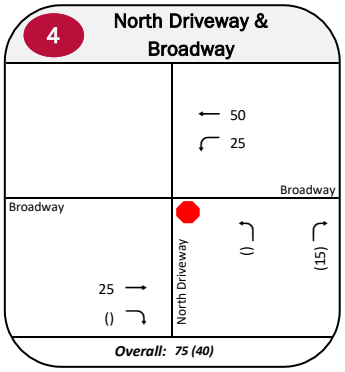
Figure 5: Trip Distribution











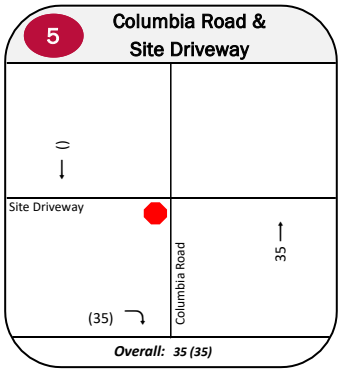
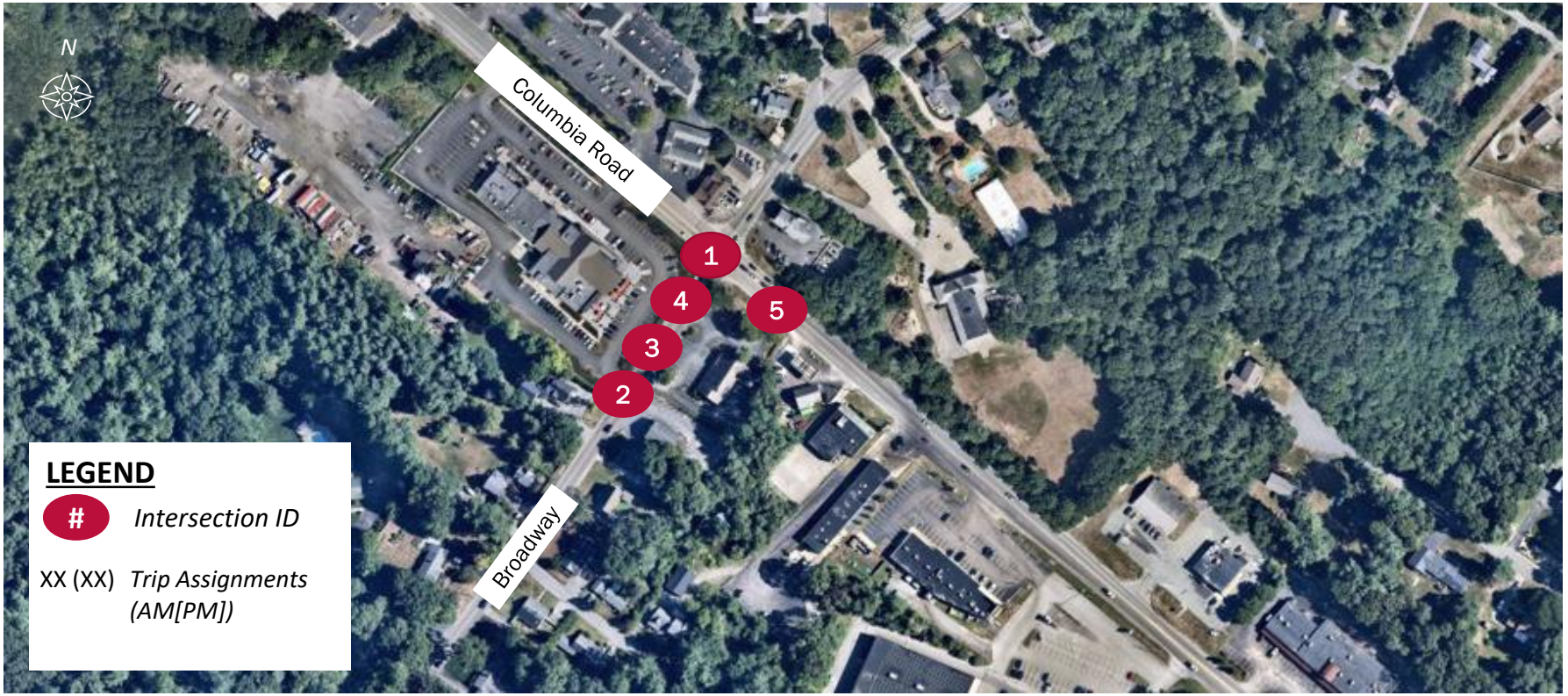


Figure 6: Trip Assignments



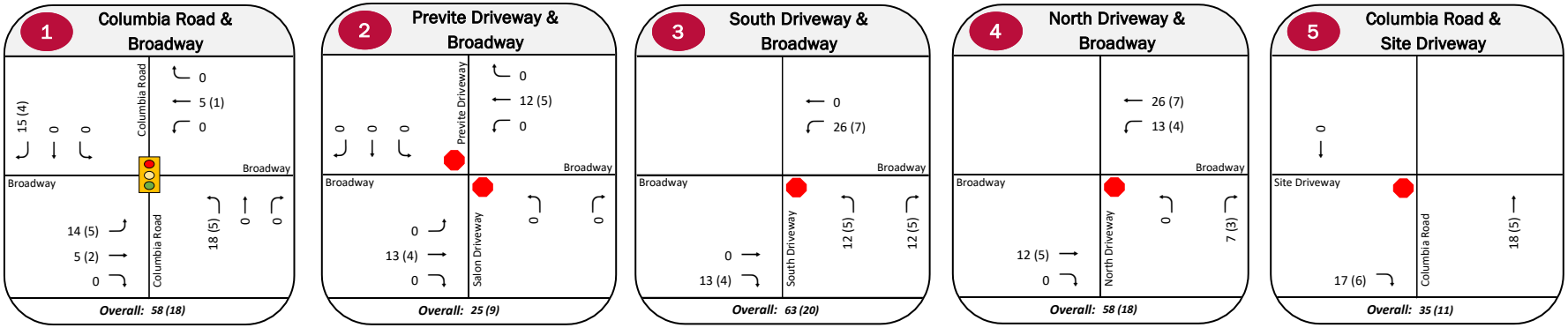
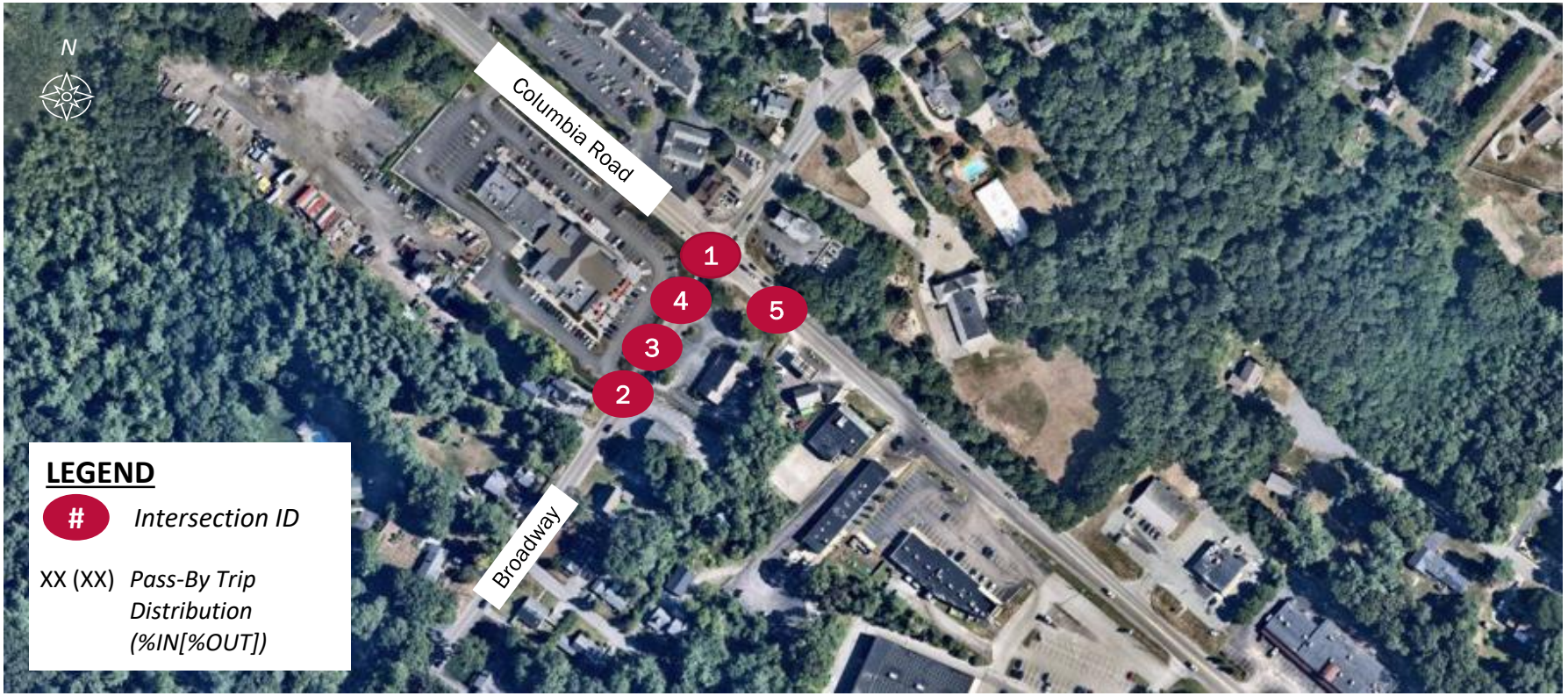


Figure 7: Pass-By Trip Distribution



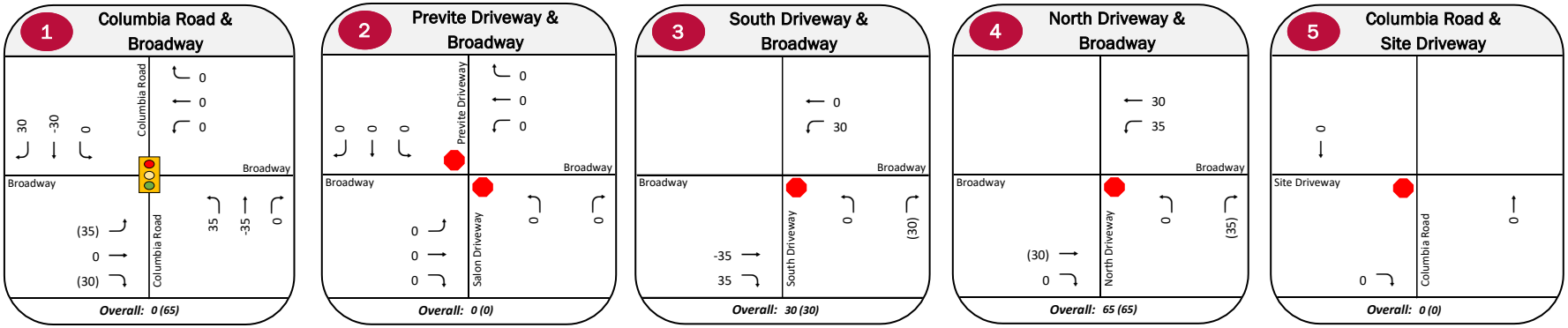
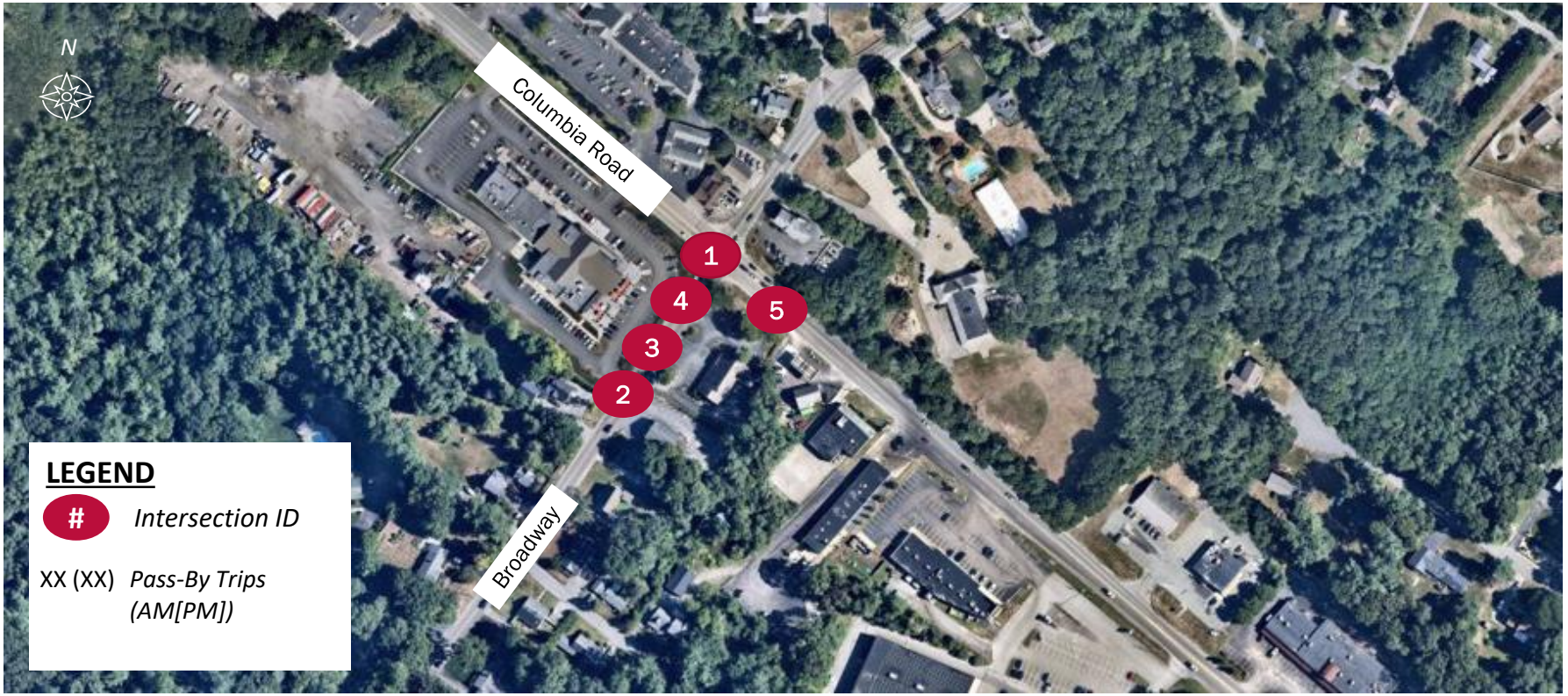


Figure 8: Pass-By Trip Assignment



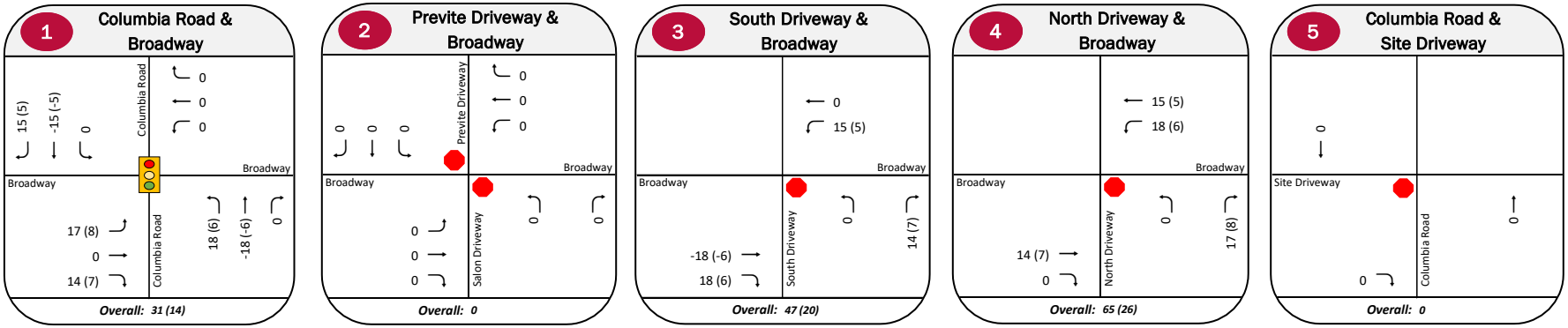
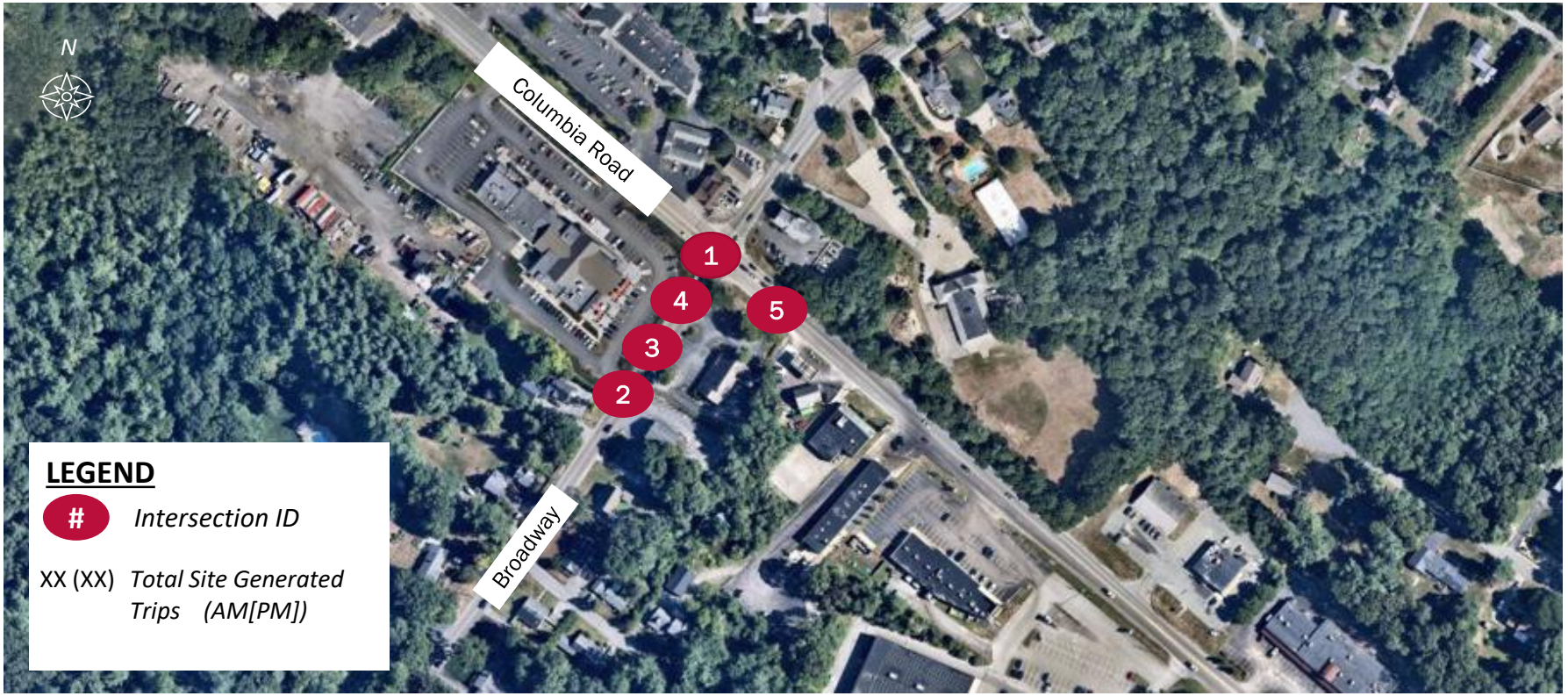
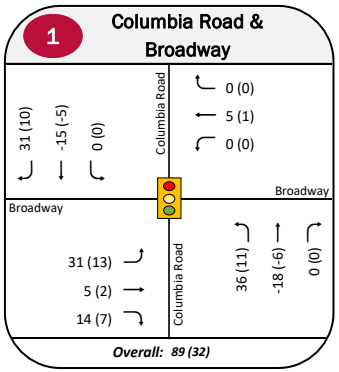
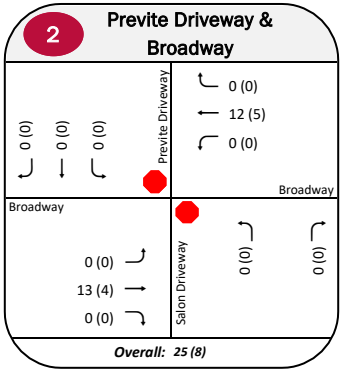
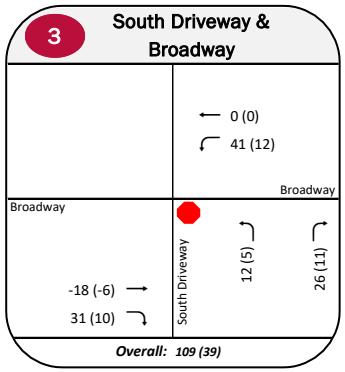


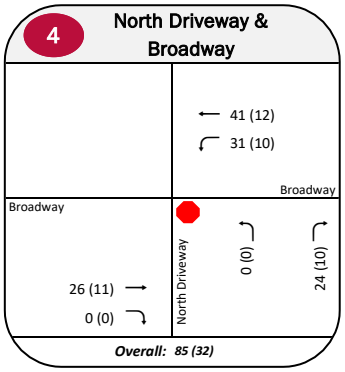
Figure 9: Total Peak Hour Trip Assignment

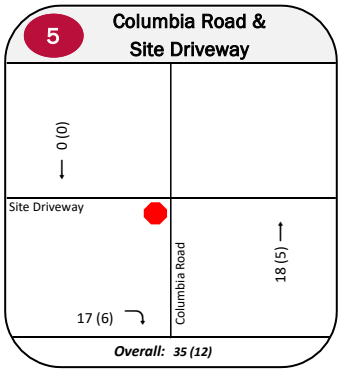








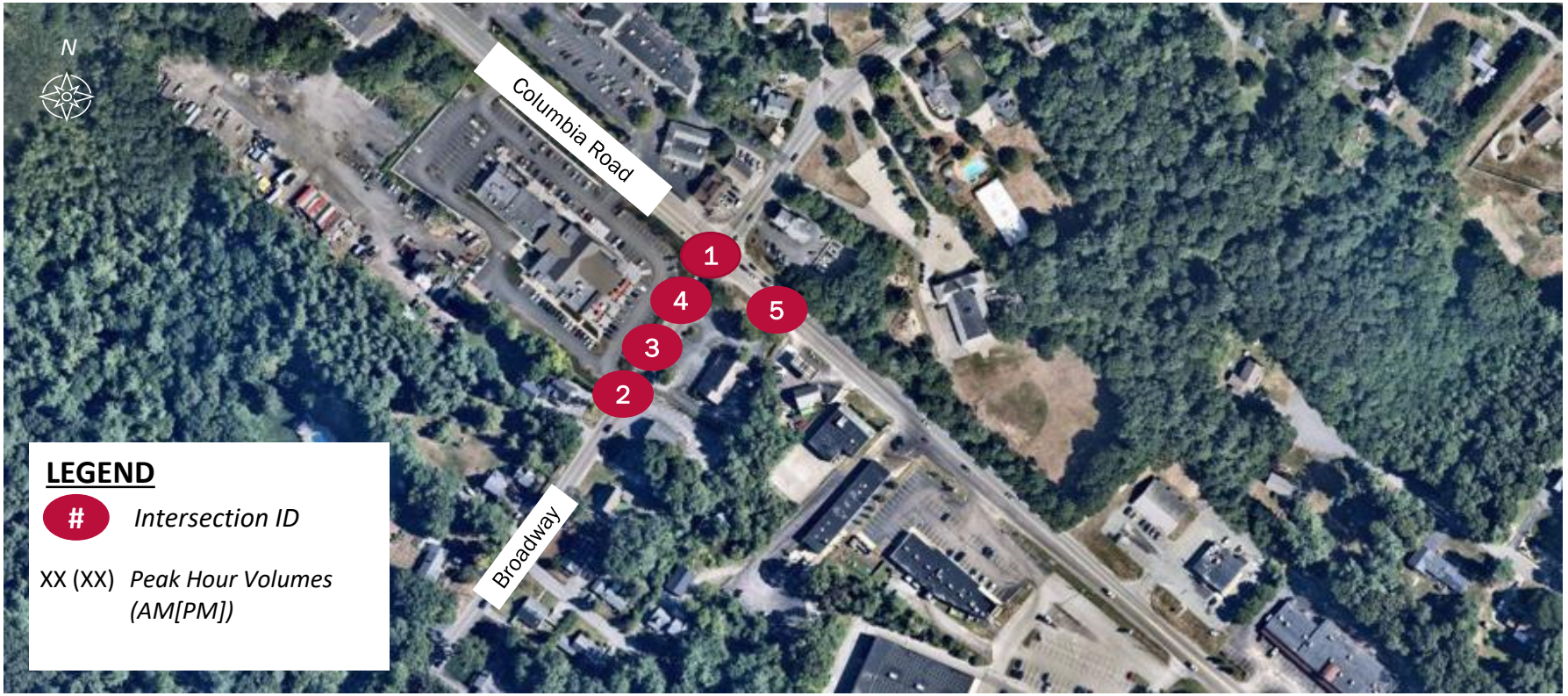


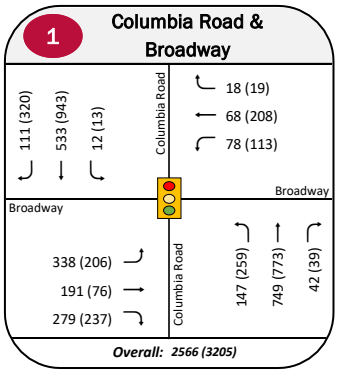


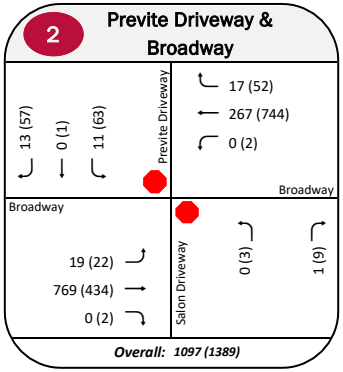
FUTURE BUILD CONDITIONS

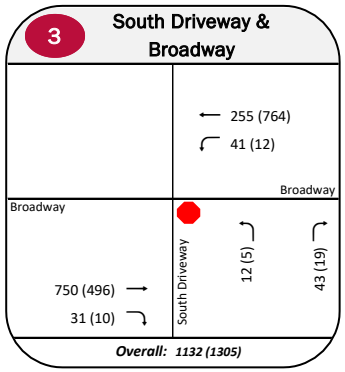
Future Build conditions are defined as the expected traffic conditions in the year 2029 after the opening of the project. The total traffic volumes considered in the analysis for this project are the sum of the background traffic volumes and the expected project traffic volumes. **Figure 10** presents the future total turning movement volumes at the study intersections during the weekday AM and PM peak hours for the Build Conditions. Volume Development worksheets for the study intersections are included in **Appendix F**.

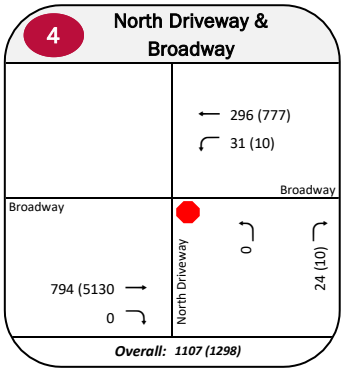
Figure 10: 2029 Build Peak Hour Traffic Volumes

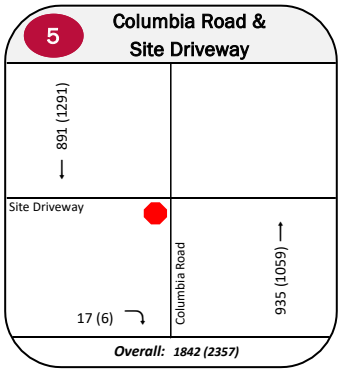












INTERSECTION CAPACITY ANALYSIS

ANALYSIS METHODOLOGY

Intersection capacity analyses were performed for Existing, 2029 No-Build, and 2029 Build traffic volumes for the study area intersections. The analyses were performed using the Synchro Software Package (Version 11), which utilizes methodologies contained in the *Highway Capacity Manual (6th Edition)* for signalized and unsignalized intersections. For intersections with timing configurations that are incompatible with *HCM 6th Edition*, the built-in Synchro analysis methodology is used. According to the *HCM 6th Edition*, capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a fixed time duration. The capacity is described by Level of Service (LOS) to indicate the operating characteristics of a road segment or intersection. LOS is defined as a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream and relates to the level of delay experienced. The *HCM 6th Edition* defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. Typically, a LOS "D" or better at signalized and unsignalized intersections is preferred, although lower levels are tolerated during peak travel hours.

The ranges of delay for each level of service are shown in **Table 4.**

Table 4. Level of Service Range of Delay

Level of Service (LOS)	Delay per Vehicle (seconds per vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10	≤ 10
B	10 – 20	10 – 15
C	20 – 35	15 – 25
D	35 – 55	25 – 35
E	55 – 80	35 – 50
F	≥ 80	≥ 50

A summary of the intersection capacity analysis for the weekday AM and PM peak hours can be found in **Table 5** and **Table 6**, respectively. The intersection analysis worksheets are contained in **Appendix G**.

Table 5. AM Peak Hour Intersection Capacity Analysis						
Intersection	**Traffic Control**	**Overall LOS/Delay (s/veh)**	**Approach LOS/Delay (s/veh)**			
			EB	**WB**	**NB**	**SB**
Existing Conditions (Future No-Build Conditions) [Build Conditions]						
AM Peak Hour						
Columbia Road & Broadway	Signalized	F/83.5 (F/112.0) [F/152.4]	F/206.9 (F/306.7) [F/426.6]	C/31.3 (D/37.2) [D/41.0]	C/31.1 (C/32.0) [C/32.1]	B/16.9 (B/15.7) [B/14.7]
Previte Driveway/Salon Driveway & Broadway	Two-Way Stop Control	(1)	(2)	(2)	B/14.2 (B/14.6) [B/14.8]	C/17.5 (C/18.0) [C/18.6]
West Driveway & Broadway	One-Way Stop Control	(1)	(2)	(2)	- (-) [C/19.8]	(3)
East Driveway & Broadway	One-Way Stop Control	(1)	(2)	(2)	- (-) [C/16.0]	(3)
Columbia Road & Site Driveway	One-Way Stop Control	(1)	- (-) [B/12.1]	(3)	(2)	(2)

Notes: (1) Overall intersection LOS is not defined, as intersection operates under stop-control conditions.
(2) Approach operates under free-flow conditions. LOS is not defined.
(3) Approach does not exist.

Table 6. PM Peak Hour Intersection Capacity Analysis						
Intersection	**Traffic Control**	**Overall LOS/Delay (s/veh)**	**Approach LOS/Delay (s/veh)**			
			EB	**WB**	**NB**	**SB**
Existing Conditions (Future No-Build Conditions) [Build Conditions]						
PM Peak Hour						
Columbia Road & Broadway	Signalized	E/76.8 (F/98.3) [F/106.7]	F/272.0 (F/334.9) [F/373.0]	F/128.3 (F/139.4) [F/135.7]	D/40.0 (E/73.2) [E/76.7]	B/14.0 (B/15.7) [B/15.8]
Previte Driveway/Salon Driveway & Broadway	Two-Way Stop Control	(1)	(2)	(2)	C/17.7 (C/19.4) [C/19.6]	D/33.6 (E/44.6) [E/44.7]
West Driveway & Broadway	One-Way Stop Control	(1)	(2)	(2)	- (-) [C/17.8]	(3)
East Driveway & Broadway	One-Way Stop Control	(1)	(2)	(2)	- (-) [B/11.9]	(3)
Columbia Road & Site Driveway	One-Way Stop Control	(1)	- (-) [B/14.6]	(3)	(2)	(2)

Notes: (1) Overall intersection LOS is not defined, as intersection operates under stop-control conditions.
(2) Approach operates under free-flow conditions. LOS is not defined.
(3) Approach does not exist.

EXISTING CONDITIONS

The Existing Conditions analysis was based on the existing traffic volumes, lane uses, and traffic controls at the study area intersections. A peak hour factor (PHF) was calculated for each intersection and applied by an approach-by-approach basis and the heavy vehicle percentages were calculated for each movement based on existing TMC data.

At the intersection of Columbia Road & Broadway, during the AM peak hour, the intersection operates at an overall LOS F with a delay of 83.5 seconds per vehicle. The eastbound approach, Broadway, operates at LOS F with a delay of 206.9 seconds and the volume-to-capacity (V/C) ratio of 1.38. During the PM peak hour, the intersection operates at an overall LOS E with a delay of 76.8 seconds per vehicle. The eastbound approach, Broadway, operates at LOS F with a delay of 272.0 seconds and a VC ratio of 1.50. The westbound approach, Broadway, operates at LOS F with a delay of 128.3 seconds per vehicle and a VC ratio of 1.12. The eastbound approach, Broadway, demand exceeds the capacity, which indicates excessive delay and queuing is expected during the AM and PM peak hours and the westbound approach, Broadway, will experience excessive delay and queuing during the PM peak hour. The other approaches along Columbia Road will operate at LOS D or better during the AM and PM peak hours.

At the intersection of Previte Driveway/Salon Driveway & Broadway, during both the AM and PM peak hours, all of the approaches are expected to operate at LOS D or better.

2029 NO-BUILD CONDITIONS

The 2029 No-Build Conditions analysis was based on the 2029 No-Build traffic volumes with the existing lane geometry, traffic controls, and heavy vehicle percentages. The PHF were updated to 0.92 for urban areas for the overall intersection based on the *MassDOT Highway Division Traffic and Safety Engineering 25% Design Submission Guidelines*.

During both the AM and PM peak hours, Columbia Road & Broadway operates at an overall LOS F with a delay of 112.0 and 98.3 seconds, respectively. During the AM peak hour, the eastbound approach, Broadway, operates at LOS F with a delay of 306.7 seconds per vehicle and a V/C ratio of 1.60. This is an increase of 99.8 seconds per vehicle from Existing Conditions to No-Build Conditions. During the PM peak hour, the eastbound approach, Broadway, operates at LOS F with a delay of 334.9 seconds per vehicle and a V/C ratio of 1.65. This is an increase of 62.9 seconds per vehicle from Existing Conditions to No-Build Conditions. The westbound approach, Broadway operates at LOS F with a delay of 139.4 seconds per vehicle and a VC ratio of 1.15, an increase of 11.1 seconds per vehicle from Existing Conditions to No-Build Conditions. The northbound approach, Columbia Road, will operate at LOS E with a delay of 73.2 seconds per vehicle with a V/C ratio of 1.76. As indicated in the Existing Conditions, the eastbound approach, Broadway, during the AM and PM peak hours will experience excessive delay and queuing, and the westbound approach, Broadway, during the PM peak hour will experience excessive delay and queuing will remain in the 2029 No-Build Conditions. In addition, the northbound approach, Columbia Road, during the PM peak hour will experience delay and queuing. The other approaches will operate at LOS D or better during the AM and PM peak hours.

At the intersection of Previte Driveway/Salon Driveway & Broadway, during both the AM and PM peak hours, all of the approaches are expected to operate at LOS D or better except at the southbound approach, Previte Driveway, during the PM peak hour. The southbound approach, Previte Driveway, will operate at LOS E with a delay of 44.6 seconds per vehicle. More specifically, the southbound left-turn lane will operate

at LOS F with a delay of 69.3 seconds per vehicle. The other approaches will operate at LOS D or better during the AM and PM peak hours.

2029 BUILD CONDITIONS

The 2029 Build Conditions analysis was based on the Build traffic volumes with the 2029 No-Build lane uses and the PHFs were the same as those used in the 2029 No-Build analysis. In the 2029 Build conditions, the West Driveway and East Driveway along Broadway are both full-movement driveways and the Site Driveway along Columbia Road is a right-out only driveway.

The study intersections are expected to perform similarly under the Build Conditions as they do under the No-Build Conditions. Similar to the No-Build Conditions, the intersection of Columbia Road and Broadway are expected to operate at an overall LOS F during the AM and PM peak hours. During the AM peak hour, the eastbound approach, Broadway, operates at LOS F with a delay of 426.6 seconds per vehicle and a V/C ratio of 1.88. This is an increase of 119.9 seconds per vehicle from No-Build Conditions to Build Conditions. During the PM peak hour, the eastbound approach, Broadway, operates at LOS F with a delay of 373.0 seconds per vehicle and a V/C ratio of 1.74. This is an increase of

38.1 seconds per vehicle from No-Build Conditions to Build Conditions. During the PM peak hour, the westbound approach, Broadway operates at LOS F with a delay of 135.7 seconds per vehicle and a VC ratio of 1.14, a decrease of 3.7 seconds per vehicle from No-Build Conditions to Build Conditions. The northbound approach, Columbia Road, will operate at LOS E with a delay of 76.7 seconds per vehicle with a V/C ratio of 1.87, an increase of 3.5 seconds per vehicle from No-Build Conditions to Build Conditions.

At the intersection of Previte Driveway/Salon Driveway & Broadway, during both the AM and PM peak hours, all of the approaches are expected to operate at LOS D or better except at the southbound approach, Previte Driveway, during the PM peak hour. The southbound approach, Previte Driveway, will operate at LOS E with a delay of 44.7 seconds per vehicle. More specifically, the southbound left-turn lane will operate at LOS F with a delay of 70 seconds per vehicle. The other approaches will operate at LOS D or better during the AM and PM peak hours.

The Site Driveways along Broadway and Columbia Road are expected to operate at LOS C or better during the AM and PM peak hours.

QUEUING ANALYSIS

Vehicle queue lengths were also calculated for each of the movements at the signalized intersection of Columbia Road & Broadway and summarized in **Table 7**. Queues were analyzed for 2022 Existing Conditions, 2029 Future No-Build Conditions, and 2029 Build Conditions. *HCM 6th Edition* methodology with an average vehicle length of 25 feet and Synchro 11 methodology were used in calculating the 95th percentile vehicle queue lengths. The 95th percentile queue is defined to be the queue length that has only a 5 percent (5%) probability of being exceeded during the analysis period and typically is assumed to represent the maximum queue.

Table 7. Summary of 95th Percentile Queuing Analysis Results (Feet)

Intersection	Movement		2022 Existing		2029 No-Build		2029 Build	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Columbia Road & Broadway	EB	LTR	1,285	880	1,500	965	1,615	1,015
	WB	LTR	220	590	265	635	275	635
	NB	LTR	385	715	470	825	515	830
	SB	LTR	210	455	230	560	235	565

As can be seen in the results, the EB approach is estimated to experience a 95th percentile queue that will extend beyond the West Driveway. In addition, the change in queue lengths due to the proposed project will be relatively small for the most part.

MOBILE PARKING SPACES

Observations of pre-order/mobile parking spaces were conducted at two (2) existing Starbucks with drive-through locations that are standalone developments. Observations were conducted every five (5) minutes, on Wednesday, December 21, 2022, and Thursday, December 22, 2022, between the AM peak period, 7:00 – 10:00 AM. Both locations had four (4) ten-minute mobile parking spaces located in the front store entrance. The purpose of this data collection was to observe how often the mobile parking spaces were occupied. **Figure 11** and **Figure 12** display the total occupancy of the mobile parking spaces.

- Route 106-33 Robert Drive, Easton, MA 02375
- 1 Seth F Tobey Road, Wareham, MA 02571.

The average total occupancy at the Easton site was fifty-five percent (55%) and the Wareham site was seventy percent (70%). The Easton site had four (4) occurrences of hundred percent (100%) occupancy while the Wareham site had twelve (12) occurrences. It was observed at both sites that two (2) cars were able to use the same mobile parking space within the five (5) minute observation. Overall, the mobile parking spaces at both locations were frequently used and the Wareham site had a higher average total occupancy. Consequently, designating four (4) spaces for mobile ordering should be more than adequate.

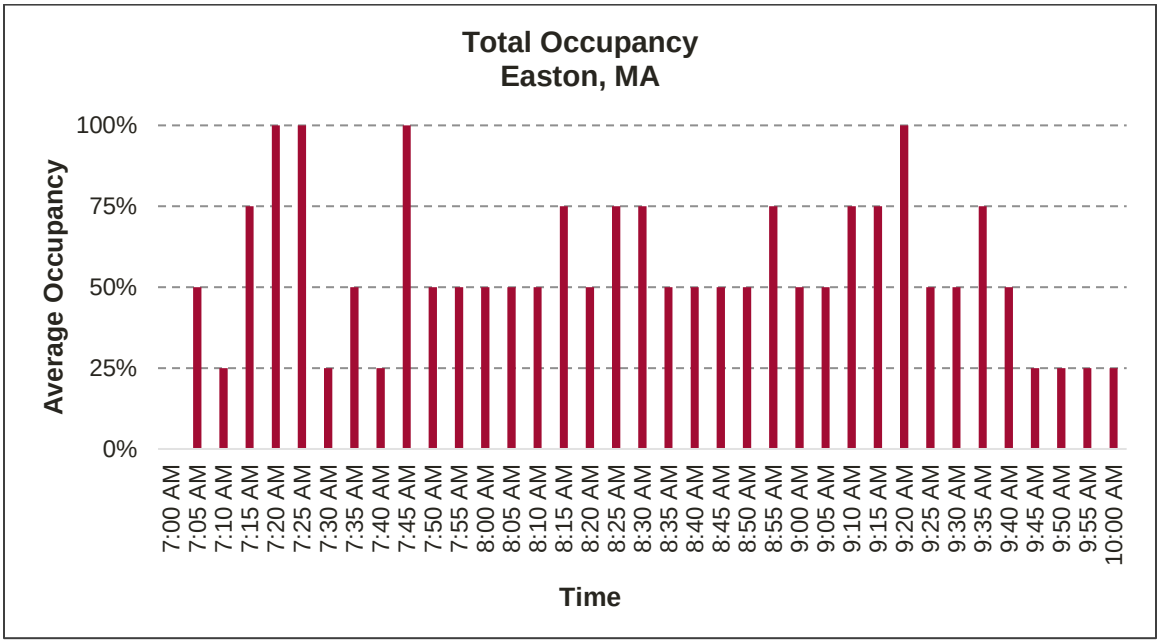


Figure 11. Easton, MA Starbucks Total Occupancy

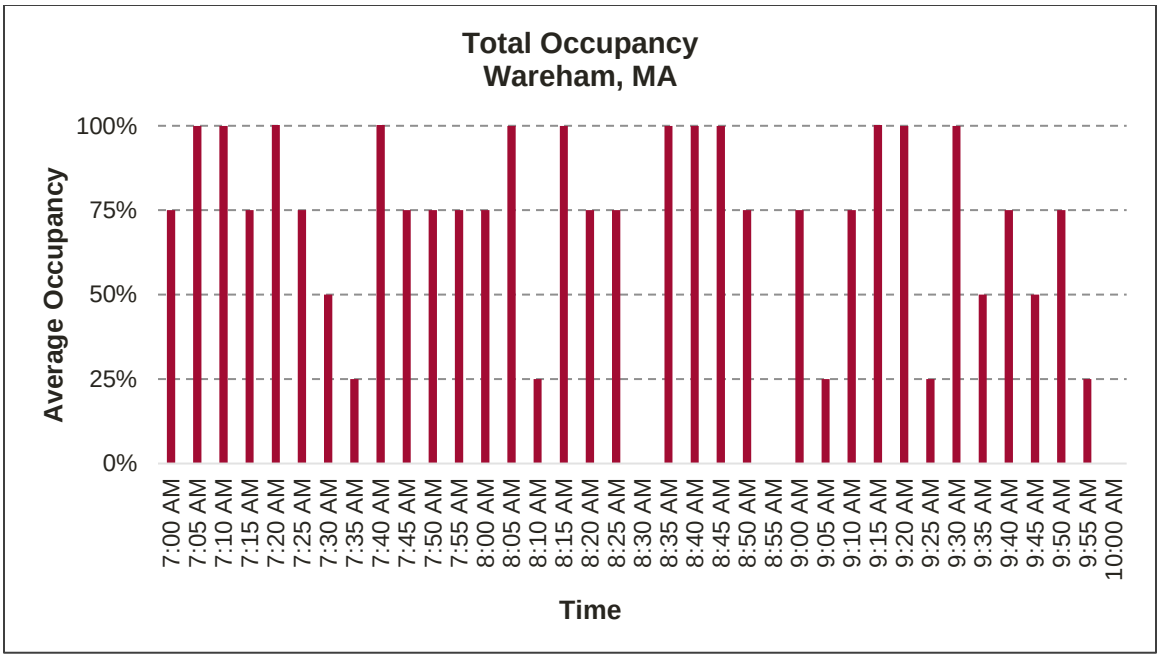


Figure 12. Wareham, MA Starbucks Total Occupancy

DRIVE-THROUGH QUEUE ANALYSIS

An analysis was performed for the proposed drive thru to determine the vehicle queuing during the peak periods and to determine the expected vehicle emissions from idling times.

The ordering station queue is the driving factor which will determine whether enough storage exists to contain the anticipated vehicle queues. For the purpose of this analysis, it was assumed that the queue at the ordering station follows a single-channel queuing model that includes Poisson arrival and exponential service-times (M/M/1 model). The anticipated trip generation for the proposed redevelopment is 100 net new vehicle trips, 52 entering and 48 exiting during the AM peak hour and 32 net new vehicle trips, 14 entering and 18 exiting during the PM peak hour. An existing calculated service rate of 90 vehicles per hour was estimated based on information provided by the client (Starbucks) on order production and drive-thru wait times. To determine the average number of vehicles in the system the following equation was utilized:

- λ = Arrival Rate, μ = Service Rate
- Average number of vehicles in the system = $\frac{\lambda}{\mu-\lambda}$

To calculate how often the queuing will spill back into the drive-aisle the following equation was utilized, applicable for M/M/1 queues:

- k = Number of vehicles in the queue
- Probability of more than k units in the system = $\left(\frac{\lambda}{\mu}\right)^{k+1}$

Transaction data for two (2) existing Starbucks locations were provided, Hanover and Marshfield. At the Starbucks in Hanover, which is 3.5 miles north of the proposed redevelopment, approximately sixty-three percent (63%) of the sales is from the drive-through window and thirty-eight percent (38%) of the sales is from the pre-order/mobile order. At the Starbucks in Marshfield, approximately fifty-nine percent (59%) of the sales is from the drive-through window and thirty-two percent (32%) of the sales is from the pre-order/mobile order. The average transaction from the drive-through window is sixty-one percent (61%) and from the pre-order/mobile order is thirty-five percent (35%). Using the calculated average transaction, during the AM and PM peak hours, it is expected 63 vehicle trips will use the drive-through and 36 vehicle trips will use the pre-order/mobile order during the AM peak hour and 20 vehicle trips will use the drive-through and 11 vehicle trips will use the pre-order/mobile order in the PM peak hour.

There is storage space for seven (7) vehicles in the queue between the pick-up window and the order board with an additional three (3) spaces behind the order board. As shown in **Table 8**, during the AM and PM peak hours, the average queue length is three (3) and one (1) vehicle, respectively. The average wait time is 2.0 minutes during the morning and the probability of the queue extending past the order board is estimated to be approximately six percent (5.6%) during the AM peak hour using the above described arrival model methodology.

Table 8. Services Rates and Queue Lengths Summary		
Drive-Through Service & Queue Summary	**AM Peak Hour**	**PM Peak Hour**
Mean Arrival Rate, λ (veh/hr)	63	20
Average Queue Length (veh)	3	1
Calculated Service Rate, μ (veh/hr)	90	90
Average Wait Time (minutes)	1.54	0.18
Probability of more than 7 vehicles in the drive-thru (queue capacity)	5.64%	0%
Probability of more than 10 vehicles in drive-thru (vehicles exceed storage area)	1.92%	0%

CONCLUSIONS

The analysis of traffic with respect to the redevelopment of a new coffee/donut shop with a drive-through located at 303 Columbia Road in the Town of Hanover was completed following standard practice. The key findings of this traffic impact and access study are as follows:

- The existing site contains a 3,868 square feet vacant commercial building, formally a branch bank office. The proposed project is expected to generate an additional 62 net new vehicle trips during the AM peak hour and a reduction of 49 net new vehicle trips during the PM peak hour, when compared between the former bank use and proposed redevelopment. Note that the values of these net new vehicle trips were not utilized in the analysis since the site was vacant during the data collection.
- The proposed redevelopment is expected to generate 1,239 (619 entering/620 exiting trips) new daily vehicle trips to the surrounding network. Of this, there will be a total of 100 net new vehicle trips (entering and exiting) during the AM peak hour and 32 net new vehicle trips (entering and exiting) during the PM peak hour. A significant portion of site trips will be made up of motorists already on the road (i.e., pantry trips).
- Under Existing Conditions, the intersection of Columbia Road & Broadway operates with high delays and congestion during the AM and PM peak hours, respectively. The intersection experiences high traffic volumes, particularly along Columbia Road with limited lane capacity. As a result, high vehicle delays are incurred and low associated levels of service. The intersection, however, is under MassDOT jurisdiction and any improvements or changes at this location needs to be initiated by them.
- The study intersections are expected to perform similarly under the 2029 Build Conditions as compared to the No-Build Conditions at the intersection of Columbia Road & Broadway.
- The Site Driveways along Broadway and Columbia Road are expected to operate at LOS C or better during the AM and PM peak hours.
- The proposed redevelopment, while adding some traffic to the abutting road system and the adjacent signalized intersection, will not create any new deficiencies and the proposed actions cited below are intended to minimize impacts to current traffic flows and provide for safe access and egress.
- Due to the amount of excessive delay and queuing in the eastbound approach along Broadway, the site driveways along Broadway will need to be modified. Signal timing modifications at Columbia Road & Broadway will not resolve the delay.
    - East Driveway & Broadway: Restrict movement at the driveway to right-in/right-out (RIRO) only
    - West Driveway & Broadway: Full movement access (no change)
        - To prevent any spillback onto Broadway, the West Driveway should widen to include two (2) inbound lanes, one (1) lane to the drive-thru and one (1) to the parking spaces.
    - Site Driveway & Columbia Road: Retain right-turn egress only (no change)
- Pavement markings and posted signs of “Do Not Block the Box” shall be included at South Driveway & Broadway so ingress access such as the westbound left-turn vehicles can enter the site without too much delay.
- The mobile parking spaces at the existing Starbucks locations at Easton and Wareham were frequently used and the Wareham site had a higher average total occupancy.

- There is storage space for seven (7) vehicles in the queue between the pick-up window and the order board with an additional three (3) spaces behind the order board. During the AM peak hour, the average queue length is estimated to be three (3) vehicles. The probability of the queue extending past the order board is estimated to be approximately six percent (5.6%) during the AM peak hour and the site will provide for a vehicle queue capacity of 10 vehicles.

APPENDIX

APPENDIX A

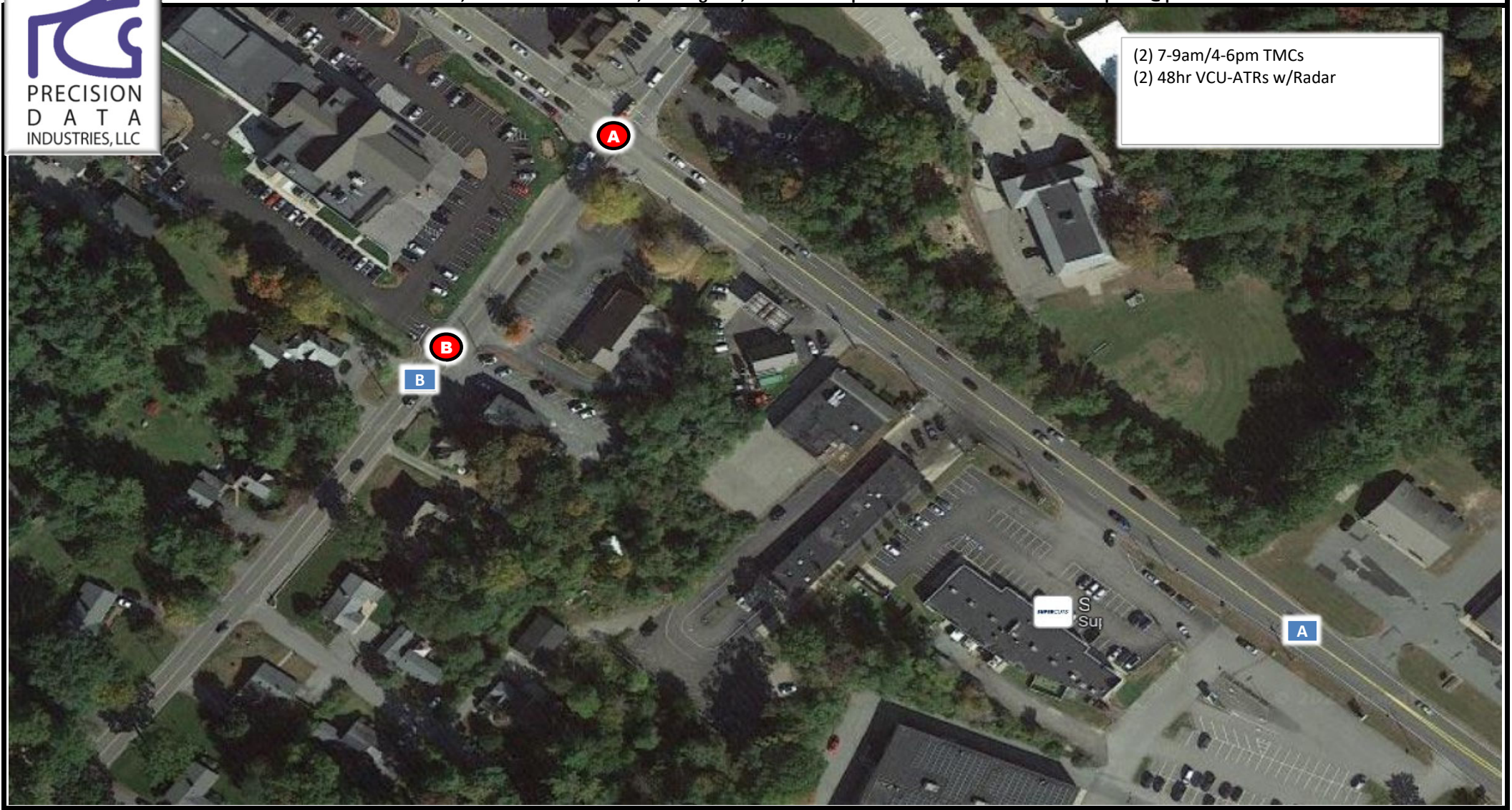
Traffic Data

Location Map: 228996 Hanover, MA

Precision Data Industries, LLC 46 Morton Street, Framingham, MA 01702 ph: 508-875-0100 email: datarequests@pdillc.com

PRECISION DATA INDUSTRIES, LLC

(2) 7-9am/4-6pm TMCs
(2) 48hr VCU-ATRs w/Radar



Client:	Engineer:	Site Code:	Date:	PDI Job #	City, State:
Kimley-Horn	L. Juan	TBD	Wednesday 11/30/22-Thursday 12/1	228996	Hanover, MA

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Cars and Heavy Vehicles (Combined)

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	13	110	3	0	126	2	10	13	0	25	8	143	21	0	172	48	33	50	0	131	454
7:15 AM	9	82	3	0	94	5	12	13	0	30	9	193	28	0	230	46	48	75	0	169	523
7:30 AM	12	135	1	0	148	4	13	12	0	29	13	190	22	0	225	55	46	70	0	171	573
7:45 AM	23	132	4	0	159	2	16	21	0	39	14	182	20	0	216	69	55	67	1	192	606
Total	57	459	11	0	527	13	51	59	0	123	44	708	91	0	843	218	182	262	1	663	2156
8:00 AM	13	117	3	0	133	5	11	19	0	35	10	171	29	0	210	54	34	49	0	137	515
8:15 AM	20	122	3	0	145	5	15	18	0	38	2	170	32	0	204	58	30	76	0	164	551
8:30 AM	23	149	0	0	172	7	20	20	0	47	11	162	37	0	210	48	27	54	0	129	558
8:45 AM	18	160	2	0	180	5	14	20	0	39	10	164	41	0	215	64	26	51	0	141	575
Total	74	548	8	0	630	22	60	77	0	159	33	667	139	0	839	224	117	230	0	571	2199
Grand Total	131	1007	19	0	1157	35	111	136	0	282	77	1375	230	0	1682	442	299	492	1	1234	4355
Approach %	11.3	87.0	1.6	0.0		12.4	39.4	48.2	0.0		4.6	81.7	13.7	0.0		35.8	24.2	39.9	0.1		
Total %	3.0	23.1	0.4	0.0	26.6	0.8	2.5	3.1	0.0	6.5	1.8	31.6	5.3	0.0	38.6	10.1	6.9	11.3	0.0	28.3	
Exiting Leg Total					1902					395					1585					473	4355
Cars	123	948	17	0	1088	34	107	132	0	273	72	1342	195	0	1609	394	287	485	1	1167	4137
% Cars	93.9	94.1	89.5	0.0	94.0	97.1	96.4	97.1	0.0	96.8	93.5	97.6	84.8	0.0	95.7	89.1	96.0	98.6	100.0	94.6	95.0
Exiting Leg Total					1861					376					1474					426	4137
Heavy Vehicles	8	59	2	0	69	1	4	4	0	9	5	33	35	0	73	48	12	7	0	67	218
% Heavy Vehicles	6.1	5.9	10.5	0.0	6.0	2.9	3.6	2.9	0.0	3.2	6.5	2.4	15.2	0.0	4.3	10.9	4.0	1.4	0.0	5.4	5.0
Exiting Leg Total					41					19					111					47	218

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	12	135	1	0	148	4	13	12	0	29	13	190	22	0	225	55	46	70	0	171	573
7:45 AM	23	132	4	0	159	2	16	21	0	39	14	182	20	0	216	69	55	67	1	192	606
8:00 AM	13	117	3	0	133	5	11	19	0	35	10	171	29	0	210	54	34	49	0	137	515
8:15 AM	20	122	3	0	145	5	15	18	0	38	2	170	32	0	204	58	30	76	0	164	551
Total Volume	68	506	11	0	585	16	55	70	0	141	39	713	103	0	855	236	165	262	1	664	2245
% Approach Total	11.6	86.5	1.9	0.0		11.3	39.0	49.6	0.0		4.6	83.4	12.0	0.0		35.5	24.8	39.5	0.2		
PHF	0.739	0.937	0.688	0.000	0.920	0.800	0.859	0.833	0.000	0.904	0.696	0.938	0.805	0.000	0.950	0.855	0.750	0.862	0.250	0.865	0.926
Cars	65	479	11	0	555	16	54	69	0	139	36	697	89	0	822	218	158	262	1	639	2155
Cars %	95.6	94.7	100.0	0.0	94.9	100.0	98.2	98.6	0.0	98.6	92.3	97.8	86.4	0.0	96.1	92.4	95.8	100.0	100.0	96.2	96.0
Heavy Vehicles	3	27	0	0	30	0	1	1	0	2	3	16	14	0	33	18	7	0	0	25	90
Heavy Vehicles %	4.4	5.3	0.0	0.0	5.1	0.0	1.8	1.4	0.0	1.4	7.7	2.2	13.6	0.0	3.9	7.6	4.2	0.0	0.0	3.8	4.0
Cars Enter Leg	65	479	11	0	555	16	54	69	0	139	36	697	89	0	822	218	158	262	1	639	2155
Heavy Enter Leg	3	27	0	0	30	0	1	1	0	2	3	16	14	0	33	18	7	0	0	25	90
Total Entering Leg	68	506	11	0	585	16	55	70	0	141	39	713	103	0	855	236	165	262	1	664	2245
Cars Exiting Leg					975					205					766					209	2155
Heavy Exiting Leg					16					10					46					18	90
Total Exiting Leg					991					215					812					227	2245

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Cars**

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	11	102	3	0	116	1	10	12	0	23	7	141	17	0	165	35	31	49	0	115	419
7:15 AM	9	76	2	0	87	5	11	13	0	29	9	187	27	0	223	42	47	74	0	163	502
7:30 AM	12	129	1	0	142	4	13	12	0	29	11	186	21	0	218	47	45	70	0	162	551
7:45 AM	22	124	4	0	150	2	15	20	0	37	14	175	19	0	208	65	50	67	1	183	578
Total	54	431	10	0	495	12	49	57	0	118	41	689	84	0	814	189	173	260	1	623	2050
8:00 AM	13	109	3	0	125	5	11	19	0	35	9	167	25	0	201	52	34	49	0	135	496
8:15 AM	18	117	3	0	138	5	15	18	0	38	2	169	24	0	195	54	29	76	0	159	530
8:30 AM	22	140	0	0	162	7	19	18	0	44	11	155	28	0	194	46	26	53	0	125	525
8:45 AM	16	151	1	0	168	5	13	20	0	38	9	162	34	0	205	53	25	47	0	125	536
Total	69	517	7	0	593	22	58	75	0	155	31	653	111	0	795	205	114	225	0	544	2087
Grand Total	123	948	17	0	1088	34	107	132	0	273	72	1342	195	0	1609	394	287	485	1	1167	4137
Approach %	11.3	87.1	1.6	0.0		12.5	39.2	48.4	0.0		4.5	83.4	12.1	0.0		33.8	24.6	41.6	0.1		
Total %	3.0	22.9	0.4	0.0	26.3	0.8	2.6	3.2	0.0	6.6	1.7	32.4	4.7	0.0	38.9	9.5	6.9	11.7	0.0	28.2	
Exiting Leg Total					1861					376					1474					426	4137

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	12	129	1	0	142	4	13	12	0	29	11	186	21	0	218	47	45	70	0	162	551
7:45 AM	22	124	4	0	150	2	15	20	0	37	14	175	19	0	208	65	50	67	1	183	578
8:00 AM	13	109	3	0	125	5	11	19	0	35	9	167	25	0	201	52	34	49	0	135	496
8:15 AM	18	117	3	0	138	5	15	18	0	38	2	169	24	0	195	54	29	76	0	159	530
Total Volume	65	479	11	0	555	16	54	69	0	139	36	697	89	0	822	218	158	262	1	639	2155
% Approach Total	11.7	86.3	2.0	0.0		11.5	38.8	49.6	0.0		4.4	84.8	10.8	0.0		34.1	24.7	41.0	0.2		
PHF	0.739	0.928	0.688	0.000	0.925	0.800	0.900	0.863	0.000	0.914	0.643	0.937	0.890	0.000	0.943	0.838	0.790	0.862	0.250	0.873	0.932
Entering Leg	65	479	11	0	555	16	54	69	0	139	36	697	89	0	822	218	158	262	1	639	2155
Exiting Leg					975					205					766					209	2155
Total					1530					344					1588					848	4310

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	2	8	0	0	10	1	0	1	0	2	1	2	4	0	7	13	2	1	0	16	35
7:15 AM	0	6	1	0	7	0	1	0	0	1	0	6	1	0	7	4	1	1	0	6	21
7:30 AM	0	6	0	0	6	0	0	0	0	0	2	4	1	0	7	8	1	0	0	9	22
7:45 AM	1	8	0	0	9	0	1	1	0	2	0	7	1	0	8	4	5	0	0	9	28
Total	3	28	1	0	32	1	2	2	0	5	3	19	7	0	29	29	9	2	0	40	106
8:00 AM	0	8	0	0	8	0	0	0	0	0	1	4	4	0	9	2	0	0	0	2	19
8:15 AM	2	5	0	0	7	0	0	0	0	0	0	1	8	0	9	4	1	0	0	5	21
8:30 AM	1	9	0	0	10	0	1	2	0	3	0	7	9	0	16	2	1	1	0	4	33
8:45 AM	2	9	1	0	12	0	1	0	0	1	1	2	7	0	10	11	1	4	0	16	39
Total	5	31	1	0	37	0	2	2	0	4	2	14	28	0	44	19	3	5	0	27	112
Grand Total	8	59	2	0	69	1	4	4	0	9	5	33	35	0	73	48	12	7	0	67	218
Approach %	11.6	85.5	2.9	0.0		11.1	44.4	44.4	0.0		6.8	45.2	47.9	0.0		71.6	17.9	10.4	0.0		
Total %	3.7	27.1	0.9	0.0	31.7	0.5	1.8	1.8	0.0	4.1	2.3	15.1	16.1	0.0	33.5	22.0	5.5	3.2	0.0	30.7	
Exiting Leg Total					41					19					111					47	218
Buses	0	3	0	0	3	0	1	1	0	2	0	0	0	0	0	1	2	0	0	3	8
% Buses	0.0	5.1	0.0	0.0	4.3	0.0	25.0	25.0	0.0	22.2	0.0	0.0	0.0	0.0	0.0	2.1	16.7	0.0	0.0	4.5	3.7
Exiting Leg Total					0					2					5					1	8
Single-Unit Trucks	6	37	1	0	44	0	3	2	0	5	4	29	19	0	52	29	10	6	0	45	146
% Single-Unit	75.0	62.7	50.0	0.0	63.8	0.0	75.0	50.0	0.0	55.6	80.0	87.9	54.3	0.0	71.2	60.4	83.3	85.7	0.0	67.2	67.0
Exiting Leg Total					35					15					68					28	146
Articulated Trucks	2	19	1	0	22	1	0	1	0	2	1	4	16	0	21	18	0	1	0	19	64
% Articulated	25.0	32.2	50.0	0.0	31.9	100.0	0.0	25.0	0.0	22.2	20.0	12.1	45.7	0.0	28.8	37.5	0.0	14.3	0.0	28.4	29.4
Exiting Leg Total					6					2					38					18	64

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	8	0	0	8	0	0	0	0	0	1	4	4	0	9	2	0	0	0	2	19
8:15 AM	2	5	0	0	7	0	0	0	0	0	0	1	8	0	9	4	1	0	0	5	21
8:30 AM	1	9	0	0	10	0	1	2	0	3	0	7	9	0	16	2	1	1	0	4	33
8:45 AM	2	9	1	0	12	0	1	0	0	1	1	2	7	0	10	11	1	4	0	16	39
Total Volume	5	31	1	0	37	0	2	2	0	4	2	14	28	0	44	19	3	5	0	27	112
% Approach Total	13.5	83.8	2.7	0.0		0.0	50.0	50.0	0.0		4.5	31.8	63.6	0.0		70.4	11.1	18.5	0.0		
PHF	0.625	0.861	0.250	0.000	0.771	0.000	0.500	0.250	0.000	0.333	0.500	0.500	0.778	0.000	0.688	0.432	0.750	0.313	0.000	0.422	0.718
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0	3.7	0.9
Single-Unit Trucks	5	23	1	0	29	0	2	2	0	4	2	11	16	0	29	9	3	4	0	16	78
Single-Unit %	100.0	74.2	100.0	0.0	78.4	0.0	100.0	100.0	0.0	100.0	100.0	78.6	57.1	0.0	65.9	47.4	100.0	80.0	0.0	59.3	69.6
Articulated Trucks	0	8	0	0	8	0	0	0	0	0	0	3	12	0	15	9	0	1	0	10	33
Articulated %	0.0	25.8	0.0	0.0	21.6	0.0	0.0	0.0	0.0	0.0	0.0	21.4	42.9	0.0	34.1	47.4	0.0	20.0	0.0	37.0	29.5
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Single-Unit Trucks	5	23	1	0	29	0	2	2	0	4	2	11	16	0	29	9	3	4	0	16	78
Articulated Trucks	0	8	0	0	8	0	0	0	0	0	0	3	12	0	15	9	0	1	0	10	33
Total Entering Leg	5	31	1	0	37	0	2	2	0	4	2	14	28	0	44	19	3	5	0	27	112
Buses					0					0					1					0	1
Single-Unit Trucks					15					6					34					23	78
Articulated Trucks					4					0					17					12	33
Total Exiting Leg					19					6					52					35	112

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Buses**

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	4
Total	0	3	0	0	3	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	7
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Grand Total	0	3	0	0	3	0	1	1	0	2	0	0	0	0	0	1	2	0	0	3	8
Approach %	0.0	100.0	0.0	0.0		0.0	50.0	50.0	0.0		0.0	0.0	0.0	0.0		33.3	66.7	0.0	0.0		
Total %	0.0	37.5	0.0	0.0	37.5	0.0	12.5	12.5	0.0	25.0	0.0	0.0	0.0	0.0	0.0	12.5	25.0	0.0	0.0	37.5	
Exiting Leg Total					0					2					5					1	8

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	4
Total Volume	0	3	0	0	3	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	7
% Approach Total	0.0	100.0	0.0	0.0		0.0	50.0	50.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.375	0.000	0.000	0.375	0.000	0.250	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.438
Entering Leg	0	3	0	0	3	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	7
Exiting Leg					0					2					4					1	7
Total					3					4					4					3	14

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Single-Unit Trucks**

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	3	0	0	4	0	0	0	0	0	1	2	1	0	4	10	2	1	0	13	21
7:15 AM	0	1	0	0	1	0	1	0	0	1	0	5	0	0	5	3	1	1	0	5	12
7:30 AM	0	4	0	0	4	0	0	0	0	0	1	4	1	0	6	5	1	0	0	6	16
7:45 AM	0	6	0	0	6	0	0	0	0	0	0	7	1	0	8	2	3	0	0	5	19
Total	1	14	0	0	15	0	1	0	0	1	2	18	3	0	23	20	7	2	0	29	68
8:00 AM	0	7	0	0	7	0	0	0	0	0	1	3	4	0	8	1	0	0	0	1	16
8:15 AM	2	3	0	0	5	0	0	0	0	0	0	1	2	0	3	2	1	0	0	3	11
8:30 AM	1	8	0	0	9	0	1	2	0	3	0	5	3	0	8	1	1	1	0	3	23
8:45 AM	2	5	1	0	8	0	1	0	0	1	1	2	7	0	10	5	1	3	0	9	28
Total	5	23	1	0	29	0	2	2	0	4	2	11	16	0	29	9	3	4	0	16	78
Grand Total	6	37	1	0	44	0	3	2	0	5	4	29	19	0	52	29	10	6	0	45	146
Approach %	13.6	84.1	2.3	0.0		0.0	60.0	40.0	0.0		7.7	55.8	36.5	0.0		64.4	22.2	13.3	0.0		
Total %	4.1	25.3	0.7	0.0	30.1	0.0	2.1	1.4	0.0	3.4	2.7	19.9	13.0	0.0	35.6	19.9	6.8	4.1	0.0	30.8	
Exiting Leg Total					35					15					68					28	146

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	7	0	0	7	0	0	0	0	0	1	3	4	0	8	1	0	0	0	1	16
8:15 AM	2	3	0	0	5	0	0	0	0	0	0	1	2	0	3	2	1	0	0	3	11
8:30 AM	1	8	0	0	9	0	1	2	0	3	0	5	3	0	8	1	1	1	0	3	23
8:45 AM	2	5	1	0	8	0	1	0	0	1	1	2	7	0	10	5	1	3	0	9	28
Total Volume	5	23	1	0	29	0	2	2	0	4	2	11	16	0	29	9	3	4	0	16	78
% Approach Total	17.2	79.3	3.4	0.0		0.0	50.0	50.0	0.0		6.9	37.9	55.2	0.0		56.3	18.8	25.0	0.0		
PHF	0.625	0.719	0.250	0.000	0.806	0.000	0.500	0.250	0.000	0.333	0.500	0.550	0.571	0.000	0.725	0.450	0.750	0.333	0.000	0.444	0.696
Entering Leg	5	23	1	0	29	0	2	2	0	4	2	11	16	0	29	9	3	4	0	16	78
Exiting Leg					15					6					34					23	78
Total					44					10					63					39	156

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Articulated Trucks**

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	3	0	0	4	1	0	0	0	1	0	0	3	0	3	3	0	0	0	3	11
7:15 AM	0	5	1	0	6	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	9
7:30 AM	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	3	0	0	0	3	6
7:45 AM	1	1	0	0	2	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	5
Total	2	11	1	0	14	1	0	1	0	2	1	1	4	0	6	9	0	0	0	9	31
8:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	3
8:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	6	0	6	1	0	0	0	1	9
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	6	0	8	1	0	0	0	1	10
8:45 AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	6	0	1	0	7	11
Total	0	8	0	0	8	0	0	0	0	0	0	3	12	0	15	9	0	1	0	10	33
Grand Total	2	19	1	0	22	1	0	1	0	2	1	4	16	0	21	18	0	1	0	19	64
Approach %	9.1	86.4	4.5	0.0		50.0	0.0	50.0	0.0		4.8	19.0	76.2	0.0		94.7	0.0	5.3	0.0		
Total %	3.1	29.7	1.6	0.0	34.4	1.6	0.0	1.6	0.0	3.1	1.6	6.3	25.0	0.0	32.8	28.1	0.0	1.6	0.0	29.7	
Exiting Leg Total					6					2					38					18	64

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	3
8:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	6	0	6	1	0	0	0	1	9
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	6	0	8	1	0	0	0	1	10
8:45 AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	6	0	1	0	7	11
Total Volume	0	8	0	0	8	0	0	0	0	0	0	3	12	0	15	9	0	1	0	10	33
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	20.0	80.0	0.0		90.0	0.0	10.0	0.0		
PHF	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.500	0.000	0.469	0.375	0.000	0.250	0.000	0.357	0.750
Entering Leg	0	8	0	0	8	0	0	0	0	0	0	3	12	0	15	9	0	1	0	10	33
Exiting Leg					4					0					17					12	33
Total					12					0					32					22	66

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Bicycles (on Roadway and Crosswalks)

	Columbia Road (Route 53) from North							Broadway from East							Columbia Road (Route 53) from South							Broadway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Approach %	0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							1							0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Columbia Road (Route 53) from North							Broadway from East							Columbia Road (Route 53) from South							Broadway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg							0							0							1							0	1
Total							1							0							1							0	2

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Pedestrians

	Columbia Road (Route 53) from North							Broadway from East							Columbia Road (Route 53) from South							Broadway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Columbia Road (Route 53) from North							Broadway from East							Columbia Road (Route 53) from South							Broadway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Cars and Heavy Vehicles (Combined)

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	77	226	4	0	307	4	51	22	0	77	12	196	55	0	263	49	11	47	0	107	754
4:15 PM	59	235	2	0	296	5	53	27	0	85	5	167	63	0	235	57	20	43	0	120	736
4:30 PM	67	206	4	0	277	4	38	25	0	67	11	151	56	0	218	47	16	36	0	99	661
4:45 PM	73	210	2	0	285	4	40	27	0	71	7	205	55	0	267	52	18	38	0	108	731
Total	276	877	12	0	1165	17	182	101	0	300	35	719	229	0	983	205	65	164	0	434	2882
5:00 PM	52	228	2	0	282	3	51	22	0	76	10	175	60	0	245	60	18	45	0	123	726
5:15 PM	68	249	1	0	318	5	33	26	0	64	9	189	65	0	263	45	15	33	0	93	738
5:30 PM	63	212	4	0	279	8	31	25	0	64	7	165	57	0	229	45	15	40	0	100	672
5:45 PM	67	201	6	0	274	4	31	21	0	56	2	156	38	0	196	34	13	43	0	90	616
Total	250	890	13	0	1153	20	146	94	0	260	28	685	220	0	933	184	61	161	0	406	2752
Grand Total	526	1767	25	0	2318	37	328	195	0	560	63	1404	449	0	1916	389	126	325	0	840	5634
Approach %	22.7	76.2	1.1	0.0		6.6	58.6	34.8	0.0		3.3	73.3	23.4	0.0		46.3	15.0	38.7	0.0		
Total %	9.3	31.4	0.4	0.0	41.1	0.7	5.8	3.5	0.0	9.9	1.1	24.9	8.0	0.0	34.0	6.9	2.2	5.8	0.0	14.9	
Exiting Leg Total					1766					214					2351					1303	5634
Cars	525	1753	25	0	2303	37	323	193	0	553	63	1389	441	0	1893	388	125	320	0	833	5582
% Cars	99.8	99.2	100.0	0.0	99.4	100.0	98.5	99.0	0.0	98.8	100.0	98.9	98.2	0.0	98.8	99.7	99.2	98.5	0.0	99.2	99.1
Exiting Leg Total					1746					213					2334					1289	5582
Heavy Vehicles	1	14	0	0	15	0	5	2	0	7	0	15	8	0	23	1	1	5	0	7	52
% Heavy Vehicles	0.2	0.8	0.0	0.0	0.6	0.0	1.5	1.0	0.0	1.3	0.0	1.1	1.8	0.0	1.2	0.3	0.8	1.5	0.0	0.8	0.9
Exiting Leg Total					20					1					17					14	52

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	77	226	4	0	307	4	51	22	0	77	12	196	55	0	263	49	11	47	0	107	754
4:15 PM	59	235	2	0	296	5	53	27	0	85	5	167	63	0	235	57	20	43	0	120	736
4:30 PM	67	206	4	0	277	4	38	25	0	67	11	151	56	0	218	47	16	36	0	99	661
4:45 PM	73	210	2	0	285	4	40	27	0	71	7	205	55	0	267	52	18	38	0	108	731
Total Volume	276	877	12	0	1165	17	182	101	0	300	35	719	229	0	983	205	65	164	0	434	2882
% Approach Total	23.7	75.3	1.0	0.0		5.7	60.7	33.7	0.0		3.6	73.1	23.3	0.0		47.2	15.0	37.8	0.0		
PHF	0.896	0.933	0.750	0.000	0.949	0.850	0.858	0.935	0.000	0.882	0.729	0.877	0.909	0.000	0.920	0.899	0.813	0.872	0.000	0.904	0.956
Cars	275	869	12	0	1156	17	181	100	0	298	35	710	224	0	969	204	64	161	0	429	2852
Cars %	99.6	99.1	100.0	0.0	99.2	100.0	99.5	99.0	0.0	99.3	100.0	98.7	97.8	0.0	98.6	99.5	98.5	98.2	0.0	98.8	99.0
Heavy Vehicles	1	8	0	0	9	0	1	1	0	2	0	9	5	0	14	1	1	3	0	5	30
Heavy Vehicles %	0.4	0.9	0.0	0.0	0.8	0.0	0.5	1.0	0.0	0.7	0.0	1.3	2.2	0.0	1.4	0.5	1.5	1.8	0.0	1.2	1.0
Cars Enter Leg	275	869	12	0	1156	17	181	100	0	298	35	710	224	0	969	204	64	161	0	429	2852
Heavy Enter Leg	1	8	0	0	9	0	1	1	0	2	0	9	5	0	14	1	1	3	0	5	30
Total Entering Leg	276	877	12	0	1165	17	182	101	0	300	35	719	229	0	983	205	65	164	0	434	2882
Cars Exiting Leg					888					111					1173					680	2852
Heavy Exiting Leg					12					1					10					7	30
Total Exiting Leg					900					112					1183					687	2882

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Cars**

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	76	222	4	0	302	4	51	22	0	77	12	194	53	0	259	49	11	45	0	105	743
4:15 PM	59	234	2	0	295	5	52	27	0	84	5	166	62	0	233	56	20	43	0	119	731
4:30 PM	67	206	4	0	277	4	38	25	0	67	11	150	55	0	216	47	15	35	0	97	657
4:45 PM	73	207	2	0	282	4	40	26	0	70	7	200	54	0	261	52	18	38	0	108	721
Total	275	869	12	0	1156	17	181	100	0	298	35	710	224	0	969	204	64	161	0	429	2852
5:00 PM	52	226	2	0	280	3	50	22	0	75	10	174	58	0	242	60	18	44	0	122	719
5:15 PM	68	247	1	0	316	5	32	25	0	62	9	185	64	0	258	45	15	32	0	92	728
5:30 PM	63	210	4	0	277	8	29	25	0	62	7	164	57	0	228	45	15	40	0	100	667
5:45 PM	67	201	6	0	274	4	31	21	0	56	2	156	38	0	196	34	13	43	0	90	616
Total	250	884	13	0	1147	20	142	93	0	255	28	679	217	0	924	184	61	159	0	404	2730
Grand Total	525	1753	25	0	2303	37	323	193	0	553	63	1389	441	0	1893	388	125	320	0	833	5582
Approach %	22.8	76.1	1.1	0.0		6.7	58.4	34.9	0.0		3.3	73.4	23.3	0.0		46.6	15.0	38.4	0.0		
Total %	9.4	31.4	0.4	0.0	41.3	0.7	5.8	3.5	0.0	9.9	1.1	24.9	7.9	0.0	33.9	7.0	2.2	5.7	0.0	14.9	
Exiting Leg Total					1746					213					2334					1289	5582

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	76	222	4	0	302	4	51	22	0	77	12	194	53	0	259	49	11	45	0	105	743
4:15 PM	59	234	2	0	295	5	52	27	0	84	5	166	62	0	233	56	20	43	0	119	731
4:30 PM	67	206	4	0	277	4	38	25	0	67	11	150	55	0	216	47	15	35	0	97	657
4:45 PM	73	207	2	0	282	4	40	26	0	70	7	200	54	0	261	52	18	38	0	108	721
Total Volume	275	869	12	0	1156	17	181	100	0	298	35	710	224	0	969	204	64	161	0	429	2852
% Approach Total	23.8	75.2	1.0	0.0		5.7	60.7	33.6	0.0		3.6	73.3	23.1	0.0		47.6	14.9	37.5	0.0		
PHF	0.905	0.928	0.750	0.000	0.957	0.850	0.870	0.926	0.000	0.887	0.729	0.888	0.903	0.000	0.928	0.911	0.800	0.894	0.000	0.901	0.960
Entering Leg	275	869	12	0	1156	17	181	100	0	298	35	710	224	0	969	204	64	161	0	429	2852
Exiting Leg					888					111					1173					680	2852
Total					2044					409					2142					1109	5704

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	1	4	0	0	5	0	0	0	0	0	0	2	2	0	4	0	0	2	0	2	11
4:15 PM	0	1	0	0	1	0	1	0	0	1	0	1	1	0	2	1	0	0	0	1	5
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	1	1	0	2	4
4:45 PM	0	3	0	0	3	0	0	1	0	1	0	5	1	0	6	0	0	0	0	0	10
Total	1	8	0	0	9	0	1	1	0	2	0	9	5	0	14	1	1	3	0	5	30
5:00 PM	0	2	0	0	2	0	1	0	0	1	0	1	2	0	3	0	0	1	0	1	7
5:15 PM	0	2	0	0	2	0	1	1	0	2	0	4	1	0	5	0	0	1	0	1	10
5:30 PM	0	2	0	0	2	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	6	0	0	6	0	4	1	0	5	0	6	3	0	9	0	0	2	0	2	22
Grand Total	1	14	0	0	15	0	5	2	0	7	0	15	8	0	23	1	1	5	0	7	52
Approach %	6.7	93.3	0.0	0.0		0.0	71.4	28.6	0.0		0.0	65.2	34.8	0.0		14.3	14.3	71.4	0.0		
Total %	1.9	26.9	0.0	0.0	28.8	0.0	9.6	3.8	0.0	13.5	0.0	28.8	15.4	0.0	44.2	1.9	1.9	9.6	0.0	13.5	
Exiting Leg Total					20					1					17					14	52
Buses	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2	0	1	1	0	2	6
% Buses	0.0	7.1	0.0	0.0	6.7	0.0	20.0	0.0	0.0	14.3	0.0	13.3	0.0	0.0	8.7	0.0	100.0	20.0	0.0	28.6	11.5
Exiting Leg Total					3					1					1					1	6
Single-Unit Trucks	1	11	0	0	12	0	4	2	0	6	0	7	6	0	13	1	0	4	0	5	36
% Single-Unit	100.0	78.6	0.0	0.0	80.0	0.0	80.0	100.0	0.0	85.7	0.0	46.7	75.0	0.0	56.5	100.0	0.0	80.0	0.0	71.4	69.2
Exiting Leg Total					11					0					14					11	36
Articulated Trucks	0	2	0	0	2	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	10
% Articulated	0.0	14.3	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0	40.0	25.0	0.0	34.8	0.0	0.0	0.0	0.0	0.0	19.2
Exiting Leg Total					6					0					2					2	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	0	3	0	0	3	0	0	1	0	1	0	5	1	0	6	0	0	0	0	0	10
5:00 PM	0	2	0	0	2	0	1	0	0	1	0	1	2	0	3	0	0	1	0	1	7
5:15 PM	0	2	0	0	2	0	1	1	0	2	0	4	1	0	5	0	0	1	0	1	10
5:30 PM	0	2	0	0	2	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	5
Total Volume	0	9	0	0	9	0	4	2	0	6	0	11	4	0	15	0	0	2	0	2	32
% Approach Total	0.0	100.0	0.0	0.0		0.0	66.7	33.3	0.0		0.0	73.3	26.7	0.0		0.0	0.0	100.0	0.0		
PHF	0.000	0.750	0.000	0.000	0.750	0.000	0.500	0.500	0.000	0.750	0.000	0.550	0.500	0.000	0.625	0.000	0.000	0.500	0.000	0.500	0.800
Buses	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	3
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	16.7	0.0	18.2	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	9.4
Single-Unit Trucks	0	7	0	0	7	0	3	2	0	5	0	5	3	0	8	0	0	2	0	2	22
Single-Unit %	0.0	77.8	0.0	0.0	77.8	0.0	75.0	100.0	0.0	83.3	0.0	45.5	75.0	0.0	53.3	0.0	0.0	100.0	0.0	100.0	68.8
Articulated Trucks	0	2	0	0	2	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	7
Articulated %	0.0	22.2	0.0	0.0	22.2	0.0	0.0	0.0	0.0	0.0	0.0	36.4	25.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	21.9
Buses	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	3
Single-Unit Trucks	0	7	0	0	7	0	3	2	0	5	0	5	3	0	8	0	0	2	0	2	22
Articulated Trucks	0	2	0	0	2	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	7
Total Entering Leg	0	9	0	0	9	0	4	2	0	6	0	11	4	0	15	0	0	2	0	2	32
Buses					2					0					0					1	3
Single-Unit Trucks					7					0					9					6	22
Articulated Trucks					4					0					2					1	7
Total Exiting Leg					13					0					11					8	32

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Buses**

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	4
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2
Grand Total	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2	0	1	1	0	2	6
Approach %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	50.0	50.0	0.0		
Total %	0.0	16.7	0.0	0.0	16.7	0.0	16.7	0.0	0.0	16.7	0.0	33.3	0.0	0.0	33.3	0.0	16.7	16.7	0.0	33.3	
Exiting Leg Total					3					1					1					1	6

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	4
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	50.0	50.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.250	0.250	0.000	0.500	1.000
Entering Leg	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	4
Exiting Leg					2					1					1					0	4
Total					3					1					2					2	8

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class:

Single-Unit Trucks

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	1	4	0	0	5	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	8
4:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	1	0	0	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	3
4:45 PM	0	3	0	0	3	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	6
Total	1	7	0	0	8	0	1	1	0	2	0	3	4	0	7	1	0	2	0	3	20
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	4
5:15 PM	0	2	0	0	2	0	1	1	0	2	0	2	1	0	3	0	0	1	0	1	8
5:30 PM	0	1	0	0	1	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	4	0	0	4	0	3	1	0	4	0	4	2	0	6	0	0	2	0	2	16
Grand Total	1	11	0	0	12	0	4	2	0	6	0	7	6	0	13	1	0	4	0	5	36
Approach %	8.3	91.7	0.0	0.0		0.0	66.7	33.3	0.0		0.0	53.8	46.2	0.0		20.0	0.0	80.0	0.0		
Total %	2.8	30.6	0.0	0.0	33.3	0.0	11.1	5.6	0.0	16.7	0.0	19.4	16.7	0.0	36.1	2.8	0.0	11.1	0.0	13.9	
Exiting Leg Total					11					0					14					11	36

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	0	3	0	0	3	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	6
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	4
5:15 PM	0	2	0	0	2	0	1	1	0	2	0	2	1	0	3	0	0	1	0	1	8
5:30 PM	0	1	0	0	1	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	4
Total Volume	0	7	0	0	7	0	3	2	0	5	0	5	3	0	8	0	0	2	0	2	22
% Approach Total	0.0	100.0	0.0	0.0		0.0	60.0	40.0	0.0		0.0	62.5	37.5	0.0		0.0	0.0	100.0	0.0		
PHF	0.000	0.583	0.000	0.000	0.583	0.000	0.375	0.500	0.000	0.625	0.000	0.625	0.750	0.000	0.667	0.000	0.000	0.500	0.000	0.500	0.688
Entering Leg	0	7	0	0	7	0	3	2	0	5	0	5	3	0	8	0	0	2	0	2	22
Exiting Leg					7					0					9					6	22
Total					14					5					17					8	44

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Articulated Trucks**

	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	6
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	4
Grand Total	0	2	0	0	2	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	10
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	75.0	25.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	20.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					6					0					2					2	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Columbia Road (Route 53) from North					Broadway from East					Columbia Road (Route 53) from South					Broadway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	2	0	0	2	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	7
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	80.0	20.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.333	0.250	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.583
Entering Leg	0	2	0	0	2	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	7
Exiting Leg					4					0					2					1	7
Total					6					0					7					1	14

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Bicycles (on Roadway and Crosswalks)

	Columbia Road (Route 53) from North							Broadway from East							Columbia Road (Route 53) from South							Broadway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							0							0							0							1	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Columbia Road (Route 53) from North							Broadway from East							Columbia Road (Route 53) from South							Broadway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Exiting Leg							0							0							0							1	1
Total							0							0							1							1	2

PDI File #: **228996 A**
Location: **N: Columbia Road (Route 53) S: Columbia Road (Route 53)**
Location: **E: Broadway W: Broadway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Pedestrians

	Columbia Road (Route 53) from North							Broadway from East							Columbia Road (Route 53) from South							Broadway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	100	0		0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	
Exiting Leg Total							0							0							1							0	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Columbia Road (Route 53) from North							Broadway from East							Columbia Road (Route 53) from South							Broadway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Exiting Leg							0							0							1							0	1
Total							0							0							2							0	2

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION D A T A INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
508-875-0100 datarequests@pdillc.com
Email: datarequests@pdillc.com

PDI File #: 228996 ATR-A (Speed)

Count Date
Wednesday, November 30, 2022

Speed (60-minute)

NB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	2	1	4	8	8	5	4	0	0	0	0	32	48.0	40.0
1:00 AM	0	0	1	1	4	5	2	0	1	0	0	0	0	14	40.2	35.9
2:00 AM	0	0	0	0	0	6	2	1	0	0	0	0	0	9	40.8	38.7
3:00 AM	0	0	0	0	0	7	10	4	0	1	0	0	0	22	46.7	42.3
4:00 AM	0	0	0	1	5	19	32	16	5	1	1	0	0	80	46.2	42.0
5:00 AM	0	0	2	8	13	82	120	30	6	1	0	0	0	262	44.0	40.2
6:00 AM	0	1	2	18	58	171	163	44	1	2	0	0	0	460	43.0	38.6
7:00 AM	1	1	6	27	165	324	151	25	2	0	0	0	0	702	41.0	36.7
8:00 AM	0	0	13	35	184	300	136	7	2	0	0	0	0	677	41.0	36.0
9:00 AM	0	2	1	52	186	310	97	17	1	0	0	1	1	668	40.0	35.9
10:00 AM	1	4	15	47	202	273	106	7	0	0	1	0	0	656	40.0	35.1
11:00 AM	1	0	10	70	215	251	68	3	0	0	0	0	0	618	39.0	34.5
12:00 PM	1	2	13	46	210	244	75	3	0	0	0	0	0	594	39.0	34.7
1:00 PM	1	3	8	41	235	273	84	11	1	0	0	0	0	657	39.0	35.1
2:00 PM	4	2	15	88	227	205	64	7	0	0	0	0	0	612	39.0	33.7
3:00 PM	4	2	15	57	176	199	38	4	1	0	0	0	0	496	38.0	33.8
4:00 PM	19	3	13	95	220	143	21	2	0	0	0	0	0	516	37.0	31.9
5:00 PM	8	0	14	45	188	146	19	0	0	0	0	0	0	420	37.0	32.9
6:00 PM	5	1	17	47	160	129	26	2	0	0	0	0	0	387	38.0	33.0
7:00 PM	4	1	6	25	125	131	36	3	0	0	0	0	0	331	39.0	34.2
8:00 PM	4	1	0	24	77	121	46	2	0	0	0	0	0	275	40.0	35.1
9:00 PM	1	0	5	11	32	99	32	6	0	0	0	0	0	186	41.0	36.2
10:00 PM	0	0	3	4	11	29	22	0	1	1	0	0	0	71	41.0	37.0
11:00 PM	0	0	1	2	15	13	22	6	2	1	0	0	0	62	44.0	38.8
Total	54	23	162	745	2712	3488	1380	205	27	7	2	1	1	8807	40.0	35.2
Percent	0.61%	0.26%	1.84%	8.46%	30.79%	39.60%	15.67%	2.33%	0.31%	0.08%	0.02%	0.01%	0.01%			
AM Peak	7:00 AM	10:00 AM	10:00 AM	11:00 AM	11:00 AM	7:00 AM	6:00 AM	6:00 AM	5:00 AM	6:00 AM	4:00 AM	9:00 AM	9:00 AM	7:00 AM		
Volume	1	4	15	70	215	324	163	44	6	2	1	1	1	702		
PM Peak	4:00 PM	1:00 PM	6:00 PM	4:00 PM	1:00 PM	1:00 PM	1:00 PM	1:00 PM	11:00 PM	10:00 PM				1:00 PM		
Volume	19	3	17	95	235	273	84	11	2	1	0	0	0	657		

15th Percentile:	31.0 MPH	Average Speed:	35.2 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	4330
85th Percentile:	40.0 MPH	Number in Pace:	6343	Percent of Vehicles > 35 MPH:	49.2%
95th Percentile:	43.0 MPH	Percent in Pace:	72.0%		

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION D A T A INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
508-875-0100 datarequests@pdillc.com
Email: datarequests@pdillc.com

PDI File #: 228996 ATR-A (Speed)

Count Date
Wednesday, November 30, 2022

Speed (60-minute)

SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	1	1	18	8	2	2	0	0	0	32	47.4	43.9
1:00 AM	0	0	0	0	1	8	6	2	1	1	0	0	0	19	45.9	41.3
2:00 AM	0	0	0	0	1	1	7	0	0	0	0	0	0	9	43.8	40.8
3:00 AM	0	0	0	0	0	5	6	5	2	0	1	0	0	19	49.6	44.2
4:00 AM	0	0	0	0	3	14	19	13	4	1	1	0	0	55	47.9	42.6
5:00 AM	0	0	0	1	6	39	77	25	8	2	1	0	0	159	47.0	42.0
6:00 AM	0	1	2	5	60	162	138	46	5	0	0	0	0	419	44.0	39.0
7:00 AM	0	2	4	21	121	272	166	24	7	0	0	0	0	617	42.0	37.5
8:00 AM	0	1	9	34	162	296	186	32	7	1	0	0	0	728	42.0	37.0
9:00 AM	0	2	18	59	165	277	157	24	0	0	0	0	0	702	41.0	36.0
10:00 AM	0	1	16	48	160	252	127	25	0	0	0	0	0	629	41.0	36.0
11:00 AM	2	4	31	103	248	235	96	11	0	0	0	0	0	730	39.0	33.9
12:00 PM	3	3	34	89	251	244	102	16	0	0	0	0	0	742	40.0	34.0
1:00 PM	0	4	32	82	238	282	102	23	2	0	0	0	0	765	40.0	34.7
2:00 PM	0	5	60	103	246	244	89	9	4	0	0	0	0	760	39.0	33.5
3:00 PM	0	14	79	126	241	159	56	6	0	0	0	0	0	681	38.0	31.7
4:00 PM	2	5	53	161	233	170	32	4	1	0	0	0	0	661	37.0	31.5
5:00 PM	1	6	67	199	266	134	25	3	1	1	0	0	0	703	36.0	30.9
6:00 PM	1	1	36	111	227	189	45	6	0	0	0	0	0	616	38.0	32.7
7:00 PM	0	3	6	40	185	179	56	11	0	0	0	0	0	480	39.0	34.8
8:00 PM	0	0	0	4	51	170	92	15	1	2	0	0	0	335	42.0	38.1
9:00 PM	0	0	0	1	14	90	97	27	3	0	0	0	0	232	44.0	40.1
10:00 PM	0	0	1	2	9	31	60	26	2	1	1	0	0	133	45.0	41.1
11:00 PM	0	0	0	0	1	16	19	17	5	1	0	1	0	60	48.0	43.1
Total	9	52	448	1189	2890	3470	1778	378	55	12	4	1	0	10286	41.0	35.0
Percent	0.09%	0.51%	4.36%	11.56%	28.10%	33.74%	17.29%	3.67%	0.53%	0.12%	0.04%	0.01%	0.00%			
AM Peak	11:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	8:00 AM	8:00 AM	6:00 AM	5:00 AM	12:00 AM	3:00 AM			11:00 AM		
Volume	2	4	31	103	248	296	186	46	8	2	1	0	0	730		
PM Peak	12:00 PM	3:00 PM	3:00 PM	5:00 PM	5:00 PM	1:00 PM	12:00 PM	9:00 PM	11:00 PM	8:00 PM	10:00 PM	11:00 PM		1:00 PM		
Volume	3	14	79	199	266	282	102	27	5	2	1	1	0	765		

15th Percentile:	29.0 MPH	Average Speed:	35.0 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	4911
85th Percentile:	41.0 MPH	Number in Pace:	6514	Percent of Vehicles > 35 MPH:	47.7%
95th Percentile:	44.0 MPH	Percent in Pace:	63.3%		

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION D A T A INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
508-875-0100 datarequests@pdillc.com

PDI File #: 228996 ATR-A (Speed)

Count Date
Wednesday, November 30, 2022

Speed (60-minute)

Combined NB and SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	2	1	5	9	26	13	6	2	0	0	0	64	48.0	41.9
1:00 AM	0	0	1	1	5	13	8	2	2	1	0	0	0	33	43.4	39.0
2:00 AM	0	0	0	0	1	7	9	1	0	0	0	0	0	18	43.5	39.7
3:00 AM	0	0	0	0	0	12	16	9	2	1	1	0	0	41	49.0	43.2
4:00 AM	0	0	0	1	8	33	51	29	9	2	2	0	0	135	47.0	42.2
5:00 AM	0	0	2	9	19	121	197	55	14	3	1	0	0	421	45.0	40.9
6:00 AM	0	2	4	23	118	333	301	90	6	2	0	0	0	879	44.0	38.8
7:00 AM	1	3	10	48	286	596	317	49	9	0	0	0	0	1319	42.0	37.0
8:00 AM	0	1	22	69	346	596	322	39	9	1	0	0	0	1405	41.0	36.5
9:00 AM	0	4	19	111	351	587	254	41	1	0	0	1	1	1370	41.0	35.9
10:00 AM	1	5	31	95	362	525	233	32	0	0	1	0	0	1285	40.0	35.5
11:00 AM	3	4	41	173	463	486	164	14	0	0	0	0	0	1348	39.0	34.2
12:00 PM	4	5	47	135	461	488	177	19	0	0	0	0	0	1336	39.0	34.3
1:00 PM	1	7	40	123	473	555	186	34	3	0	0	0	0	1422	40.0	34.9
2:00 PM	4	7	75	191	473	449	153	16	4	0	0	0	0	1372	39.0	33.6
3:00 PM	4	16	94	183	417	358	94	10	1	0	0	0	0	1177	38.0	32.6
4:00 PM	21	8	66	256	453	313	53	6	1	0	0	0	0	1177	37.0	31.7
5:00 PM	9	6	81	244	454	280	44	3	1	1	0	0	0	1123	36.0	31.6
6:00 PM	6	2	53	158	387	318	71	8	0	0	0	0	0	1003	38.0	32.8
7:00 PM	4	4	12	65	310	310	92	14	0	0	0	0	0	811	39.0	34.5
8:00 PM	4	1	0	28	128	291	138	17	1	2	0	0	0	610	41.0	36.7
9:00 PM	1	0	5	12	46	189	129	33	3	0	0	0	0	418	43.0	38.4
10:00 PM	0	0	4	6	20	60	82	26	3	2	1	0	0	204	45.0	39.7
11:00 PM	0	0	1	2	16	29	41	23	7	2	0	1	0	122	46.9	40.9
Total	63	75	610	1934	5602	6958	3158	583	82	19	6	2	1	19093	40.0	35.1
Percent	0.33%	0.39%	3.19%	10.13%	29.34%	36.44%	16.54%	3.05%	0.43%	0.10%	0.03%	0.01%	0.01%			
AM Peak	11:00 AM	10:00 AM	11:00 AM	11:00 AM	11:00 AM	7:00 AM	8:00 AM	6:00 AM	5:00 AM	5:00 AM	4:00 AM	9:00 AM	9:00 AM	8:00 AM		
Volume	3	5	41	173	463	596	322	90	14	3	2	1	1	1405		
PM Peak	4:00 PM	3:00 PM	3:00 PM	4:00 PM	1:00 PM	1:00 PM	1:00 PM	1:00 PM	11:00 PM	8:00 PM	10:00 PM	11:00 PM		1:00 PM		
Volume	21	16	94	256	473	555	186	34	7	2	1	1	0	1422		

15th Percentile:	30.0 MPH	Average Speed:	35.1 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	9241
85th Percentile:	40.0 MPH	Number in Pace:	12857	Percent of Vehicles > 35 MPH:	48.4%
95th Percentile:	44.0 MPH	Percent in Pace:	67.3%		

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
508-875-0100 datarequests@pdillc.com

PDI File #: 228996 ATR-A (Speed)

Count Date
Thursday, December 1, 2022

Speed (60-minute)

NB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	1	0	4	10	7	6	0	0	0	0	0	28	45.0	39.2
1:00 AM	0	0	0	2	1	7	11	2	0	0	0	0	0	23	42.7	38.8
2:00 AM	0	0	0	0	2	6	3	1	0	0	0	0	0	12	40.0	37.3
3:00 AM	0	0	0	0	3	3	11	4	0	1	0	0	0	22	45.0	41.4
4:00 AM	0	0	0	1	2	21	28	12	7	1	0	0	0	72	47.0	42.0
5:00 AM	0	0	0	6	15	74	94	34	5	0	0	0	0	228	45.0	40.2
6:00 AM	1	0	4	16	80	188	163	29	3	0	0	0	0	484	42.0	38.1
7:00 AM	0	1	3	24	139	326	196	11	2	0	0	0	0	702	41.0	37.1
8:00 AM	1	0	3	30	154	345	139	21	0	0	0	0	0	693	41.0	36.6
9:00 AM	0	4	15	56	212	264	83	23	0	0	0	1	0	658	40.0	35.1
10:00 AM	0	6	6	48	184	302	100	11	1	0	0	0	0	658	40.0	35.4
11:00 AM	0	5	5	67	217	263	75	7	1	1	0	0	0	641	39.0	34.8
12:00 PM	3	3	13	55	208	242	52	5	1	0	0	1	0	583	39.0	34.3
1:00 PM	4	8	22	57	246	240	66	2	0	0	0	0	0	645	38.0	33.9
2:00 PM	1	4	15	55	217	241	78	6	0	0	0	0	0	617	39.0	34.6
3:00 PM	0	7	18	111	259	181	34	2	0	0	0	0	0	612	37.0	32.9
4:00 PM	3	8	14	100	294	226	45	5	0	0	0	0	0	695	38.0	33.3
5:00 PM	5	5	23	101	269	158	33	2	0	0	0	0	0	596	37.0	32.5
6:00 PM	3	2	7	66	189	210	60	5	0	0	0	0	0	542	39.0	34.3
7:00 PM	0	1	10	34	121	161	66	12	1	1	0	0	0	407	40.1	35.5
8:00 PM	0	0	4	23	74	151	101	12	2	0	0	0	0	367	42.0	36.9
9:00 PM	0	0	2	8	30	80	67	8	4	0	0	0	0	199	42.0	38.0
10:00 PM	0	1	2	12	18	54	34	12	1	0	0	0	0	134	43.1	37.5
11:00 PM	0	0	0	2	12	34	38	11	6	0	0	0	0	103	45.0	40.0
Total	21	55	167	874	2950	3787	1584	243	34	4	0	2	0	9721	40.0	35.3
Percent	0.22%	0.57%	1.72%	8.99%	30.35%	38.96%	16.29%	2.50%	0.35%	0.04%	0.00%	0.02%	0.00%			

AM Peak	6:00 AM	10:00 AM	9:00 AM	11:00 AM	11:00 AM	8:00 AM	7:00 AM	5:00 AM	4:00 AM	3:00 AM		9:00 AM		7:00 AM
Volume	1	6	15	67	217	345	196	34	7	1	0	1	0	702
PM Peak	5:00 PM	1:00 PM	5:00 PM	3:00 PM	4:00 PM	12:00 PM	8:00 PM	7:00 PM	11:00 PM	7:00 PM		12:00 PM		4:00 PM
Volume	5	8	23	111	294	242	101	12	6	1	0	1	0	695

15th Percentile:	31.0 MPH	Average Speed:	35.3 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	36.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	4886
85th Percentile:	40.0 MPH	Number in Pace:	6988	Percent of Vehicles > 35 MPH:	50.3%
95th Percentile:	43.0 MPH	Percent in Pace:	71.9%		

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION D A T A INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
508-875-0100 datarequests@pdillc.com

PDI File #: 228996 ATR-A (Speed)

Count Date
Thursday, December 1, 2022

Speed (60-minute)

SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	1	0	0	1	1	7	6	11	4	0	0	0	0	31	48.5	42.2
1:00 AM	0	0	0	0	1	12	6	4	3	1	0	0	0	27	48.3	42.1
2:00 AM	0	0	0	0	1	2	4	2	0	0	0	0	0	9	44.6	40.9
3:00 AM	0	0	0	0	0	8	4	8	1	0	0	0	0	21	48.0	42.9
4:00 AM	0	1	0	0	1	4	11	14	7	0	0	0	0	38	50.0	44.0
5:00 AM	1	0	0	0	9	31	72	40	8	1	0	0	0	162	46.0	41.9
6:00 AM	0	0	1	14	90	156	150	55	4	0	0	0	0	470	44.0	38.6
7:00 AM	0	0	11	38	148	234	169	27	4	0	0	0	0	631	42.0	36.7
8:00 AM	0	0	12	38	180	270	150	42	3	1	0	0	0	696	42.0	36.7
9:00 AM	1	3	14	53	177	283	133	19	3	1	0	0	0	687	41.0	35.9
10:00 AM	2	0	5	64	197	252	147	30	1	0	0	0	0	698	41.0	35.9
11:00 AM	2	1	16	65	219	318	153	34	5	0	0	0	0	813	41.0	35.9
12:00 PM	1	10	40	119	251	283	109	21	3	0	0	0	0	837	40.0	34.0
1:00 PM	1	9	21	96	214	298	134	23	2	1	0	1	0	800	40.0	35.0
2:00 PM	1	5	19	82	263	305	133	38	3	1	0	0	0	850	41.0	35.3
3:00 PM	2	11	39	137	275	273	97	16	3	0	0	0	0	853	39.0	33.6
4:00 PM	2	12	45	136	296	261	89	8	0	1	0	0	0	850	39.0	33.2
5:00 PM	0	16	53	128	252	251	65	6	0	0	0	0	0	771	38.0	32.6
6:00 PM	0	7	18	58	209	315	102	9	2	0	0	0	0	720	40.0	35.0
7:00 PM	1	2	4	13	114	262	161	23	2	0	1	0	0	583	42.0	37.4
8:00 PM	2	2	1	6	42	133	136	39	7	1	1	0	1	371	44.0	39.4
9:00 PM	0	1	0	3	9	79	118	46	5	0	0	0	0	261	45.0	40.9
10:00 PM	0	0	0	3	4	41	66	28	8	0	0	0	0	150	46.0	41.5
11:00 PM	0	0	2	1	2	22	35	16	7	2	0	0	0	87	48.0	41.9
Total	17	80	301	1055	2955	4100	2250	559	85	10	2	1	1	11416	41.0	35.8
Percent	0.15%	0.70%	2.64%	9.24%	25.88%	35.91%	19.71%	4.90%	0.74%	0.09%	0.02%	0.01%	0.01%			
AM Peak	10:00 AM	9:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	7:00 AM	6:00 AM	5:00 AM	1:00 AM				11:00 AM		
Volume	2	3	16	65	219	318	169	55	8	1	0	0	0	813		
PM Peak	3:00 PM	5:00 PM	5:00 PM	3:00 PM	4:00 PM	6:00 PM	7:00 PM	9:00 PM	10:00 PM	11:00 PM	7:00 PM	1:00 PM	8:00 PM	3:00 PM		
Volume	2	16	53	137	296	315	161	46	8	2	1	1	1	853		

15th Percentile:	30.0 MPH	Average Speed:	35.8 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	36.0 MPH	10 MPH Pace:	32 to 41 MPH	Number of Vehicles > 35 MPH:	6155
85th Percentile:	41.0 MPH	Number in Pace:	7413	Percent of Vehicles > 35 MPH:	53.9%
95th Percentile:	45.0 MPH	Percent in Pace:	64.9%		

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION D A T A INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
508-875-0100 datarequests@pdillc.com

PDI File #: 228996 ATR-A (Speed)

Count Date
Thursday, December 1, 2022

Speed (60-minute)

Combined NB and SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	1	0	1	1	5	17	13	17	4	0	0	0	0	59	48.0	40.8
1:00 AM	0	0	0	2	2	19	17	6	3	1	0	0	0	50	46.3	40.6
2:00 AM	0	0	0	0	3	8	7	3	0	0	0	0	0	21	43.0	38.8
3:00 AM	0	0	0	0	3	11	15	12	1	1	0	0	0	43	46.7	42.1
4:00 AM	0	1	0	1	3	25	39	26	14	1	0	0	0	110	49.0	42.7
5:00 AM	1	0	0	6	24	105	166	74	13	1	0	0	0	390	46.0	40.9
6:00 AM	1	0	5	30	170	344	313	84	7	0	0	0	0	954	43.0	38.4
7:00 AM	0	1	14	62	287	560	365	38	6	0	0	0	0	1333	41.0	36.9
8:00 AM	1	0	15	68	334	615	289	63	3	1	0	0	0	1389	41.0	36.6
9:00 AM	1	7	29	109	389	547	216	42	3	1	0	1	0	1345	40.0	35.5
10:00 AM	2	6	11	112	381	554	247	41	2	0	0	0	0	1356	40.0	35.7
11:00 AM	2	6	21	132	436	581	228	41	6	1	0	0	0	1454	40.0	35.4
12:00 PM	4	13	53	174	459	525	161	26	4	0	0	1	0	1420	39.0	34.2
1:00 PM	5	17	43	153	460	538	200	25	2	1	0	1	0	1445	40.0	34.5
2:00 PM	2	9	34	137	480	546	211	44	3	1	0	0	0	1467	40.0	35.0
3:00 PM	2	18	57	248	534	454	131	18	3	0	0	0	0	1465	38.0	33.3
4:00 PM	5	20	59	236	590	487	134	13	0	1	0	0	0	1545	38.0	33.3
5:00 PM	5	21	76	229	521	409	98	8	0	0	0	0	0	1367	38.0	32.6
6:00 PM	3	9	25	124	398	525	162	14	2	0	0	0	0	1262	39.0	34.7
7:00 PM	1	3	14	47	235	423	227	35	3	1	1	0	0	990	41.0	36.6
8:00 PM	2	2	5	29	116	284	237	51	9	1	1	0	1	738	43.0	38.2
9:00 PM	0	1	2	11	39	159	185	54	9	0	0	0	0	460	44.0	39.6
10:00 PM	0	1	2	15	22	95	100	40	9	0	0	0	0	284	45.0	39.6
11:00 PM	0	0	2	3	14	56	73	27	13	2	0	0	0	190	46.0	40.8
Total	38	135	468	1929	5905	7887	3834	802	119	14	2	3	1	21137	41.0	35.6
Percent	0.18%	0.64%	2.21%	9.13%	27.94%	37.31%	18.14%	3.79%	0.56%	0.07%	0.01%	0.01%	0.00%			
AM Peak	10:00 AM	9:00 AM	9:00 AM	11:00 AM	11:00 AM	8:00 AM	7:00 AM	6:00 AM	4:00 AM	1:00 AM		9:00 AM		11:00 AM		
Volume	2	7	29	132	436	615	365	84	14	1	0	1	0	1454		
PM Peak	1:00 PM	5:00 PM	5:00 PM	3:00 PM	4:00 PM	2:00 PM	8:00 PM	9:00 PM	11:00 PM	11:00 PM	7:00 PM	12:00 PM	8:00 PM	4:00 PM		
Volume	5	21	76	248	590	546	237	54	13	2	1	1	1	1545		

15th Percentile:	30.0 MPH	Average Speed:	35.6 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	36.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	11041
85th Percentile:	41.0 MPH	Number in Pace:	14392	Percent of Vehicles > 35 MPH:	52.2%
95th Percentile:	44.0 MPH	Percent in Pace:	68.1%		

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Cars and Heavy Vehicles (Combined)

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	2	40	1	0	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	135	2	0	137	180
7:15 AM	1	0	0	0	0	1	0	48	1	0	0	49	0	0	0	0	0	0	0	0	0	0	0	0	1	0	162	2	0	165	215
7:30 AM	6	0	0	1	0	7	2	46	0	0	0	48	0	0	1	0	0	1	0	0	0	0	0	0	0	0	174	6	0	180	236
7:45 AM	0	0	0	1	0	1	5	54	0	0	0	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	191	3	0	194	254
Total	7	0	0	2	0	9	9	188	2	0	0	199	0	0	1	0	0	1	0	0	0	0	0	0	1	0	662	13	0	676	885
8:00 AM	4	0	0	2	0	6	5	52	0	0	0	57	0	1	0	0	0	1	0	0	0	0	0	0	0	0	145	4	0	149	213
8:15 AM	2	0	0	6	0	8	3	68	0	0	0	71	0	0	0	0	0	0	0	1	0	0	0	1	0	0	153	4	0	157	237
8:30 AM	6	0	0	3	0	9	7	67	0	0	0	74	0	0	0	0	0	0	0	0	1	0	0	1	0	0	133	4	0	137	221
8:45 AM	6	0	0	6	0	12	8	66	1	0	0	75	0	0	0	0	0	0	0	0	0	0	0	0	1	1	133	3	0	138	225
Total	18	0	0	17	0	35	23	253	1	0	0	277	0	1	0	0	0	1	0	1	1	0	0	2	1	1	564	15	0	581	896
Grand Total	25	0	0	19	0	44	32	441	3	0	0	476	0	1	1	0	0	2	0	1	1	0	0	2	2	1	1226	28	0	1257	1781
Approach %	56.8	0.0	0.0	43.2	0.0		6.7	92.6	0.6	0.0	0.0		0.0	50.0	50.0	0.0	0.0		0.0	50.0	50.0	0.0	0.0		0.2	0.1	97.5	2.2	0.0		
Total %	1.4	0.0	0.0	1.1	0.0	2.5	1.8	24.8	0.2	0.0	0.0	26.7	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	68.8	1.6	0.0	70.6	
Exiting Leg Total						62						1246						1						5						467	1781
Cars	24	0	0	18	0	42	28	397	3	0	0	428	0	1	1	0	0	2	0	1	1	0	0	2	2	1	1159	28	0	1190	1664
% Cars	96.0	0.0	0.0	94.7	0.0	95.5	87.5	90.0	100.0	0.0	0.0	89.9	0.0	100.0	100.0	0.0	0.0	100.0	0.0	100.0	100.0	0.0	0.0	100.0	100.0	100.0	94.5	100.0	0.0	94.7	93.4
Exiting Leg Total						58						1178						1						5						422	1664
Heavy Vehicles	1	0	0	1	0	2	4	44	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	0	0	67	117
% Heavy Vehicles	4.0	0.0	0.0	5.3	0.0	4.5	12.5	10.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	5.3	6.6
Exiting Leg Total						4						68						0						0						45	117

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
7:30 AM	6	0	0	1	0	7	2	46	0	0	0	48	0	0	1	0	0	1	0	0	0	0	0	0	0	0	174	6	0	180	236
7:45 AM	0	0	0	1	0	1	5	54	0	0	0	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	191	3	0	194	254
8:00 AM	4	0	0	2	0	6	5	52	0	0	0	57	0	1	0	0	0	1	0	0	0	0	0	0	0	0	145	4	0	149	213
8:15 AM	2	0	0	6	0	8	3	68	0	0	0	71	0	0	0	0	0	0	0	1	0	0	0	1	0	0	153	4	0	157	237
Total Volume	12	0	0	10	0	22	15	220	0	0	0	235	0	1	1	0	0	2	0	1	0	0	0	1	0	0	663	17	0	680	940
% Approach Total	54.5	0.0	0.0	45.5	0.0		6.4	93.6	0.0	0.0	0.0		0.0	50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	97.5	2.5	0.0		
PHF	0.500	0.000	0.000	0.417	0.000	0.688	0.750	0.809	0.000	0.000	0.000	0.827	0.000	0.250	0.250	0.000	0.000	0.500	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.868	0.708	0.000	0.876	0.925
Cars	11	0	0	10	0	21	15	200	0	0	0	215	0	1	1	0	0	2	0	1	0	0	0	1	0	0	637	17	0	654	893
Cars %	91.7	0.0	0.0	100.0	0.0	95.5	100.0	90.9	0.0	0.0	0.0	91.5	0.0	100.0	100.0	0.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	96.1	100.0	0.0	96.2	95.0
Heavy Vehicles	1	0	0	0	0	1	0	20	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	26	47
Heavy Vehicles %	8.3	0.0	0.0	0.0	0.0	4.5	0.0	9.1	0.0	0.0	0.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	3.8	5.0
Cars Enter Leg	11	0	0	10	0	21	15	200	0	0	0	215	0	1	1	0	0	2	0	1	0	0	0	1	0	0	637	17	0	654	893
Heavy Enter Leg	1	0	0	0	0	1	0	20	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	26	47
Total Entering Leg	12	0	0	10	0	22	15	220	0	0	0	235	0	1	1	0	0	2	0	1	0	0	0	1	0	0	663	17	0	680	940
Cars Exiting Leg						33						648						0						0						212	893
Heavy Exiting Leg						0						26						0						0						21	47
Total Exiting Leg						33						674						0						0						233	940

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Cars

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	35	1	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	117	2	0	119	156
7:15 AM	1	0	0	0	0	1	0	46	1	0	0	47	0	0	0	0	0	0	0	0	0	0	0	0	1	0	157	2	0	160	208
7:30 AM	5	0	0	1	0	6	2	45	0	0	0	47	0	0	1	0	0	1	0	0	0	0	0	0	0	0	162	6	0	168	222
7:45 AM	0	0	0	1	0	1	5	51	0	0	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	185	3	0	188	245
Total	6	0	0	2	0	8	8	177	2	0	0	187	0	0	1	0	0	1	0	0	0	0	0	0	1	0	621	13	0	635	831
8:00 AM	4	0	0	2	0	6	5	47	0	0	0	52	0	1	0	0	0	1	0	0	0	0	0	0	0	0	142	4	0	146	205
8:15 AM	2	0	0	6	0	8	3	57	0	0	0	60	0	0	0	0	0	0	0	1	0	0	0	1	0	0	148	4	0	152	221
8:30 AM	6	0	0	3	0	9	6	58	0	0	0	64	0	0	0	0	0	0	0	0	1	0	0	1	0	0	131	4	0	135	209
8:45 AM	6	0	0	5	0	11	6	58	1	0	0	65	0	0	0	0	0	0	0	0	0	0	0	0	1	1	117	3	0	122	198
Total	18	0	0	16	0	34	20	220	1	0	0	241	0	1	0	0	0	1	0	1	1	0	0	2	1	1	538	15	0	555	833
Grand Total	24	0	0	18	0	42	28	397	3	0	0	428	0	1	1	0	0	2	0	1	1	0	0	2	2	1	1159	28	0	1190	1664
Approach %	57.1	0.0	0.0	42.9	0.0		6.5	92.8	0.7	0.0	0.0		0.0	50.0	50.0	0.0	0.0		0.0	50.0	50.0	0.0	0.0		0.2	0.1	97.4	2.4	0.0		
Total %	1.4	0.0	0.0	1.1	0.0	2.5	1.7	23.9	0.2	0.0	0.0	25.7	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	69.7	1.7	0.0	71.5	
Exiting Leg Total						58						1178						1						5						422	1664

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
7:30 AM	5	0	0	1	0	6	2	45	0	0	0	47	0	0	1	0	0	1	0	0	0	0	0	0	0	0	162	6	0	168	222
7:45 AM	0	0	0	1	0	1	5	51	0	0	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	185	3	0	188	245
8:00 AM	4	0	0	2	0	6	5	47	0	0	0	52	0	1	0	0	0	1	0	0	0	0	0	0	0	0	142	4	0	146	205
8:15 AM	2	0	0	6	0	8	3	57	0	0	0	60	0	0	0	0	0	0	0	1	0	0	0	1	0	0	148	4	0	152	221
Total Volume	11	0	0	10	0	21	15	200	0	0	0	215	0	1	1	0	0	2	0	1	0	0	0	1	0	0	637	17	0	654	893
% Approach Total	52.4	0.0	0.0	47.6	0.0		7.0	93.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	97.4	2.6	0.0		
PHF	0.550	0.000	0.000	0.417	0.000	0.656	0.750	0.877	0.000	0.000	0.000	0.896	0.000	0.250	0.250	0.000	0.000	0.500	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.861	0.708	0.000	0.870	0.911
Entering Leg	11	0	0	10	0	21	15	200	0	0	0	215	0	1	1	0	0	2	0	1	0	0	0	1	0	0	637	17	0	654	893
Exiting Leg						33						648						0						0						212	893
Total						54						863						2						1						866	1786

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	5	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	18	24
7:15 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	7
7:30 AM	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12	14
7:45 AM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	9
Total	1	0	0	0	0	1	1	11	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	0	0	41	54
8:00 AM	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	8
8:15 AM	0	0	0	0	0	0	0	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	16
8:30 AM	0	0	0	0	0	0	1	9	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	12
8:45 AM	0	0	0	1	0	1	2	8	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	27
Total	0	0	0	1	0	1	3	33	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	26	63
Grand Total	1	0	0	1	0	2	4	44	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	0	0	67	117
Approach %	50.0	0.0	0.0	50.0	0.0		8.3	91.7	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
Total %	0.9	0.0	0.0	0.9	0.0	1.7	3.4	37.6	0.0	0.0	0.0	41.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.3	0.0	0.0	57.3	
Exiting Leg Total						4						68						0						0						45	117
Buses	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	6
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.5	5.1
Exiting Leg Total						0						3						0						0						3	6
Single-Unit Trucks	1	0	0	1	0	2	3	24	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	48	77
% Single-Unit	100.0	0.0	0.0	100.0	0.0	100.0	75.0	54.5	0.0	0.0	0.0	56.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.6	0.0	0.0	71.6	65.8
Exiting Leg Total						3						49						0						0						25	77
Articulated Trucks	0	0	0	0	0	0	1	17	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	34
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	25.0	38.6	0.0	0.0	0.0	37.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.9	0.0	0.0	23.9	29.1
Exiting Leg Total						1						16						0						0						17	34

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	8
8:15 AM	0	0	0	0	0	0	0	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	16
8:30 AM	0	0	0	0	0	0	1	9	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	12
8:45 AM	0	0	0	1	0	1	2	8	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	27
Total Volume	0	0	0	1	0	1	3	33	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	26	63
% Approach Total	0.0	0.0	0.0	100.0	0.0		8.3	91.7	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.250	0.000	0.250	0.375	0.750	0.000	0.000	0.000	0.818	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.406	0.000	0.000	0.406	0.583
Buses	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	3.8	4.8
Single-Unit Trucks	0	0	0	1	0	1	3	19	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	39
Single-Unit %	0.0	0.0	0.0	100.0	0.0	100.0	100.0	57.6	0.0	0.0	0.0	61.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.5	0.0	0.0	61.5	61.9
Articulated Trucks	0	0	0	0	0	0	0	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	21
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.6	0.0	0.0	34.6	33.3
Buses	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
Single-Unit Trucks	0	0	0	1	0	1	3	19	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	39
Articulated Trucks	0	0	0	0	0	0	0	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	21
Total Entering Leg	0	0	0	1	0	1	3	33	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	26	63
Buses						0						1						0						0						2	3

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
Single-Unit Trucks						3						17						0						0						19	39
Articulated Trucks						0						9						0						0						12	21
Total Exiting Leg						3						27						0						0						33	63

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Buses**

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
Total	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
8:00 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
Grand Total	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	6
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	
Exiting Leg Total						0						3						0						0						3	6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
8:00 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	6
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.500
Entering Leg	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	6
Exiting Leg						0						3						0						0						3	6
Total						0						6						0						0						6	12

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Single-Unit Trucks

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	18
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	6
7:30 AM	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	10
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	4
Total	1	0	0	0	0	1	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	32	38
8:00 AM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	5
8:15 AM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	7
8:30 AM	0	0	0	0	0	0	1	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	7
8:45 AM	0	0	0	1	0	1	2	8	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	20
Total	0	0	0	1	0	1	3	19	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	39
Grand Total	1	0	0	1	0	2	3	24	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	48	77
Approach %	50.0	0.0	0.0	50.0	0.0		11.1	88.9	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
Total %	1.3	0.0	0.0	1.3	0.0	2.6	3.9	31.2	0.0	0.0	0.0	35.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	62.3	0.0	0.0	62.3	
Exiting Leg Total						3						49						0						0						25	77

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	5
8:15 AM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	7
8:30 AM	0	0	0	0	0	0	1	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	7
8:45 AM	0	0	0	1	0	1	2	8	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	20
Total Volume	0	0	0	1	0	1	3	19	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	39
% Approach Total	0.0	0.0	0.0	100.0	0.0		13.6	86.4	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.250	0.000	0.250	0.375	0.594	0.000	0.000	0.000	0.550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.444	0.000	0.000	0.444	0.488
Entering Leg	0	0	0	1	0	1	3	19	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	39
Exiting Leg						3						17						0						0						19	39
Total						4						39						0						0						35	78

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Articulated Trucks

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	6
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	1	5	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	13
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
8:30 AM	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7
Total	0	0	0	0	0	0	0	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	21
Grand Total	0	0	0	0	0	0	1	17	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	34
Approach %	0.0	0.0	0.0	0.0	0.0		5.6	94.4	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	2.9	50.0	0.0	0.0	0.0	52.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.1	0.0	0.0	47.1	
Exiting Leg Total						1						16						0						0						17	34

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:15 AM	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
8:30 AM	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7
Total Volume	0	0	0	0	0	0	0	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	21
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.429	0.000	0.000	0.000	0.429	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.321	0.000	0.000	0.321	0.656
Entering Leg	0	0	0	0	0	0	0	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	21
Exiting Leg						0						9						0						0						12	21
Total						0						21						0						0						21	42

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Bicycles (on Roadway and Crosswalks)

	Previte Marketplace from North								Broadway from East								Driveway from Southeast								Salon Driveway from South								Broadway from West								Total
	Right	Thru	Bear Left	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total								0								0								0								0								0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Previte Marketplace from North								Broadway from East								Driveway from Southeast								Salon Driveway from South								Broadway from West								Total
	Right	Thru	Bear Left	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg								0								0								0								0								0	0
Total								0								0								0								0								0	0

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Pedestrians

	Previte Marketplace from North								Broadway from East								Driveway from Southeast								Salon Driveway from South								Broadway from West								
	Right	Thru	Bear Left	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0		0	0	0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total								0								0								0								0								0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Previte Marketplace from North								Broadway from East								Driveway from Southeast								Salon Driveway from South								Broadway from West								
	Right	Thru	Bear Left	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg								0								0								0								0								0	0
Total								0								0								0								0								0	0

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Cars and Heavy Vehicles (Combined)

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	18	0	1	19	0	38	11	173	1	0	0	185	0	0	0	0	0	0	0	3	0	0	0	3	1	1	92	6	0	100	326
4:15 PM	7	1	0	13	0	21	14	162	0	0	0	176	1	0	0	0	0	1	0	2	0	2	0	4	0	1	90	3	0	94	296
4:30 PM	17	0	0	13	0	30	10	154	1	0	0	165	0	0	0	0	0	0	0	2	0	0	0	2	0	0	92	5	0	97	294
4:45 PM	11	0	1	14	0	26	12	156	0	0	0	168	1	0	0	0	0	1	0	1	0	1	0	2	1	0	99	6	0	106	303
Total	53	1	2	59	0	115	47	645	2	0	0	694	2	0	0	0	0	2	0	8	0	3	0	11	2	2	373	20	0	397	1219
5:00 PM	15	0	0	12	0	27	10	153	0	0	0	163	0	0	0	0	0	0	0	4	0	1	0	5	0	0	102	8	0	110	305
5:15 PM	8	0	1	7	0	16	14	152	2	0	0	168	0	0	0	0	0	0	0	1	0	0	0	1	1	0	83	6	0	90	275
5:30 PM	10	0	0	6	0	16	11	137	1	0	0	149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	7	0	98	263
5:45 PM	11	0	0	5	0	16	11	122	2	0	0	135	0	0	0	0	0	0	0	0	0	1	0	1	0	0	88	8	0	96	248
Total	44	0	1	30	0	75	46	564	5	0	0	615	0	0	0	0	0	0	0	5	0	2	0	7	1	0	364	29	0	394	1091
Grand Total	97	1	3	89	0	190	93	1209	7	0	0	1309	2	0	0	0	0	2	0	13	0	5	0	18	3	2	737	49	0	791	2310
Approach %	51.1	0.5	1.6	46.8	0.0		7.1	92.4	0.5	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	72.2	0.0	27.8	0.0		0.4	0.3	93.2	6.2	0.0		
Total %	4.2	0.0	0.1	3.9	0.0	8.2	4.0	52.3	0.3	0.0	0.0	56.7	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.2	0.0	0.8	0.1	0.1	31.9	2.1	0.0	34.2	
Exiting Leg Total						142						841						5						11						1311	2310
Cars	96	1	3	88	0	188	93	1195	7	0	0	1295	2	0	0	0	0	2	0	13	0	5	0	18	3	2	729	49	0	783	2286
% Cars	99.0	100.0	100.0	98.9	0.0	98.9	100.0	98.8	100.0	0.0	0.0	98.9	100.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	100.0	100.0	98.9	100.0	0.0	99.0	99.0
Exiting Leg Total						142						832						5						11						1296	2286
Heavy Vehicles	1	0	0	1	0	2	0	14	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	24
% Heavy Vehicles	1.0	0.0	0.0	1.1	0.0	1.1	0.0	1.2	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.0	1.0
Exiting Leg Total						0						9						0						0						15	24

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	18	0	1	19	0	38	11	173	1	0	0	185	0	0	0	0	0	0	0	3	0	0	0	3	1	1	92	6	0	100	326
4:15 PM	7	1	0	13	0	21	14	162	0	0	0	176	1	0	0	0	0	1	0	2	0	2	0	4	0	1	90	3	0	94	296
4:30 PM	17	0	0	13	0	30	10	154	1	0	0	165	0	0	0	0	0	0	0	2	0	0	0	2	0	0	92	5	0	97	294
4:45 PM	11	0	1	14	0	26	12	156	0	0	0	168	1	0	0	0	0	1	0	1	0	1	0	2	1	0	99	6	0	106	303
Total Volume	53	1	2	59	0	115	47	645	2	0	0	694	2	0	0	0	0	2	0	8	0	3	0	11	2	2	373	20	0	397	1219
% Approach Total	46.1	0.9	1.7	51.3	0.0		6.8	92.9	0.3	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	72.7	0.0	27.3	0.0		0.5	0.5	94.0	5.0	0.0		
PHF	0.736	0.250	0.500	0.776	0.000	0.757	0.839	0.932	0.500	0.000	0.000	0.938	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.667	0.000	0.375	0.000	0.688	0.500	0.500	0.942	0.833	0.000	0.936	0.935
Cars	53	1	2	59	0	115	47	637	2	0	0	686	2	0	0	0	0	2	0	8	0	3	0	11	2	2	367	20	0	391	1205
Cars %	100.0	100.0	100.0	100.0	0.0	100.0	100.0	98.8	100.0	0.0	0.0	98.8	100.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	100.0	100.0	98.4	100.0	0.0	98.5	98.9
Heavy Vehicles	0	0	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	14
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.5	1.1
Cars Enter Leg	53	1	2	59	0	115	47	637	2	0	0	686	2	0	0	0	0	2	0	8	0	3	0	11	2	2	367	20	0	391	1205
Heavy Enter Leg	0	0	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	14
Total Entering Leg	53	1	2	59	0	115	47	645	2	0	0	694	2	0	0	0	0	2	0	8	0	3	0	11	2	2	373	20	0	397	1219
Cars Exiting Leg						67						436						4						5						693	1205
Heavy Exiting Leg						0						6						0						0						8	14
Total Exiting Leg						67						442						4						5						701	1219

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Cars

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	18	0	1	19	0	38	11	169	1	0	0	181	0	0	0	0	0	0	0	3	0	0	0	3	1	1	90	6	0	98	320
4:15 PM	7	1	0	13	0	21	14	160	0	0	0	174	1	0	0	0	0	1	0	2	0	2	0	4	0	1	89	3	0	93	293
4:30 PM	17	0	0	13	0	30	10	153	1	0	0	164	0	0	0	0	0	0	0	2	0	0	0	2	0	0	89	5	0	94	290
4:45 PM	11	0	1	14	0	26	12	155	0	0	0	167	1	0	0	0	0	1	0	1	0	1	0	2	1	0	99	6	0	106	302
Total	53	1	2	59	0	115	47	637	2	0	0	686	2	0	0	0	0	2	0	8	0	3	0	11	2	2	367	20	0	391	1205
5:00 PM	15	0	0	11	0	26	10	150	0	0	0	160	0	0	0	0	0	0	0	4	0	1	0	5	0	0	100	8	0	108	299
5:15 PM	8	0	1	7	0	16	14	151	2	0	0	167	0	0	0	0	0	0	0	1	0	0	0	1	1	0	83	6	0	90	274
5:30 PM	9	0	0	6	0	15	11	135	1	0	0	147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	7	0	98	260
5:45 PM	11	0	0	5	0	16	11	122	2	0	0	135	0	0	0	0	0	0	0	0	0	1	0	1	0	0	88	8	0	96	248
Total	43	0	1	29	0	73	46	558	5	0	0	609	0	0	0	0	0	0	0	5	0	2	0	7	1	0	362	29	0	392	1081
Grand Total	96	1	3	88	0	188	93	1195	7	0	0	1295	2	0	0	0	0	2	0	13	0	5	0	18	3	2	729	49	0	783	2286
Approach %	51.1	0.5	1.6	46.8	0.0		7.2	92.3	0.5	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	72.2	0.0	27.8	0.0		0.4	0.3	93.1	6.3	0.0		
Total %	4.2	0.0	0.1	3.8	0.0	8.2	4.1	52.3	0.3	0.0	0.0	56.6	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.2	0.0	0.8	0.1	0.1	31.9	2.1	0.0	34.3	
Exiting Leg Total						142						832						5						11						1296	2286

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	18	0	1	19	0	38	11	169	1	0	0	181	0	0	0	0	0	0	0	3	0	0	0	3	1	1	90	6	0	98	320
4:15 PM	7	1	0	13	0	21	14	160	0	0	0	174	1	0	0	0	0	1	0	2	0	2	0	4	0	1	89	3	0	93	293
4:30 PM	17	0	0	13	0	30	10	153	1	0	0	164	0	0	0	0	0	0	0	2	0	0	0	2	0	0	89	5	0	94	290
4:45 PM	11	0	1	14	0	26	12	155	0	0	0	167	1	0	0	0	0	1	0	1	0	1	0	2	1	0	99	6	0	106	302
Total Volume	53	1	2	59	0	115	47	637	2	0	0	686	2	0	0	0	0	2	0	8	0	3	0	11	2	2	367	20	0	391	1205
% Approach Total	46.1	0.9	1.7	51.3	0.0		6.9	92.9	0.3	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	72.7	0.0	27.3	0.0		0.5	0.5	93.9	5.1	0.0		
PHF	0.736	0.250	0.500	0.776	0.000	0.757	0.839	0.942	0.500	0.000	0.000	0.948	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.667	0.000	0.375	0.000	0.688	0.500	0.500	0.927	0.833	0.000	0.922	0.941
Entering Leg	53	1	2	59	0	115	47	637	2	0	0	686	2	0	0	0	0	2	0	8	0	3	0	11	2	2	367	20	0	391	1205
Exiting Leg						67						436						4						5						693	1205
Total						182						1122						6						16						1084	2410

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	6
4:15 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	4
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	14
5:00 PM	0	0	0	1	0	1	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	6
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	1	0	0	0	0	1	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	2	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	10
Grand Total	1	0	0	1	0	2	0	14	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	24
Approach %	50.0	0.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
Total %	4.2	0.0	0.0	4.2	0.0	8.3	0.0	58.3	0.0	0.0	0.0	58.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	
Exiting Leg Total						0						9						0						0						15	24
Buses	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	12.5	33.3
Exiting Leg Total						0						1						0						0						7	8
Single-Unit Trucks	1	0	0	1	0	2	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	16
% Single-Unit	100.0	0.0	0.0	100.0	0.0	100.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.5	0.0	0.0	87.5	66.7
Exiting Leg Total						0						8						0						0						8	16
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total						0						0						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	6
4:15 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	4
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	14
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.583
Buses	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	7
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	0.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	16.7	50.0
Single-Unit Trucks	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	7
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.3	0.0	0.0	83.3	50.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	7
Single-Unit Trucks	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	0	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	14

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
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PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
Buses						0						1						0						0						6	7
Single-Unit Trucks						0						5						0						0						2	7
Articulated Trucks						0						0						0						0						0	0
Total Exiting Leg						0						6						0						0						8	14

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
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Class:

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Office: 508-875-0100 Fax: 508-875-0118

Buses

	Previte Marketplace						Broadway						Driveway						Salon Driveway						Broadway						
	from North						from East						from Southeast						from South						from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	7
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.5	0.0	0.0	0.0	87.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	12.5	
Exiting Leg Total						0						1						0						0						7	8

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Previte Marketplace						Broadway						Driveway						Salon Driveway						Broadway						
	from North						from East						from Southeast						from South						from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	7
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.875
Entering Leg	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	7
Exiting Leg						0						1						0						0						6	7
Total						0						7						0						0						7	14

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Single-Unit Trucks

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	7
5:00 PM	0	0	0	1	0	1	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	5
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	1	0	0	0	0	1	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	2	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	9
Grand Total	1	0	0	1	0	2	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	16
Approach %	50.0	0.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
Total %	6.3	0.0	0.0	6.3	0.0	12.5	0.0	43.8	0.0	0.0	0.0	43.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.8	0.0	0.0	43.8	
Exiting Leg Total						0						8						0						0						8	16

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	0	1	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	5
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	1	0	0	0	0	1	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total Volume	1	0	0	1	0	2	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	9
% Approach Total	50.0	0.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.500	0.000	0.625	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.450
Entering Leg	1	0	0	1	0	2	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	9
Exiting Leg						0						3						0						0						6	9
Total						2						8						0						0						8	18

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Articulated Trucks

	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Previte Marketplace from North						Broadway from East						Driveway from Southeast						Salon Driveway from South						Broadway from West						
	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Righ	Right	Thru	Left	U-Turn	Total	Right	Bear Righ	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0						0						0	0
Total						0						0						0						0						0	0

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Bicycles (on Roadway and Crosswalks)

	Previte Marketplace from North								Broadway from East								Driveway from Southeast								Salon Driveway from South								Broadway from West								Total
	Right	Thru	Bear Left	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Approach %	100.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total %	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total								0								0								0								0								1	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Previte Marketplace from North								Broadway from East								Driveway from Southeast								Salon Driveway from South								Broadway from West								Total
	Right	Thru	Bear Left	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	100.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg								0								0								0								0								1	1
Total								1								0								0								0								1	2

PDI File #: **228996 B**
Location: **N: Previte Marketplace S: Salon Driveway**
Location: **E: Broadway W: Broadway SE: Driveway**
City, State: **Hanover, MA**
Client: **Kimley-Horn/ L. Juan**
Site Code: **TBA**
Count Date: **Thursday, December 1, 2022**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Pedestrians

	Previte Marketplace from North								Broadway from East								Driveway from Southeast								Salon Driveway from South								Broadway from West								
	Right	Thru	Bear Left	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	3
Grand Total	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0	6
Approach %	0	0	0	0	0	0	100		0	0	0	0	0	0	0		0	0	0	0	0	100	0		0	0	0	0	0	50	50		0	0	0	0	0	0	0		
Total %	0	0	0	0	0	0	16.7	16.7	0	0	0	0	0	0	0	0	0	0	0	0	0	16.7	0	16.7	0	0	0	0	0	33.3	33.3	66.7	0	0	0	0	0	0	0	0	
Exiting Leg Total								1								0								1								4								0	6

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Previte Marketplace from North								Broadway from East								Driveway from Southeast								Salon Driveway from South								Broadway from West								
	Right	Thru	Bear Left	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-SB	CW-NB	Total	Hard Righ	Bear Righ	Bear Left	Hard Left	U-Turn	CW-SWB	CW-NEB	Total	Hard Righ	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Bear Righ	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0	6
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0	50.0	50.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0	6
Exiting Leg								1								0								1								4								0	6
Total								2								0								2								8								0	12

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 228996 ATR-A

Count Date: Wednesday, November 30, 2022
Direction: NB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	6	0	0	0	6
12:15 AM	0	0	8	0	0	0	8
12:30 AM	0	0	13	0	0	0	13
12:45 AM	0	0	5	0	0	0	5
1:00 AM	0	0	2	0	1	0	3
1:15 AM	0	0	4	0	1	0	5
1:30 AM	0	0	2	0	0	0	2
1:45 AM	0	0	3	0	0	0	3
2:00 AM	0	0	3	0	0	0	3
2:15 AM	0	0	1	0	0	0	1
2:30 AM	0	0	2	0	0	0	2
2:45 AM	0	0	2	0	1	0	3
3:00 AM	0	0	5	0	0	0	5
3:15 AM	0	0	4	0	0	0	4
3:30 AM	0	0	9	0	0	0	9
3:45 AM	0	0	4	0	0	0	4
4:00 AM	0	0	9	0	0	0	9
4:15 AM	0	0	17	0	0	0	17
4:30 AM	0	0	17	0	1	0	18
4:45 AM	0	0	33	0	3	0	36
5:00 AM	0	0	57	0	0	0	57
5:15 AM	0	0	54	0	0	1	55
5:30 AM	0	0	63	0	2	0	65
5:45 AM	0	0	80	1	2	0	83
6:00 AM	0	0	83	0	3	0	86
6:15 AM	0	0	119	0	1	1	121
6:30 AM	0	0	125	0	1	0	126
6:45 AM	0	0	156	0	2	0	158
7:00 AM	0	0	161	0	3	2	166
7:15 AM	0	0	187	0	8	0	195
7:30 AM	0	0	209	0	8	1	218
7:45 AM	0	0	220	0	3	2	225
8:00 AM	0	0	177	0	4	3	184
8:15 AM	0	0	188	0	2	0	190
8:30 AM	0	0	184	0	12	2	198
8:45 AM	0	0	210	0	8	5	223
9:00 AM	0	0	173	0	1	3	177
9:15 AM	0	0	200	0	5	4	209
9:30 AM	0	0	163	0	5	4	172
9:45 AM	0	0	198	0	12	2	212
10:00 AM	0	0	167	0	5	1	173
10:15 AM	0	0	167	1	10	3	181
10:30 AM	0	0	178	0	4	1	183
10:45 AM	0	0	200	0	6	3	209
11:00 AM	0	0	181	0	3	3	187
11:15 AM	0	0	190	0	10	6	206
11:30 AM	0	0	203	0	4	1	208
11:45 AM	0	0	194	1	8	1	204
AM Total	**0**	**0**	**4636**	**3**	**139**	**49**	**4827**
Percentage	**0.00%**	**0.00%**	**96.04%**	**0.06%**	**2.88%**	**1.02%**	
AM Peak	**12:00 AM**	**12:00 AM**	**7:30 AM**	**5:00 AM**	**9:30 AM**	**8:45 AM**	**7:15 AM**
Volume	**0**	**0**	**794**	**1**	**32**	**16**	**822**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	191	0	9	3	203
12:15 PM	0	0	172	1	3	3	179
12:30 PM	0	0	173	0	8	1	182
12:45 PM	0	0	155	0	3	3	161
1:00 PM	0	0	185	0	4	2	191
1:15 PM	0	0	172	0	3	2	177
1:30 PM	0	0	181	0	8	4	193
1:45 PM	0	0	191	0	3	7	201
2:00 PM	0	0	193	0	3	4	200
2:15 PM	0	0	160	0	2	3	165
2:30 PM	0	0	203	0	4	1	208
2:45 PM	0	0	212	1	9	4	226
3:00 PM	0	0	202	0	8	4	214
3:15 PM	0	0	187	1	4	2	194
3:30 PM	0	0	213	1	6	1	221
3:45 PM	0	0	179	0	3	1	183
4:00 PM	0	0	188	0	2	0	190
4:15 PM	0	0	227	0	5	1	233
4:30 PM	0	0	208	0	2	0	210
4:45 PM	0	0	227	0	3	1	231
5:00 PM	0	0	202	2	6	0	210
5:15 PM	0	0	190	0	3	1	194
5:30 PM	0	0	164	0	0	0	164
5:45 PM	0	0	160	0	2	0	162
6:00 PM	0	0	164	0	1	0	165
6:15 PM	0	0	143	0	2	0	145
6:30 PM	0	0	132	0	0	0	132
6:45 PM	0	0	124	0	0	1	125
7:00 PM	0	0	130	1	1	0	132
7:15 PM	0	0	96	0	1	0	97
7:30 PM	0	0	102	0	0	0	102
7:45 PM	0	0	101	0	0	0	101
8:00 PM	0	0	74	0	1	0	75
8:15 PM	0	0	83	0	0	0	83
8:30 PM	0	0	71	0	0	0	71
8:45 PM	0	0	68	0	2	0	70
9:00 PM	0	0	60	0	0	0	60
9:15 PM	0	0	56	0	0	0	56
9:30 PM	0	0	44	0	0	0	44
9:45 PM	0	0	32	0	0	0	32
10:00 PM	0	0	23	0	1	0	24
10:15 PM	0	0	25	0	0	0	25
10:30 PM	0	0	11	0	0	0	11
10:45 PM	0	0	9	0	0	0	9
11:00 PM	0	0	14	0	0	0	14
11:15 PM	0	0	19	0	0	0	19
11:30 PM	0	0	16	0	1	0	17
11:45 PM	0	0	9	0	0	0	9
PM Total	**0**	**0**	**6141**	**7**	**113**	**49**	**6310**
Percentage	**0.00%**	**0.00%**	**97.32%**	**0.11%**	**1.79%**	**0.78%**	
PM Peak	**12:00 PM**	**12:00 PM**	**4:15 PM**	**2:45 PM**	**2:45 PM**	**1:30 PM**	**4:15 PM**
Volume	**0**	**0**	**864**	**3**	**27**	**18**	**884**
Day Total	**0**	**0**	**10777**	**10**	**252**	**98**	**11137**
Percentage	**0.00%**	**0.00%**	**96.77%**	**0.09%**	**2.26%**	**0.88%**	

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 228996 ATR-A

Count Date: Thursday, December 1, 2022
Direction: NB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	8	0	0	0	8
12:15 AM	0	0	8	0	0	0	8
12:30 AM	0	0	10	0	0	0	10
12:45 AM	0	0	2	0	0	0	2
1:00 AM	0	0	9	0	0	0	9
1:15 AM	0	0	9	0	0	0	9
1:30 AM	0	0	1	0	1	0	2
1:45 AM	0	0	1	0	0	0	1
2:00 AM	0	0	3	0	0	0	3
2:15 AM	0	0	1	0	1	0	2
2:30 AM	0	0	3	0	1	0	4
2:45 AM	0	0	3	0	0	0	3
3:00 AM	0	0	5	0	0	0	5
3:15 AM	0	0	8	0	0	0	8
3:30 AM	0	0	4	0	0	0	4
3:45 AM	0	0	4	0	0	0	4
4:00 AM	0	0	7	0	0	0	7
4:15 AM	0	0	10	0	0	0	10
4:30 AM	0	0	21	0	0	0	21
4:45 AM	0	0	34	0	0	0	34
5:00 AM	0	0	42	0	1	0	43
5:15 AM	0	0	45	0	1	0	46
5:30 AM	0	0	65	0	0	0	65
5:45 AM	0	0	64	0	1	0	65
6:00 AM	0	0	86	0	0	0	86
6:15 AM	0	0	114	1	1	0	116
6:30 AM	0	0	139	0	1	0	140
6:45 AM	0	1	155	0	6	1	163
7:00 AM	0	0	161	0	3	5	169
7:15 AM	0	0	205	0	2	1	208
7:30 AM	0	0	193	0	6	1	200
7:45 AM	0	0	190	0	4	0	194
8:00 AM	0	0	189	1	9	2	201
8:15 AM	0	0	202	0	2	7	211
8:30 AM	0	0	196	0	6	7	209
8:45 AM	0	0	208	0	10	2	220
9:00 AM	0	0	177	0	11	4	192
9:15 AM	0	0	193	0	11	3	207
9:30 AM	0	0	193	0	5	2	200
9:45 AM	0	0	181	0	13	6	200
10:00 AM	0	0	173	0	6	4	183
10:15 AM	0	0	184	0	7	3	194
10:30 AM	0	0	201	1	7	0	209
10:45 AM	0	0	189	1	11	4	205
11:00 AM	0	0	191	0	5	6	202
11:15 AM	0	0	187	0	8	5	200
11:30 AM	0	0	192	0	11	7	210
11:45 AM	0	0	212	0	6	3	221
AM Total	**0**	**1**	**4678**	**4**	**157**	**73**	**4913**
Percentage	**0.00%**	**0.02%**	**95.22%**	**0.08%**	**3.20%**	**1.49%**	
AM Peak	**12:00 AM**	**6:00 AM**	**8:00 AM**	**10:00 AM**	**9:00 AM**	**10:45 AM**	**8:00 AM**
Volume	**0**	**1**	**795**	**2**	**40**	**22**	**841**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	221	0	5	2	228
12:15 PM	0	0	169	1	3	4	177
12:30 PM	0	0	197	0	4	3	204
12:45 PM	0	0	190	0	5	1	196
1:00 PM	0	0	201	1	7	0	209
1:15 PM	0	0	192	1	4	2	199
1:30 PM	0	0	220	0	7	3	230
1:45 PM	0	0	193	1	5	6	205
2:00 PM	0	0	198	0	5	5	208
2:15 PM	0	1	173	0	9	3	186
2:30 PM	0	1	183	0	9	5	198
2:45 PM	0	0	197	0	14	2	213
3:00 PM	0	0	203	0	5	2	210
3:15 PM	0	0	245	0	10	1	256
3:30 PM	0	0	246	1	5	2	254
3:45 PM	0	0	217	0	5	5	227
4:00 PM	0	0	240	0	2	2	244
4:15 PM	0	0	236	0	1	1	238
4:30 PM	0	0	222	0	0	0	222
4:45 PM	0	0	227	2	4	3	236
5:00 PM	0	0	223	1	1	0	225
5:15 PM	0	1	246	0	3	1	251
5:30 PM	0	0	215	0	3	0	218
5:45 PM	0	0	169	1	0	0	170
6:00 PM	0	0	172	0	0	0	172
6:15 PM	0	0	147	0	0	1	148
6:30 PM	0	0	162	0	1	0	163
6:45 PM	0	0	167	0	0	0	167
7:00 PM	0	0	117	0	3	0	120
7:15 PM	0	0	99	0	0	0	99
7:30 PM	0	0	125	0	2	0	127
7:45 PM	0	0	97	0	0	0	97
8:00 PM	0	0	122	0	1	0	123
8:15 PM	0	0	89	0	0	0	89
8:30 PM	0	0	89	0	0	0	89
8:45 PM	0	0	66	0	0	0	66
9:00 PM	0	0	61	0	0	0	61
9:15 PM	0	0	47	0	6	0	53
9:30 PM	0	0	47	0	0	0	47
9:45 PM	0	0	34	0	0	0	34
10:00 PM	0	0	49	0	0	0	49
10:15 PM	0	0	32	0	1	0	33
10:30 PM	0	0	20	0	1	0	21
10:45 PM	0	0	22	0	0	0	22
11:00 PM	0	0	28	0	0	0	28
11:15 PM	0	0	42	0	0	0	42
11:30 PM	0	0	22	0	0	0	22
11:45 PM	0	0	8	0	0	0	8
PM Total	**0**	**3**	**6887**	**9**	**131**	**54**	**7084**
Percentage	**0.00%**	**0.04%**	**97.22%**	**0.13%**	**1.85%**	**0.76%**	
PM Peak	**12:00 PM**	**1:45 PM**	**3:15 PM**	**1:00 PM**	**2:30 PM**	**1:45 PM**	**3:15 PM**
Volume	**0**	**2**	**948**	**3**	**38**	**19**	**981**

Day Total	**0**	**4**	**11565**	**13**	**288**	**127**	**11997**
Percentage	**0.00%**	**0.03%**	**96.40%**	**0.11%**	**2.40%**	**1.06%**	

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 228996 ATR-A

Count Date: Wednesday, November 30, 2022
Direction: SB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	8	0	0	0	8
12:15 AM	0	0	8	0	0	0	8
12:30 AM	0	0	7	0	1	0	8
12:45 AM	0	0	8	1	0	0	9
1:00 AM	0	0	8	0	0	0	8
1:15 AM	0	0	3	0	0	0	3
1:30 AM	0	0	5	0	0	0	5
1:45 AM	0	0	2	0	0	0	2
2:00 AM	0	0	3	0	0	0	3
2:15 AM	0	0	2	0	0	0	2
2:30 AM	0	0	2	0	0	1	3
2:45 AM	0	0	1	0	0	0	1
3:00 AM	0	0	4	0	0	0	4
3:15 AM	0	0	3	0	0	0	3
3:30 AM	0	0	4	0	1	0	5
3:45 AM	0	0	7	0	0	0	7
4:00 AM	0	0	7	0	2	1	10
4:15 AM	0	0	6	0	0	0	6
4:30 AM	0	0	14	0	0	0	14
4:45 AM	0	0	22	0	0	1	23
5:00 AM	0	0	17	0	4	1	22
5:15 AM	0	0	40	0	0	0	40
5:30 AM	0	0	45	0	0	1	46
5:45 AM	0	0	50	0	1	0	51
6:00 AM	0	0	56	0	2	0	58
6:15 AM	0	0	86	1	6	6	99
6:30 AM	0	0	98	1	3	2	104
6:45 AM	0	0	158	0	6	6	170
7:00 AM	0	0	122	3	7	2	134
7:15 AM	0	0	147	0	9	3	159
7:30 AM	0	0	176	0	6	4	186
7:45 AM	0	0	175	1	5	1	182
8:00 AM	0	0	188	0	6	2	196
8:15 AM	0	0	164	1	15	1	181
8:30 AM	0	0	196	0	10	4	210
8:45 AM	0	0	191	0	11	2	204
9:00 AM	0	0	194	0	12	2	208
9:15 AM	0	0	169	1	1	3	174
9:30 AM	0	0	173	0	13	3	189
9:45 AM	0	0	181	0	5	4	190
10:00 AM	0	1	174	1	4	2	182
10:15 AM	0	0	163	0	7	3	173
10:30 AM	0	0	169	0	5	1	175
10:45 AM	0	0	152	0	6	2	160
11:00 AM	0	0	193	0	9	2	204
11:15 AM	0	0	209	0	7	3	219
11:30 AM	0	0	186	0	6	3	195
11:45 AM	0	0	250	0	2	6	258
AM Total	**0**	**1**	**4246**	**10**	**172**	**72**	**4501**
Percentage	**0.00%**	**0.02%**	**94.33%**	**0.22%**	**3.82%**	**1.60%**	
AM Peak	**12:00 AM**	**9:15 AM**	**11:00 AM**	**6:15 AM**	**8:15 AM**	**6:15 AM**	**11:00 AM**
Volume	**0**	**1**	**838**	**5**	**48**	**16**	**876**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	212	0	5	1	218
12:15 PM	0	0	233	1	8	1	243
12:30 PM	0	0	221	0	9	3	233
12:45 PM	0	0	209	1	10	3	223
1:00 PM	0	0	216	0	9	0	225
1:15 PM	0	0	207	0	7	5	219
1:30 PM	0	0	217	0	5	0	222
1:45 PM	0	0	196	1	7	1	205
2:00 PM	0	0	197	0	3	2	202
2:15 PM	0	0	243	1	1	1	246
2:30 PM	0	0	243	1	4	0	248
2:45 PM	0	0	268	0	7	1	276
3:00 PM	0	0	270	2	8	2	282
3:15 PM	0	0	270	0	4	1	275
3:30 PM	0	0	249	0	4	0	253
3:45 PM	0	0	286	1	5	1	293
4:00 PM	0	0	285	0	5	0	290
4:15 PM	0	0	278	0	2	0	280
4:30 PM	0	0	222	1	2	0	225
4:45 PM	0	0	233	0	2	0	235
5:00 PM	0	0	272	1	2	0	275
5:15 PM	0	0	278	0	3	0	281
5:30 PM	0	0	266	1	1	0	268
5:45 PM	0	0	238	0	1	0	239
6:00 PM	0	0	227	0	2	0	229
6:15 PM	0	0	211	4	1	2	218
6:30 PM	0	0	169	0	4	0	173
6:45 PM	0	0	147	0	1	0	148
7:00 PM	0	0	177	3	1	0	181
7:15 PM	0	0	123	2	2	0	127
7:30 PM	1	0	122	2	1	1	127
7:45 PM	0	0	99	0	1	0	100
8:00 PM	0	0	91	1	3	0	95
8:15 PM	0	0	105	1	1	0	107
8:30 PM	0	0	69	1	2	1	73
8:45 PM	0	0	55	0	1	0	56
9:00 PM	0	0	62	0	2	0	64
9:15 PM	0	0	62	0	1	0	63
9:30 PM	0	0	47	0	0	0	47
9:45 PM	0	0	52	0	0	0	52
10:00 PM	0	0	36	0	0	0	36
10:15 PM	0	0	44	0	0	0	44
10:30 PM	0	0	31	0	0	0	31
10:45 PM	0	0	16	0	0	0	16
11:00 PM	0	0	21	0	0	0	21
11:15 PM	0	0	11	0	0	0	11
11:30 PM	0	0	14	0	0	0	14
11:45 PM	0	0	13	0	0	0	13
PM Total	**1**	**0**	**7813**	**25**	**137**	**26**	**8002**
Percentage	**0.01%**	**0.00%**	**97.64%**	**0.31%**	**1.71%**	**0.32%**	
PM Peak	**6:45 PM**	**12:00 PM**	**3:30 PM**	**6:15 PM**	**12:15 PM**	**12:30 PM**	**3:30 PM**
Volume	**1**	**0**	**1098**	**7**	**36**	**11**	**1116**
Day Total	**1**	**1**	**12059**	**35**	**309**	**98**	**12503**
Percentage	**0.01%**	**0.01%**	**96.45%**	**0.28%**	**2.47%**	**0.78%**	

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 228996 ATR-A

Count Date: Thursday, December 1, 2022
Direction: SB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	4	0	0	0	4
12:15 AM	0	0	8	0	1	0	9
12:30 AM	0	0	6	1	0	0	7
12:45 AM	0	0	7	0	1	0	8
1:00 AM	0	0	7	0	0	0	7
1:15 AM	0	0	7	0	1	0	8
1:30 AM	0	0	10	0	0	0	10
1:45 AM	0	0	2	0	0	0	2
2:00 AM	0	0	2	0	0	0	2
2:15 AM	0	0	1	0	1	1	3
2:30 AM	0	0	2	0	0	0	2
2:45 AM	0	0	0	0	1	0	1
3:00 AM	0	0	8	0	0	0	8
3:15 AM	0	0	3	0	0	0	3
3:30 AM	0	0	2	0	0	0	2
3:45 AM	0	0	8	0	0	0	8
4:00 AM	0	0	6	0	1	0	7
4:15 AM	0	0	8	0	1	0	9
4:30 AM	0	0	7	0	0	0	7
4:45 AM	0	0	14	0	0	0	14
5:00 AM	0	0	18	0	0	0	18
5:15 AM	0	0	26	0	0	0	26
5:30 AM	0	0	48	0	0	0	48
5:45 AM	0	0	60	0	7	0	67
6:00 AM	0	0	63	0	2	1	66
6:15 AM	0	0	87	1	5	4	97
6:30 AM	0	0	120	1	5	6	132
6:45 AM	0	0	157	0	10	10	177
7:00 AM	0	0	138	3	13	5	159
7:15 AM	0	0	124	1	8	1	134
7:30 AM	0	0	179	1	11	3	194
7:45 AM	0	0	199	1	8	3	211
8:00 AM	0	0	168	0	9	1	178
8:15 AM	0	0	173	1	6	1	181
8:30 AM	1	0	187	1	13	0	202
8:45 AM	0	0	201	0	10	9	220
9:00 AM	0	0	182	0	8	4	194
9:15 AM	0	0	153	0	13	3	169
9:30 AM	0	0	189	1	13	2	205
9:45 AM	0	0	186	0	8	3	197
10:00 AM	0	0	168	0	6	3	177
10:15 AM	0	0	181	0	5	1	187
10:30 AM	0	1	184	0	10	2	197
10:45 AM	0	0	181	0	8	2	191
11:00 AM	0	0	189	0	9	2	200
11:15 AM	0	0	213	0	3	1	217
11:30 AM	0	0	216	0	7	3	226
11:45 AM	0	0	222	2	15	2	241
AM Total	**1**	**1**	**4324**	**14**	**219**	**73**	**4632**
Percentage	**0.02%**	**0.02%**	**93.35%**	**0.30%**	**4.73%**	**1.58%**	
AM Peak	**7:45 AM**	**9:45 AM**	**11:00 AM**	**7:00 AM**	**8:30 AM**	**6:15 AM**	**11:00 AM**
Volume	**1**	**1**	**840**	**6**	**44**	**25**	**884**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	1	0	232	2	12	2	249
12:15 PM	0	0	249	0	13	2	264
12:30 PM	0	0	234	1	5	1	241
12:45 PM	0	0	240	0	6	1	247
1:00 PM	0	0	242	0	4	1	247
1:15 PM	0	0	235	0	7	4	246
1:30 PM	0	0	249	1	6	3	259
1:45 PM	0	0	231	0	2	3	236
2:00 PM	0	0	241	0	4	2	247
2:15 PM	0	0	248	0	4	4	256
2:30 PM	0	0	241	1	4	0	246
2:45 PM	0	0	250	0	10	3	263
3:00 PM	0	0	265	2	5	1	273
3:15 PM	0	0	248	1	4	1	254
3:30 PM	0	1	292	0	2	0	295
3:45 PM	0	0	282	2	1	1	286
4:00 PM	0	0	290	0	3	0	293
4:15 PM	0	0	297	1	1	0	299
4:30 PM	0	0	261	1	2	0	264
4:45 PM	0	0	258	1	2	0	261
5:00 PM	0	0	276	0	1	1	278
5:15 PM	0	0	295	0	3	1	299
5:30 PM	0	0	249	0	2	1	252
5:45 PM	0	0	231	0	0	0	231
6:00 PM	0	0	214	2	0	0	216
6:15 PM	0	0	199	0	3	0	202
6:30 PM	0	0	212	1	3	0	216
6:45 PM	0	0	197	2	2	0	201
7:00 PM	0	0	165	3	5	0	173
7:15 PM	0	0	164	1	1	0	166
7:30 PM	0	0	132	1	0	1	134
7:45 PM	0	0	107	1	2	0	110
8:00 PM	0	0	116	0	0	0	116
8:15 PM	0	0	85	0	1	0	86
8:30 PM	0	0	106	0	1	0	107
8:45 PM	0	0	63	0	0	0	63
9:00 PM	0	0	89	0	0	0	89
9:15 PM	0	1	69	0	0	0	70
9:30 PM	0	0	54	0	0	0	54
9:45 PM	0	0	42	0	0	0	42
10:00 PM	0	0	50	0	0	0	50
10:15 PM	0	0	39	0	0	0	39
10:30 PM	0	0	31	0	0	0	31
10:45 PM	0	0	27	0	0	0	27
11:00 PM	0	0	33	0	0	0	33
11:15 PM	0	0	20	0	0	0	20
11:30 PM	0	0	11	1	0	0	12
11:45 PM	0	0	20	0	1	0	21
PM Total	**1**	**2**	**8381**	**25**	**122**	**33**	**8564**
Percentage	**0.01%**	**0.02%**	**97.86%**	**0.29%**	**1.42%**	**0.39%**	
PM Peak	**12:00 PM**	**2:45 PM**	**3:30 PM**	**6:30 PM**	**12:00 PM**	**1:15 PM**	**3:30 PM**
Volume	**1**	**1**	**1161**	**7**	**36**	**12**	**1173**
Day Total	**2**	**3**	**12705**	**39**	**341**	**106**	**13196**
Percentage	**0.02%**	**0.02%**	**96.28%**	**0.30%**	**2.58%**	**0.80%**	

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **228996 ATR-A**

Direction: **NB**

Weekly Report

Day	Wednesday		Thursday												Week	
Date	11/30/22		12/01/22												Ave	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	6	203	8	228	0	0	0	0	0	0	0	0	0	0	7	216
12:15	8	179	8	177	0	0	0	0	0	0	0	0	0	0	8	178
12:30	13	182	10	204	0	0	0	0	0	0	0	0	0	0	12	193
12:45	5	161	2	196	0	0	0	0	0	0	0	0	0	0	4	179
1:00	3	191	9	209	0	0	0	0	0	0	0	0	0	0	6	200
1:15	5	177	9	199	0	0	0	0	0	0	0	0	0	0	7	188
1:30	2	193	2	230	0	0	0	0	0	0	0	0	0	0	2	212
1:45	3	201	1	205	0	0	0	0	0	0	0	0	0	0	2	203
2:00	3	200	3	208	0	0	0	0	0	0	0	0	0	0	3	204
2:15	1	165	2	186	0	0	0	0	0	0	0	0	0	0	2	176
2:30	2	208	4	198	0	0	0	0	0	0	0	0	0	0	3	203
2:45	3	226	3	213	0	0	0	0	0	0	0	0	0	0	3	220
3:00	5	214	5	210	0	0	0	0	0	0	0	0	0	0	5	212
3:15	4	194	8	256	0	0	0	0	0	0	0	0	0	0	6	225
3:30	9	221	4	254	0	0	0	0	0	0	0	0	0	0	7	238
3:45	4	183	4	227	0	0	0	0	0	0	0	0	0	0	4	205
4:00	9	190	7	244	0	0	0	0	0	0	0	0	0	0	8	217
4:15	17	233	10	238	0	0	0	0	0	0	0	0	0	0	14	236
4:30	18	210	21	222	0	0	0	0	0	0	0	0	0	0	20	216
4:45	36	231	34	236	0	0	0	0	0	0	0	0	0	0	35	234
5:00	57	210	43	225	0	0	0	0	0	0	0	0	0	0	50	218
5:15	55	194	46	251	0	0	0	0	0	0	0	0	0	0	51	223
5:30	65	164	65	218	0	0	0	0	0	0	0	0	0	0	65	191
5:45	83	162	65	170	0	0	0	0	0	0	0	0	0	0	74	166
6:00	86	165	86	172	0	0	0	0	0	0	0	0	0	0	86	169
6:15	121	145	116	148	0	0	0	0	0	0	0	0	0	0	119	147
6:30	126	132	140	163	0	0	0	0	0	0	0	0	0	0	133	148
6:45	158	125	163	167	0	0	0	0	0	0	0	0	0	0	161	146
7:00	166	132	169	120	0	0	0	0	0	0	0	0	0	0	168	126
7:15	195	97	208	99	0	0	0	0	0	0	0	0	0	0	202	98
7:30	218	102	200	127	0	0	0	0	0	0	0	0	0	0	209	115
7:45	225	101	194	97	0	0	0	0	0	0	0	0	0	0	210	99
8:00	184	75	201	123	0	0	0	0	0	0	0	0	0	0	193	99
8:15	190	83	211	89	0	0	0	0	0	0	0	0	0	0	201	86
8:30	198	71	209	89	0	0	0	0	0	0	0	0	0	0	204	80
8:45	223	70	220	66	0	0	0	0	0	0	0	0	0	0	222	68
9:00	177	60	192	61	0	0	0	0	0	0	0	0	0	0	185	61
9:15	209	56	207	53	0	0	0	0	0	0	0	0	0	0	208	55
9:30	172	44	200	47	0	0	0	0	0	0	0	0	0	0	186	46
9:45	212	32	200	34	0	0	0	0	0	0	0	0	0	0	206	33
10:00	173	24	183	49	0	0	0	0	0	0	0	0	0	0	178	37
10:15	181	25	194	33	0	0	0	0	0	0	0	0	0	0	188	29
10:30	183	11	209	21	0	0	0	0	0	0	0	0	0	0	196	16
10:45	209	9	205	22	0	0	0	0	0	0	0	0	0	0	207	16
11:00	187	14	202	28	0	0	0	0	0	0	0	0	0	0	195	21
11:15	206	19	200	42	0	0	0	0	0	0	0	0	0	0	203	31
11:30	208	17	210	22	0	0	0	0	0	0	0	0	0	0	209	20
11:45	204	9	221	8	0	0	0	0	0	0	0	0	0	0	213	9
Total	**4827**	**6310**	**4913**	**7084**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4870**	**6697**
Day Total	**11137**		**11997**		**0**		**0**		**0**		**0**		**0**		**11567**	
Peak HR	**7:15 AM**	**4:15 PM**	**8:00 AM**	**3:15 PM**											**11:00 AM**	**4:15 PM**
Volume	**822**	**884**	**841**	**981**											**819**	**903**

Columbia Road (Route 53)
south of Broadway
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **228996 ATR-A**

Direction: **SB**

Weekly Report

Day	Wednesday		Thursday												Week	
Date	11/30/22		12/01/22												Ave	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	8	218	4	249	0	0	0	0	0	0	0	0	0	0	6	234
12:15	8	243	9	264	0	0	0	0	0	0	0	0	0	0	9	254
12:30	8	233	7	241	0	0	0	0	0	0	0	0	0	0	8	237
12:45	9	223	8	247	0	0	0	0	0	0	0	0	0	0	9	235
1:00	8	225	7	247	0	0	0	0	0	0	0	0	0	0	8	236
1:15	3	219	8	246	0	0	0	0	0	0	0	0	0	0	6	233
1:30	5	222	10	259	0	0	0	0	0	0	0	0	0	0	8	241
1:45	2	205	2	236	0	0	0	0	0	0	0	0	0	0	2	221
2:00	3	202	2	247	0	0	0	0	0	0	0	0	0	0	3	225
2:15	2	246	3	256	0	0	0	0	0	0	0	0	0	0	3	251
2:30	3	248	2	246	0	0	0	0	0	0	0	0	0	0	3	247
2:45	1	276	1	263	0	0	0	0	0	0	0	0	0	0	1	270
3:00	4	282	8	273	0	0	0	0	0	0	0	0	0	0	6	278
3:15	3	275	3	254	0	0	0	0	0	0	0	0	0	0	3	265
3:30	5	253	2	295	0	0	0	0	0	0	0	0	0	0	4	274
3:45	7	293	8	286	0	0	0	0	0	0	0	0	0	0	8	290
4:00	10	290	7	293	0	0	0	0	0	0	0	0	0	0	9	292
4:15	6	280	9	299	0	0	0	0	0	0	0	0	0	0	8	290
4:30	14	225	7	264	0	0	0	0	0	0	0	0	0	0	11	245
4:45	23	235	14	261	0	0	0	0	0	0	0	0	0	0	19	248
5:00	22	275	18	278	0	0	0	0	0	0	0	0	0	0	20	277
5:15	40	281	26	299	0	0	0	0	0	0	0	0	0	0	33	290
5:30	46	268	48	252	0	0	0	0	0	0	0	0	0	0	47	260
5:45	51	239	67	231	0	0	0	0	0	0	0	0	0	0	59	235
6:00	58	229	66	216	0	0	0	0	0	0	0	0	0	0	62	223
6:15	99	218	97	202	0	0	0	0	0	0	0	0	0	0	98	210
6:30	104	173	132	216	0	0	0	0	0	0	0	0	0	0	118	195
6:45	170	148	177	201	0	0	0	0	0	0	0	0	0	0	174	175
7:00	134	181	159	173	0	0	0	0	0	0	0	0	0	0	147	177
7:15	159	127	134	166	0	0	0	0	0	0	0	0	0	0	147	147
7:30	186	127	194	134	0	0	0	0	0	0	0	0	0	0	190	131
7:45	182	100	211	110	0	0	0	0	0	0	0	0	0	0	197	105
8:00	196	95	178	116	0	0	0	0	0	0	0	0	0	0	187	106
8:15	181	107	181	86	0	0	0	0	0	0	0	0	0	0	181	97
8:30	210	73	202	107	0	0	0	0	0	0	0	0	0	0	206	90
8:45	204	56	220	63	0	0	0	0	0	0	0	0	0	0	212	60
9:00	208	64	194	89	0	0	0	0	0	0	0	0	0	0	201	77
9:15	174	63	169	70	0	0	0	0	0	0	0	0	0	0	172	67
9:30	189	47	205	54	0	0	0	0	0	0	0	0	0	0	197	51
9:45	190	52	197	42	0	0	0	0	0	0	0	0	0	0	194	47
10:00	182	36	177	50	0	0	0	0	0	0	0	0	0	0	180	43
10:15	173	44	187	39	0	0	0	0	0	0	0	0	0	0	180	42
10:30	175	31	197	31	0	0	0	0	0	0	0	0	0	0	186	31
10:45	160	16	191	27	0	0	0	0	0	0	0	0	0	0	176	22
11:00	204	21	200	33	0	0	0	0	0	0	0	0	0	0	202	27
11:15	219	11	217	20	0	0	0	0	0	0	0	0	0	0	218	16
11:30	195	14	226	12	0	0	0	0	0	0	0	0	0	0	211	13
11:45	258	13	241	21	0	0	0	0	0	0	0	0	0	0	250	17
Total	**4501**	**8002**	**4632**	**8564**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4567**	**8283**
Day Total	**12503**		**13196**		**0**		**0**		**0**		**0**		**0**		**12850**	
Peak HR	**11:00 AM**	**3:30 PM**	**11:00 AM**	**3:30 PM**											**11:00 AM**	**3:30 PM**
Volume	**876**	**1116**	**884**	**1173**											**880**	**1145**

Broadway
west of Coumbia Road (Route 53)
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 228996 ATR-B

Count Date: Wednesday, November 30, 2022
Direction: EB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	0	0	0	0	0
12:15 AM	0	0	1	0	0	0	1
12:30 AM	0	0	2	0	0	0	2
12:45 AM	0	0	3	0	0	0	3
1:00 AM	0	0	4	0	0	0	4
1:15 AM	0	0	1	0	0	0	1
1:30 AM	0	0	0	0	0	0	0
1:45 AM	0	0	1	0	0	0	1
2:00 AM	0	0	3	0	0	0	3
2:15 AM	0	0	1	0	0	0	1
2:30 AM	0	0	2	0	0	0	2
2:45 AM	0	0	5	0	0	0	5
3:00 AM	0	0	3	0	0	0	3
3:15 AM	0	0	3	0	0	0	3
3:30 AM	0	0	6	0	0	0	6
3:45 AM	0	0	5	0	0	0	5
4:00 AM	0	0	13	0	1	0	14
4:15 AM	0	0	10	0	0	0	10
4:30 AM	0	0	31	0	0	0	31
4:45 AM	0	0	49	0	1	0	50
5:00 AM	0	0	60	0	1	0	61
5:15 AM	0	0	65	0	2	0	67
5:30 AM	0	0	49	0	0	0	49
5:45 AM	0	0	78	0	1	0	79
6:00 AM	0	0	75	0	1	1	77
6:15 AM	0	0	93	0	1	5	99
6:30 AM	0	0	113	0	1	1	115
6:45 AM	0	0	133	0	5	6	144
7:00 AM	0	1	129	0	3	3	136
7:15 AM	0	0	151	0	6	2	159
7:30 AM	0	0	190	0	3	4	197
7:45 AM	0	0	161	2	2	0	165
8:00 AM	0	0	147	0	8	2	157
8:15 AM	0	0	139	1	5	1	146
8:30 AM	0	0	133	0	6	3	142
8:45 AM	0	0	139	0	3	1	143
9:00 AM	0	0	116	0	4	2	122
9:15 AM	0	0	104	0	1	3	108
9:30 AM	0	0	85	0	0	4	89
9:45 AM	0	0	102	0	4	2	108
10:00 AM	0	0	107	1	4	2	114
10:15 AM	0	0	76	0	3	1	80
10:30 AM	0	0	82	0	0	0	82
10:45 AM	0	1	87	0	3	0	91
11:00 AM	0	0	79	0	3	2	84
11:15 AM	0	0	70	0	4	3	77
11:30 AM	0	0	77	0	3	3	83
11:45 AM	0	0	82	0	3	1	86
AM Total	**0**	**2**	**3065**	**4**	**82**	**52**	**3205**
Percentage	**0.00%**	**0.06%**	**95.63%**	**0.12%**	**2.56%**	**1.62%**	
AM Peak	**12:00 AM**	**6:15 AM**	**7:15 AM**	**7:30 AM**	**8:00 AM**	**6:15 AM**	**7:15 AM**
Volume	**0**	**1**	**649**	**3**	**22**	**15**	**678**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	83	0	4	2	89
12:15 PM	0	0	90	0	5	0	95
12:30 PM	0	0	84	0	4	2	90
12:45 PM	0	0	95	0	4	2	101
1:00 PM	0	0	84	2	6	0	92
1:15 PM	0	0	72	0	4	3	79
1:30 PM	0	0	87	0	3	0	90
1:45 PM	0	0	74	0	2	0	76
2:00 PM	0	0	72	0	2	0	74
2:15 PM	0	0	77	0	1	1	79
2:30 PM	0	0	77	0	2	0	79
2:45 PM	0	0	102	0	3	1	106
3:00 PM	0	0	74	0	4	1	79
3:15 PM	0	0	76	1	0	0	77
3:30 PM	0	0	83	0	1	0	84
3:45 PM	0	0	120	0	1	0	121
4:00 PM	0	0	100	0	2	1	103
4:15 PM	0	0	85	0	2	0	87
4:30 PM	0	0	66	0	0	0	66
4:45 PM	0	0	84	0	1	0	85
5:00 PM	0	0	74	0	0	0	74
5:15 PM	0	0	81	0	0	0	81
5:30 PM	0	0	92	0	1	0	93
5:45 PM	0	0	75	0	0	0	75
6:00 PM	0	0	75	0	0	0	75
6:15 PM	0	0	50	0	0	0	50
6:30 PM	0	0	74	0	0	0	74
6:45 PM	0	0	40	0	0	0	40
7:00 PM	0	0	29	0	5	1	35
7:15 PM	0	0	35	0	0	0	35
7:30 PM	0	0	30	0	0	0	30
7:45 PM	0	0	24	0	0	0	24
8:00 PM	0	0	21	0	0	0	21
8:15 PM	0	0	14	0	1	0	15
8:30 PM	0	0	18	0	1	0	19
8:45 PM	0	0	16	0	1	0	17
9:00 PM	0	0	18	0	0	0	18
9:15 PM	0	0	15	0	1	0	16
9:30 PM	0	0	18	0	1	0	19
9:45 PM	0	0	8	0	0	0	8
10:00 PM	0	0	13	0	0	0	13
10:15 PM	0	0	8	0	1	0	9
10:30 PM	0	0	10	0	0	0	10
10:45 PM	0	0	4	0	0	0	4
11:00 PM	0	0	5	0	0	0	5
11:15 PM	0	0	5	0	0	0	5
11:30 PM	0	0	6	0	0	0	6
11:45 PM	0	0	3	0	0	0	3
PM Total	**0**	**0**	**2546**	**3**	**63**	**14**	**2626**
Percentage	**0.00%**	**0.00%**	**96.95%**	**0.11%**	**2.40%**	**0.53%**	
PM Peak	**12:00 PM**	**12:00 PM**	**3:30 PM**	**12:15 PM**	**12:15 PM**	**12:30 PM**	**3:30 PM**
Volume	**0**	**0**	**388**	**2**	**19**	**7**	**395**
Day Total	**0**	**2**	**5611**	**7**	**145**	**66**	**5831**
Percentage	**0.00%**	**0.03%**	**96.23%**	**0.12%**	**2.49%**	**1.13%**	

Broadway
west of Coumbia Road (Route 53)
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PDI File #: 228996 ATR-B

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

Count Date: **Thursday, December 1, 2022**
Direction: **EB**

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	1	0	0	0	1
12:15 AM	0	0	2	0	1	0	3
12:30 AM	0	0	0	0	0	0	0
12:45 AM	0	0	2	0	0	0	2
1:00 AM	0	0	1	0	0	0	1
1:15 AM	0	0	2	0	0	0	2
1:30 AM	0	0	3	0	0	0	3
1:45 AM	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	1	1	2
2:15 AM	0	0	2	0	0	0	2
2:30 AM	0	0	2	0	0	0	2
2:45 AM	0	0	5	0	0	0	5
3:00 AM	0	0	1	0	0	0	1
3:15 AM	0	0	3	0	0	0	3
3:30 AM	0	0	6	0	0	0	6
3:45 AM	0	0	7	0	1	0	8
4:00 AM	0	0	14	0	0	0	14
4:15 AM	0	0	14	0	0	0	14
4:30 AM	0	0	24	0	0	0	24
4:45 AM	0	0	46	0	1	0	47
5:00 AM	0	0	68	0	2	0	70
5:15 AM	0	0	39	0	0	0	39
5:30 AM	0	0	54	0	1	0	55
5:45 AM	0	0	73	0	3	0	76
6:00 AM	0	0	75	0	2	1	78
6:15 AM	0	0	89	0	4	5	98
6:30 AM	0	0	114	0	3	6	123
6:45 AM	0	1	144	0	10	7	162
7:00 AM	0	1	120	0	13	3	137
7:15 AM	0	0	156	0	5	1	162
7:30 AM	0	0	168	0	9	4	181
7:45 AM	0	0	188	2	4	1	195
8:00 AM	0	0	144	0	2	1	147
8:15 AM	0	0	151	1	3	1	156
8:30 AM	0	0	132	0	3	1	136
8:45 AM	0	0	121	0	9	8	138
9:00 AM	0	0	113	0	9	5	127
9:15 AM	0	0	88	0	3	3	94
9:30 AM	0	0	106	0	9	4	119
9:45 AM	0	0	100	0	8	3	111
10:00 AM	0	0	68	0	5	3	76
10:15 AM	0	0	80	0	7	1	88
10:30 AM	0	0	97	0	3	1	101
10:45 AM	0	0	70	1	1	1	73
11:00 AM	0	0	74	0	3	0	77
11:15 AM	0	0	90	0	7	0	97
11:30 AM	0	0	92	1	7	4	104
11:45 AM	0	1	84	0	9	4	98
AM Total	**0**	**3**	**3033**	**5**	**148**	**69**	**3258**
Percentage	**0.00%**	**0.09%**	**93.09%**	**0.15%**	**4.54%**	**2.12%**	
AM Peak	**12:00 AM**	**6:15 AM**	**7:15 AM**	**7:30 AM**	**6:45 AM**	**6:15 AM**	**7:15 AM**
Volume	**0**	**2**	**656**	**3**	**37**	**21**	**685**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	1	0	86	0	7	5	99
12:15 PM	0	0	86	0	9	1	96
12:30 PM	0	0	102	0	2	0	104
12:45 PM	0	0	87	0	3	3	93
1:00 PM	0	0	81	2	5	0	88
1:15 PM	0	0	77	0	2	1	80
1:30 PM	0	0	74	0	4	2	80
1:45 PM	0	0	93	0	1	2	96
2:00 PM	0	0	72	0	5	4	81
2:15 PM	0	0	83	0	3	0	86
2:30 PM	0	0	72	0	0	0	72
2:45 PM	0	0	110	0	4	0	114
3:00 PM	0	0	96	0	0	0	96
3:15 PM	0	0	100	1	1	0	102
3:30 PM	0	0	97	0	1	0	98
3:45 PM	0	0	96	1	0	0	97
4:00 PM	0	0	99	1	1	0	101
4:15 PM	0	0	92	0	1	0	93
4:30 PM	0	0	95	1	2	0	98
4:45 PM	0	0	106	0	0	0	106
5:00 PM	0	0	109	0	2	0	111
5:15 PM	0	0	90	0	0	0	90
5:30 PM	0	0	97	0	0	0	97
5:45 PM	0	0	97	0	0	0	97
6:00 PM	0	0	78	0	1	0	79
6:15 PM	0	0	73	0	0	0	73
6:30 PM	0	0	67	0	0	0	67
6:45 PM	0	0	75	0	0	0	75
7:00 PM	0	0	41	0	0	0	41
7:15 PM	0	0	55	0	0	0	55
7:30 PM	0	0	45	0	0	0	45
7:45 PM	0	1	39	0	1	0	41
8:00 PM	0	0	31	0	0	0	31
8:15 PM	0	0	33	0	0	0	33
8:30 PM	0	0	24	0	0	0	24
8:45 PM	0	0	22	0	0	0	22
9:00 PM	0	0	13	0	0	0	13
9:15 PM	0	0	13	0	0	0	13
9:30 PM	0	0	10	0	0	0	10
9:45 PM	0	0	9	0	0	0	9
10:00 PM	0	0	13	0	0	0	13
10:15 PM	0	0	8	0	0	0	8
10:30 PM	0	0	10	0	0	0	10
10:45 PM	0	0	4	0	0	0	4
11:00 PM	0	0	8	0	0	0	8
11:15 PM	0	0	6	0	0	0	6
11:30 PM	0	0	7	0	0	0	7
11:45 PM	0	0	6	0	0	0	6
PM Total	**1**	**1**	**2887**	**6**	**55**	**18**	**2968**
Percentage	**0.03%**	**0.03%**	**97.27%**	**0.20%**	**1.85%**	**0.61%**	
PM Peak	**12:00 PM**	**7:00 PM**	**2:45 PM**	**3:15 PM**	**12:00 PM**	**12:00 PM**	**2:45 PM**
Volume	**1**	**1**	**403**	**3**	**21**	**9**	**410**

Day Total	**1**	**4**	**5920**	**11**	**203**	**87**	**6226**
Percentage	**0.02%**	**0.06%**	**95.09%**	**0.18%**	**3.26%**	**1.40%**	

Broadway
west of Coumbia Road (Route 53)
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

Count Date: **Wednesday, November 30, 2022**
Direction: **WB**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: **228996 ATR-B**

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	8	0	0	0	8
12:15 AM	0	0	7	0	0	0	7
12:30 AM	0	0	7	0	0	0	7
12:45 AM	0	0	3	0	0	0	3
1:00 AM	0	0	1	0	0	0	1
1:15 AM	0	0	0	0	0	0	0
1:30 AM	0	0	6	0	1	0	7
1:45 AM	0	0	3	0	0	0	3
2:00 AM	0	0	2	0	0	0	2
2:15 AM	0	0	1	0	0	0	1
2:30 AM	0	0	3	0	0	0	3
2:45 AM	0	0	3	0	0	0	3
3:00 AM	0	0	0	0	0	0	0
3:15 AM	0	0	3	0	0	0	3
3:30 AM	0	0	3	0	0	0	3
3:45 AM	0	0	0	0	0	0	0
4:00 AM	0	0	3	0	0	0	3
4:15 AM	0	0	3	0	0	0	3
4:30 AM	0	0	6	0	0	0	6
4:45 AM	0	0	4	0	1	0	5
5:00 AM	0	0	5	0	0	0	5
5:15 AM	0	0	9	0	0	0	9
5:30 AM	0	0	18	0	0	0	18
5:45 AM	0	0	20	0	0	0	20
6:00 AM	0	0	28	0	0	0	28
6:15 AM	0	0	32	0	0	0	32
6:30 AM	0	0	34	0	2	0	36
6:45 AM	0	0	35	1	2	1	39
7:00 AM	0	0	38	0	1	1	40
7:15 AM	0	0	47	0	1	0	48
7:30 AM	0	0	59	1	6	0	66
7:45 AM	0	0	61	1	1	1	64
8:00 AM	0	0	51	0	8	4	63
8:15 AM	0	0	62	0	3	1	66
8:30 AM	0	0	50	0	6	0	56
8:45 AM	0	0	54	1	4	3	62
9:00 AM	0	0	64	0	5	3	72
9:15 AM	0	0	71	0	1	0	72
9:30 AM	0	0	50	0	3	2	55
9:45 AM	0	0	75	1	2	1	79
10:00 AM	0	0	62	0	6	0	68
10:15 AM	0	0	70	0	3	2	75
10:30 AM	0	0	65	0	2	0	67
10:45 AM	0	0	71	0	3	3	77
11:00 AM	0	0	69	0	2	1	72
11:15 AM	0	0	75	0	4	3	82
11:30 AM	0	0	87	0	4	1	92
11:45 AM	0	0	94	0	6	0	100
AM Total	**0**	**0**	**1522**	**5**	**77**	**27**	**1631**
Percentage	**0.00%**	**0.00%**	**93.32%**	**0.31%**	**4.72%**	**1.66%**	
AM Peak	**12:00 AM**	**12:00 AM**	**11:00 AM**	**6:45 AM**	**8:00 AM**	**8:00 AM**	**11:00 AM**
Volume	**0**	**0**	**325**	**2**	**21**	**8**	**346**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	94	0	3	3	100
12:15 PM	0	0	102	0	4	1	107
12:30 PM	0	0	93	0	4	1	98
12:45 PM	0	0	94	0	4	3	101
1:00 PM	0	0	112	0	2	1	115
1:15 PM	0	0	82	0	5	1	88
1:30 PM	0	0	100	0	10	0	110
1:45 PM	0	0	100	0	1	5	106
2:00 PM	0	0	109	0	3	2	114
2:15 PM	0	0	113	2	3	2	120
2:30 PM	0	0	121	0	5	1	127
2:45 PM	0	0	115	0	9	3	127
3:00 PM	0	0	148	0	6	2	156
3:15 PM	0	0	138	1	1	2	142
3:30 PM	0	0	135	1	6	1	143
3:45 PM	0	0	141	0	4	1	146
4:00 PM	0	0	151	0	2	0	153
4:15 PM	0	0	172	0	1	0	173
4:30 PM	0	0	140	0	5	0	145
4:45 PM	0	0	139	0	0	0	139
5:00 PM	0	0	135	0	4	0	139
5:15 PM	0	0	136	1	0	0	137
5:30 PM	0	0	128	0	0	0	128
5:45 PM	0	0	133	0	0	0	133
6:00 PM	0	0	127	0	2	0	129
6:15 PM	0	0	99	0	0	0	99
6:30 PM	0	0	89	0	0	0	89
6:45 PM	0	0	79	0	1	0	80
7:00 PM	0	0	86	0	0	0	86
7:15 PM	0	0	73	0	1	0	74
7:30 PM	0	0	63	0	0	0	63
7:45 PM	0	0	43	0	0	0	43
8:00 PM	0	0	69	0	0	0	69
8:15 PM	0	0	64	0	1	0	65
8:30 PM	0	0	59	0	0	0	59
8:45 PM	0	0	54	0	0	0	54
9:00 PM	0	0	55	0	2	0	57
9:15 PM	0	0	42	0	0	0	42
9:30 PM	0	0	32	0	0	0	32
9:45 PM	0	0	23	0	0	0	23
10:00 PM	0	0	20	0	0	0	20
10:15 PM	0	2	21	0	0	0	23
10:30 PM	0	0	10	0	0	0	10
10:45 PM	0	0	12	0	0	0	12
11:00 PM	0	0	15	1	0	0	16
11:15 PM	0	0	16	0	0	0	16
11:30 PM	0	0	9	0	0	0	9
11:45 PM	0	0	15	0	0	0	15
PM Total	**0**	**2**	**4106**	**6**	**89**	**29**	**4232**
Percentage	**0.00%**	**0.05%**	**97.02%**	**0.14%**	**2.10%**	**0.69%**	
PM Peak	**12:00 PM**	**9:30 PM**	**3:45 PM**	**1:30 PM**	**2:15 PM**	**1:45 PM**	**3:45 PM**
Volume	**0**	**2**	**604**	**2**	**23**	**10**	**617**
Day Total	**0**	**2**	**5628**	**11**	**166**	**56**	**5863**
Percentage	**0.00%**	**0.03%**	**95.99%**	**0.19%**	**2.83%**	**0.96%**	

Broadway
west of Coumbia Road (Route 53)
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

Count Date: **Thursday, December 1, 2022**
Direction: **WB**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: **228996 ATR-B**

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	15	0	0	0	15
12:15 AM	0	0	7	0	0	0	7
12:30 AM	0	0	5	0	0	0	5
12:45 AM	0	0	4	0	0	0	4
1:00 AM	0	0	9	0	0	0	9
1:15 AM	0	0	2	0	0	0	2
1:30 AM	0	0	4	0	0	0	4
1:45 AM	0	0	1	0	0	0	1
2:00 AM	0	0	1	0	1	0	2
2:15 AM	0	0	3	0	0	0	3
2:30 AM	0	0	1	0	0	0	1
2:45 AM	0	0	2	0	0	0	2
3:00 AM	0	0	4	0	0	0	4
3:15 AM	0	0	2	0	0	0	2
3:30 AM	0	0	2	0	0	0	2
3:45 AM	0	0	4	0	0	0	4
4:00 AM	0	0	2	0	0	0	2
4:15 AM	0	0	2	0	0	0	2
4:30 AM	0	0	4	0	1	0	5
4:45 AM	0	0	5	1	0	0	6
5:00 AM	0	0	3	0	2	0	5
5:15 AM	0	0	13	0	0	0	13
5:30 AM	0	0	10	0	0	0	10
5:45 AM	0	0	11	0	0	0	11
6:00 AM	0	0	18	0	0	0	18
6:15 AM	0	0	33	0	1	0	34
6:30 AM	0	0	30	0	2	0	32
6:45 AM	0	0	34	1	2	1	38
7:00 AM	0	0	36	0	3	2	41
7:15 AM	0	0	47	0	2	0	49
7:30 AM	0	0	53	0	2	0	55
7:45 AM	0	0	52	1	1	1	55
8:00 AM	0	0	53	1	3	0	57
8:15 AM	0	0	58	0	4	7	69
8:30 AM	0	0	67	0	4	5	76
8:45 AM	0	0	64	0	8	0	72
9:00 AM	0	0	68	0	7	4	79
9:15 AM	0	0	67	0	11	5	83
9:30 AM	0	0	62	0	5	2	69
9:45 AM	0	0	59	0	2	2	63
10:00 AM	0	0	50	0	6	2	58
10:15 AM	0	0	67	0	6	1	74
10:30 AM	0	0	64	0	6	0	70
10:45 AM	0	0	70	1	8	1	80
11:00 AM	0	0	78	1	3	6	88
11:15 AM	0	0	102	0	7	5	114
11:30 AM	0	0	67	0	7	5	79
11:45 AM	0	0	80	0	3	3	86
AM Total	**0**	**0**	**1495**	**6**	**107**	**52**	**1660**
Percentage	**0.00%**	**0.00%**	**90.06%**	**0.36%**	**6.45%**	**3.13%**	
AM Peak	**12:00 AM**	**12:00 AM**	**11:00 AM**	**7:15 AM**	**8:45 AM**	**11:00 AM**	**11:00 AM**
Volume	**0**	**0**	**327**	**2**	**31**	**19**	**367**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	83	0	2	3	88
12:15 PM	0	0	78	0	0	1	79
12:30 PM	0	0	88	1	3	5	97
12:45 PM	0	1	107	0	3	0	111
1:00 PM	0	0	107	0	4	0	111
1:15 PM	0	0	98	0	4	1	103
1:30 PM	0	0	100	0	4	2	106
1:45 PM	0	0	97	0	8	4	109
2:00 PM	0	0	110	0	3	6	119
2:15 PM	0	0	113	2	7	1	123
2:30 PM	0	0	132	0	9	5	146
2:45 PM	0	0	122	0	11	0	133
3:00 PM	0	0	142	0	6	5	153
3:15 PM	0	0	157	1	11	1	170
3:30 PM	0	0	163	1	3	2	169
3:45 PM	0	0	152	1	2	3	158
4:00 PM	0	0	187	0	1	2	190
4:15 PM	0	0	169	0	2	0	171
4:30 PM	0	0	169	0	1	0	170
4:45 PM	0	0	166	0	1	0	167
5:00 PM	0	0	166	1	1	1	169
5:15 PM	0	0	156	0	2	0	158
5:30 PM	0	0	150	0	2	0	152
5:45 PM	0	0	133	0	0	0	133
6:00 PM	0	1	124	0	0	0	125
6:15 PM	0	0	111	0	0	0	111
6:30 PM	0	0	108	0	0	0	108
6:45 PM	0	0	108	0	0	0	108
7:00 PM	0	0	85	0	0	0	85
7:15 PM	0	0	89	0	0	0	89
7:30 PM	0	0	76	0	0	0	76
7:45 PM	0	0	79	0	0	0	79
8:00 PM	0	0	84	0	0	0	84
8:15 PM	0	0	71	0	0	0	71
8:30 PM	0	0	49	0	0	0	49
8:45 PM	0	0	52	0	0	0	52
9:00 PM	0	0	45	0	0	0	45
9:15 PM	0	0	42	0	3	0	45
9:30 PM	0	0	35	0	0	0	35
9:45 PM	0	0	40	0	0	0	40
10:00 PM	0	0	29	0	0	0	29
10:15 PM	0	0	33	0	0	0	33
10:30 PM	0	0	19	0	0	0	19
10:45 PM	0	0	23	0	0	0	23
11:00 PM	0	0	17	0	0	0	17
11:15 PM	0	0	26	0	0	0	26
11:30 PM	0	0	26	0	0	0	26
11:45 PM	0	0	20	0	0	0	20
PM Total	**0**	**2**	**4536**	**7**	**93**	**42**	**4680**
Percentage	**0.00%**	**0.04%**	**96.92%**	**0.15%**	**1.99%**	**0.90%**	
PM Peak	**12:00 PM**	**12:00 PM**	**4:00 PM**	**3:00 PM**	**2:30 PM**	**1:45 PM**	**4:00 PM**
Volume	**0**	**1**	**691**	**3**	**37**	**16**	**698**
Day Total	**0**	**2**	**6031**	**13**	**200**	**94**	**6340**
Percentage	**0.00%**	**0.03%**	**95.13%**	**0.21%**	**3.15%**	**1.48%**	

Broadway
west of Coumbia Road (Route 53)
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **228996 ATR-B**

Direction: **EB**

Weekly Report

Day	Wednesday		Thursday												Week	
Date	11/30/22		12/01/22												Ave	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	0	89	1	99	0	0	0	0	0	0	0	0	0	0	1	94
12:15	1	95	3	96	0	0	0	0	0	0	0	0	0	0	2	96
12:30	2	90	0	104	0	0	0	0	0	0	0	0	0	0	1	97
12:45	3	101	2	93	0	0	0	0	0	0	0	0	0	0	3	97
1:00	4	92	1	88	0	0	0	0	0	0	0	0	0	0	3	90
1:15	1	79	2	80	0	0	0	0	0	0	0	0	0	0	2	80
1:30	0	90	3	80	0	0	0	0	0	0	0	0	0	0	2	85
1:45	1	76	0	96	0	0	0	0	0	0	0	0	0	0	1	86
2:00	3	74	2	81	0	0	0	0	0	0	0	0	0	0	3	78
2:15	1	79	2	86	0	0	0	0	0	0	0	0	0	0	2	83
2:30	2	79	2	72	0	0	0	0	0	0	0	0	0	0	2	76
2:45	5	106	5	114	0	0	0	0	0	0	0	0	0	0	5	110
3:00	3	79	1	96	0	0	0	0	0	0	0	0	0	0	2	88
3:15	3	77	3	102	0	0	0	0	0	0	0	0	0	0	3	90
3:30	6	84	6	98	0	0	0	0	0	0	0	0	0	0	6	91
3:45	5	121	8	97	0	0	0	0	0	0	0	0	0	0	7	109
4:00	14	103	14	101	0	0	0	0	0	0	0	0	0	0	14	102
4:15	10	87	14	93	0	0	0	0	0	0	0	0	0	0	12	90
4:30	31	66	24	98	0	0	0	0	0	0	0	0	0	0	28	82
4:45	50	85	47	106	0	0	0	0	0	0	0	0	0	0	49	96
5:00	61	74	70	111	0	0	0	0	0	0	0	0	0	0	66	93
5:15	67	81	39	90	0	0	0	0	0	0	0	0	0	0	53	86
5:30	49	93	55	97	0	0	0	0	0	0	0	0	0	0	52	95
5:45	79	75	76	97	0	0	0	0	0	0	0	0	0	0	78	86
6:00	77	75	78	79	0	0	0	0	0	0	0	0	0	0	78	77
6:15	99	50	98	73	0	0	0	0	0	0	0	0	0	0	99	62
6:30	115	74	123	67	0	0	0	0	0	0	0	0	0	0	119	71
6:45	144	40	162	75	0	0	0	0	0	0	0	0	0	0	153	58
7:00	136	35	137	41	0	0	0	0	0	0	0	0	0	0	137	38
7:15	159	35	162	55	0	0	0	0	0	0	0	0	0	0	161	45
7:30	197	30	181	45	0	0	0	0	0	0	0	0	0	0	189	38
7:45	165	24	195	41	0	0	0	0	0	0	0	0	0	0	180	33
8:00	157	21	147	31	0	0	0	0	0	0	0	0	0	0	152	26
8:15	146	15	156	33	0	0	0	0	0	0	0	0	0	0	151	24
8:30	142	19	136	24	0	0	0	0	0	0	0	0	0	0	139	22
8:45	143	17	138	22	0	0	0	0	0	0	0	0	0	0	141	20
9:00	122	18	127	13	0	0	0	0	0	0	0	0	0	0	125	16
9:15	108	16	94	13	0	0	0	0	0	0	0	0	0	0	101	15
9:30	89	19	119	10	0	0	0	0	0	0	0	0	0	0	104	15
9:45	108	8	111	9	0	0	0	0	0	0	0	0	0	0	110	9
10:00	114	13	76	13	0	0	0	0	0	0	0	0	0	0	95	13
10:15	80	9	88	8	0	0	0	0	0	0	0	0	0	0	84	9
10:30	82	10	101	10	0	0	0	0	0	0	0	0	0	0	92	10
10:45	91	4	73	4	0	0	0	0	0	0	0	0	0	0	82	4
11:00	84	5	77	8	0	0	0	0	0	0	0	0	0	0	81	7
11:15	77	5	97	6	0	0	0	0	0	0	0	0	0	0	87	6
11:30	83	6	104	7	0	0	0	0	0	0	0	0	0	0	94	7
11:45	86	3	98	6	0	0	0	0	0	0	0	0	0	0	92	5
Total	**3205**	**2626**	**3258**	**2968**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3232**	**2797**
Day Total	**5831**		**6226**		**0**		**0**		**0**		**0**		**0**		**6029**	
Peak HR	**7:15 AM**	**3:30 PM**	**7:15 AM**	**2:45 PM**											**7:15 AM**	**3:30 PM**
Volume	**678**	**395**	**685**	**410**											**682**	**392**

Broadway
west of Coumbia Road (Route 53)
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **228996 ATR-B**

Direction: **WB**

Weekly Report

Day	Wednesday		Thursday												Week	
Date	11/30/22		12/01/22												Ave	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	8	100	15	88	0	0	0	0	0	0	0	0	0	0	12	94
12:15	7	107	7	79	0	0	0	0	0	0	0	0	0	0	7	93
12:30	7	98	5	97	0	0	0	0	0	0	0	0	0	0	6	98
12:45	3	101	4	111	0	0	0	0	0	0	0	0	0	0	4	106
1:00	1	115	9	111	0	0	0	0	0	0	0	0	0	0	5	113
1:15	0	88	2	103	0	0	0	0	0	0	0	0	0	0	1	96
1:30	7	110	4	106	0	0	0	0	0	0	0	0	0	0	6	108
1:45	3	106	1	109	0	0	0	0	0	0	0	0	0	0	2	108
2:00	2	114	2	119	0	0	0	0	0	0	0	0	0	0	2	117
2:15	1	120	3	123	0	0	0	0	0	0	0	0	0	0	2	122
2:30	3	127	1	146	0	0	0	0	0	0	0	0	0	0	2	137
2:45	3	127	2	133	0	0	0	0	0	0	0	0	0	0	3	130
3:00	0	156	4	153	0	0	0	0	0	0	0	0	0	0	2	155
3:15	3	142	2	170	0	0	0	0	0	0	0	0	0	0	3	156
3:30	3	143	2	169	0	0	0	0	0	0	0	0	0	0	3	156
3:45	0	146	4	158	0	0	0	0	0	0	0	0	0	0	2	152
4:00	3	153	2	190	0	0	0	0	0	0	0	0	0	0	3	172
4:15	3	173	2	171	0	0	0	0	0	0	0	0	0	0	3	172
4:30	6	145	5	170	0	0	0	0	0	0	0	0	0	0	6	158
4:45	5	139	6	167	0	0	0	0	0	0	0	0	0	0	6	153
5:00	5	139	5	169	0	0	0	0	0	0	0	0	0	0	5	154
5:15	9	137	13	158	0	0	0	0	0	0	0	0	0	0	11	148
5:30	18	128	10	152	0	0	0	0	0	0	0	0	0	0	14	140
5:45	20	133	11	133	0	0	0	0	0	0	0	0	0	0	16	133
6:00	28	129	18	125	0	0	0	0	0	0	0	0	0	0	23	127
6:15	32	99	34	111	0	0	0	0	0	0	0	0	0	0	33	105
6:30	36	89	32	108	0	0	0	0	0	0	0	0	0	0	34	99
6:45	39	80	38	108	0	0	0	0	0	0	0	0	0	0	39	94
7:00	40	86	41	85	0	0	0	0	0	0	0	0	0	0	41	86
7:15	48	74	49	89	0	0	0	0	0	0	0	0	0	0	49	82
7:30	66	63	55	76	0	0	0	0	0	0	0	0	0	0	61	70
7:45	64	43	55	79	0	0	0	0	0	0	0	0	0	0	60	61
8:00	63	69	57	84	0	0	0	0	0	0	0	0	0	0	60	77
8:15	66	65	69	71	0	0	0	0	0	0	0	0	0	0	68	68
8:30	56	59	76	49	0	0	0	0	0	0	0	0	0	0	66	54
8:45	62	54	72	52	0	0	0	0	0	0	0	0	0	0	67	53
9:00	72	57	79	45	0	0	0	0	0	0	0	0	0	0	76	51
9:15	72	42	83	45	0	0	0	0	0	0	0	0	0	0	78	44
9:30	55	32	69	35	0	0	0	0	0	0	0	0	0	0	62	34
9:45	79	23	63	40	0	0	0	0	0	0	0	0	0	0	71	32
10:00	68	20	58	29	0	0	0	0	0	0	0	0	0	0	63	25
10:15	75	23	74	33	0	0	0	0	0	0	0	0	0	0	75	28
10:30	67	10	70	19	0	0	0	0	0	0	0	0	0	0	69	15
10:45	77	12	80	23	0	0	0	0	0	0	0	0	0	0	79	18
11:00	72	16	88	17	0	0	0	0	0	0	0	0	0	0	80	17
11:15	82	16	114	26	0	0	0	0	0	0	0	0	0	0	98	21
11:30	92	9	79	26	0	0	0	0	0	0	0	0	0	0	86	18
11:45	100	15	86	20	0	0	0	0	0	0	0	0	0	0	93	18
Total	**1631**	**4232**	**1660**	**4680**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1646**	**4456**
Day Total	**5863**		**6340**		**0**		**0**		**0**		**0**		**0**		**6102**	
Peak HR	**11:00 AM**	**3:45 PM**	**11:00 AM**	**4:00 PM**											**11:00 AM**	**4:00 PM**
Volume	**346**	**617**	**367**	**698**											**357**	**654**

Broadway
west of Columbia Road (Route 53)
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
508-875-0100 datarequests@pdillc.com
Email: datarequests@pdillc.com

PDI File #: 228996 ATR-B (Speed)

Count Date
Wednesday, November 30, 2022

Speed (60-minute)

EB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	6	1	0	0	0	0	0	0	0	7	33.4	32.1
1:00 AM	0	0	1	4	0	1	0	0	0	0	0	0	0	6	30.8	27.8
2:00 AM	0	0	0	4	6	1	0	0	0	0	0	0	0	11	34.0	31.3
3:00 AM	0	0	2	5	8	1	0	0	0	0	0	0	0	16	33.8	29.9
4:00 AM	1	0	5	26	49	24	5	1	0	0	0	0	0	111	36.0	31.8
5:00 AM	4	12	19	78	91	50	8	1	0	0	0	0	0	263	36.0	30.1
6:00 AM	4	40	88	143	107	22	10	3	0	0	0	0	1	418	33.0	27.3
7:00 AM	27	104	142	136	82	24	9	1	0	0	0	0	0	525	31.4	24.4
8:00 AM	17	88	130	145	76	20	8	1	1	2	1	1	0	490	31.0	25.2
9:00 AM	20	51	111	117	70	24	7	0	1	1	1	0	0	403	32.0	25.5
10:00 AM	16	44	94	105	67	13	3	1	0	2	0	0	0	345	31.4	25.4
11:00 AM	24	55	83	84	55	9	3	1	2	1	0	0	0	317	31.0	24.3
12:00 PM	20	71	99	73	46	7	3	1	1	3	1	0	0	325	31.0	24.0
1:00 PM	26	70	87	79	45	4	5	0	3	0	0	0	0	319	30.0	23.6
2:00 PM	30	52	55	83	63	21	2	2	2	2	0	0	1	313	32.0	25.4
3:00 PM	20	53	55	56	32	4	2	0	1	3	2	0	0	228	31.0	23.8
4:00 PM	19	52	68	54	26	3	0	1	0	0	0	0	0	223	29.0	22.7
5:00 PM	19	50	81	70	18	13	1	0	0	0	0	0	0	252	28.0	23.1
6:00 PM	10	25	49	62	26	7	1	0	0	0	0	0	0	180	31.0	24.6
7:00 PM	4	19	33	41	13	4	0	0	0	0	0	0	0	114	29.1	24.6
8:00 PM	2	9	17	38	16	9	2	1	0	0	0	0	0	94	34.0	27.2
9:00 PM	1	6	11	24	24	4	5	0	0	0	0	0	0	75	33.0	28.3
10:00 PM	0	0	8	17	12	2	2	1	0	0	0	0	0	42	33.9	29.4
11:00 PM	0	0	2	13	3	2	0	0	0	0	0	0	0	20	34.0	28.7
Total	264	801	1240	1457	941	270	76	15	11	14	5	1	2	5097	32.0	25.3
Percent	5.18%	15.72%	24.33%	28.59%	18.46%	5.30%	1.49%	0.29%	0.22%	0.27%	0.10%	0.02%	0.04%			
AM Peak	7:00 AM	7:00 AM	7:00 AM	8:00 AM	6:00 AM	5:00 AM	6:00 AM	6:00 AM	11:00 AM	8:00 AM	8:00 AM	8:00 AM	6:00 AM	7:00 AM		
Volume	27	104	142	145	107	50	10	3	2	2	1	1	1	525		
PM Peak	2:00 PM	12:00 PM	12:00 PM	2:00 PM	2:00 PM	2:00 PM	1:00 PM	2:00 PM	1:00 PM	12:00 PM	3:00 PM		2:00 PM	12:00 PM		
Volume	30	71	99	83	63	21	5	2	3	3	2	0	1	325		

15th Percentile:	18.0 MPH	Average Speed:	25.3 MPH	Posted Speed Limit:	25 MPH
50th Percentile:	25.0 MPH	10 MPH Pace:	22 to 31 MPH	Number of Vehicles > 25 MPH:	2521
85th Percentile:	32.0 MPH	Number in Pace:	2722	Percent of Vehicles > 25 MPH:	49.5%
95th Percentile:	36.0 MPH	Percent in Pace:	53.4%		

Broadway
west of Columbia Road (Route 53)
City, State: Hanover, MA
Client: Kimley-Horn/ L. Juan
Site Code: TBA

PRECISION D A T A INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
508-875-0100 datarequests@pdillc.com

PDI File #: 228996 ATR-B (Speed)

Count Date
Wednesday, November 30, 2022

Speed (60-minute)

WB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	10	11	6	1	0	0	0	0	0	0	28	36.9	31.4
1:00 AM	0	0	2	5	3	1	1	0	0	0	0	0	0	12	33.7	29.6
2:00 AM	0	0	0	3	5	1	0	0	0	0	0	0	0	9	33.8	31.2
3:00 AM	0	0	0	2	3	1	0	0	0	0	0	0	0	6	33.5	31.3
4:00 AM	0	0	0	4	9	4	0	0	0	0	0	0	0	17	35.0	31.9
5:00 AM	0	0	4	19	24	8	0	0	0	0	0	0	0	55	34.0	30.1
6:00 AM	0	2	12	37	74	23	1	1	0	0	0	0	0	150	35.0	30.7
7:00 AM	2	6	17	62	117	34	4	0	0	0	0	0	0	242	35.0	30.4
8:00 AM	2	10	31	57	104	32	5	1	0	1	0	0	0	243	35.0	29.7
9:00 AM	2	13	31	92	116	40	1	0	0	0	0	0	0	295	34.0	29.3
10:00 AM	3	8	46	108	106	23	0	0	0	0	0	0	0	294	33.0	28.3
11:00 AM	2	11	71	113	125	23	3	1	0	0	0	0	0	349	33.0	28.1
12:00 PM	1	13	76	128	164	33	1	0	0	0	0	0	0	416	33.0	28.5
1:00 PM	1	17	71	125	167	29	5	0	0	0	0	0	0	415	33.0	28.6
2:00 PM	1	13	67	170	181	42	3	1	0	0	0	0	0	478	33.0	28.9
3:00 PM	2	13	60	212	208	47	2	0	1	0	0	0	0	545	33.0	29.1
4:00 PM	2	12	84	237	244	38	1	0	0	0	0	0	0	618	33.0	28.7
5:00 PM	2	10	61	234	185	33	1	0	0	0	0	0	0	526	32.0	28.6
6:00 PM	1	7	37	169	134	24	5	0	0	0	0	0	0	377	32.6	28.9
7:00 PM	0	1	19	111	120	13	2	0	0	0	0	0	0	266	32.0	29.3
8:00 PM	0	0	7	91	130	19	0	0	0	0	0	0	0	247	33.0	30.2
9:00 PM	0	1	5	58	77	14	2	0	0	0	0	0	0	157	34.0	30.2
10:00 PM	0	0	1	22	28	11	3	0	0	0	0	0	0	65	35.0	31.4
11:00 PM	0	0	3	19	24	11	0	2	0	0	0	0	0	59	35.0	31.2
Total	21	137	705	2088	2359	510	41	6	1	1	0	0	0	5869	33.0	29.1
Percent	0.36%	2.33%	12.01%	35.58%	40.19%	8.69%	0.70%	0.10%	0.02%	0.02%	0.00%	0.00%	0.00%			
AM Peak	10:00 AM	9:00 AM	11:00 AM	11:00 AM	11:00 AM	9:00 AM	8:00 AM	6:00 AM		8:00 AM				11:00 AM		
Volume	3	13	71	113	125	40	5	1	0	1	0	0	0	349		
PM Peak	3:00 PM	1:00 PM	4:00 PM	4:00 PM	4:00 PM	3:00 PM	1:00 PM	11:00 PM	3:00 PM					4:00 PM		
Volume	2	17	84	237	244	47	5	2	1	0	0	0	0	618		

15th Percentile:	25.0 MPH	Average Speed:	29.1 MPH	Posted Speed Limit:	25 MPH
50th Percentile:	29.0 MPH	10 MPH Pace:	25 to 34 MPH	Number of Vehicles > 25 MPH:	4750
85th Percentile:	33.0 MPH	Number in Pace:	4447	Percent of Vehicles > 25 MPH:	80.9%
95th Percentile:	36.0 MPH	Percent in Pace:	75.8%		

Broadway
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Hudson, MA 01749
508-875-0100 datarequests@pdillc.com

PDI File #: 228996 ATR-B (Speed)

Count Date
Wednesday, November 30, 2022

Speed (60-minute)

Combined EB and WB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	10	17	7	1	0	0	0	0	0	0	35	36.8	31.6
1:00 AM	0	0	3	9	3	2	1	0	0	0	0	0	0	18	33.9	29.0
2:00 AM	0	0	0	7	11	2	0	0	0	0	0	0	0	20	34.0	31.3
3:00 AM	0	0	2	7	11	2	0	0	0	0	0	0	0	22	33.9	30.3
4:00 AM	1	0	5	30	58	28	5	1	0	0	0	0	0	128	36.0	31.8
5:00 AM	4	12	23	97	115	58	8	1	0	0	0	0	0	318	36.0	30.1
6:00 AM	4	42	100	180	181	45	11	4	0	0	0	0	1	568	34.0	28.2
7:00 AM	29	110	159	198	199	58	13	1	0	0	0	0	0	767	33.0	26.3
8:00 AM	19	98	161	202	180	52	13	2	1	3	1	1	0	733	33.0	26.6
9:00 AM	22	64	142	209	186	64	8	0	1	1	1	0	0	698	33.0	27.1
10:00 AM	19	52	140	213	173	36	3	1	0	2	0	0	0	639	32.3	26.7
11:00 AM	26	66	154	197	180	32	6	2	2	1	0	0	0	666	32.0	26.3
12:00 PM	21	84	175	201	210	40	4	1	1	3	1	0	0	741	33.0	26.5
1:00 PM	27	87	158	204	212	33	10	0	3	0	0	0	0	734	32.0	26.4
2:00 PM	31	65	122	253	244	63	5	3	2	2	0	0	1	791	33.0	27.5
3:00 PM	22	66	115	268	240	51	4	0	2	3	2	0	0	773	33.0	27.5
4:00 PM	21	64	152	291	270	41	1	1	0	0	0	0	0	841	32.0	27.1
5:00 PM	21	60	142	304	203	46	2	0	0	0	0	0	0	778	32.0	26.8
6:00 PM	11	32	86	231	160	31	6	0	0	0	0	0	0	557	32.0	27.5
7:00 PM	4	20	52	152	133	17	2	0	0	0	0	0	0	380	32.0	27.9
8:00 PM	2	9	24	129	146	28	2	1	0	0	0	0	0	341	33.0	29.3
9:00 PM	1	7	16	82	101	18	7	0	0	0	0	0	0	232	34.0	29.6
10:00 PM	0	0	9	39	40	13	5	1	0	0	0	0	0	107	35.0	30.6
11:00 PM	0	0	5	32	27	13	0	2	0	0	0	0	0	79	35.0	30.6
Total	285	938	1945	3545	3300	780	117	21	12	15	5	1	2	10966	33.0	27.4
Percent	2.60%	8.55%	17.74%	32.33%	30.09%	7.11%	1.07%	0.19%	0.11%	0.14%	0.05%	0.01%	0.02%			
AM Peak	7:00 AM	7:00 AM	8:00 AM	10:00 AM	7:00 AM	9:00 AM	7:00 AM	6:00 AM	11:00 AM	8:00 AM	8:00 AM	8:00 AM	6:00 AM	7:00 AM		
Volume	29	110	161	213	199	64	13	4	2	3	1	1	1	767		
PM Peak	2:00 PM	1:00 PM	12:00 PM	5:00 PM	4:00 PM	2:00 PM	1:00 PM	2:00 PM	1:00 PM	12:00 PM	3:00 PM		2:00 PM	4:00 PM		
Volume	31	87	175	304	270	63	10	3	3	3	2	0	1	841		

15th Percentile:	21.0 MPH	Average Speed:	27.4 MPH	Posted Speed Limit:	25 MPH
50th Percentile:	28.0 MPH	10 MPH Pace:	24 to 33 MPH	Number of Vehicles > 25 MPH:	7271
85th Percentile:	33.0 MPH	Number in Pace:	6941	Percent of Vehicles > 25 MPH:	66.3%
95th Percentile:	36.0 MPH	Percent in Pace:	63.3%		

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Site Code: TBA

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Hudson, MA 01749
508-875-0100 datarequests@pdillc.com

PDI File #: 228996 ATR-B (Speed)

Count Date
Thursday, December 1, 2022

Speed (60-minute)

EB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	1	0	3	0	1	1	1	0	0	0	0	0	0	7	35.6	26.3
1:00 AM	0	0	0	3	3	0	1	0	0	0	0	0	0	7	34.0	31.7
2:00 AM	1	1	1	1	7	2	0	0	0	0	0	0	0	13	33.6	28.8
3:00 AM	0	0	1	7	5	2	1	1	0	0	0	0	0	17	37.0	31.3
4:00 AM	1	4	2	25	45	19	3	1	0	0	0	0	0	100	36.0	31.2
5:00 AM	4	9	24	80	101	24	7	4	0	0	0	0	0	253	34.0	29.5
6:00 AM	14	60	121	102	75	24	8	0	1	0	0	0	0	405	33.0	25.4
7:00 AM	43	112	170	93	69	17	1	1	1	0	0	0	1	508	31.0	23.0
8:00 AM	16	70	139	129	71	31	5	0	0	4	3	1	1	470	32.0	25.8
9:00 AM	27	66	102	86	62	14	6	2	2	2	1	0	1	371	31.0	24.8
10:00 AM	19	54	87	91	72	19	2	1	0	2	1	0	0	348	32.0	25.3
11:00 AM	22	64	69	85	49	18	7	2	5	5	4	2	0	332	32.4	26.1
12:00 PM	34	66	101	74	50	11	4	1	1	1	2	0	0	345	31.0	23.8
1:00 PM	27	57	69	84	44	11	7	0	0	0	1	0	0	300	32.0	24.3
2:00 PM	25	61	84	60	36	15	2	3	0	3	2	3	0	294	32.0	24.5
3:00 PM	28	68	64	63	48	6	3	0	0	4	1	0	0	285	31.0	23.7
4:00 PM	36	59	86	52	22	5	2	0	0	1	0	0	0	263	28.0	21.8
5:00 PM	23	73	82	66	31	10	3	0	0	0	0	0	0	288	30.0	22.7
6:00 PM	12	40	74	89	44	13	3	1	0	0	0	0	0	276	31.0	25.2
7:00 PM	7	12	40	62	43	14	3	1	0	0	0	0	0	182	32.0	26.8
8:00 PM	1	5	28	59	24	8	3	1	0	0	0	0	0	129	32.0	27.6
9:00 PM	0	4	5	21	19	5	0	0	0	0	0	0	0	54	32.1	28.4
10:00 PM	1	7	5	14	11	4	0	0	0	0	0	0	0	42	32.9	27.0
11:00 PM	0	0	2	13	9	5	1	0	0	0	0	0	0	30	36.7	30.7
Total	342	892	1359	1359	941	278	73	19	10	22	15	6	3	5319	32.0	25.1
Percent	6.43%	16.77%	25.55%	25.55%	17.69%	5.23%	1.37%	0.36%	0.19%	0.41%	0.28%	0.11%	0.06%			
AM Peak	7:00 AM	7:00 AM	7:00 AM	8:00 AM	5:00 AM	8:00 AM	6:00 AM	5:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	7:00 AM	7:00 AM		
Volume	43	112	170	129	101	31	8	4	5	5	4	2	1	508		
PM Peak	4:00 PM	5:00 PM	12:00 PM	6:00 PM	12:00 PM	2:00 PM	1:00 PM	2:00 PM	12:00 PM	3:00 PM	12:00 PM	2:00 PM		12:00 PM		
Volume	36	73	101	89	50	15	7	3	1	4	2	3	0	345		

15th Percentile:	17.0 MPH	Average Speed:	25.1 MPH	Posted Speed Limit:	25 MPH
50th Percentile:	25.0 MPH	10 MPH Pace:	20 to 29 MPH	Number of Vehicles > 25 MPH:	2485
85th Percentile:	32.0 MPH	Number in Pace:	2718	Percent of Vehicles > 25 MPH:	46.7%
95th Percentile:	37.0 MPH	Percent in Pace:	51.1%		

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Count Date
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Speed (60-minute)

WB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	9	18	7	1	0	0	0	0	0	0	35	35.0	31.9
1:00 AM	0	0	0	12	4	1	0	0	0	0	0	0	0	17	33.6	29.0
2:00 AM	0	0	0	4	4	0	0	0	0	0	0	0	0	8	32.0	29.6
3:00 AM	0	0	0	2	8	0	0	0	0	0	0	0	0	10	33.7	31.0
4:00 AM	1	0	1	2	9	1	0	0	0	0	0	0	0	14	34.0	29.7
5:00 AM	0	0	3	11	17	6	0	0	0	0	0	0	0	37	34.6	30.1
6:00 AM	0	2	13	25	65	22	1	1	1	0	0	0	0	130	35.0	31.0
7:00 AM	1	5	13	47	101	36	4	0	0	0	0	0	0	207	35.0	31.0
8:00 AM	0	15	28	74	104	37	1	0	0	0	0	0	0	259	34.0	29.5
9:00 AM	1	12	42	80	113	30	5	0	1	0	0	0	0	284	34.0	29.3
10:00 AM	1	14	37	81	110	33	1	0	0	0	0	0	0	277	34.0	28.9
11:00 AM	2	11	54	105	146	32	2	0	0	0	0	0	0	352	34.0	28.9
12:00 PM	1	13	61	120	149	38	2	0	0	0	0	0	0	384	34.0	28.8
1:00 PM	1	14	78	147	162	26	3	0	0	0	0	0	0	431	33.0	28.3
2:00 PM	2	21	86	199	162	48	6	0	0	0	0	0	0	524	33.0	28.4
3:00 PM	1	18	93	250	215	46	4	0	0	0	0	0	0	627	33.0	28.5
4:00 PM	1	14	114	308	245	37	4	0	1	0	0	0	0	724	33.0	28.4
5:00 PM	0	11	100	261	199	45	1	0	0	0	0	0	0	617	32.0	28.3
6:00 PM	0	4	40	169	242	37	2	0	0	0	0	0	0	494	33.0	29.7
7:00 PM	1	6	22	123	148	49	4	0	0	0	0	0	0	353	34.2	29.9
8:00 PM	0	1	13	92	131	35	6	0	0	0	0	0	0	278	34.0	30.7
9:00 PM	0	0	9	50	95	19	2	0	0	0	0	0	0	175	34.0	30.6
10:00 PM	0	1	2	20	64	12	5	0	0	0	0	0	0	104	35.0	31.4
11:00 PM	0	0	3	21	54	11	0	1	1	0	0	0	0	91	34.0	31.2
Total	13	162	812	2212	2565	608	54	2	4	0	0	0	0	6432	34.0	29.2
Percent	0.20%	2.52%	12.62%	34.39%	39.88%	9.45%	0.84%	0.03%	0.06%	0.00%	0.00%	0.00%	0.00%			
AM Peak	11:00 AM	8:00 AM	11:00 AM	11:00 AM	11:00 AM	8:00 AM	9:00 AM	6:00 AM	6:00 AM					11:00 AM		
Volume	2	15	54	105	146	37	5	1	1	0	0	0	0	352		
PM Peak	2:00 PM	2:00 PM	4:00 PM	4:00 PM	4:00 PM	7:00 PM	2:00 PM	11:00 PM	4:00 PM					4:00 PM		
Volume	2	21	114	308	245	49	6	1	1	0	0	0	0	724		

15th Percentile:	24.0 MPH	Average Speed:	29.2 MPH	Posted Speed Limit:	25 MPH
50th Percentile:	30.0 MPH	10 MPH Pace:	25 to 34 MPH	Number of Vehicles > 25 MPH:	5127
85th Percentile:	34.0 MPH	Number in Pace:	4777	Percent of Vehicles > 25 MPH:	79.7%
95th Percentile:	36.0 MPH	Percent in Pace:	74.3%		

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Combined EB and WB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	1	0	3	9	19	8	2	0	0	0	0	0	0	42	35.0	30.9
1:00 AM	0	0	0	15	7	1	1	0	0	0	0	0	0	24	33.6	29.8
2:00 AM	1	1	1	5	11	2	0	0	0	0	0	0	0	21	33.0	29.1
3:00 AM	0	0	1	9	13	2	1	1	0	0	0	0	0	27	34.3	31.2
4:00 AM	2	4	3	27	54	20	3	1	0	0	0	0	0	114	36.0	31.0
5:00 AM	4	9	27	91	118	30	7	4	0	0	0	0	0	290	34.0	29.6
6:00 AM	14	62	134	127	140	46	9	1	2	0	0	0	0	535	33.0	26.8
7:00 AM	44	117	183	140	170	53	5	1	1	0	0	0	1	715	33.0	25.3
8:00 AM	16	85	167	203	175	68	6	0	0	4	3	1	1	729	33.8	27.1
9:00 AM	28	78	144	166	175	44	11	2	3	2	1	0	1	655	33.0	26.7
10:00 AM	20	68	124	172	182	52	3	1	0	2	1	0	0	625	33.0	26.9
11:00 AM	24	75	123	190	195	50	9	2	5	5	4	2	0	684	33.0	27.5
12:00 PM	35	79	162	194	199	49	6	1	1	1	2	0	0	729	33.0	26.4
1:00 PM	28	71	147	231	206	37	10	0	0	0	1	0	0	731	33.0	26.7
2:00 PM	27	82	170	259	198	63	8	3	0	3	2	3	0	818	33.0	27.0
3:00 PM	29	86	157	313	263	52	7	0	0	4	1	0	0	912	33.0	27.0
4:00 PM	37	73	200	360	267	42	6	0	1	1	0	0	0	987	32.0	26.6
5:00 PM	23	84	182	327	230	55	4	0	0	0	0	0	0	905	32.0	26.5
6:00 PM	12	44	114	258	286	50	5	1	0	0	0	0	0	770	33.0	28.1
7:00 PM	8	18	62	185	191	63	7	1	0	0	0	0	0	535	34.0	28.9
8:00 PM	1	6	41	151	155	43	9	1	0	0	0	0	0	407	34.0	29.7
9:00 PM	0	4	14	71	114	24	2	0	0	0	0	0	0	229	34.0	30.1
10:00 PM	1	8	7	34	75	16	5	0	0	0	0	0	0	146	34.0	30.1
11:00 PM	0	0	5	34	63	16	1	1	1	0	0	0	0	121	35.0	31.1
Total	355	1054	2171	3571	3506	886	127	21	14	22	15	6	3	11751	33.0	27.3
Percent	3.02%	8.97%	18.48%	30.39%	29.84%	7.54%	1.08%	0.18%	0.12%	0.19%	0.13%	0.05%	0.03%			
AM Peak	7:00 AM	7:00 AM	7:00 AM	8:00 AM	11:00 AM	8:00 AM	9:00 AM	5:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	7:00 AM	8:00 AM		
Volume	44	117	183	203	195	68	11	4	5	5	4	2	1	729		
PM Peak	4:00 PM	3:00 PM	4:00 PM	4:00 PM	6:00 PM	2:00 PM	1:00 PM	2:00 PM	12:00 PM	3:00 PM	12:00 PM	2:00 PM		4:00 PM		
Volume	37	86	200	360	286	63	10	3	1	4	2	3	0	987		

15th Percentile:	21.0 MPH	Average Speed:	27.3 MPH	Posted Speed Limit:	25 MPH
50th Percentile:	28.0 MPH	10 MPH Pace:	24 to 33 MPH	Number of Vehicles > 25 MPH:	7612
85th Percentile:	33.0 MPH	Number in Pace:	7205	Percent of Vehicles > 25 MPH:	64.8%
95th Percentile:	36.0 MPH	Percent in Pace:	61.3%		

APPENDIX B

Crash Data

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Hanover COUNT DATE : 11/31/22-12/01/22

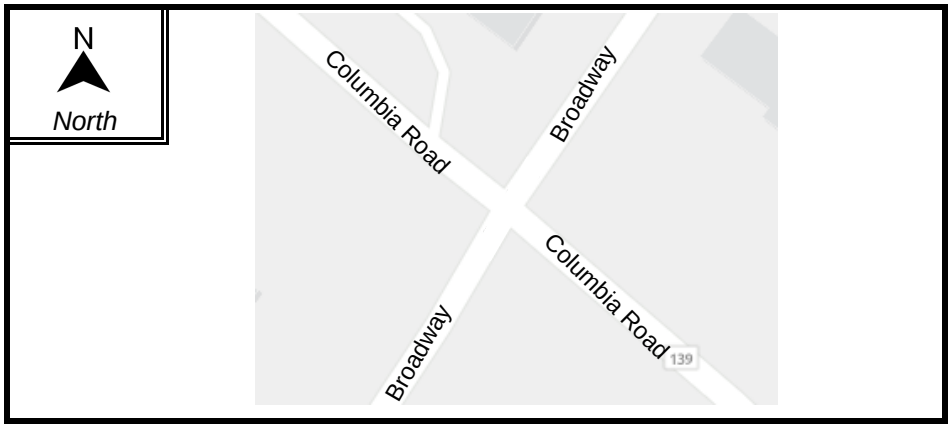
DISTRICT : 5 UNSIGNALIZED : [ ] SIGNALIZED : [X]

~ INTERSECTION DATA ~

MAJOR STREET : Columbia Road

MINOR STREET(S) : Broadway

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM): 4:00 - 5:00 PM	983	1165	434	300		2,882

" K " FACTOR : 0.084 INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : 34,310

TOTAL # OF CRASHES : 23 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : 7.67

CRASH RATE CALCULATION : 0.61 RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : MassDOT District 5 Signalized Crash Rate = 0.75 | Statewide = 0.78

Project Title & Date: Hanover Starbucks - Traffic Impact Analysis

APPENDIX C

Growth Rate

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2029, which reflects a seven-year planning horizon consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. Independent of the Project, traffic volumes on the roadway network in the year 2029 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated Project-generated traffic volumes superimposed upon the 2029 No-Build traffic volumes reflect 2029 Build traffic-volume conditions with the Project.

FUTURE TRAFFIC GROWTH

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, potential population growth and development external to the study area would not be accounted for in the resulting traffic projections.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Town of Pembroke Planning Department was contacted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on this consultation, no developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general traffic growth rate.

General Background Traffic Growth

Traffic-volume data compiled by MassDOT from permanent count stations located in Pembroke, Hanover, and Hanson were reviewed in order to determine general traffic growth trends in the area. This data indicates that traffic volumes have fluctuated over the past several years, with the average traffic growth rate found to be approximately 0.75 percent. In order to provide a prudent planning condition for the Project, a slightly higher 1.0 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

Roadway Improvement Projects

The Town of Pembroke and MassDOT were contacted in order to determine if there were any planned future roadway improvement projects expected to be complete by 2029 within the study area. Based on these discussions, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

No-Build Traffic Volumes

The 2029 No-Build condition peak-hour traffic volumes were developed by: i) applying the 1.0 percent per year compounded annual background traffic growth rate to the 2022 Existing peak-hour traffic volumes; and ii) adding trips generated by the existing operations at the Pembroke Country Club (18 hole golf course with supporting amenities), which was not in operation at the time the traffic counts that form the basis of this assessment were performed (January and February).[7] The resulting 2029 No-Build weekday morning and evening peak-hour traffic volumes are shown on Figures 5 and 6, respectively.

PROJECT-GENERATED TRAFFIC

Design year (2029 Build) traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study roadways. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

As proposed, the Project will entail the construction of 170± age-qualified residential units, consisting of 162 detached units and eight (8) attached units. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the Institute of Transportation Engineers (ITE)[8] for similar land uses as those proposed (attached and detached senior housing) and empirical trip rates developed from traffic counts performed at an age-qualified residential community in a similar setting were reviewed. ITE Land Use Codes (LUCs) 251, *Senior Adult Housing – Single-Family*, and LUC 252, *Senior Adult Housing* – Multifamily, were used to develop the base trip-generation calculations the Project, which were then compared to trip calculations for the Project developed using trip rates (per unit) derived from data obtained from The Villages at Weathervane, which is located within the Weathervane Golf Club located at 117 Clubhouse Drive in Weymouth.

[7]Trips associated with the existing golf course were generated using Institute of Transportation Engineers (ITE) Land Use Code (LUC) 430, *Golf Course*, which includes supporting amenities such as a clubhouse, restaurant and functional hall.

[8]Ibid 1.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Town of Hanover Planning Department was contacted in order to determine if there are any projects planned within the study area that would have an impact on future traffic volumes at the expanded study area intersections. Based on this consultation, the following developments were identified for review in conjunction with this supplemental assessment.

- ***Starbucks Restaurant, 303 Columbia Road, Hanover, Massachusetts.*** This project entails the construction of a 3,360± square foot (sf) Starbucks restaurant with a drive-through facility to be located at 303 Columbia Road, on the southwest corner of the Columbia Road/Broadway intersection and the north of the Project site.

- ***Previte's Marketplace Expansion, 285 Columbia Road, Hanover, Massachusetts.*** This project entails the construction of a 3,000± sf expansion to the Previte's Marketplace located at 285 Columbia Road, on the northwest corner of the Columbia Road/Broadway intersection and north of the Project site.

- ***Oakland Estates Residential Development, Oakland Street, Hanover, Massachusetts.*** This project entails the construction of a nine (9) lot subdivision off of Oakland Street to the north of the Project site.

- ***Nathan Estates Residential Development, Broadway, Hanover, Massachusetts.*** This project entails the construction of a six (6) lot subdivision off of Broadway to the north of the Project site.

Traffic volumes associated with the aforementioned specific development projects by others were developed using trip generation statistics published by the Institute of Transportation Engineers (ITE)[7] and were assigned onto the study area roadway network based on existing traffic patterns where no other information was available. No other developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate.

General Background Traffic Growth

As described in the July 2022 TIA, a 1.0 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

Roadway Improvement Projects

The Town of Hanover and MassDOT were contacted in order to determine if there were any planned future roadway improvement projects expected to be complete by 2029 within the study area. Based on these discussions, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the expanded study area at this time.

[7]Ibid 1.

APPENDIX D

Vicinity Developments

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Town of Hanover Planning Department was contacted in order to determine if there are any projects planned within the study area that would have an impact on future traffic volumes at the expanded study area intersections. Based on this consultation, the following developments were identified for review in conjunction with this supplemental assessment.

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General Background Traffic Growth

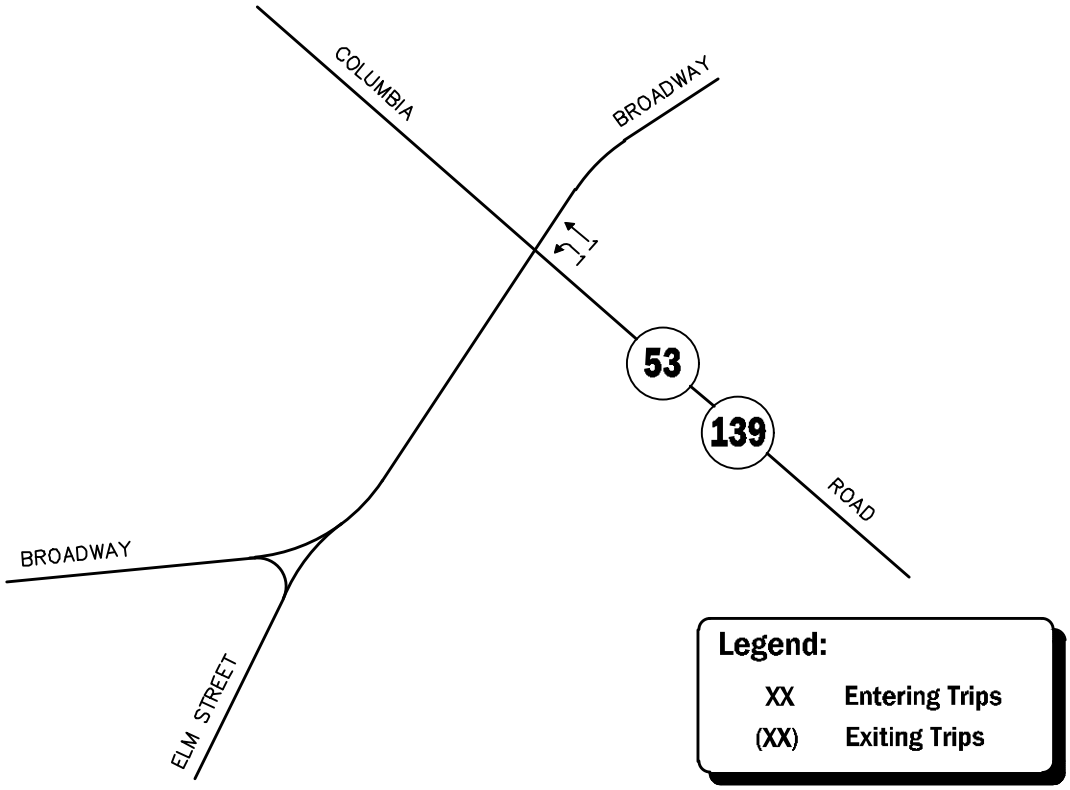
As described in the July 2022 TIA, a 1.0 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

Roadway Improvement Projects

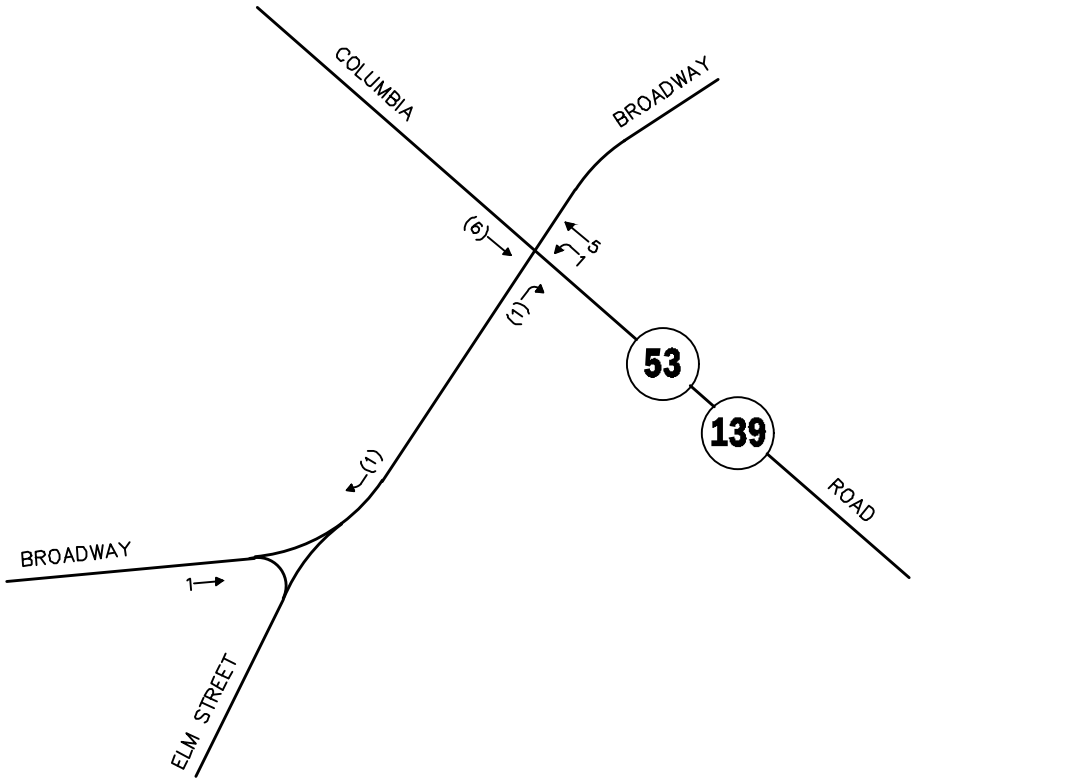
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[7]Ibid 1.

WEEKDAY MORNING PEAK HOUR (7:00-8:00 AM)



WEEKDAY EVENING PEAK HOUR (4:00-5:00 PM)



Not To Scale

Figure A-2A

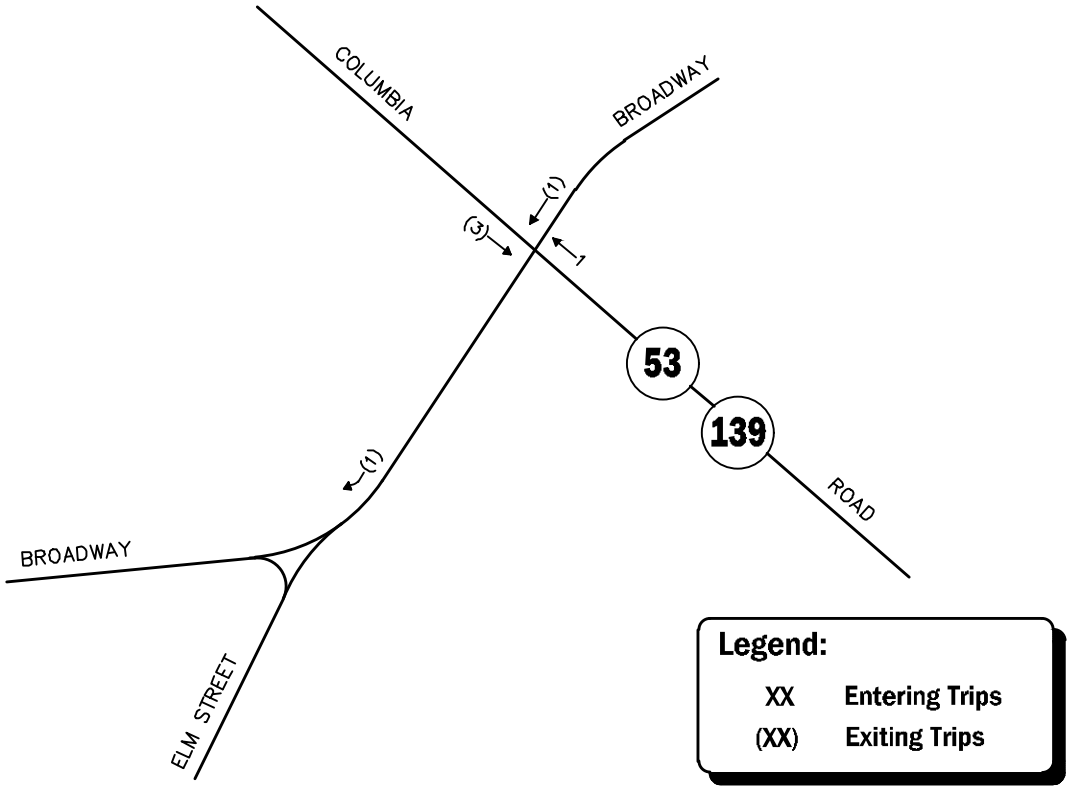
Proposed Previte's Marketplace Expansion Peak-Hour Traffic Volumes

Vanasse & Associates inc

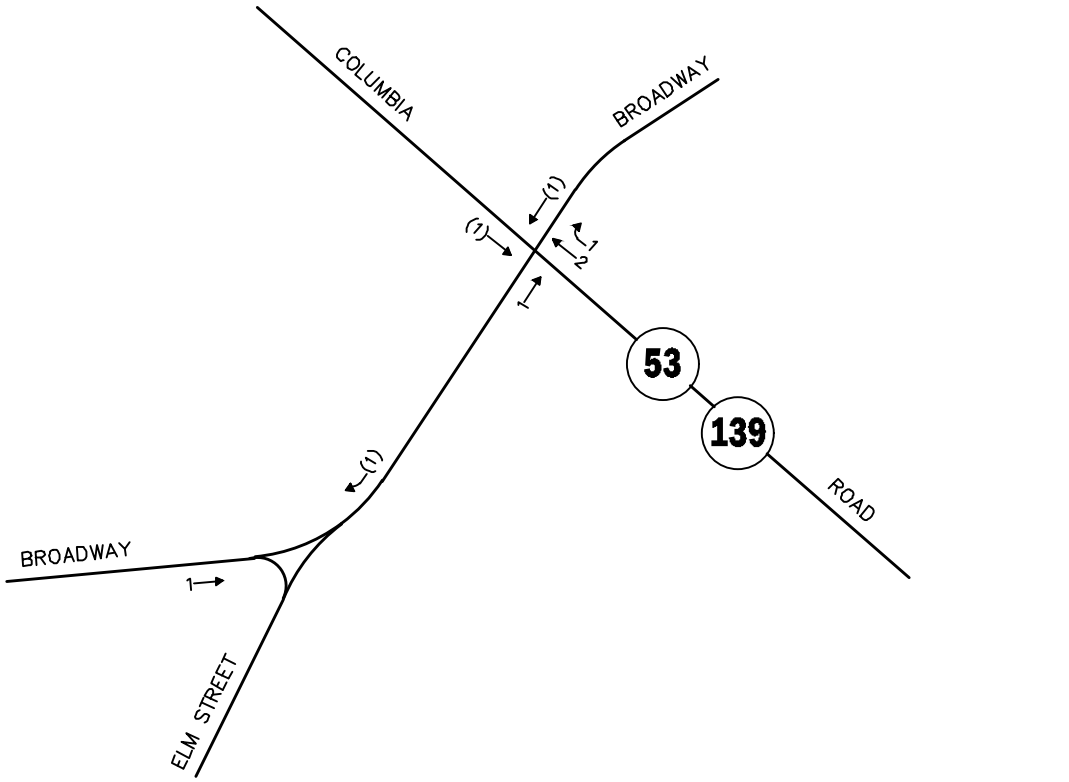
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WEEKDAY MORNING PEAK HOUR (7:00-8:00 AM)



WEEKDAY EVENING PEAK HOUR (4:00-5:00 PM)



N

Not To Scale

Figure A-3A

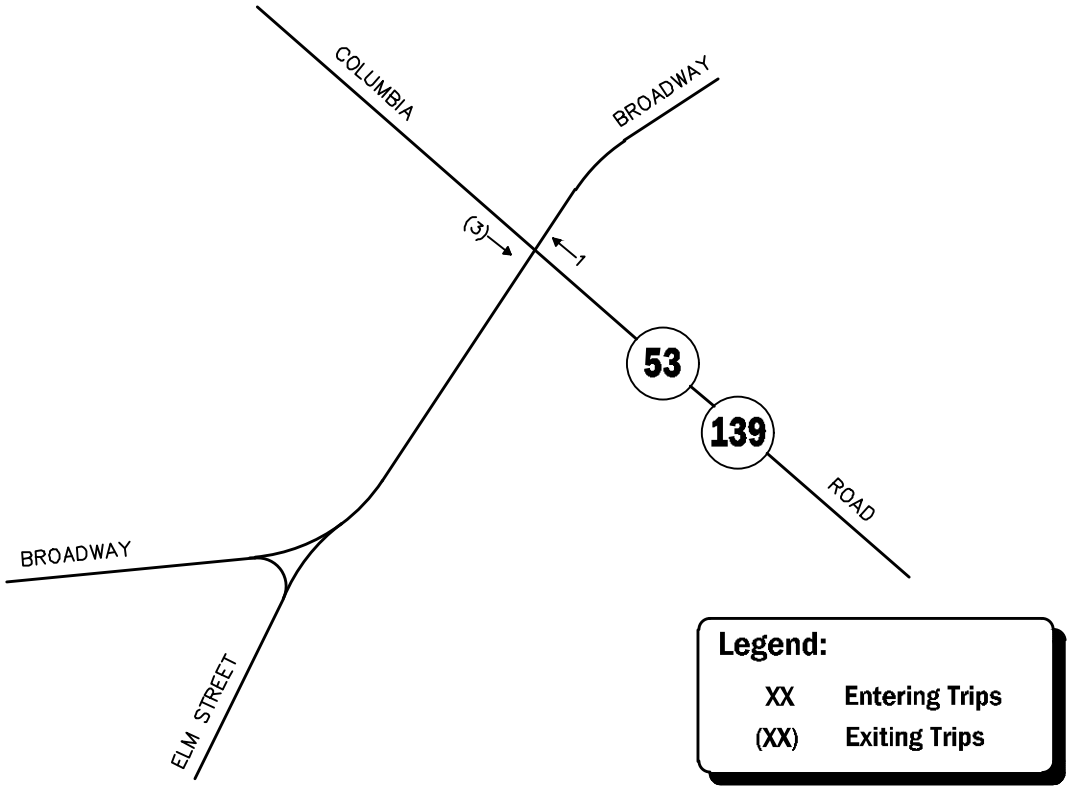
Proposed Oakland Estates
Peak-Hour Traffic Volumes

Vanasse & Associates inc

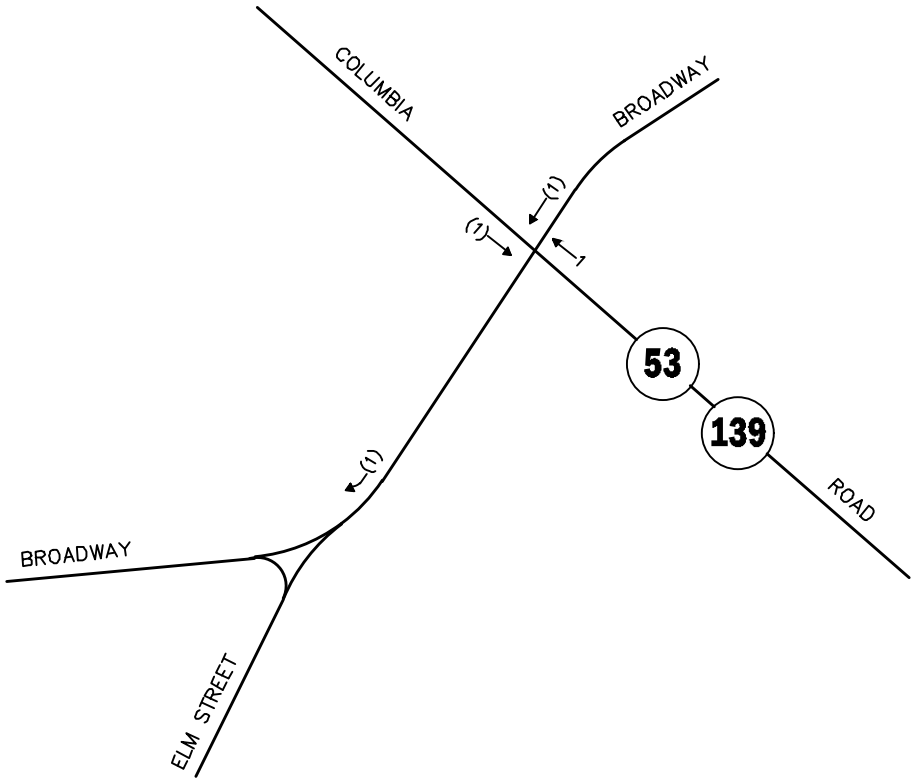
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WEEKDAY MORNING PEAK HOUR (7:00-8:00 AM)



WEEKDAY EVENING PEAK HOUR (4:00-5:00 PM)



Not To Scale

Figure A-4A

Proposed Nathan Estates
Peak-Hour Traffic Volumes

Vanasse & Associates inc

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APPENDIX E

Trip Generation

Coffee/Donut Shop with Drive-Through Window
(937)

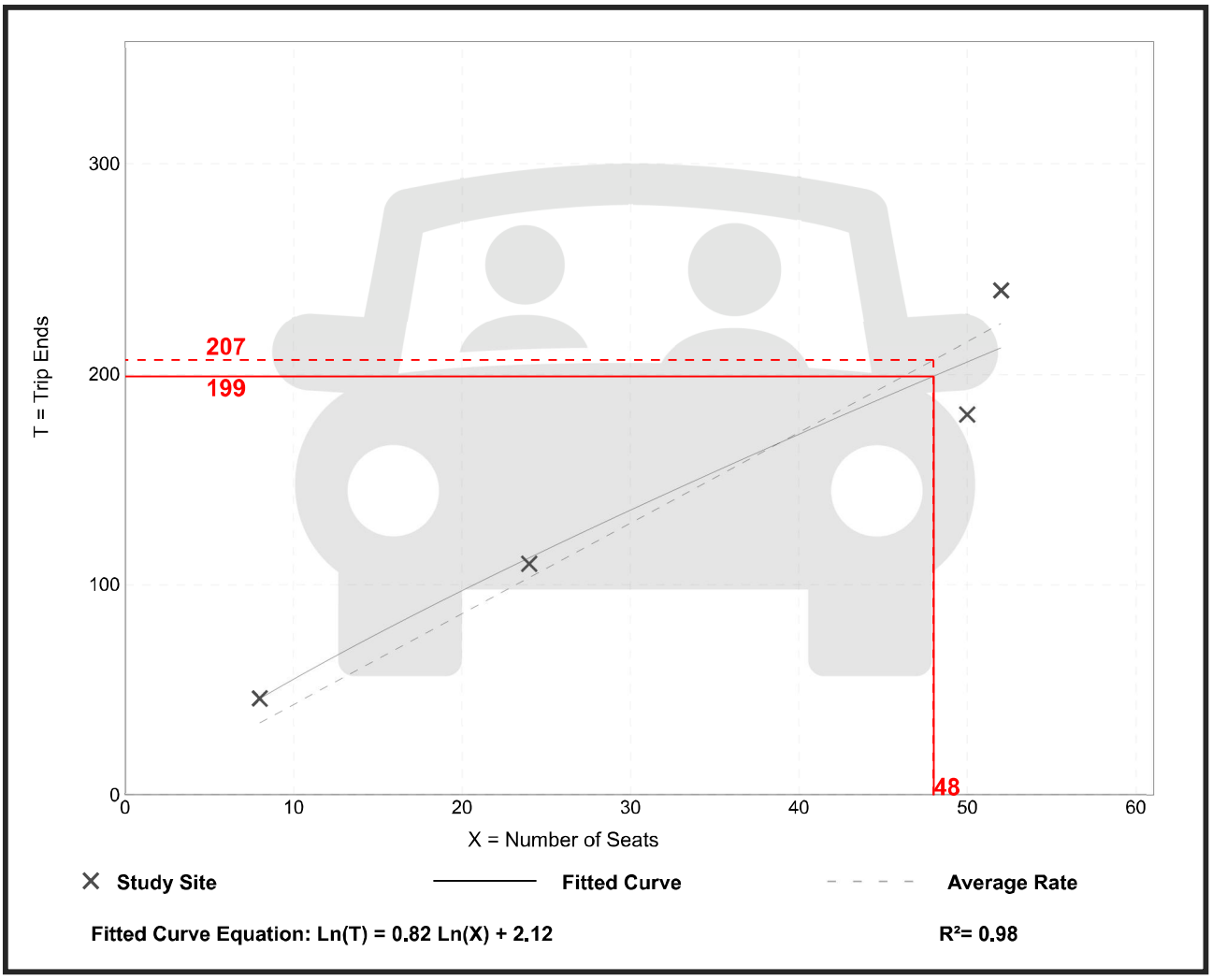
Vehicle Trip Ends vs: **Seats**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 4
Avg. Num. of Seats: 34
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
4.31	3.62 - 5.75	0.68

Data Plot and Equation

Caution – Small Sample Size



Trip Gen Manual, 11.1 Ed ● Institute of Transportation Engineers

Coffee/Donut Shop with Drive-Through Window
(937)

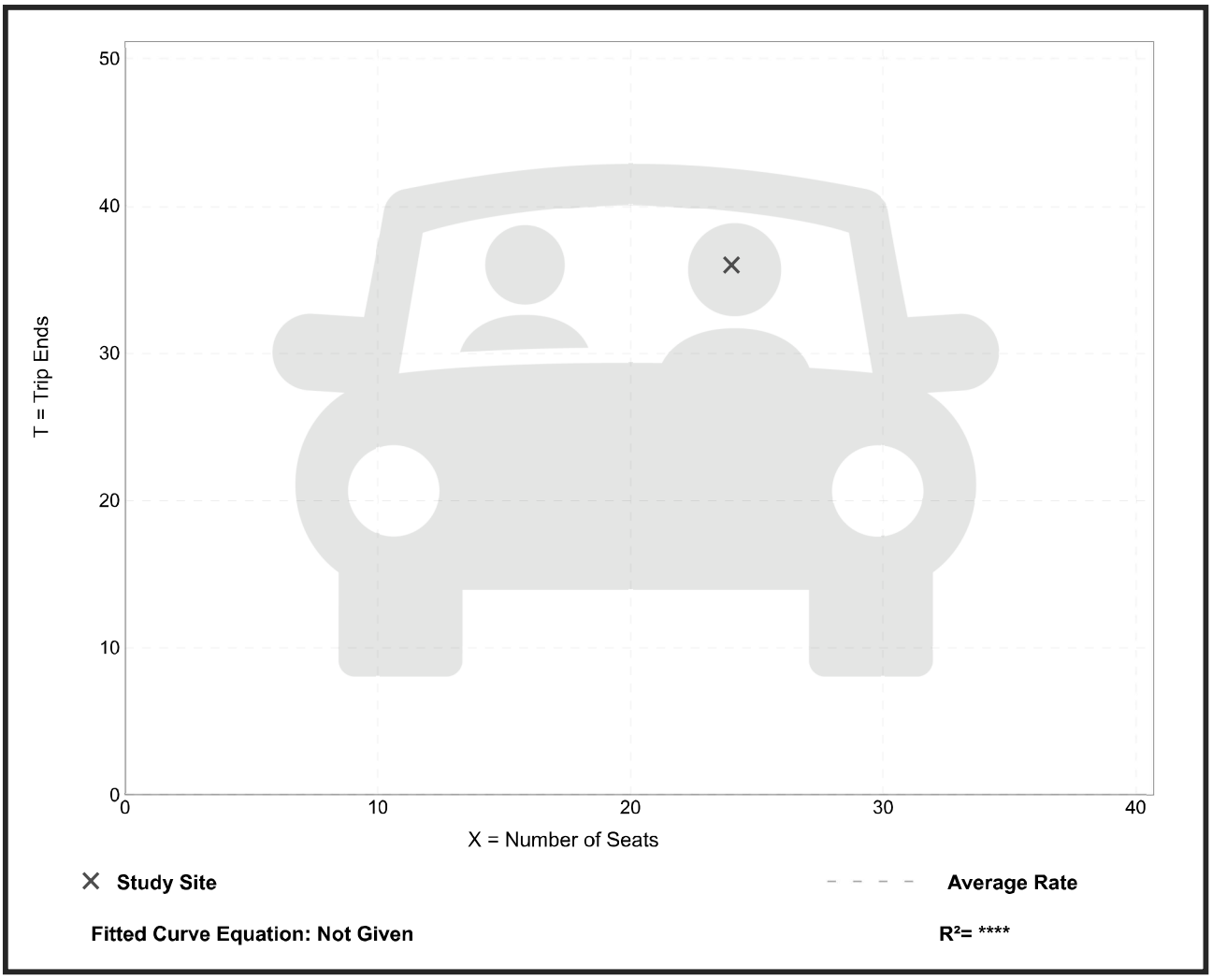
Vehicle Trip Ends vs:	**Seats**
On a:	**Weekday,** **Peak Hour of Adjacent Street Traffic,** **One Hour Between 4 and 6 p.m.**
Setting/Location:	**General Urban/Suburban**
Number of Studies:	1
Avg. Num. of Seats:	24
Directional Distribution:	45% entering, 55% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
1.50	1.50 - 1.50	*

Data Plot and Equation

Caution – Small Sample Size



Trip Gen Manual, 11.1 Ed ● Institute of Transportation Engineers

Vehicle Pass-By Rates by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	934
Land Use	Fast-Food Restaurant with Drive-Through Window
Setting	General Urban/Suburban
Time Period	Weekday AM Peak Period
# Data Sites	5
Average Pass-By Rate	50%

Pass-By Characteristics for Individual Sites

GFA (000)	State or Province	Survey Year	# Interviews	Pass-By Trip (%)	Non-Pass-By Trips			Adj Street Peak Hour Volume	Source
					Primary (%)	Diverted (%)	Total (%)		
1.4	Kentucky	1993	—	62	22	16	38	1407	2
3	Kentucky	1993	—	43	14	43	57	2903	2
3.3	--	1996	—	68	—	—	32	—	21
3.6	Kentucky	1993	—	32	47	21	68	437	2
4.2	Indiana	1993	—	46	23	31	54	1049	2

Vehicle Pass-By Rates by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	934
Land Use	Fast-Food Restaurant with Drive-Through Window
Setting	General Urban/Suburban
Time Period	Weekday PM Peak Period
# Data Sites	11
Average Pass-By Rate	55%

Pass-By Characteristics for Individual Sites

GFA (000)	State or Province	Survey Year	# Interviews	Pass-By Trip (%)	Non-Pass-By Trips			Adj Street Peak Hour Volume	Source
					Primary (%)	Diverted (%)	Total (%)		
1.3	Kentucky	1993	—	68	22	10	32	2055	2
1.9	Kentucky	1993	33	67	24	9	33	2447	2
2.8	Florida	1995	47	66	—	—	34	—	30
2.9	Florida	1996	271	41	41	18	59	—	30
3	Kentucky	1993	—	31	31	38	69	4250	2
3.1	Florida	1995	28	71	—	—	29	—	30
3.1	Florida	1996	29	38	—	—	62	—	30
3.2	Florida	1996	202	40	39	21	60	—	30
3.3	—	1996	—	62	—	—	38	—	21
4.2	Indiana	1993	—	56	25	19	44	1632	2
4.3	Florida	1994	304	62	—	—	38	—	30

APPENDIX F

Volume Development

Existing/2029 No-Build/2029 Build

	Intersection (North/South and East/West)	Direction	Movement SYNCHRO	AutoCAD Index	Existing 2022 AM	Existing 2022 PM	Existing Adjusted (Seasonal Adjustment Factor) 2022 AM	Existing Adjusted (Seasonal Adjustment Factor) 2022 PM	Background Pembroke AM	Background Pembroke PM	Background Previte AM	Background Previte PM	Background Oakland Estates AM	Background Oakland Estates PM	Background Nathan Estates AM	Background Nathan Estates PM
1	Columbia Road	SB	SBL	SBL	11	12	11	12								
	and	(Columbia Road)	SBT	SBT	506	877	506	877				6	3	1	3	1
	Broadway		SBR	SBR	68	276	68	276	7	14						
		WB	WBL	WBL	70	101	73	105								
		(Broadway)	WBT	WBT	55	182	57	189	1	2			1	1		1
			WBR	WBR	16	17	17	18								
		NB	NBL	NBL	103	229	103	229		1	1	1				
		(Columbia Road)	NBT	NBT	713	719	713	719			1	5	1	2	1	1
			NBR	NBR	39	35	39	35						1		
		EB	EBL	EBL	263	164	274	171	14	10						
		(Broadway)	EBT	EBT	165	65	172	68	2	1				1		
			EBR	EBR	236	205	245	213	1	1		1				
2	Previte Driveway/Salon Driveway	SB	SBL	SBL	10	59	10	59								
	and	revite Driveway/Salon Drivewa	SBT	SBT	0	1	0	1								
	Broadway		SBR	SBR	12	53	12	53								
		WB	WBL	WBL	0	2	0	2								
		(Broadway)	WBT	WBT	220	645	229	671	8	17	1	1	1	1		1
			WBR	WBR	15	47	16	49								
		NB	NBL	NBL	0	3	0	3								
		(Previte Driveway/Salon Drivewa	NBT	NBT	0	0	0	0								
			NBR	NBR	1	8	1	8								
		EB	EBL	EBL	17	20	18	21								
		(Broadway)	EBT	EBT	663	373	690	388	17	12		1		1		
			EBR	EBR	0	2	0	2								
3	South Driveway	SB	SBL	SBL												
	and	(South Driveway)	SBT	SBT												
	Broadway		SBR	SBR												
		WB	WBL	WBL												
		(Broadway)	WBT	WBT	226	687	228	694	8	17	1	1	1	1		1
			WBR	WBR												
		NB	NBL	NBL												
		(South Driveway)	NBT	NBT												
			NBR	NBR												
		EB	EBL	EBL												
		(Broadway)	EBT	EBT	674	440	701	455	17	12		1		1		
			EBR	EBR												
4	North Driveway	SB	SBL	SBL												
	and	(North Driveway)	SBT	SBT												
	Broadway		SBR	SBR												
		WB	WBL	WBL												
		(Broadway)	WBT	WBT	226	687	228	694	8	17	1	1	1	1		1
			WBR	WBR												
		NB	NBL	NBL												
		(North Driveway)	NBT	NBT												
			NBR	NBR												
		EB	EBL	EBL												
		(Broadway)	EBT	EBT	674	440	701	455	17	12		1		1		
			EBR	EBR												
5	Columbia Road	SB	SBL	SBL												
	and	(Columbia Road)	SBT	SBT	812	1183	824	1195	1	1		7	3	1	3	1
	Site Driveway		SBR	SBR												
		WB	WBL	WBL												
		(Site Driveway)	WBT	WBT												
			WBR	WBR												
		NB	NBL	NBL												
		(Columbia Road)	NBT	NBT	855	983	855	983								
			NBR	NBR												
		EB	EBL	EBL												
		(Site Driveway)	EBT	EBT												
			EBR	EBR												

Existing/2029 No-Build/2029 Build

	Intersection (North/South and East/West)	Direction	Movement SYNCHRO	AutoCAD Index	No Build 2029 AM	No Build 2029 PM	Trip Distribution %IN	Trip Distribution %OUT	Trip Assignments AM	Trip Assignments PM	Pass-By Distribution %IN	Pass-By Distribution %OUT	Pass-By Trips AM	Pass-By Trips PM	Total Trips AM	Total Trips PM	Build Out 2029 AM	Build Out 2029 PM
1	Columbia Road	SB	SBL	SBL	12	13			0	0			0	0	0	0	12	13
	and	(Columbia Road)	SBT	SBT	549	948			0	0	-30		-15	-5	-15	-5	533	943
	Broadway		SBR	SBR	80	310	30		15	4	30		15	5	31	10	111	320
		WB	WBL	WBL	78	113			0	0			0	0	0	0	78	113
		(Broadway)	WBT	WBT	63	207	10		5	1			0	0	5	1	68	208
			WBR	WBR	18	19			0	0			0	0	0	0	18	19
		NB	NBL	NBL	111	248	35		18	5	35		18	6	36	11	147	259
		(Columbia Road)	NBT	NBT	767	779			0	0	-35		-18	-6	-18	-6	749	773
			NBR	NBR	42	39			0	0			0	0	0	0	42	39
		EB	EBL	EBL	307	193		30	14	5		35	17	8	31	13	338	206
		(Broadway)	EBT	EBT	186	74		10	5	2			0	0	5	2	191	76
			EBR	EBR	264	231			0	0		30	14	7	14	7	279	237
2	Previte Driveway/Salon Driveway	SB	SBL	SBL	11	63			0	0			0	0	0	0	11	63
	and	revite Driveway/Salon Drivewa	SBT	SBT	0	1			0	0			0	0	0	0	0	1
	Broadway		SBR	SBR	13	57			0	0			0	0	0	0	13	57
		WB	WBL	WBL	0	2			0	0			0	0	0	0	0	2
		(Broadway)	WBT	WBT	255	739		**25**	12	5			0	0	12	5	267	744
			WBR	WBR	17	52			0	0			0	0	0	0	17	52
		NB	NBL	NBL	0	3			0	0			0	0	0	0	0	3
		(Previte Driveway/Salon Drivewa	NBT	NBT	0	0			0	0			0	0	0	0	0	0
			NBR	NBR	1	9			0	0			0	0	0	0	1	9
		EB	EBL	EBL	19	22			0	0			0	0	0	0	19	22
		(Broadway)	EBT	EBT	756	430	25		13	4			0	0	13	4	769	434
			EBR	EBR	0	2			0	0			0	0	0	0	0	2
3	South Driveway	SB	SBL	SBL	0	0			0	0			0	0	0	0	0	0
	and	(South Driveway)	SBT	SBT	0	0			0	0			0	0	0	0	0	0
	Broadway		SBR	SBR	0	0			0	0			0	0	0	0	0	0
		WB	WBL	WBL	0	0	50		26	7	30		15	5	41	12	41	12
		(Broadway)	WBT	WBT	255	764			0	0			0	0	0	0	255	764
			WBR	WBR	0	0			0	0			0	0	0	0	0	0
		NB	NBL	NBL	0	0		25	12	5			0	0	12	5	12	5
		(South Driveway)	NBT	NBT	0	0			0	0			0	0	0	0	0	0
			NBR	NBR	0	0		25	12	5		30	14	7	26	11	26	11
		EB	EBL	EBL	0	0			0	0			0	0	0	0	0	0
		(Broadway)	EBT	EBT	768	502			0	0	-35		-18	-6	-18	-6	750	496
			EBR	EBR	0	0	25		13	4	35		18	6	31	10	31	10
4	North Driveway	SB	SBL	SBL	0	0			0	0			0	0	0	0	0	0
	and	(North Driveway)	SBT	SBT	0	0			0	0			0	0	0	0	0	0
	Broadway		SBR	SBR	0	0			0	0			0	0	0	0	0	0
		WB	WBL	WBL	0	0	25		13	4	35		18	6	31	10	31	10
		(Broadway)	WBT	WBT	255	764	50		26	7	30		15	5	41	12	296	777
			WBR	WBR	0	0			0	0			0	0	0	0	0	0
		NB	NBL	NBL	0	0			0	0			0	0	0	0	0	0
		(North Driveway)	NBT	NBT	0	0			0	0			0	0	0	0	0	0
			NBR	NBR	0	0		15	7	3		35	17	8	24	10	24	10
		EB	EBL	EBL	0	0			0	0			0	0	0	0	0	0
		(Broadway)	EBT	EBT	768	502		25	12	5		30	14	7	26	11	794	513
			EBR	EBR	0	0			0	0			0	0	0	0	0	0
5	Columbia Road	SB	SBL	SBL	0	0			0	0			0	0	0	0	0	0
	and	(Columbia Road)	SBT	SBT	891	1,291			0	0			0	0	0	0	891	1,291
	Site Driveway		SBR	SBR	0	0			0	0			0	0	0	0	0	0
		WB	WBL	WBL	0	0			0	0			0	0	0	0	0	0
		(Site Driveway)	WBT	WBT	0	0			0	0			0	0	0	0	0	0
			WBR	WBR	0	0			0	0			0	0	0	0	0	0
		NB	NBL	NBL	0	0			0	0			0	0	0	0	0	0
		(Columbia Road)	NBT	NBT	917	1,054	**35**		18	5			0	0	18	5	935	1,059
			NBR	NBR	0	0			0	0			0	0	0	0	0	0
		EB	EBL	EBL	0	0			0	0			0	0	0	0	0	0
		(Site Driveway)	EBT	EBT	0	0			0	0			0	0	0	0	0	0
			EBR	EBR	0	0		35	17	6			0	0	17	6	17	6

Appendix G

Signal Plans

HANOVER
RTE. 53 AT BROADWAY

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0017	01	1	

TITLE SHEET

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT

TRAFFIC SIGNAL LAYOUT PLAN AND PERMIT
RTE. 53 AT BROADWAY

IN THE TOWN OF

HANOVER
PLYMOUTH COUNTY

Under authority of Chapter 89, Sec. 8 General Laws, Tercentenary Edition, the Massachusetts Highway Department hereby approves the following described traffic control signal installation, and auxiliary signs and surface markings, for the above location, provided that a permit for the opening of the road and the placing of structures thereon shall be received from the board or officer in charge of the road.

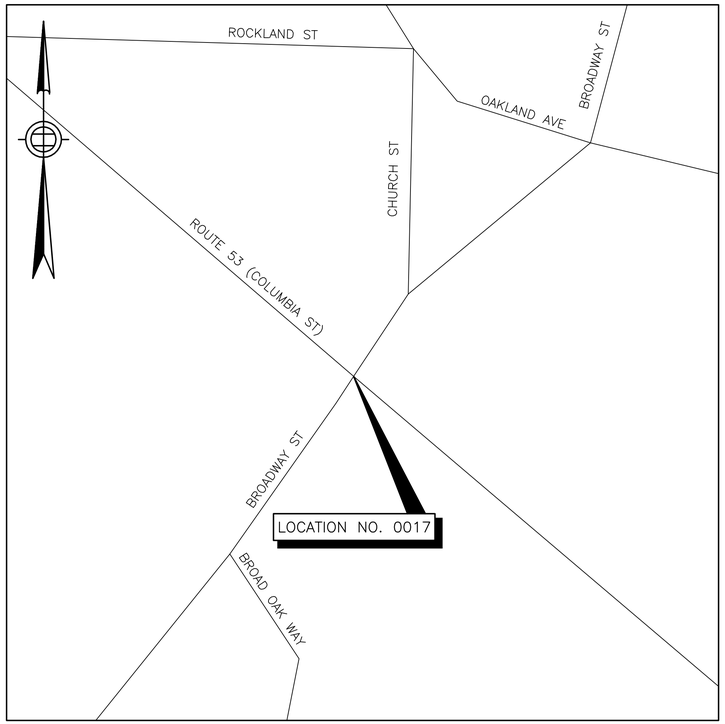
This permit is granted for the specific signal installation described herein and for its operation in accordance with the conditions set forth below and with the requirements of the Massachusetts Highway Department. The details for any material alterations or any continued* or substantial departure from the provisions of this permit must be submitted to the department for approval with data sufficient to justify such modification. Failure to comply with these requirements automatically voids this permit during such time as non-compliance exists.

I. STANDARDS OF INSTALLATION

The traffic control signal installation and all auxiliary signs and surface markings which are used in connection with such installation shall conform with the requirements of the Massachusetts Highway Department and with the sketch which is attached.

II. OPERATION OF SIGNALS

(a) Type of control: AUTOMATIC
(b) Coordination: NONE
(c) Special connection: OPTICOM
(d) Timing for automatic operation: SEE SHEET NO. 3
(e) Hours for Automatic Operation: CONTINUOUS
Signals may be operated automatically for a shorter period of time but not for a greater length of time than is here indicated except when unusual conditions arise which temporarily justify longer operation.
(f) Flashing Operation: Whenever a signal is not operating as a control device (stop and go), it must Flash Yellow or Flash Red as set forth in the signal sequence and at the rate of 50-60 flashes per minute unless otherwise specified in Part II(e) of this Permit.
(g) Manual Operation: Signals may be operated manually at any time irrespective of the hours designated in Part II(3) of this permit
(h) Discontinuance: Signals may be discontinued at any time. When this is done signal faces must be turned away from traffic, taken down or hooded, and the District Highway Engineer notified.



LOCUS MAP
(SCALE AS SHOWN)

HOR. SCALE IN FEET
0 200 400 800

REVISION NO. 01
DATE: 09-28-01
INSERT BY: J.C.CONNOR
DATE:
FILE NAME: 0017T01.DWG

COMMENTS:

MASSHIGHWAY
10 PARK PLAZA
BOSTON, MA 02116

MASSACHUSETTS
HIGHWAY DEPARTMENT

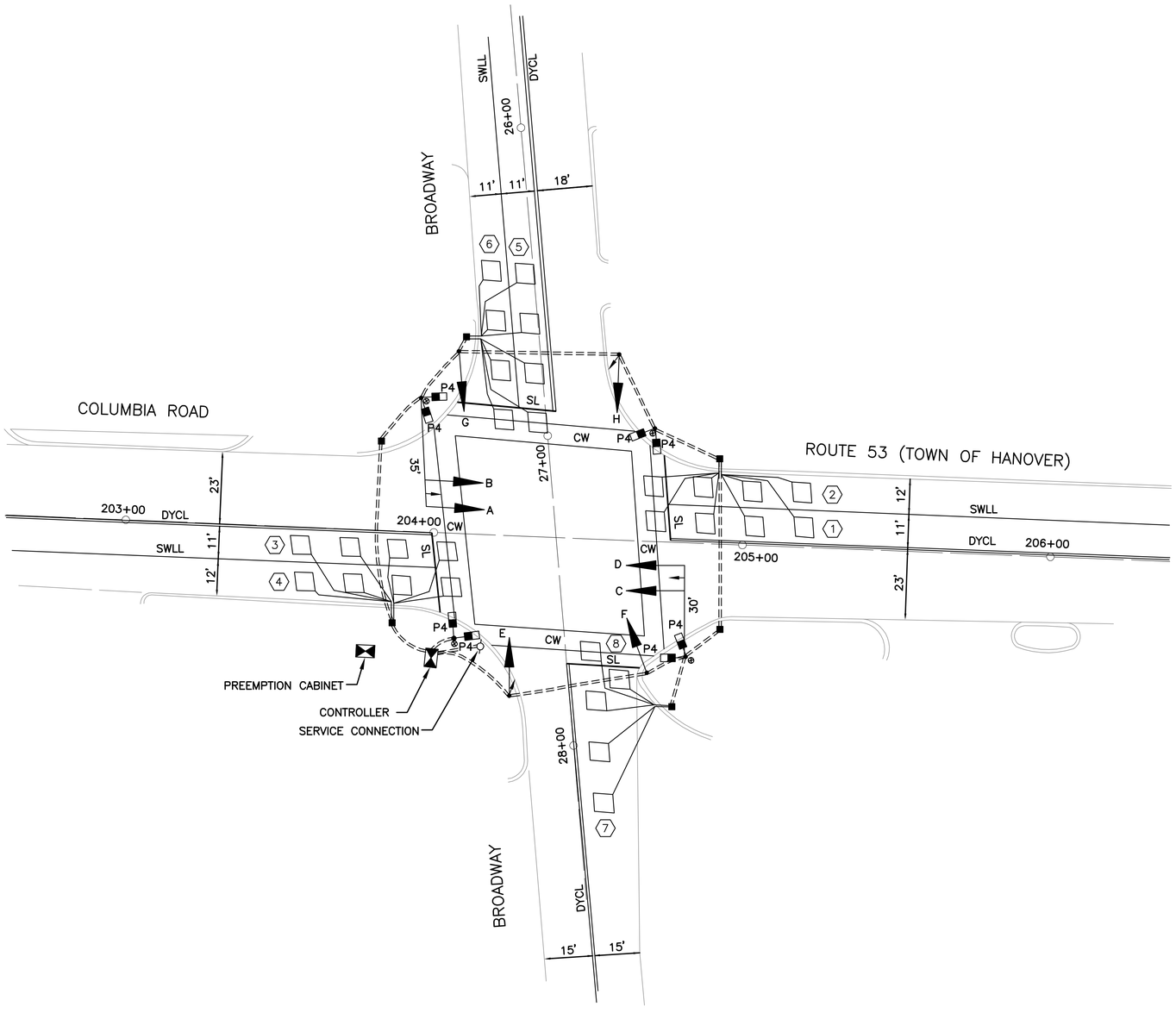
APPROVED BY:

STATE TRAFFIC ENGINEER Date

HANOVER
RTE. 53 AT BROADWAY

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0017	01	2	

TRAFFIC SIGNAL PLAN



0 20 50 100

1" = 20' HORIZONTAL

LEGEND

- SIGNAL CONTROLLER
- VEHICULAR SIGNAL
- OPTICALLY PROGRAMMED VEHICULAR SIGNAL
- FIRE PRE-EMPTION RECEIVER
- FIRE PRE-EMPTION STROBE LIGHT
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- PULL BOX

APPROVED BY:

STATE TRAFFIC ENGINEER **Date**

0017P101.DWG

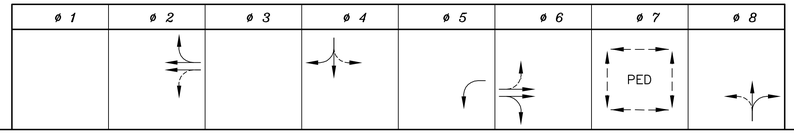
HANOVER
RTE. 53 AT BROADWAY

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0017	01	3	

TRAFFIC SIGNAL DATA

APPROX. NORTH





SEQUENCE AND TIMING FOR FULLY-ACTUATED CONTROL (ISOLATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OPER
COLUMBIA ROAD (ROUTE 53)	NB	A				G	Y	R				R	R	R	GL	YL	R	R	R	R	R	R		R	R	R	FY
COLUMBIA ROAD (ROUTE 53)	NB	B				G	Y	R				R	R	R	R	R	R	R	R	R	R	R		R	R	R	FY
COLUMBIA ROAD (ROUTE 53)	SB	C,D				R	R	R				R	R	R	R	R	R	G	Y	R	R	R		R	R	R	FY
BROADWAY	WB	F				R	R	R				G	Y	R	R	R	R	R	R	R	R	R		R	R	R	FR
BROADWAY	EB	G,H				R	R	R				R	R	R	R	R	R	R	R	R	R	R		G	Y	R	FR
PEDESTRIAN	ALL	ALL				DW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW		DW	DW	DW	OFF
TIMING IN SECONDS																											
MINIMUM GREEN (INITIAL)						10						6			6			10						6			EMERGENCY ONLY
PASSAGE TIME (VECHICLE)						2						2			2			2						2			
MAXIMUM 1						70						35			15			70						35			
MAXIMUM 2						70						35			15			70						35			
YELLOW CLEARANCE							3						3			3			3						3		
RED CLEARANCE								1						1			1			1							1	
WALK (W)																					7						
PEDESTRIAN CLEARANCE																						13					
RECALL						MIN						OFF			OFF			MIN			OFF			OFF			
MEMORY						LOCKING						LOCKING			NON-LOCKING			LOCKING			LOCKING			NON-LOCKING			

MAJOR ITEMS REQUIRED

QUANTITY	ITEM
1	CONTROLLER TYPE 4W, CAB. & FDN.
1	SERVICE CONNECTION (OVERHEAD)
2	8' SIGNAL POLE, BASE, & FDN.
4	10' SIGNAL POLE, BASE, & FDN.
1	30' MAST ARM ASSEMBLY, BASE, & FDN.
1	35' MAST ARM ASSEMBLY, BASE, & FDN.
7	1 WAY, 3 SECTION, SIGNAL HOUSING (12" LENS)
1	1 WAY, 5 SECTION, SIGNAL HOUSING (12" LENS)
8	PEDESTRIAN HOUSING
4	PEDESTRIAN PUSH BUTTON, SIGN, & SADDLES
5	LOOP DETECTOR AMPLIFIER (DUAL CHANNEL)
29	ROADWAY LOOP DETECTOR
6	12" x 12" PULL BOX
4	OPTICOM RECEIVERS
2	OPTICOM DUAL CHANNEL PHASE SELECTOR
1	OPTICOM CABINET, BASE & FDN
	Necessary duct, cable, labor, miscellaneous
	material and equipment to complete the installation.

NOTES:

SEQUENCE AND TIMING NOTES:

1. ø1 AND ø3 NOT USED.

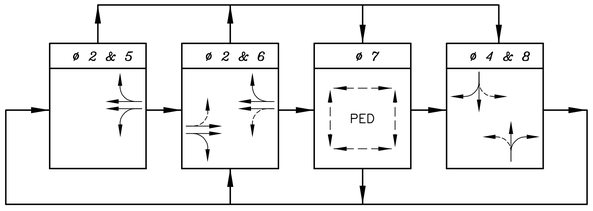
NEMA DUAL RING PHASING NOTES:

1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

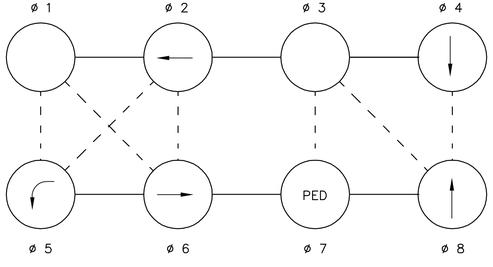
LOOP DETECTOR NOTES:

1. SEE LOOP DETECTOR DETAIL SHEET FROM DESIGN DOCUMENT FOR SPLICE PATTERN AND OTHER INFORMATION.
2. DELAY AND EXTENSION TIMES ARE IN SECONDS.
3. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED BY THE DETECTOR.

PREFERENTIAL PHASING SEQUENCE



NEMA DUAL RING PHASING NOTES:



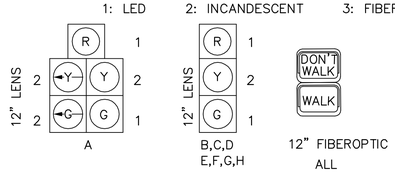
EMERGENCY PRE-EMPTION DATA

APPROACH	PHASE	TIME (SEC)
ROUTE 53 NB	ø2	MIN 10 MAX 60
ROUTE 53 SB	ø6	MIN 10 MAX 60
BROADWAY WB	ø4	MIN 10 MAX 60
BROADWAY EB	ø8	MIN 10 MAX 60

LOOP DETECTOR DATA

DETECTOR NUMBER	NUNBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	ø CALLED	ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	4	6'X6'	4	ø5	ø5	PRESENCE		
2	4	6'X6'	4	ø2	ø2	PRESENCE		
3	4	6'X6'	4	ø6	ø6	PRESENCE		
4	4	6'X6'	4	ø6	ø6	PRESENCE		
5	4	6'X6'	4	ø4	ø4	PRESENCE		
6	4	6'X6'	4	ø4	ø4	PRESENCE		
7	4	6'X6'	4	ø8	ø8	PRESENCE		
8	1	6'X6'	4	ø8	ø8	PRESENCE		

SIGNAL IDENTIFICATION



CONTROLLER MAKE & MODEL: EPAC 300
UTILITY POLE No. E.E.CO. BB #25
METER No. 145-009 (56-571-603)
EMERGENCY PRE-EMPTION (TYPE): OPTICOM

APPROVED BY:

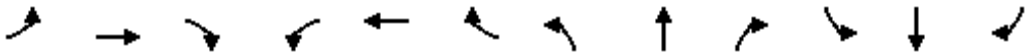
STATE TRAFFIC ENGINEER **Date**

0017D01.DWG

Appendix H

Capacity Analysis

2022 Existing AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	274	172	245	73	57	17	103	713	39	11	506	68
Future Volume (vph)	274	172	245	73	57	17	103	713	39	11	506	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	13	12	11	10	12	11	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.952			0.984			0.993			0.983	
Flt Protected		0.981			0.976			0.994			0.999	
Satd. Flow (prot)	0	1937	0	0	1862	0	0	3207	0	0	3270	0
Flt Permitted		0.813			0.580			0.724			0.934	
Satd. Flow (perm)	0	1605	0	0	1106	0	0	2336	0	0	3058	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			4			5			13	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		275			292			342			251	
Travel Time (s)		7.5			8.0			6.7			4.9	
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	8%	1%	2%	0%	14%	2%	8%	0%	5%	4%
Adj. Flow (vph)	315	198	282	81	63	19	108	751	41	12	550	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	795	0	0	163	0	0	900	0	0	636	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		10.5	14.0		14.0	14.0	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	85.0		70.0	70.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		10.7%	60.7%		50.0%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		3.0			3.0			3.0			3.0	
Total Lost Time (s)		7.0			7.0			7.0			7.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		29.8			29.8			37.2			37.2	
Actuated g/C Ratio		0.35			0.35			0.44			0.44	
v/c Ratio		1.38			0.42			0.87			0.47	
Control Delay		206.9			31.3			31.1			16.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		206.9			31.3			31.1			16.9	
LOS		F			C			C			B	
Approach Delay		206.9			31.3			31.1			16.9	
Approach LOS		F			C			C			B	
Queue Length 50th (ft)		~489			54			191			103	
Queue Length 95th (ft)		#1282			#220			383			206	
Internal Link Dist (ft)		195			212			262			171	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	14%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		577			392			2132			2456	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.38			0.42			0.42			0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 84.5			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 83.5		Intersection LOS: F	
Intersection Capacity Utilization 103.6%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Columbia Road & Broadway



Lane Group	Ø9
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	0.7

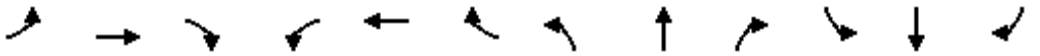
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰		↱
Traffic Vol, veh/h	18	690	0	0	229	16	0	0	1	10	0	12
Future Vol, veh/h	18	690	0	0	229	16	0	0	1	10	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	83	83	83	25	25	25	69	69	69
Heavy Vehicles, %	0	4	0	0	9	0	0	0	0	0	0	8
Mvmt Flow	20	784	0	0	276	19	0	0	4	14	0	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	295	0	0	784	0	0	1118	1119	784	1112	-	286
Stage 1	-	-	-	-	-	-	824	824	-	286	-	-
Stage 2	-	-	-	-	-	-	294	295	-	826	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.372
Pot Cap-1 Maneuver	1278	-	-	843	-	-	186	209	396	188	0	739
Stage 1	-	-	-	-	-	-	370	390	-	726	0	-
Stage 2	-	-	-	-	-	-	719	673	-	369	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1278	-	-	843	-	-	178	203	396	182	-	739
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	203	-	182	-	-
Stage 1	-	-	-	-	-	-	360	379	-	706	-	-
Stage 2	-	-	-	-	-	-	702	673	-	355	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	14.2	17.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	396	1278	-	-	843	-	-	182	739
HCM Lane V/C Ratio	0.01	0.016	-	-	-	-	-	0.08	0.024
HCM Control Delay (s)	14.2	7.9	0	-	0	-	-	26.5	10
HCM Lane LOS	B	A	A	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3	0.1

2022 Existing PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	68	213	105	189	18	229	719	35	12	877	276
Future Volume (vph)	171	68	213	105	189	18	229	719	35	12	877	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	13	12	11	10	12	11	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.936			0.992			0.995			0.964	
Flt Protected		0.981			0.983			0.988			0.999	
Satd. Flow (prot)	0	1957	0	0	1908	0	0	3273	0	0	3336	0
Flt Permitted		0.628			0.648			0.513			0.938	
Satd. Flow (perm)	0	1252	0	0	1258	0	0	1699	0	0	3132	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			2			4			40	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		275			292			342			251	
Travel Time (s)		7.5			8.0			6.7			4.9	
Peak Hour Factor	0.90	0.90	0.90	0.88	0.88	0.88	0.92	0.92	0.92	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	1%	0%	0%	2%	1%	0%	0%	1%	0%
Adj. Flow (vph)	190	76	237	119	215	20	249	782	38	13	923	291
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	503	0	0	354	0	0	1069	0	0	1227	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		10.5	14.0		14.0	14.0	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	85.0		70.0	70.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		10.7%	60.7%		50.0%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		31.1			31.1			81.2			81.2	
Actuated g/C Ratio		0.25			0.25			0.66			0.66	
v/c Ratio		1.50			1.12			1.28dl			0.59	
Control Delay		272.0			128.3			40.0			14.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		272.0			128.3			40.0			14.0	
LOS		F			F			D			B	
Approach Delay		272.0			128.3			40.0			14.0	
Approach LOS		F			F			D			B	
Queue Length 50th (ft)		~519			~307			346			234	
Queue Length 95th (ft)		#877			#589			#714			454	
Internal Link Dist (ft)		195			212			262			171	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	14%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		335			317			1116			2066	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.50			1.12			0.96			0.59	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 123.9			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.50			
Intersection Signal Delay: 76.8		Intersection LOS: E	
Intersection Capacity Utilization 106.9%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1: Columbia Road & Broadway



Lane Group	Ø9
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰		↱
Traffic Vol, veh/h	21	388	2	2	671	49	3	0	8	59	1	53
Future Vol, veh/h	21	388	2	2	671	49	3	0	8	59	1	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	69	69	69	76	76	76
Heavy Vehicles, %	0	2	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	22	413	2	2	714	52	4	0	12	78	1	70

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	766	0	0	415	0	0	1238	1228	414	1208	1203	740
Stage 1	-	-	-	-	-	-	458	458	-	744	744	-
Stage 2	-	-	-	-	-	-	780	770	-	464	459	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
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	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	856	-	-	1155	-	-	154	180	643	161	186	420
Stage 1	-	-	-	-	-	-	587	570	-	410	424	-
Stage 2	-	-	-	-	-	-	391	413	-	582	570	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	856	-	-	1155	-	-	124	174	643	154	179	420
Mov Cap-2 Maneuver	-	-	-	-	-	-	124	174	-	154	179	-
Stage 1	-	-	-	-	-	-	568	551	-	396	423	-
Stage 2	-	-	-	-	-	-	324	412	-	553	551	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	17.7	33.6
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	300	856	-	-	1155	-	-	154	420
HCM Lane V/C Ratio	0.053	0.026	-	-	0.002	-	-	0.504	0.166
HCM Control Delay (s)	17.7	9.3	0	-	8.1	0	-	50	15.3
HCM Lane LOS	C	A	A	-	A	A	-	F	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	2.4	0.6

2029 No-Build AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	186	264	78	63	18	111	767	42	12	549	80
Future Volume (vph)	307	186	264	78	63	18	111	767	42	12	549	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	13	12	11	10	12	11	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.953			0.984			0.993			0.981	
Flt Protected		0.980			0.976			0.994			0.999	
Satd. Flow (prot)	0	1938	0	0	1862	0	0	3206	0	0	3264	0
Flt Permitted		0.799			0.587			0.700			0.930	
Satd. Flow (perm)	0	1580	0	0	1120	0	0	2258	0	0	3038	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			4			6			15	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		275			292			342			251	
Travel Time (s)		7.5			8.0			6.7			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	8%	1%	2%	0%	14%	2%	8%	0%	5%	4%
Adj. Flow (vph)	334	202	287	85	68	20	121	834	46	13	597	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	823	0	0	173	0	0	1001	0	0	697	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		10.5	14.0		14.0	14.0	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	85.0		70.0	70.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		10.7%	60.7%		50.0%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		3.0			3.0			3.0			3.0	
Total Lost Time (s)		7.0			7.0			7.0			7.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		29.6			29.6			46.1			46.1	
Actuated g/C Ratio		0.32			0.32			0.49			0.49	
v/c Ratio		1.60			0.48			0.89			0.46	
Control Delay		306.7			37.2			32.0			15.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		306.7			37.2			32.0			15.7	
LOS		F			D			C			B	
Approach Delay		306.7			37.2			32.0			15.7	
Approach LOS		F			D			C			B	
Queue Length 50th (ft)		~623			70			235			115	
Queue Length 95th (ft)		#1499			#265			467			227	
Internal Link Dist (ft)		195			212			262			171	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	14%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		513			358			1949			2240	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.60			0.48			0.51			0.31	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 93.2			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.60			
Intersection Signal Delay: 112.0		Intersection LOS: F	
Intersection Capacity Utilization 110.9%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Columbia Road & Broadway



Lane Group	Ø9
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰		↱
Traffic Vol, veh/h	19	756	0	0	255	17	0	0	1	11	0	13
Future Vol, veh/h	19	756	0	0	255	17	0	0	1	11	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	0	-	0
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	4	0	0	9	0	0	0	0	0	0	8
Mvmt Flow	21	822	0	0	277	18	0	0	1	12	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	295	0	0	822	0	0	1157	1159	822	1151	-	286
Stage 1	-	-	-	-	-	-	864	864	-	286	-	-
Stage 2	-	-	-	-	-	-	293	295	-	865	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.372
Pot Cap-1 Maneuver	1278	-	-	816	-	-	175	197	377	177	0	739
Stage 1	-	-	-	-	-	-	352	374	-	726	0	-
Stage 2	-	-	-	-	-	-	719	673	-	351	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1278	-	-	816	-	-	168	191	377	172	-	739
Mov Cap-2 Maneuver	-	-	-	-	-	-	168	191	-	172	-	-
Stage 1	-	-	-	-	-	-	341	363	-	704	-	-
Stage 2	-	-	-	-	-	-	705	673	-	339	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	14.6	18
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	377	1278	-	-	816	-	-	172	739
HCM Lane V/C Ratio	0.003	0.016	-	-	-	-	-	0.07	0.019
HCM Control Delay (s)	14.6	7.9	0	-	0	-	-	27.5	10
HCM Lane LOS	B	A	A	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2	0.1

2029 No-Build PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	74	231	113	207	19	248	779	39	13	948	310
Future Volume (vph)	193	74	231	113	207	19	248	779	39	13	948	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	13	12	11	10	12	11	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.937			0.992			0.995			0.963	
Flt Protected		0.981			0.984			0.988			0.999	
Satd. Flow (prot)	0	1958	0	0	1910	0	0	3273	0	0	3332	0
Flt Permitted		0.613			0.656			0.495			0.936	
Satd. Flow (perm)	0	1224	0	0	1273	0	0	1640	0	0	3122	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			2			5			42	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		275			292			342			251	
Travel Time (s)		7.5			8.0			6.7			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	0%	1%	0%	0%	2%	1%	0%	0%	1%	0%
Adj. Flow (vph)	210	80	251	123	225	21	270	847	42	14	1030	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	541	0	0	369	0	0	1159	0	0	1381	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		10.5	14.0		14.0	14.0	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	85.0		70.0	70.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		10.7%	60.7%		50.0%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		31.1			31.1			81.3			81.3	
Actuated g/C Ratio		0.25			0.25			0.66			0.66	
v/c Ratio		1.65			1.15			1.76dl			0.67	
Control Delay		334.9			139.4			73.2			15.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		334.9			139.4			73.2			15.7	
LOS		F			F			E			B	
Approach Delay		334.9			139.4			73.2			15.7	
Approach LOS		F			F			E			B	
Queue Length 50th (ft)		~588			~328			~513			287	
Queue Length 95th (ft)		#962			#635			#823			557	
Internal Link Dist (ft)		195			212			262			171	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	14%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		328			321			1076			2062	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.65			1.15			1.08			0.67	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 124			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.65			
Intersection Signal Delay: 98.3		Intersection LOS: F	
Intersection Capacity Utilization 116.5%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			

Splits and Phases: 1: Columbia Road & Broadway



Lane Group	Ø9
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰		↱
Traffic Vol, veh/h	22	430	2	2	739	52	3	0	9	63	1	57
Future Vol, veh/h	22	430	2	2	739	52	3	0	9	63	1	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	0	-	0
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	90	92	92
Heavy Vehicles, %	0	2	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	24	467	2	2	803	57	3	0	10	70	1	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	860	0	0	469	0	0	1383	1380	468	1357	1353	832
Stage 1	-	-	-	-	-	-	516	516	-	836	836	-
Stage 2	-	-	-	-	-	-	867	864	-	521	517	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
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	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	790	-	-	1103	-	-	122	146	599	127	151	372
Stage 1	-	-	-	-	-	-	546	538	-	364	385	-
Stage 2	-	-	-	-	-	-	350	374	-	542	537	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	790	-	-	1103	-	-	98	139	599	121	144	372
Mov Cap-2 Maneuver	-	-	-	-	-	-	98	139	-	121	144	-
Stage 1	-	-	-	-	-	-	524	516	-	349	383	-
Stage 2	-	-	-	-	-	-	290	373	-	511	515	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	19.4	44.6
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	263	790	-	-	1103	-	-	121	372
HCM Lane V/C Ratio	0.05	0.03	-	-	0.002	-	-	0.579	0.167
HCM Control Delay (s)	19.4	9.7	0	-	8.3	0	-	69.3	16.6
HCM Lane LOS	C	A	A	-	A	A	-	F	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	2.8	0.6

2029 Build AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	191	279	78	68	18	147	749	42	12	533	111
Future Volume (vph)	338	191	279	78	68	18	147	749	42	12	533	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	13	12	11	10	12	11	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.953			0.985			0.993			0.975	
Flt Protected		0.980			0.977			0.992			0.999	
Satd. Flow (prot)	0	1939	0	0	1865	0	0	3187	0	0	3245	0
Flt Permitted		0.784			0.607			0.668			0.930	
Satd. Flow (perm)	0	1551	0	0	1159	0	0	2146	0	0	3021	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			4			5			22	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		103			292			168			251	
Travel Time (s)		2.8			8.0			3.3			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	8%	1%	2%	0%	14%	2%	8%	0%	5%	4%
Adj. Flow (vph)	367	208	303	85	74	20	160	814	46	13	579	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	878	0	0	179	0	0	1020	0	0	713	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	14.0		10.0	10.0		10.0	14.0		14.0	14.0	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	85.0		70.0	70.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		10.7%	60.7%		50.0%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		3.0			3.0			3.0			3.0	
Total Lost Time (s)		7.0			7.0			7.0			7.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		29.2			29.2			52.7			52.7	
Actuated g/C Ratio		0.29			0.29			0.53			0.53	
v/c Ratio		1.88			0.52			0.89			0.44	
Control Delay		426.6			41.0			32.1			14.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		426.6			41.0			32.1			14.7	
LOS		F			D			C			B	
Approach Delay		426.6			41.0			32.1			14.7	
Approach LOS		F			D			C			B	
Queue Length 50th (ft)		~792			84			254			118	
Queue Length 95th (ft)		#1614			#271			512			232	
Internal Link Dist (ft)		23			212			88			171	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	14%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		468			344			1746			2071	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.88			0.52			0.58			0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 99.4			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.88			
Intersection Signal Delay: 152.4		Intersection LOS: F	
Intersection Capacity Utilization 114.9%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Columbia Road & Broadway



Lane Group	Ø9
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↕	
Traffic Vol, veh/h	19	769	0	0	267	17	0	0	1	11	0	13
Future Vol, veh/h	19	769	0	0	267	17	0	0	1	11	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	0	-	-
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	4	0	0	9	0	0	0	0	0	0	8
Mvmt Flow	21	836	0	0	290	18	0	0	1	12	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	308	0	0	836	0	0	1184	1186	836	1178	1177	299
Stage 1	-	-	-	-	-	-	878	878	-	299	299	-
Stage 2	-	-	-	-	-	-	306	308	-	879	878	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.28
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	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.372
Pot Cap-1 Maneuver	1264	-	-	807	-	-	168	190	370	169	193	727
Stage 1	-	-	-	-	-	-	345	368	-	714	670	-
Stage 2	-	-	-	-	-	-	708	664	-	345	368	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1264	-	-	807	-	-	161	184	370	164	187	727
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	184	-	164	187	-
Stage 1	-	-	-	-	-	-	334	357	-	692	670	-
Stage 2	-	-	-	-	-	-	694	664	-	333	357	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	14.8	18.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	370	1264	-	-	807	-	-	164	727
HCM Lane V/C Ratio	0.003	0.016	-	-	-	-	-	0.073	0.019
HCM Control Delay (s)	14.8	7.9	0	-	0	-	-	28.7	10.1
HCM Lane LOS	B	A	A	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.2	0.1

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	750	31	41	255	12	26
Future Vol, veh/h	750	31	41	255	12	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	815	34	45	277	13	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	849	0	1199	832
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	367	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	789	-	205	369
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	701	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	789	-	191	369
Mov Cap-2 Maneuver	-	-	-	-	191	-
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	654	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	19.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	285	-	-	789	-
HCM Lane V/C Ratio	0.145	-	-	0.056	-
HCM Control Delay (s)	19.8	-	-	9.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	794	0	31	296	0	24
Future Vol, veh/h	794	0	31	296	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	863	0	34	322	0	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	863	0	1253	863
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	390	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	779	-	190	354
Stage 1	-	-	-	-	413	-
Stage 2	-	-	-	-	684	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	779	-	180	354
Mov Cap-2 Maneuver	-	-	-	-	180	-
Stage 1	-	-	-	-	413	-
Stage 2	-	-	-	-	648	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	354	-	-	779	-
HCM Lane V/C Ratio	0.074	-	-	0.043	-
HCM Control Delay (s)	16	-	-	9.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.1

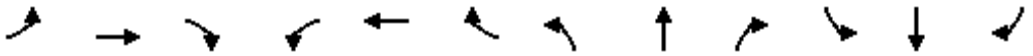
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	0	935	891	0
Future Vol, veh/h	0	17	0	935	891	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	0	1016	968	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	484	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	529	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	529	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	529	-
HCM Lane V/C Ratio	-	0.035	-
HCM Control Delay (s)	-	12.1	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.1	-

2029 Build PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	76	237	113	208	19	259	773	39	13	943	320
Future Volume (vph)	206	76	237	113	208	19	259	773	39	13	943	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	13	12	11	10	12	11	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.938			0.992			0.995			0.962	
Flt Protected		0.981			0.984			0.988			0.999	
Satd. Flow (prot)	0	1960	0	0	1910	0	0	3273	0	0	3329	0
Flt Permitted		0.607			0.664			0.493			0.936	
Satd. Flow (perm)	0	1213	0	0	1289	0	0	1633	0	0	3119	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			2			4			44	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		103			292			168			251	
Travel Time (s)		2.8			8.0			3.3			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	0%	1%	0%	0%	2%	1%	0%	0%	1%	0%
Adj. Flow (vph)	224	83	258	123	226	21	282	840	42	14	1025	348
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	565	0	0	370	0	0	1164	0	0	1387	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	14.0		14.0	14.0	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	85.0		70.0	70.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		10.7%	60.7%		50.0%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		31.1			31.1			81.3			81.3	
Actuated g/C Ratio		0.25			0.25			0.66			0.66	
v/c Ratio		1.74			1.14			1.87dl			0.67	
Control Delay		373.0			135.7			76.7			15.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		373.0			135.7			76.7			15.8	
LOS		F			F			E			B	
Approach Delay		373.0			135.7			76.7			15.8	
Approach LOS		F			F			E			B	
Queue Length 50th (ft)		~630			~327			~519			290	
Queue Length 95th (ft)		#1013			#634			#830			562	
Internal Link Dist (ft)		23			212			88			171	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	14%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		325			324			1072			2060	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.74			1.14			1.09			0.67	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 124			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.74			
Intersection Signal Delay: 106.7		Intersection LOS: F	
Intersection Capacity Utilization 119.0%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			

Splits and Phases: 1: Columbia Road & Broadway



Lane Group	Ø9
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↰	↱	
Traffic Vol, veh/h	22	434	2	2	744	52	3	0	9	63	1	57
Future Vol, veh/h	22	434	2	2	744	52	3	0	9	63	1	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	0	-	-
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	2	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	24	472	2	2	809	57	3	0	10	68	1	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	866	0	0	474	0	0	1394	1391	473	1368	1364	838
Stage 1	-	-	-	-	-	-	521	521	-	842	842	-
Stage 2	-	-	-	-	-	-	873	870	-	526	522	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
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	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	786	-	-	1099	-	-	120	143	595	125	149	369
Stage 1	-	-	-	-	-	-	542	535	-	362	383	-
Stage 2	-	-	-	-	-	-	348	372	-	539	534	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	786	-	-	1099	-	-	96	137	595	119	142	369
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	137	-	119	142	-
Stage 1	-	-	-	-	-	-	520	513	-	347	381	-
Stage 2	-	-	-	-	-	-	288	371	-	508	512	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	19.6	44.7
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	259	786	-	-	1099	-	-	119	359
HCM Lane V/C Ratio	0.05	0.03	-	-	0.002	-	-	0.575	0.176
HCM Control Delay (s)	19.6	9.7	0	-	8.3	0	-	70	17.2
HCM Lane LOS	C	A	A	-	A	A	-	F	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	2.8	0.6

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	496	10	12	764	5	11
Future Vol, veh/h	496	10	12	764	5	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	539	11	13	830	5	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	550	0	1401	545
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	856	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1020	-	154	538
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	416	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1020	-	150	538
Mov Cap-2 Maneuver	-	-	-	-	150	-
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	406	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	298	-	-	1020	-
HCM Lane V/C Ratio	0.058	-	-	0.013	-
HCM Control Delay (s)	17.8	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	513	0	10	777	0	10
Future Vol, veh/h	513	0	10	777	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	2	2	2	2	2	2
Mvmt Flow	558	0	11	845	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	558	0	1425	558
Stage 1	-	-	-	-	558	-
Stage 2	-	-	-	-	867	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1013	-	149	529
Stage 1	-	-	-	-	573	-
Stage 2	-	-	-	-	411	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1013	-	146	529
Mov Cap-2 Maneuver	-	-	-	-	146	-
Stage 1	-	-	-	-	573	-
Stage 2	-	-	-	-	403	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	529	-	-	1013	-
HCM Lane V/C Ratio	0.021	-	-	0.011	-
HCM Control Delay (s)	11.9	-	-	8.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	0	1059	1291	0
Future Vol, veh/h	0	6	0	1059	1291	0
Conflicting Peds, #/hr	0	0	0	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	0	7	0	1151	1403	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	702	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	381	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	381	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	381	-
HCM Lane V/C Ratio	-	0.017	-
HCM Control Delay (s)	-	14.6	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.1	-

Appendix I

Mobile Parking Spaces Data

Wareham Data Collection
Thursday, December 22, 2022

Kimley»Horn
Expect More. Experience Better.

Mobile Spaces Data Collection				
Time	Spot 1	Spot 2	Spot 3	Spot 4
7:00 AM	Empty	Empty	Second Car	Occupied
7:05 AM	Occupied	Occupied	Occupied	Occupied
7:10 AM	Same Car	Occupied	Empty	Second Car
7:15 AM	Same Car	Occupied	Occupied	Empty
7:20 AM	Same Car	Occupied	Occupied	Second Car
7:25 AM	Empty	Same Car	Empty	Second Car
7:30 AM	Empty	Empty	Empty	Second Car
7:35 AM	Empty	Empty	Empty	Occupied
7:40 AM	Occupied	Occupied	Second Car	Occupied
7:45 AM	Occupied	Empty	Occupied	Occupied
7:50 AM	Occupied	Empty	Occupied	Occupied
7:55 AM	Same Car	Empty	Occupied	Occupied
8:00 AM	Same Car	Empty	Occupied	Occupied
8:05 AM	Occupied	Occupied	Same Car	Occupied
8:10 AM	Empty	Empty	Empty	Occupied
8:15 AM	Occupied	Empty	Occupied	Second Car
8:20 AM	Occupied	Empty	Occupied	Occupied
8:25 AM	Occupied	Empty	Occupied	Occupied
8:30 AM	Empty	Empty	Empty	Empty
8:35 AM	Occupied	Occupied	Occupied	Occupied
8:40 AM	Same Car	Same Car	Same Car	Same Car
8:45 AM	Occupied	Occupied	Same Car	Occupied
8:50 AM	Empty	Occupied	Same Car	Occupied
8:55 AM	Empty	Empty	Empty	Empty
9:00 AM	Empty	Occupied	Occupied	Occupied
9:05 AM	Empty	Empty	Empty	Occupied
9:10 AM	Empty	Occupied	Occupied	Same Car
9:15 AM	Occupied	Second Car	Same Car	Second Car
9:20 AM	Occupied	Same Car	Same Car	Same Car
9:25 AM	Empty	Occupied	Empty	Empty
9:30 AM	Occupied	Empty	Occupied	Second Car
9:35 AM	Same Car	Empty	Empty	Same Car
9:40 AM	Same Car	Empty	Occupied	Same Car
9:45 AM	Empty	Occupied	Empty	Occupied
9:50 AM	Empty	Occupied	Occupied	Occupied
9:55 AM	Empty	Same Car	Empty	Empty
10:00 AM	Empty	Empty	Empty	Empty

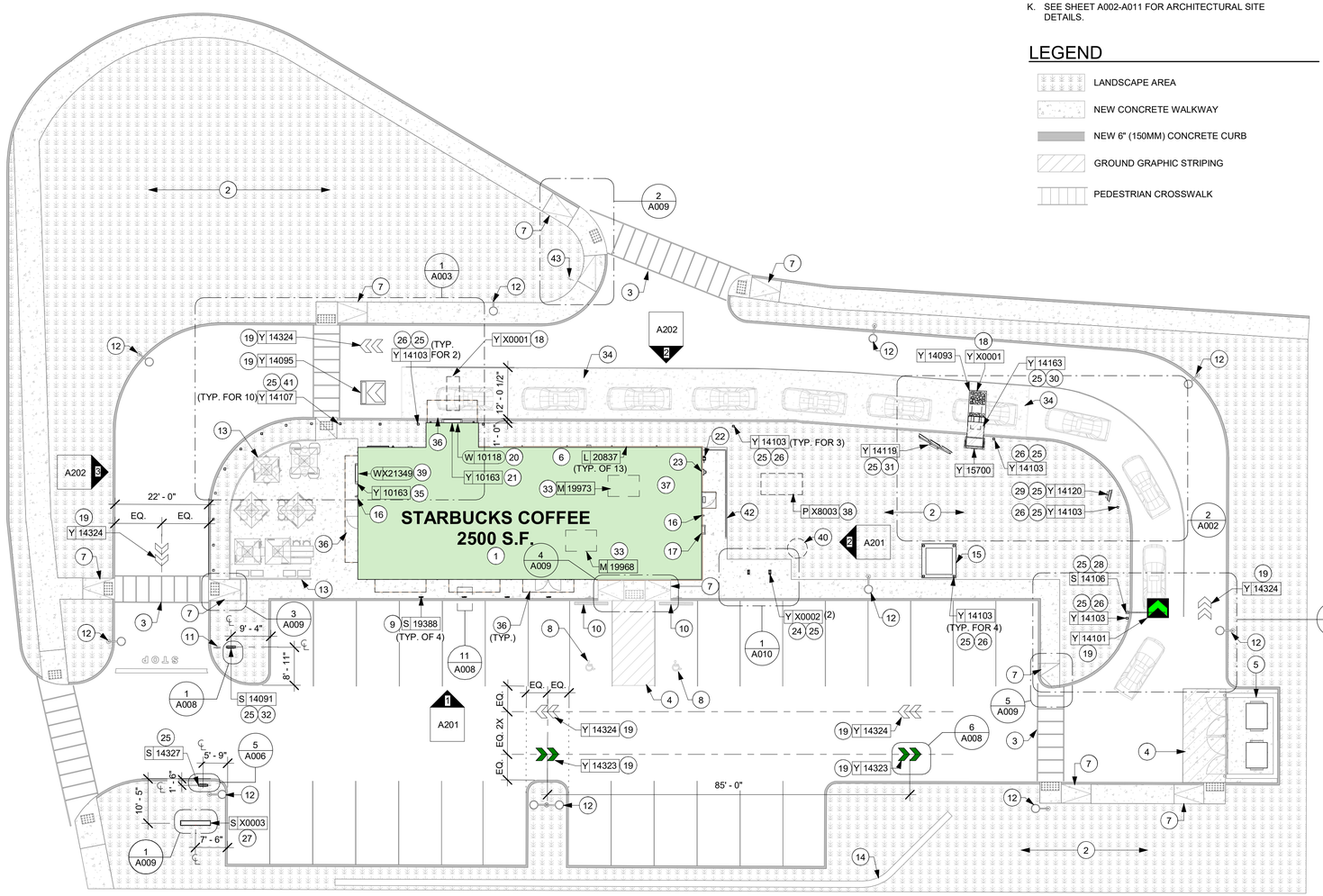
NOTE: ALL RESPONSIBILITIES TO BE CONFIRMED WITH STARBUCKS DESIGN MANAGER PRIOR TO ORDERING / CONSTRUCTION.

NOTE: SITE PLAN BACKGROUND LL CIVIL DRAWINGS DATED 03-26-21

NOTE: SHELL BACKGROUND LL DRAWINGS DATED 03-29-21

NOTE: SIGNAGE UNDER SEPARATE PERMIT. SHOWN FOR REFERENCE AND COORDINATION ONLY.

ALL DETAILS FOR LL PROVIDED ITEMS ON TENANT DRAWING ARE FOR REFERENCE ONLY.



1 ARCHITECTURAL SITE PLAN
Scale: 1/16" = 1'-0"

GENERAL NOTES

A. REFER TO EXTERIOR ELEVATIONS ON SHEET A201 FOR BUILDING SIGNAGE LOCATION AND DESIGN ID. REFER TO ELECTRICAL PLANS FOR ELECTRICAL REQUIREMENTS.

B. LANDSCAPING TO BE PROVIDED PER ZONING CODE AND SUSTAINABILITY REQUIREMENTS.

C. DRIVE-THRU EQUIPMENT INCLUDING VEHICLE DETECTION LOOP, WIRELESS COMMUNICATION AND MONITORS SHALL BE COORDINATED BY STARBUCKS CONSTRUCTION MANAGER. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

D. PROVIDE 6" (150MM) THICK CONCRETE PAVING THE LENGTH OF THE DRIVE-THRU LANE, EXTENT TO INCLUDE DRIVE-THRU ENTRY POINT THROUGH WINDOW STANDING PAD.

E. GENERAL CONTRACTOR TO APPLY CONCRETE SEALER TO ALL EXTERIOR CONCRETE PATIO AND WALKWAY SURFACES.

F. GENERAL CONTRACTOR TO VERIFY ALL EXISTING ELEVATIONS AND BUILDING CONDITIONS IN FIELD PRIOR TO START OF CONSTRUCTION.

G. PROVIDE DETECTABLE WARNING (IF APPLICABLE PER LOCAL CODE) AT TRANSITION FROM SIDEWALK TO DRIVE AISLE.

H. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL HAVE SURFACE SLOPE NOT TO EXCEED 2% IN ALL DIRECTIONS.

I. REFER TO ELECTRICAL DRAWINGS FOR SITE RELATED ELECTRICAL WORK.

J. SCRAPE AND REPAINT ALL EXISTING PAINTED SITE FEATURES, INCLUDING, BUT NOT LIMITED TO CURBS, BOLLARDS, RAILINGS AND SITE LIGHTING BASES.

K. SEE SHEET A002-A011 FOR ARCHITECTURAL SITE DETAILS.

LEGEND

- LANDSCAPE AREA
- NEW CONCRETE WALKWAY
- NEW 6" (150MM) CONCRETE CURB
- GROUND GRAPHIC STRIPING
- PEDESTRIAN CROSSWALK

KEYED NOTES

1. PROPOSED STARBUCKS SPACE AS INDICATED.
2. EXISTING AREA OF LANDSCAPE BY LANDLORD.
3. EXISTING PEDESTRIAN CROSSWALK BY LANDLORD.
4. EXISTING AREA OF GROUND STRIPING BY LANDLORD.
5. EXISTING TRASH ENCLOSURE BY LANDLORD, SEE LL SITE PLAN AND DETAILS FOR ADDITIONAL INFORMATION.
6. LANDLORD TO FURNISH AND INSTALL EXTERIOR SCONCES AS INDICATED.
7. EXISTING ACCESSIBLE PEDESTRIAN RAMP BY LANDLORD, PER STARBUCKS LANDLORD CRITERIA DECK REQUIREMENTS.
8. EXISTING HANDICAPPED PARKING GROUND GRAPHIC SIGN O.C. IN PARKING STALL BY LANDLORD.
9. DEDICATED TIME LIMITED PARKING SIGN BY SB. FOOTINGS AND POLE BY LL (4)
10. LANDLORD TO PROVIDE CURB STOPS AS INDICATED AT ADA PARKING STALLS WITH ADA PARKING SIGNS BEHIND.
11. EXISTING "STOP / DO NOT ENTER" SIGN & GROUND STOP LINE BY LANDLORD.
12. EXISTING LIGHT POST BY LANDLORD.
13. EXISTING PROTECTIVE BARRIER RAILING AT OUTDOOR PATIO PER PLAN. LANDLORD TO PROVIDE AND INSTALL PER STARBUCKS DESIGN REQUIREMENT, SEE ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
14. EXISTING RETAINING WALL BY LL.
15. EXISTING TRANSFORMER BY LANDLORD. WITH PROTECTIVE BOLLARDS AS REQUIRED.
16. EXISTING LOCKABLE HOSE BIB BY LANDLORD.
17. EXISTING EXTERIOR ROOF LADDER BY LL.
18. LANDLORD TO INSTALL VEHICLE DETECTOR LOOP BY STARBUCKS AT CENTERLINE OF ORDER POINT AND DT SERVICE WINDOW. REFER TO ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
19. LANDLORD TO FURNISH AND INSTALL WAYFINDING ENTRY/EXIT/DIRECTIONAL GROUND GRAPHICS AS INDICATED. REFER TO ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
20. LANDLORD TO FURNISH AND INSTALL STARBUCKS SPECIFIED DT SERVICE WINDOW WITH ALL CONNECTORS. SEE ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
21. LANDLORD TO FURNISH AND INSTALL STARBUCKS SPECIFIED EXTERIOR SHELF AT DT SERVICE WINDOW. SEE ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
22. LANDLORD TO COORDINATE FINAL LOCATION OF GAS METER WITH STARBUCKS PER TENANT REQUIREMENTS. TO BE INSTALLED WITH PROTECTIVE BOLLARDS AS INDICATED.
23. LANDLORD TO COORDINATE FINAL LOCATION OF ELECTRICAL METER WITH STARBUCKS PER TENANT REQUIREMENTS AS INDICATED.
24. LANDLORD TO FURNISH AND INSTALL BIKE RACKS (2)
25. ALL CONCRETE FOOTINGS BY LANDLORD (DT DIRECTIONAL SIGNS, CLEARANCE BAR, PRE-MENU BOARD, MENU BOARD, ORDER POINT CANOPY, BOLLARDS, BIKE RACK ETC). FOOTINGS TO BE POURED IN INTEGRAL BLACK PER DETAILS. ALTERNATE FINISH TO BE APPROVED BY STARBUCKS DESIGN/CONSTRUCTION TEAM.
26. LANDLORD TO PROVIDE FOOTING FOR NON-ILLUMINATED BOLLARD AS INDICATED. LANDLORD TO PROVIDE FOOTING PER LLWL REQUIREMENTS. SBUX TO PROVIDE AND INSTALL NON-ILLUMINATED BOLLARD. REFER TO ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
27. INSTALL DT ENTRY DIRECTIONAL STARBUCKS LOGO SIGN ON COMPLEX MONUMENT SIGN. LANDLORD TO COORDINATE AND PROVIDE ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
28. INSTALL FREESTANDING CLEARANCE BAR. LANDLORD TO PROVIDE FOOTING PER LLW REQUIREMENTS.
29. INSTALL PRE-MENU BOARD. LANDLORD TO COORDINATE AND PROVIDE ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
30. INSTALL DT DIGITAL ORDER SCREEN AND CANOPY. LANDLORD TO COORDINATE AND INSTALL ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
31. INSTALL DT MENU BOARD. LANDLORD TO COORDINATE AND PROVIDE ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
32. INSTALL FREESTANDING ILLUMINATED DT DIRECTIONAL EXIT/ THANK YOU SIGN. LANDLORD TO COORDINATE AND PROVIDE ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
33. EXISTING RTU LOCATIONS BY LL TO BE ADJUSTED AS SHOWN FOR INTERIOR TENANT HVAC LAYOUT REQUIREMENTS. LL TO CONFIRM STRUCTURAL INTEGRITY IS MET.
34. LANDLORD TO INSTALL CONCRETE PADS AT ORDER POINT AND DT SERVICE WINDOW PER LLWL REQUIREMENTS.
35. LANDLORD TO FURNISH AND INSTALL STARBUCKS SPECIFIED EXTERIOR SHELF AT PICK-UP WINDOW. SEE ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
36. EXISTING CANOPY BY LANDLORD. LANDLORD TO INCLUDE INTEGRATED EMERGENCY LIGHTING AT ENTRY DOORS PER FINAL TENANT PLANS.
37. LANDLORD TO FURNISH AND INSTALL EXTERIOR SECURITY LIGHT ABOVE REAR DOOR PER STARBUCKS SPECIFICATIONS.
38. EXISTING GREASE INTERCEPTOR BELOW GRADE BY LANDLORD. SIZING TO MATCH PLUMBING SCHEDULE OR TENANT DRAWINGS.
39. LANDLORD TO FURNISH AND INSTALL STARBUCKS SPECIFIED PICK-UP SERVICE WINDOW WITH ALL CONNECTORS. SEE ARCHITECTURAL SITE DETAILS FOR MORE INFOMRATION
40. EXISTING SEWER PUMP BY LL.
41. LANDLORD TO PROVIDE FOOTING FOR ILLUMINATED BOLLARD AS INDICATED. LANDLORD TO PROVIDE FOOTING PER LLWL REQUIREMENTS. SBUX TO FURNISH AND INSTALL ILLUMINATED BOLLARD. REFER TO ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
42. EXISTING WOOD SCREEN WALL BY LL TO SHIELD UTILITIES FROM PUBLIC VIEW.
43. RIGHT TURN ONLY SIGN BY LL.

N
0 8' 16' 32'
Scale: 1/16" = 1'-0"

BID / PERMIT SET - INTENDED FOR CONSTRUCTION

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2401 UTAH AVENUE SOUTH
SEATTLE, WASHINGTON 98134
(206) 318-1575

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STARBUCKS TEMPLATE VERSION: i2020-04-20

TWO ONE TWO
45 WEST 21st STREET, SUITE 403
NEW YORK, NY 10010
212.904.0432
IN ASSOCIATION WITH THE ARCHITECT:
R H SWEERS II, PROPRIETOR
RH SWEERS ARCHITECT
RHS@SWEERSARCH.COM

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PROJECT NAME:
EASTON, ROUTE 106

PROJECT ADDRESS:
33 ROBERT DR.
EASTON, MA 02375

STORE #:	65423
PROJECT #:	90140-001
ISSUE DATE:	05-13-21
DESIGN MANAGER:	LINDSEY HOLLAND
STORE DESIGNER:	ANNIE SONG

Revision Schedule

Rev	Date	By	Description

SHEET TITLE:
ARCHITECTURAL SITE PLAN
SCALE: AS SHOWN

SHEET NUMBER:
A001

5/14/2021 11:47:43 AM U:\Office Resources\Chris\90140-001_Easton_CENTRAL_04-12-21_chrisHGSVP.rvt

Easton Data Collection
Wednesday, December 21, 2022

Kimley»Horn
Expect More. Experience Better.

Mobile Spaces Data Collection				
Time	Spot 1	Spot 2	Spot 3	Spot 4
7:00 AM	Empty	Empty	Empty	Empty
7:05 AM	Empty	Second Car	Empty	Empty
7:10 AM	Empty	Empty	Empty	Occupied
7:15 AM	Occupied	Occupied	Empty	Occupied
7:20 AM	Second Car	Occupied	Empty	Same Car
7:25 AM	Second Car	Occupied	Empty	Occupied
7:30 AM	Occupied	Empty	Empty	Empty
7:35 AM	Occupied	Empty	Occupied	Empty
7:40 AM	Occupied	Empty	Empty	Empty
7:45 AM	Occupied	Occupied	Occupied	Occupied
7:50 AM	Occupied	Empty	Occupied	Empty
7:55 AM	Empty	Second Car	Empty	Empty
8:00 AM	Occupied	Empty	Occupied	Empty
8:05 AM	Occupied	Empty	Empty	Occupied
8:10 AM	Occupied	Empty	Empty	Same Car
8:15 AM	Same Car	Occupied	Empty	Occupied
8:20 AM	Same Car	Occupied	Empty	Empty
8:25 AM	Same Car	Occupied	Occupied	Empty
8:30 AM	Same Car	Occupied	Occupied	Empty
8:35 AM	Same Car	Empty	Empty	Occupied
8:40 AM	Same Car	Occupied	Empty	Empty
8:45 AM	Same Car	Occupied	Empty	Empty
8:50 AM	Same Car	Occupied	Empty	Empty
8:55 AM	Same Car	Occupied	Occupied	Empty
9:00 AM	Same Car	Empty	Occupied	Empty
9:05 AM	Same Car	Empty	Occupied	Empty
9:10 AM	Same Car	Empty	Occupied	Occupied
9:15 AM	Same Car	Occupied	Empty	Same Car
9:20 AM	Same Car	Occupied	Occupied	Same Car
9:25 AM	Same Car	Empty	Occupied	Empty
9:30 AM	Same Car	Empty	Occupied	Empty
9:35 AM	Same Car	Occupied	Same Car	Empty
9:40 AM	Same Car	Empty	Empty	Occupied
9:45 AM	Same Car	Empty	Empty	Empty
9:50 AM	Same Car	Empty	Empty	Empty
9:55 AM	Same Car	Empty	Empty	Empty
10:00 AM	Same Car	Empty	Empty	Empty

ALL RESPONSIBILITES TO BE CONFIRMED WITH STARBUCKS DESIGN MANAGER PRIOR TO ORDERING AND INSTALLATION.

SIGNAGE UNDER SEPARATE PERMIT. DRAWINGS SHOWN FOR REFERENCE AND COORDINATION ONLY.

EXISTING ITEMS BY LANDLORD SHOWN FOR REFERENCE ONLY.

LEGEND

- EXISTING LANDSCAPE AREA BY LANDLORD
- EXISTING CONCRETE WALKWAY BY LANDLORD
- EXISTING ROAD STRIPING BY LANDLORD
- EXISTING 6" (150MM) CONCRETE CURB

KEYED NOTES

1. INDICATES PROPERTY / LEASE LINE.
2. ALL CONCRETE FOOTINGS BY LL (DT DIRECTIONAL SIGN, MENU BOARD, CLEARANCE BAR, ORDER POINT CANOPY, ETC.) TO BE POURED IN INTEGRAL BLACK. ALTERNATE FINISH TO BE APPROVED BY STARBUCKS DESIGN / CONSTRUCTION TEAM.
3. INSTALL FREESTANDING ILLUMINATED DT DIRECTIONAL ENTRY SIGN. LL TO COORDINATE AND PROVIDE ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
4. INSTALL FREESTANDING ILLUMINATED DT DIRECTIONAL EXIT SIGN. LL TO COORDINATE AND PROVIDE ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
5. INSTALL DT PRE-MENU BOARD. LL TO COORDINATE AND PROVIDE ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
6. INSTALL DIGITAL ORDER SCREEN, CANOPY AND CONTROL BOX. LL TO COORDINATE AND INSTALL ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
7. INSTALL DT MENU BOARD. LL TO COORDINATE AND PROVIDE ELECTRICAL AND FOOTING PER LLWL REQUIREMENTS.
8. INSTALL FREESTANDING CLEARANCE BAR. LL TO PROVIDE FOOTING PER LLWL REQUIREMENTS.
9. LANDLORD TO FURNISH AND INSTALL NON-ILLUMINATED BOLLARDS. SEE ARCHITECTURAL SITE DETAILS FOR MOREINFORMATION.
10. INSTALL LIMITED TIME PARKING SIGN. LL TO COORDINATE AND PROVIDE FOOTING PER LLWL REQUIREMENTS.
11. LANDLORD TO FURNISH AND INSTALL WAYFINDING ENTRY / EXIT / DIRECTIONAL GROUND GRAPHICS AS INDICATED. SEE ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
12. LANDLORD TO FURNISH AND INSTALL ORDER POINT STAR PATTERN GROUND GRAPHICS AS INDICATED. SEE ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
13. LANDLORD TO INSTALL VEHICLE DETECTOR LOOP BY STARBUCKS AT CENTERLINE OF DT ORDER POINT AND SERVICE WINDOW. SEE ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
14. LANDLORD TO FURNISH AND INSTALL CONCRETE PADS AT DT ORDER POINT AND SERVICE WINDOW PER LLWL REQUIREMENTS.
15. LANDLORD TO FURNISH AND INSTALL STARBUCKS SPECIFIED DT SERVICE WINDOW WITH ALL CONNECTORS AND EXTERIOR SHELF. SEE BUILDING EXTERIOR ELEVATIONS FOR MORE INFORMATION.
16. LANDLORD TO FURNISH AND INSTALL STARBUCKS SPECIFIED WALK UP WINDOW WITH ALL CONNECTORS AND EXTERIOR SHELF. SEE BUILDING EXTERIOR ELEVATIONS FOR MORE INFORMATION
17. LANDLORD TO FURNISH AND INSTALL STARBUCKS SPECIFIED AIR CURTAIN WITH HEATER AT DT SERVICE / PICK UP WINDOW. SEE BUILDING EXTERIOR ELEVATIONS FOR MORE INFORMATION.
18. LANDLORD TO FURNISH AND INSTALL BIKE RACK PER LLWL REQUIREMENTS. SEE ARCHITECTURAL SITE DETAILS FOR MORE INFORMATION.
19. LANDLORD TO FURNISH AND INSTALL EXTERIOR AND SITE LIGHTING, INCLUDING PATIO LIGHTS, TO PROVIDE EVEN ILLUMINATION PER LLWL REQUIRMENTS. SEE BUILDING EXTERIOR ELEVATIONS FOR MORE INFORMATION.
20. LANDLORD TO PROVIDE HOSE BIB AT PATIO AND WORKROOM SERVICE DOOR. SEE BUILDING EXTERIOR ELEVATIONS FOR MORE INFORMATION.
21. LANDLORD TO FURNISH AND INSTALL PATIO RAILING PER LLWL REQUIREMENTS.
22. EXTENT OF STARBUCKS PATIO IS 350 SQ. FT. PER LL CIVIL DRAWINGS.
23. EXISTING TRANSFORMER PAD WITH PROTECTIVE BOLLARDS BY LL. SEE LL CIVIL DRAWINGS FOR FINAL LOCATION.
24. EXISTING GAS SERVICE AND METER BANK BY LL. PROVIDE PROTECTIVE BOLLARDS ON BOTH SIDES AS REQUIRED.
25. EXISTING ELECTRICAL SERVICE AND METER BY LL. PROVIDE PROTECTIVE BOLLARDS ON BOTH SIDES OF AS REQUIRED.
26. EXISTING GREASE TRAP WITH SAMPLING WELL BY LL. INSTALL PER MANUFACTURER'S RECOMMENDATION. SEE LL CIVIL DRAWINGS FOR FINAL LOCATION AND SPECIFICATION.
27. EXISTING LAMP POST BY LL.
28. EXISTING SITE DRAINAGE BY LL.
29. EXISTING ADA PARKING WITH "HANDICAP PARKING ONLY" SIGN OR EQUIVALENT BY LL.
30. EXISTING ADA RAMP BY LL.
31. EXISTING PEDESTRIAN SIDE WALK BY LL.
32. EXISTING PEDESTRIAN CROSSWALK BY LL.
33. EXISTING ROOF ACCESS LADDER BY LL.
34. EXISTING DUMPSTER PAD WITH TRASH ENCLOSURE BY LL TO COMPLY WITH LLWL REQUIREMENTS UNLESS OTHERWISE APPRVED BY STARBUCKS DESIGN / CONSTRUCTION TEAM. LL TO PROVIDE HOSE BIB ACCESSIBLE TO TRASH ENCLOSURE.
35. INSTALL STARBUCKS SIGN PANEL ON EXISTING MONUMENT SIGN BY LL. SEE LL CIVIL DRAWINGS FOR FINAL LOCATION.

GENERAL NOTES

A. REFER TO EXTERIOR ELEVATIONS ON SHEET A201 FOR BUILDING SIGNAGE LOCATION AND DESIGN ID. REFER TO ELECTRICAL PLANS FOR ELECTRICAL REQUIREMENTS.

B. LANDSCAPING TO BE PROVIDED PER ZONING CODE AND SUSTAINABILITY REQUIREMENTS.

C. DRIVE-THRU EQUIPMENT INCLUDING VEHICLE DETECTION LOOP, WIRELESS COMMUNICATION AND MONITORS SHALL BE COORDINATED BY STARBUCKS CONSTRUCTION MANAGER. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

D. PROVIDE 6" (150MM) THICK CONCRETE PAVING THE LENGTH OF THE DRIVE-THRU LANE, EXTENT TO INCLUDE DRIVE-THRU ENTRY POINT THROUGH WINDOW STANDING PAD.

E. GENERAL CONTRACTOR TO APPLY CONCRETE SEALER TO ALL EXTERIOR CONCRETE PATIO AND WALKWAY SURFACES.

F. GENERAL CONTRACTOR TO VERIFY ALL EXISTING ELEVATIONS AND BUILDING CONDITIONS IN FIELD PRIOR TO START OF CONSTRUCTION.

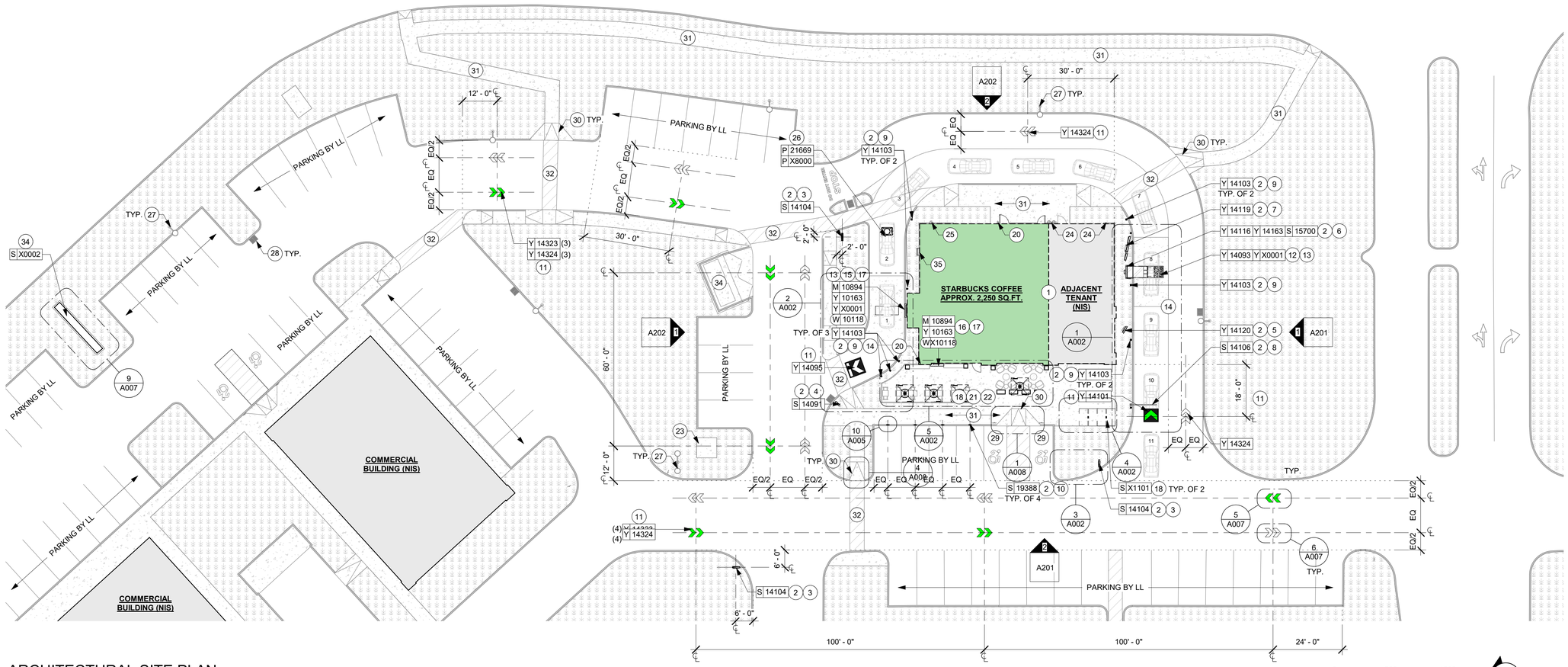
G. PROVIDE DETECTABLE WARNING (IF APPLICABLE PER LOCAL CODE) AT TRANSITION FROM SIDEWALK TO DRIVE AISLE.

H. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL HAVE SURFACE SLOPE NOT TO EXCEED 2% IN ALL DIRECTIONS.

I. REFER TO ELECTRICAL DRAWINGS FOR SITE RELATED ELECTRICAL WORK.

J. SCRAPE AND REPAINT ALL EXISTING PAINTED SITE FEATURES, INCLUDING, BUT NOT LIMITED TO CURBS, BOLLARDS, RAILINGS AND SITE LIGHTING BASES.

K. SEE SHEET A002 FOR ARCHITECTURAL SITE DETAILS.



1 ARCHITECTURAL SITE PLAN
Scale: 1" = 20'-0"

BID PERMIT SET - INTENDED FOR CONSTRUCTION USE

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SEATTLE, WASHINGTON 98134
(206) 318-1575

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REGISTERED ARCHITECT
RICHARD H. SWEERS II
No.06840
OVERLAND PARK KS
COMMONWEALTH OF MASSACHUSETTS

STARBUCKS TEMPLATE VERSION i2019.10.25

PROJECT MANAGER / DESIGNER:
TWO ONE TWO
45 WEST 21st STREET, SUITE 403
NEW YORK, NY 10010
212.904.0432

IN ASSOCIATION WITH THE ARCHITECT:
R H SWEERS II, PROPRIETOR
RH SWEERS ARCHITECT
RHS@SWEERSARCH.COM

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PROJECT NAME:
WAREHAM, MA

PROJECT ADDRESS:
1 SETH F. TOBEY ROAD,
WAREHAM, MA 02571

STORE #:	61568
PROJECT #:	86719-001
ISSUE DATE:	08-18-20
DESIGN MANAGER:	LINDSEY HOLLAND
PRODUCTION DESIGNER:	212 DESIGN
CHECKED BY:	SAM KRAVITZ

Revision Schedule

Rev	Date	By	Description

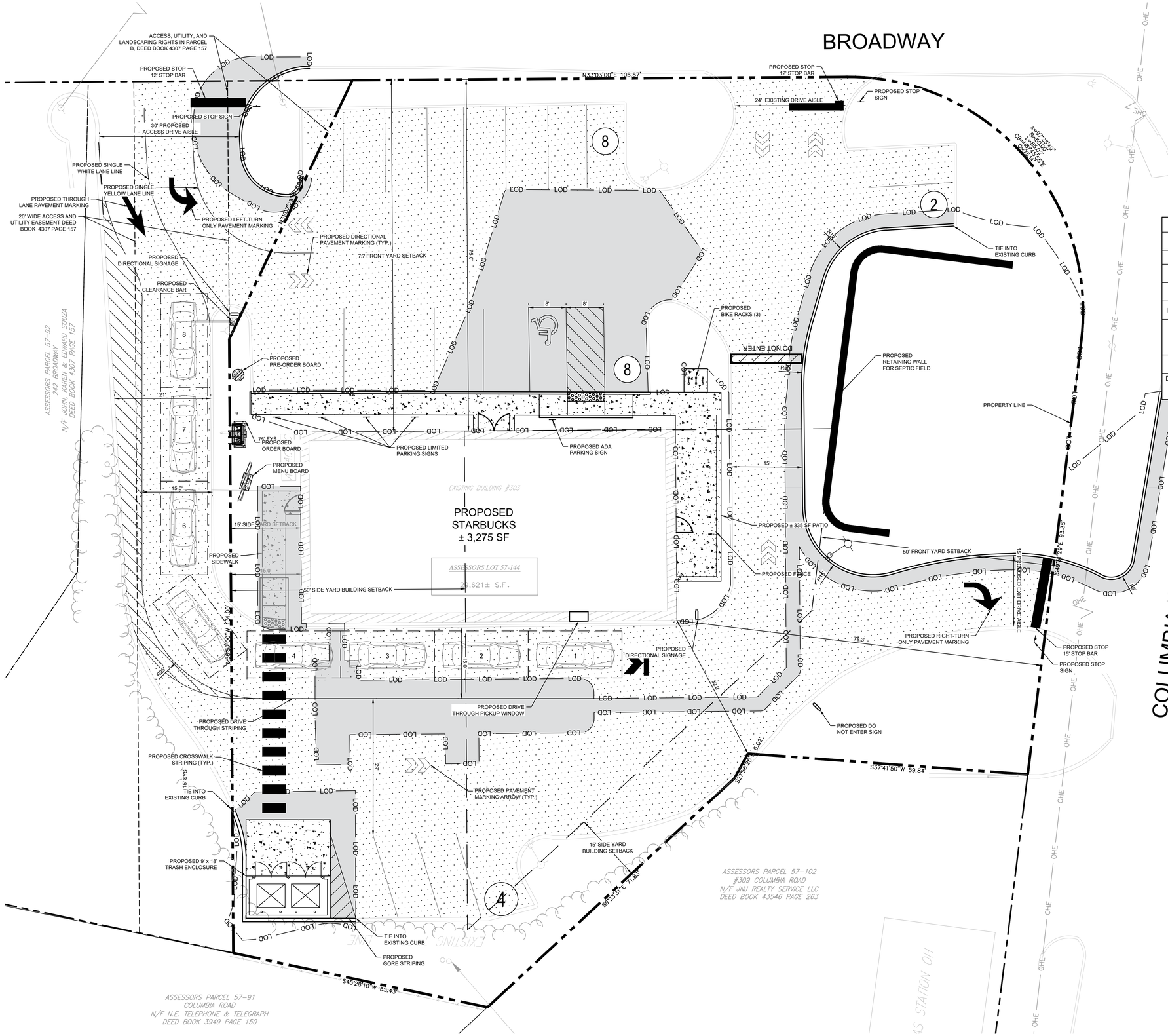
SHEET TITLE:
ARCHITECTURAL SITE PLAN
SCALE: AS SHOWN

SHEET NUMBER:
A001

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Appendix J

Site Plan



LEGEND

- PROPERTY LINE
- BUILDING SETBACK
- FULL DEPTH ASPHALT
- MILL AND OVERLAY
- PROPOSED CONCRETE

ZONING DATA TABLE

	ZONING DATA TABLE			
ZONING	COMMERCIAL DISTRICT, AQUIFER PROTECTION ZONE			
	REQUIRED	EXISTING	PROPOSED	COMPLIANCE
BUILDING COVERAGE	12% MAX	11%	11%	C
LOT SIZE	44,000 SF	29,621 SF	29,621 SF	ENC
LOT COVERAGE	50% MAXIMUM	73%	69%	ENC-I
SETBACKS	FRONT (N): 78.3' FRONT (W): 75.0' SIDE (E): 32.2' SIDE (S): 15.0'	FRONT (N): 78.3' FRONT (W): 75.0' SIDE (E): 32.2' SIDE (S): 15.0'	FRONT (N): 78.3' FRONT (W): 75.0' SIDE (E): 32.2' SIDE (S): 15.0'	FRONT (N): C FRONT (W): C SIDE (E): C SIDE (S): ENC
PARKING SPACES	22 SPACES	28 SPACES	22 SPACES	C
DRIVE-THROUGH STACKING SPACES	5 SPACES MINIMUM		8 SPACES	C

NOTES:
C = COMPLY
ENC - EXISTING NON-COMPLIANCE
ENC-I - EXISTING NON-COMPLIANCE (IMPROVEMENT)

PARKING TABULATION

RESTAURANT, FAST FOOD/TAKEOUT: MINIMUM OF 5 SPACES PLUS ADDITIONAL SPACES BASED ON CUSTOMER VOLUME AND SPACES FOR EMPLOYEES

CUSTOMER VOLUME: ESTIMATED 52 NET NEW VEHICLE TRIPS DURING THE BUSIEST PEAK HOUR PER INSTITUTE OF TRANSPORTATION ENGINEERS' (ITE) TRIP GENERATION MANUAL, 11TH EDITION. IT WAS ASSUMED THAT THE NET NEW VEHICLE TRIPS WOULD DWELL NO LONGER THAN 10 MINUTES DURING THE BUSIEST PEAK HOUR. THEREFORE 9 SPACES ARE REQUIRED BASED UPON THE PROJECTED CUSTOMER VOLUME.

MAXIMUM EMPLOYEES: 8

REQUIRED SPACES: 5 + 9 + 8 = 22

PROVIDED SPACES: 22

SITE NOTES

1. SITE DOES NOT LIE WITHIN IN WETLANDS AREA OR BUFFER ZONE, RIVERS, STREAMS, LAKES, PONDS, AND AREA SUBJECT TO FLOODING.
2. SITE DOES NOT CONTAIN ANY CULTURAL FEATURES.

GRAPHIC SCALE IN FEET
0 5 10 20

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2023 KIMLEY-HORN AND ASSOCIATES, INC.
404 WYMAN STREET, SUITE 385, WALTHAM, MA 02451
PHONE: 781-328-0676
WWW.KIMLEY-HORN.COM

KHA PROJECT	112213194
DATE	2/15/2023
SCALE	AS SHOWN
DESIGNED BY	XMR
DRAWN BY	XMR
CHECKED BY	CAH

SITE PLAN

STARBUCKS COFFEE COMPANY
303 COLUMBIA ROAD
HANOVER MASSACHUSETTS

SHEET NUMBER
C-4.0

Plotted By:Ritter, Xavier Sheet Set:Kha Layout:24x36 February 15, 2023 05:26:19pm K:\BOS_TPTO\112213194_Hanover Starbucks 303 Columbia Rd\CAD\PlanSheets - Civil\SITE PLAN.dwg
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