TRAFFIC IMPACT AND ACCESS STUDY

RETAIL MOTOR FUEL OUTLET
EXETER, NEW HAMPSHIRE

GPI

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SUBMITTED TO:

Nouria Energy Corp
326 Clark Street
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April 2021

(GPI Project No.: NEX-2020283.00)

Nouria Energy Corp
Retail Motor Fuel Outlet
Traffic Impact and Access Study
April 20, 2021

TECHNICAL MEMORANDUM

REF: NEX-2020283.00

DATE: April 20, 2021

TO: Nouria Energy Corp
c/o Tom Healey
326 Clark Street
Worcester, Massachusetts 01606

FROM: Ms. Heather L. Monticup, P.E., Director of Land Development - Traffic
Ms. Susannah E. Theriault, P.E., Project Engineer

RE: Traffic Impact and Access Study
Retail Motor Fuel Outlet
158 Epping Road – Exeter, New Hampshire

INTRODUCTION

Greenman-Pedersen, Inc. (GPI) has prepared this *Traffic Impact and Access Study* (TIAS) for a proposed retail motor fuel outlet located 158 Epping Road (NH Route 27) in Exeter, New Hampshire. The site is currently occupied by a ±12,190 square foot (SF) vacant Jaguar auto dealership. The project consists of razing the existing buildings on the site and constructing a retail motor fuel outlet with a ±5,500 SF convenience store, a gasoline station with six (6) Multi-Product Dispensers (MPDs) having twelve (12) vehicle-fueling positions (VFPS), and a ±4,182 SF automated car wash having one (1) tunnel. Access and egress are proposed via two (2) full access/egress driveways; one on Epping Road (NH Route 27) and one on Continental Drive.

The site is bounded by Continental Drive to the north, Al's Service Center to the south, Epping Road (NH Route 27) to the east, and vacant land to the west. The site location in relation to the surrounding roadways is shown on the map on Figure 1.

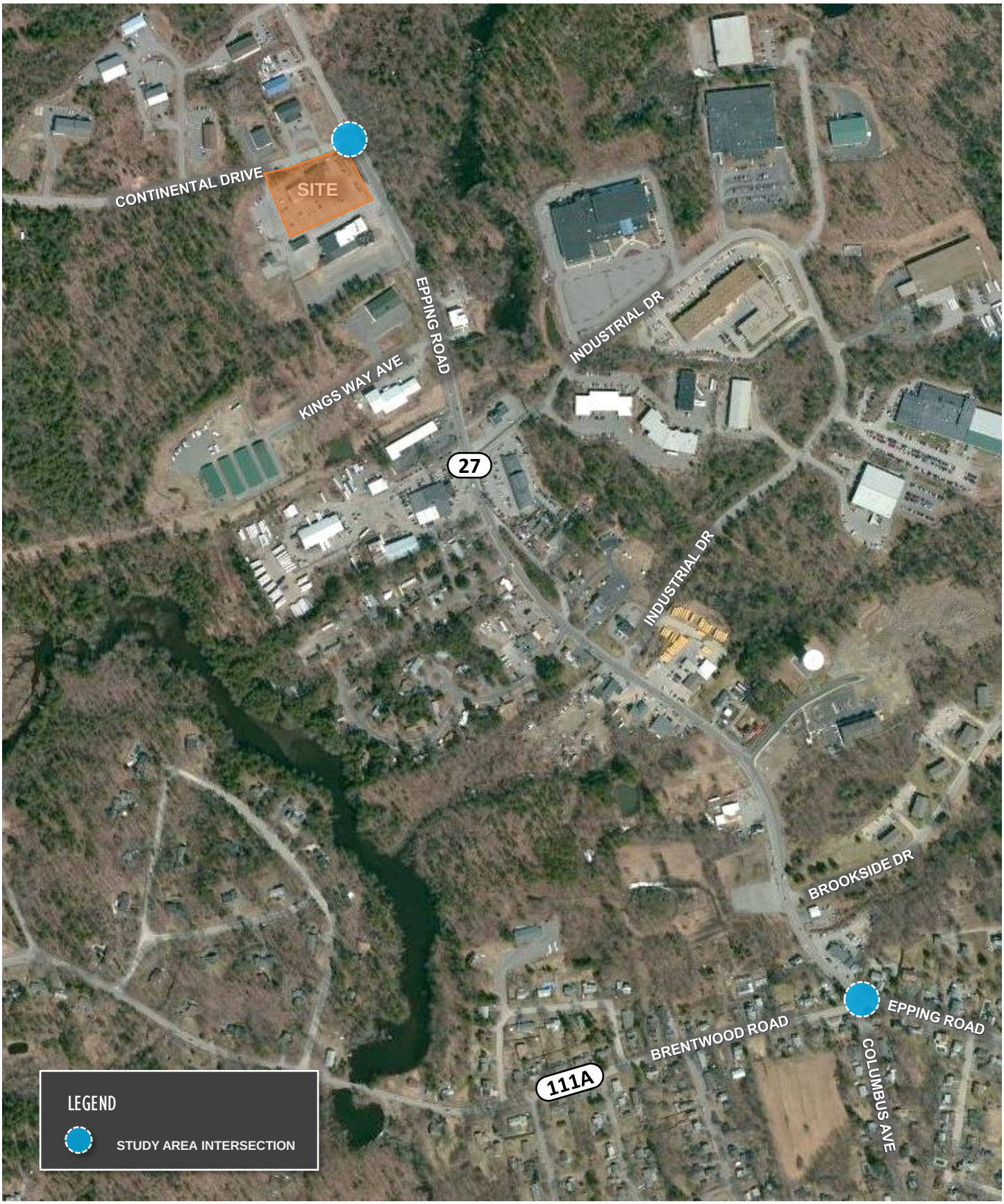


FIGURE 1
SITE LOCATION MAP

EXISTING CONDITIONS

Study Area

Evaluation of the traffic impacts associated with the proposed project requires an evaluation of existing and projected traffic volumes on the adjacent streets, the volume of traffic expected to be generated by the project, and the impact that this traffic will have on the adjacent streets and nearby intersections. In preparing the TIAS for the proposed site, the following intersections have been analyzed and evaluated:

- Epping Road (NH Route 27) at Continental Drive
- Epping Road (NH Route 27) at Brentwood Road (NH Route 111A) and Columbus Avenue
- Epping Road (NH Route 27) at Existing/Proposed Site Driveway
- Continental Drive at Proposed Site Driveway

Epping Road (NH Route 27)

Epping Road (NH Route 27) is classified as minor arterial and is under the jurisdiction of the Town of Exeter. NH Route 27 is an east-west highway, but in the vicinity of the project site runs in a north-south direction with one travel lane in each direction. Directional travel is separated by a double-yellow center line. The speed limit adjacent to the site is posted at 30 miles per hour (mph). Paved shoulders of various widths are provided along both sides of Epping Road (NH Route 27).

Continental Drive

Continental Drive is local road under the jurisdiction of the Town of Exeter. Continental Drive runs in an east-west direction with one travel lane in each direction. No pavement markings are provided on the roadway. The speed limit is not posted, but has been assumed to be 30 mph.

Epping Road (NH Route 27) at Continental Drive

Continental Drive intersects Epping Road (NH Route 27) from the west to form a T-type signalized intersection. The Continental Drive eastbound approach consists of a left-turn lane and a right-turn lane with storage of approximately 125 feet, the Epping Road northbound approach consists of an exclusive left-turn lane with storage of approximately 250 feet and a through lane, and the southbound approach consists of a through lane and an exclusive right-turn lane with a storage of approximately 225 feet. No sidewalks or pedestrian accommodations are provided at the intersection.

The intersection of Epping Road (NH Route 27) and Continental Drive was recently placed under traffic signal control with a GRIDSMART system. The signal operates with a northbound lead-left with an eastbound right-turn overlap, followed by the northbound through and southbound through/right-turn, ending with the eastbound approach with a southbound right-turn overlap.

Epping Road (NH Route 27) at Brentwood Road (NH Route 111A) and Columbus Avenue

Brentwood Road (NH Route 111A) intersects Epping Road (NH Route 27) from the east and Columbus Avenue intersects Brentwood Road and Epping Road from the south to form three minor intersections. The Epping Road northbound left turn and through movements and the Epping Road southbound through movement operate freely, with all other movements under STOP control. The three minor intersections formed consist of one to the northwest (Epping Road at Columbus Avenue), one to the northeast (Epping Road at Brentwood Road), and one to the south (Brentwood Road at Columbus Avenue).

Traffic Volumes

Base traffic conditions within the study area were developed by obtaining the traffic-volume networks from the Epping Road (NH Route 27) Corridor Study[1] prepared by Vanasse Hangen Brustlin, Inc. (VHB) in December 2020. The Corridor Study base conditions were established from new counts conducted in March 2020 as well as other historical data sources in order to account for the change in traffic patterns as a result of the COVID-19 pandemic. The detailed breakdown of data sources can be found in the Corridor Study. The Epping Road (NH Route 27) weekday corridor peak hours were established as 7:15-8:15 AM and 4:00-5:00 PM. It should be noted that the Jaguar Exeter auto dealership was still open at the time of the March 2020 counts, but has since closed. The traffic volume networks from the Epping Road Corridor Study are provided in the Appendix.

Table 1 summarizes the existing peak-hour traffic volumes on Epping Road (NH Route 27) and Continental Drive. The 2021 Existing traffic-flow networks for the weekday AM and weekday PM peak hours are shown graphically on Figures 2 and 3, respectively. The 2020 Base Peak Hour Volumes from the Corridor Study were assumed for the 2021 Existing Traffic-Volumes, as typical background traffic growth is not expected between the years 2020 and 2021 as a result of the COVID-19 pandemic.

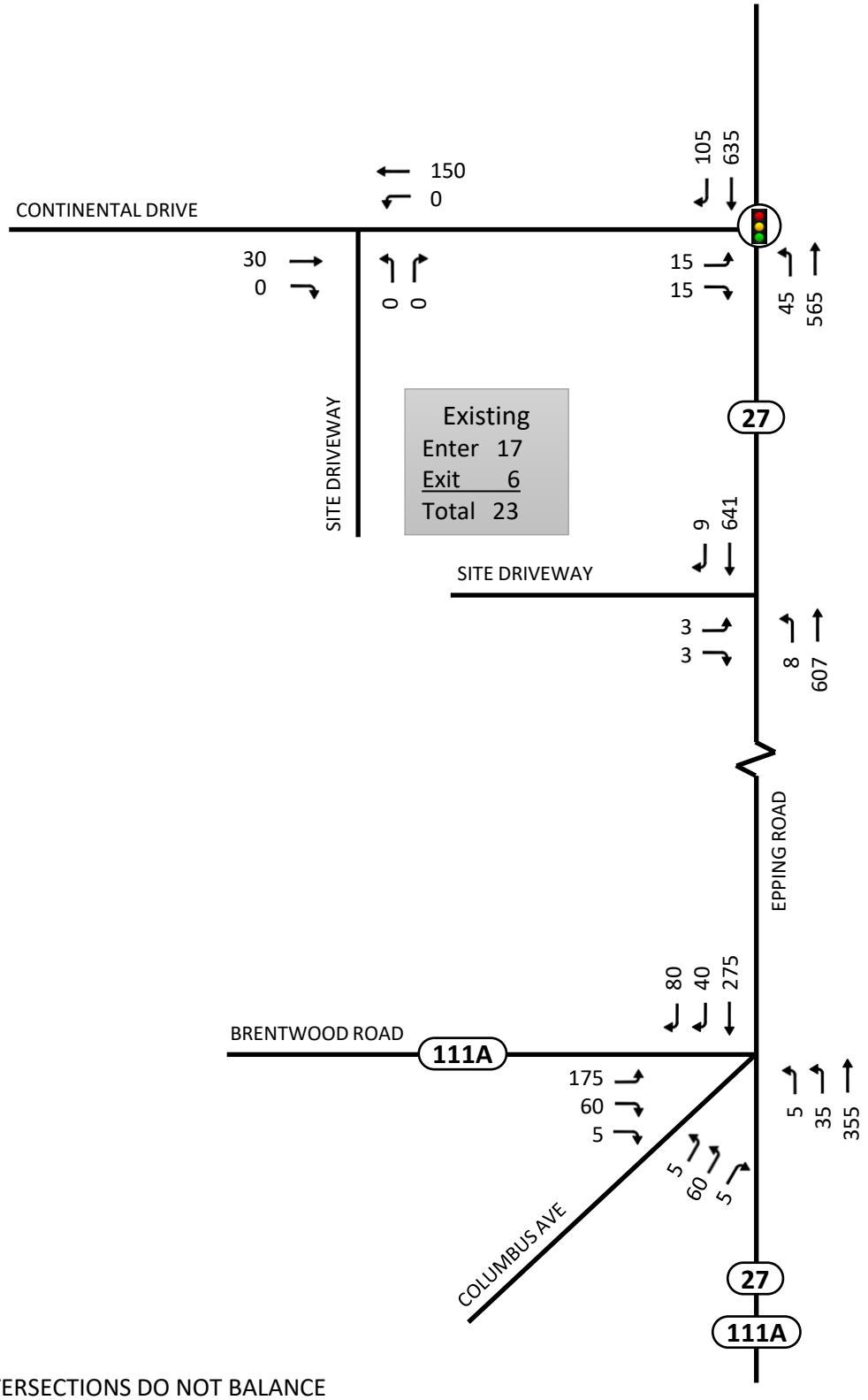
TABLE 1
Existing Peak Hour Traffic Volume Summary

Location/Time Period	Peak Hour Volume (vph) [a]	Directional Distribution [b]
Epping Road, north of Continental Dr:		
Weekday Daily		
Weekday AM Peak Hour	1,320	56% SB
Weekday PM Peak Hour	1,565	59% NB
Continental Drive, west of Epping Rd:		
Weekday Daily		
Weekday AM Peak Hour	180	83% WB
Weekday PM Peak Hour	230	80% EB

[a] In vehicles per hour adjacent to the site. Volumes obtained from Figures 2 and 3.

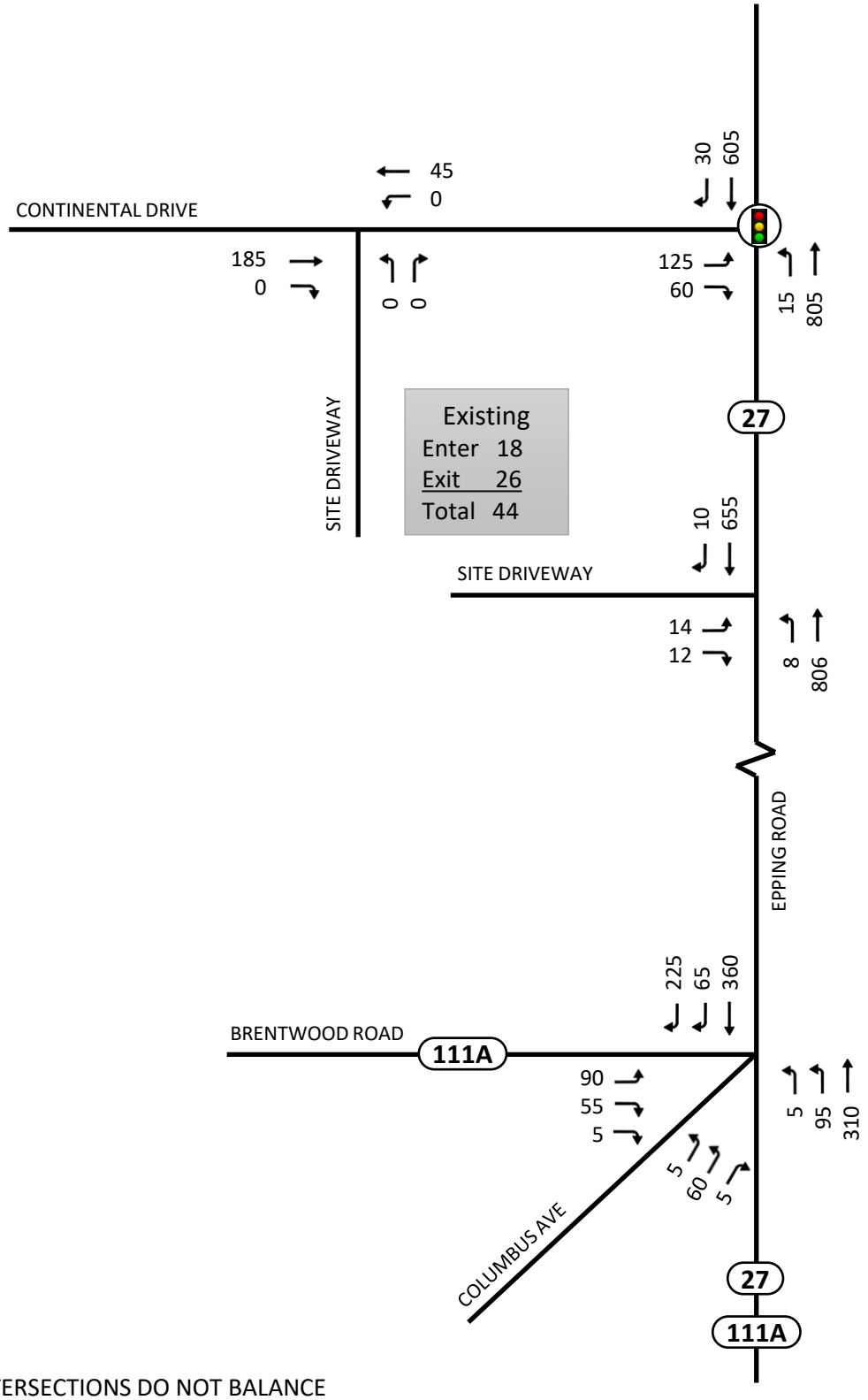
[b] SB = southbound, NB = northbound, WB = westbound and EB = eastbound. Percentages from volumes on Figures 2 and 3.

[1] Vanasse Hangen Brustlin, Inc. (VHB); *Corridor Study: Epping Road (NH Route 27), Exeter, NH*; December 2020.



INTERSECTIONS DO NOT BALANCE

FIGURE 2
2021 EXISTING WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES



INTERSECTIONS DO NOT BALANCE

FIGURE 3
2021 EXISTING WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

Collisions

As part of the Corridor Study, collision data for the study area intersections were obtained from the Town of Exeter for the latest complete six years available (2014 to 2019).

The intersection of Epping Road (NH Route 27) at Continental Drive experienced seven collisions over the 6-year study period, averaging 1.2 crashes per year. This intersection was recently put under traffic signal control with a GRIDSMART system. Accordingly, the crash data summarized from 2014 to 2019 took place while the intersection was unsignalized. Due to the recent signalization at the intersection, the 2020 crash data was requested from the Town. In 2020 only one crash with a deer was reported at this location, resulting in no injuries.

The intersection of Epping Road (NH Route 27) at Brentwood Road and Columbus Avenue experienced 24 collisions over the 6-year study period, averaging four crashes per year. It should be noted that 79 percent of the crashes involved angle-type collisions, which is likely a result of the three roadways intersecting to make three minor intersections. As part of the Transportation Alternatives Program (TAP) grant, the intersections will be realigned. Epping Road and Brentwood Road will operate as a T-type intersection and Columbus Avenue will intersect Brentwood Road with a median island on Brentwood Road restricting left turns into or out of Columbus Avenue. The new alignment reduces the number of conflict points which in turn should reduce the number of future crashes. Additionally, pedestrian safety will be improved with the addition of a crosswalk across Brentwood Road with a pedestrian refuge. Crosswalks will remain across Epping Road and Columbus Avenue. Based on supplemental research, there were three crashes that occurred in 2020, none resulting in injury.

Vehicle Speeds

Vehicle speed measurements were conducted along Epping Road (NH Route 27) and Continental Drive by use of radar. The Epping Road speeds were obtained from the Corridor Study and the Continental Drive speeds were obtained in April 2021. All speed data is provided in the Appendix. The primary use of this information is explained in the *Sight Distance* section where the speeds are correlated to sight distance measurements taken at the location of the site driveways to assure that adequate sight distances exist at the driveways to provide safe operation. The results of the speed measurements are summarized in Table 3.

TABLE 3
Observed Travel Speeds

Location/Direction	Posted Speed Limit [a]	Average Speed [b]	85th Percentile Speed [c]
Epping Road, north of Continental Dr:			
Southbound	30	36	40
Northbound	30	37	42
Continental Drive, west of Epping Rd:			
Westbound	30 [d]	30	34
Eastbound	30 [d]	33	36

[a] In miles per hour (mph).
[b] Average speed of all observed vehicles.
[c] Speed at, or below which 85 percent of all observed vehicles travel.
[d] Speed not posted, assumed to be 30 mph.

As shown in Table 3, the average speeds along Epping Road (NH Route 27) were found to be between 36 and 37 mph with the 85th percentile speeds to be between 40 and 42 mph. The average speeds along Continental Drive were found to be between 30 and 33 mph with the 85th percentile speeds to be between 34 and 36 mph. The observed speeds were found to be consistently higher than the posted speed limit on Epping Road, and slightly higher than the assumed 30 mph speed limit on Continental Drive.

FUTURE CONDITIONS

To estimate the impact of site-generated traffic within the study area, the projected 2030 Mid-Term Build traffic volumes were utilized from the Epping Road (NH Route 27) Corridor Study. The proposed redevelopment is expected to be completed and fully operational well within this time frame. Traffic volumes on the roadway network at that time include existing traffic and new traffic due to normal traffic growth. These 2030 Mid-Term Build traffic volumes were used to represent the 2030 No-Build traffic volumes for the proposed project, which assume that the proposed redevelopment is not built. The incremental impacts of the proposed project may then be determined by adding site-generated traffic volumes (Build conditions) and making comparisons to the No-Build conditions.

Traffic Growth

Two components of traffic growth were considered in the development of the 2030 Mid-Term Build traffic volumes from the Corridor Study. First, an annual growth percentage was determined. Based on NHDOT historical traffic volumes along Epping Road (NH Route 27) and Brentwood Road (NH Route 111A), as well as coordination efforts with the Rockingham Planning Commission officials, a 0.5 percent compounded annual growth was assumed.

Second, any planned or approved specific developments in the area that would generate a significant volume of traffic on study area roadways were considered. The following projects were included:

- **Ray Farm Exeter** –A 55+ active adult residential community with 116 total units located at 183 Epping Road was in construction at the time of the counts. The anticipated traffic for the remaining units were added to the traffic volume networks.
- **Gateway at Exeter** – The Gateway at Exeter development is proposed on the west side of Epping Road (NH Route 27), south of the NH Route 101 interchange. This mixed-use development includes 11,225 SF of retail space, 17,295 SF of office space, a 20,040 SF daycare facility, and 224 residential dwelling units. The anticipated traffic associated with this project was added to the traffic volume networks.
- **Unitil Corporation** – This 60,000 SF Unitil facility was under construction at 27 Gourmet Place at the time of the counts, and therefore the anticipated traffic associated this project was added to the traffic volume networks.
- **Primrose Daycare School** – A 13,000 SF Daycare School was being considered to replace the previously approved mixed-use development at the end of McKay Drive. Traffic was generated for the daycare using ITE and was added to the traffic volume networks.

It should be noted that a 5-lot subdivision was considered (3 lots off Spruce Street and 2 lots off Brentwood Road (NH Route 111A), but due to the small amount of traffic to be generated by this project, it was considered to be included in the annual growth rate. The known developments networks from the Corridor Study are included in the *Traffic-Count Data* section of the Appendix.

Planned Roadway Improvements

Based on the NHDOT Project Information Center, Project #41372 is in the design phase. Work includes the construction of sidewalks on Epping Road, Brentwood Road, Winter Street and Spring Street.

The improvements at the intersection of Epping Road (NH Route 27) at Brentwood Road (NH Route 111A) and Columbus Avenue as part of the TAP grant, previously discussed in the *Collisions* section, are included in the 2030 No-Build conditions of the analysis for the proposed project.

Finally, based on the Corridor Study, the 2030 Mid-Term improvements include a two-way left-turn lane (TWLTL) along Epping Road (NH Route 27) corridor, from north of Cronin Road to south of Brookside Drive. Accordingly, these improvements were included in the 2030 No-Build conditions of the analysis for the proposed project as well. The Conceptual Plans for these Mid-Term improvements are provided in the Appendix. Full Build-Out improvements including widening along the corridor, median barriers, new traffic signals, and roundabouts were provided in the Corridor Study as well, but were based on the development of the vacant parcels along the corridor. Due to the project costs and property impacts required to support this future development along the corridor, the Full Build-Out Improvements were not a viable option for the Town of Exeter, and therefore, the Mid-Term scenario improvements were used to represent the 2030 No-Build conditions.

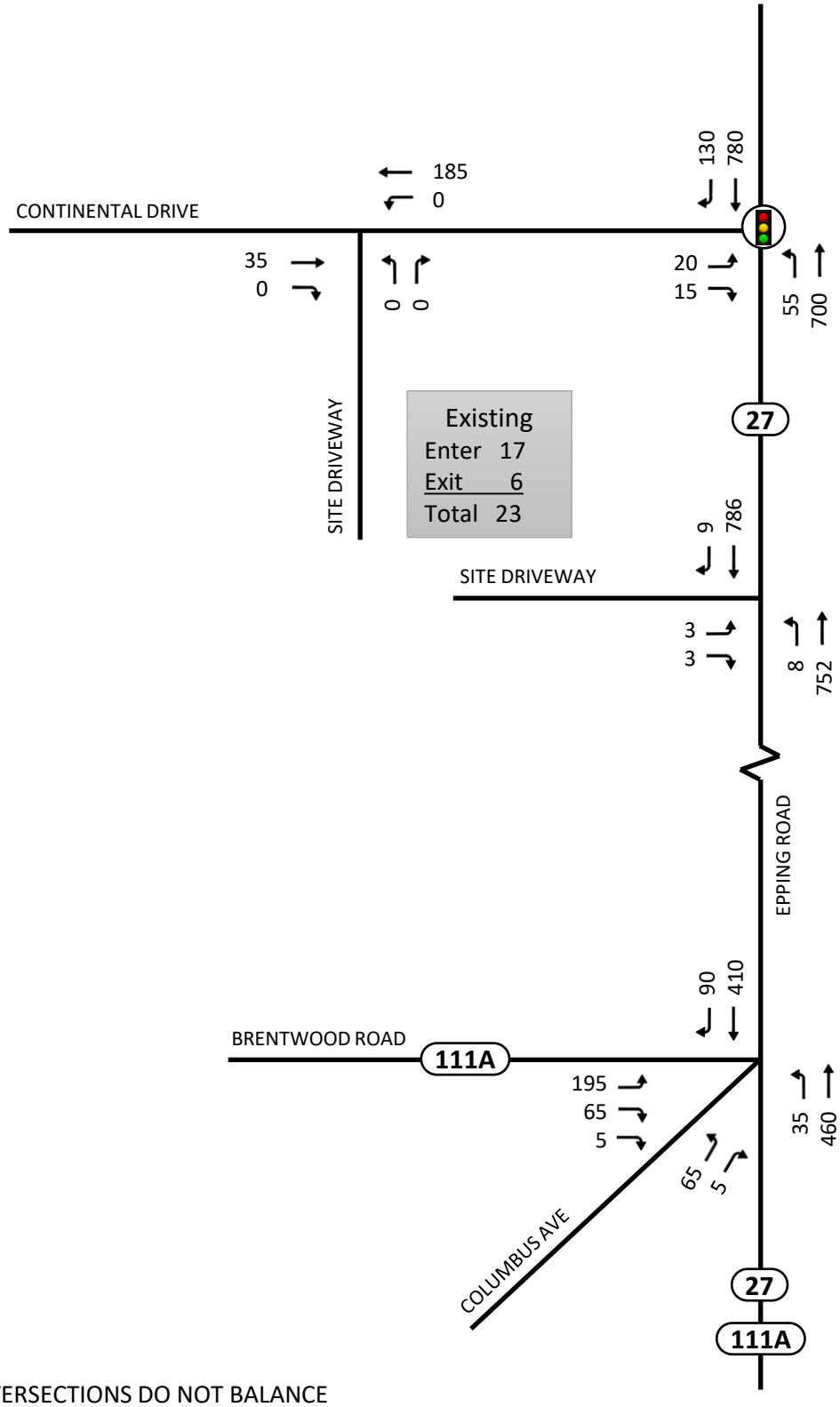
No-Build Conditions

The 2030 Mid-Term Build traffic volumes were utilized from the Epping Road (NH Route 27) Corridor Study to represent the 2030 No-Build traffic volumes, which were developed by applying a 0.5 percent compounded annual traffic growth rate (5.1 percent over ten years) to the 2020 Base traffic volumes from the Corridor Study. The 2030 No-Build traffic volumes are shown graphically on Figures 4 and 5 for the weekday AM, weekday PM and Saturday midday peak hours, respectively.

Site Access

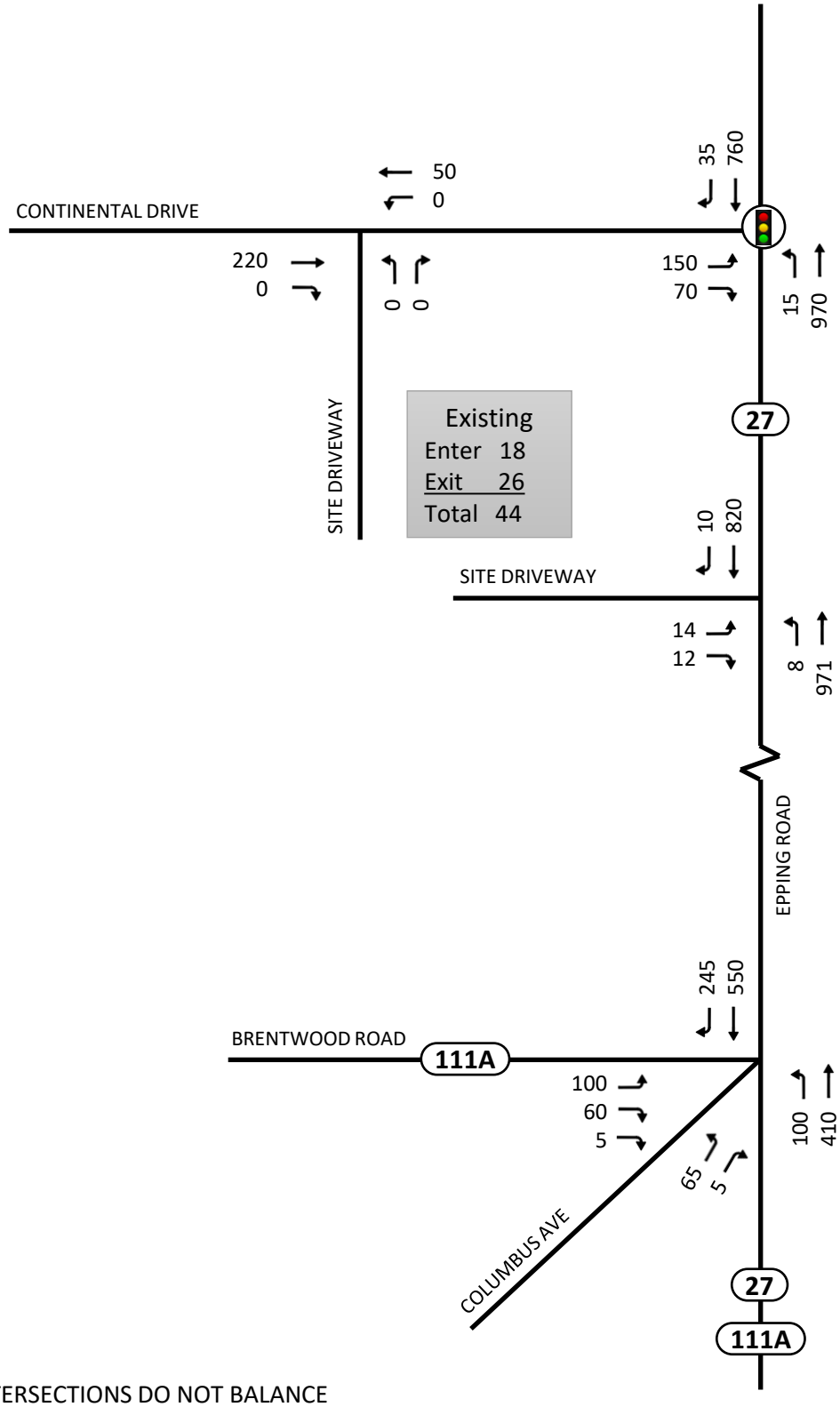
Access and egress to the development are proposed via two (2) full access/egress driveways; one on Epping Road (NH Route 27) and one on Continental Drive. The existing driveway on Epping Road (NH Route 27) is a wide-open curb-cut that is shared with the property to the south, Al's Automotive & Truck Service Center. As part of the redevelopment, this driveway will continue to be shared; however, it will be better defined providing only a 44-foot wide curb-cut consisting of one entering lane and two exiting lanes for left and right turns. This is an improvement over the existing condition as it minimizes the conflict points along Epping Road (NH Route 27).

A new full access/egress driveway is proposed on Continental Drive. It is proposed to be located approximately 115 feet west of the stop bar on Continental Drive, at the end of the left and right turn lanes. The driveway is located in such a way to provide optimal on-site circulation while also providing an area for vehicles to queue up as they wait for a gap in traffic to exit onto Continental Drive. In addition, the location helps optimize the queue storage lanes for the drive-through and car wash.



INTERSECTIONS DO NOT BALANCE

FIGURE 4
2030 NO-BUILD WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES



INTERSECTIONS DO NOT BALANCE

FIGURE 5
2030 NO-BUILD WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

Sight Distance

To identify potential safety concerns associated with site access and egress, sight distances have been evaluated at the proposed site driveway locations to determine if the available sight distances for vehicles exiting the site meet or exceed the minimum distances required for approaching vehicles to safely stop. The available sight distances were compared with minimum requirements, as established by the American Association of State Highway and Transportation Officials (AASHTO)[2]. AASHTO is the national standard by which vehicle sight distance is calculated, measured, and reported.

Sight distance is the length of roadway ahead that is visible to the driver. Stopping Sight Distance (SSD) is the minimum distance required for a vehicle traveling at a certain speed to safely stop before reaching a stationary object in its path. The values are based on a driver perception and reaction time of 2.5 seconds and a braking distance calculated for wet, level pavements. When the roadway is either on an upgrade or downgrade, grade correction factors are applied. Stopping sight distance is measured from an eye height of 3.5 feet to an object height of 2 feet above street level, equivalent to the taillight height of a passenger car. The SSD is measured along the centerline of the traveled way of the major road.

Intersection sight distance (ISD) is provided on minor street approaches to allow the drivers of stopped vehicles a sufficient view of the major roadway to decide when to enter the major roadway. By definition, ISD is the minimum distance required for a motorist exiting a minor street to turn onto the major street, without being overtaken by an approaching vehicle reducing its speed from the design speed to 70 percent of the design speed. ISD is measured from an eye height of 3.5 feet to an object height of 3.5 feet above street level. The use of an object height equal to the driver eye height makes intersection sight distances reciprocal (i.e., if one driver can see another vehicle, then the driver of that vehicle can also see the first vehicle). When the minor street is on an upgrade that exceeds 3 percent, grade correction factors are applied.

SSD is generally more important as it represents the minimum distance required for safe stopping while ISD is based only upon acceptable speed reductions to the approaching traffic stream. The ISD, however, must be equal to or greater than the minimum required SSD in order to provide safe operations at the intersection. In accordance with the AASHTO manual, *"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road."* Accordingly, ISD should be at least equal to the distance required to allow a driver approaching the minor road to safely stop.

The available SSD and ISD at the proposed site driveway locations were measured and compared to minimum requirements as established by AASHTO. Based on both the posted speed limit and observed speeds, the SSD and ISD requirements at this intersection were calculated. The required minimum sight distances for the driveways are compared to the available distances, as shown in Table 4.

[2] *A Policy on Geometric Design of Highways and Streets*; American Association of State Highway and Transportation Officials (AASHTO); 2018.

TABLE 4
Sight Distance Summary

Location/Direction	Stopping Sight Distance (feet)		Intersection Sight Distance (feet)		
	Measured	Minimum Required [a]	Measured	Minimum Required [b]	Desirable [c]
Epping Road at Site Driveway:					
North of intersection (SB)	500+	305	500+	305	290
South of intersection (NB)	500+	325	500+	325	355
Continental Dr at Site Driveway:					
East of intersection (WB)	125 [d]	230	125 [d]	230	355
West of intersection (EB)	450	265	365	265	290

[a] Values based on AASHTO requirements for minimum SSD based on 85th percentile speeds; 40 mph (SB) and 42 mph (NB) on Epping Road and 34 mph (WB) and 36 mph (EB) on Continental Drive.

[b] Values based on AASHTO requirements for SSD.

[c] Values based on AASHTO requirements for ISD for posted speed of 30 mph on Epping Road and 30 on Continental Drive.

[d] Measurement to end of roadway.

As indicated in Table 4, available sight distances at the proposed site driveways exceed the minimum and desirable SSD and ISD requirements for safe operation with exception to the site driveway on Continental Drive, east of the intersection, which is limited to 125 feet due to the adjacent T-intersection with Epping Road (NH Route 27). Based on AASHTO requirements, 125 feet is safe for speeds up to 22 mph. Due to the proximity of the intersection, it is not likely that vehicles in the westbound direction will be traveling greater than 22 mph on Continental Drive in between Epping Road and the site driveway as they are entering onto Continental Drive from a turning movement. Left-turn speeds are generally 15 mph and right-turn speeds are generally 9 mph. The speeds measurements collected along Continental Drive were captured further west closer to Jillian Lane.

To ensure the safe and efficient flow of traffic to and from the site, it is recommended that any proposed plantings, vegetation, landscaping, and signing along the site frontage be kept low to the ground (no more than 3.0 feet above street level) or set back sufficiently from the edge of Epping Road and Continental Drive so as not to inhibit the available sight lines.

Trip Generation

The site is currently occupied by a ±12,190 SF vacant Jaguar auto dealership. The project consists of constructing a retail motor fuel outlet with a ±5,500 SF convenience store, a gasoline station with six (6) MPDs having twelve (12) VFPS, and a ±4,182 SF automated car wash having one (1) tunnel.

Traffic generated by the existing site was estimated using the trip rates contained in the ITE *Trip Generation, 10th Edition*[3] for Land Use Code (LUC) 840 (Automobile Sales [New]). Traffic to be generated by the proposed development was forecast using trip rates for LUC 960 (Super Convenience Market/Gas Station) and LUC 948 (Automated Car Wash). All trip-generation data are provided in the Appendix.

[3] *Trip Generation, 10th Edition*. Institute of Transportation Engineers; Washington, DC; 2017.

Studies have shown that for developments of mixed-use or multi-use sites, it is realistic to assume that there will be some multi-use trips within the site itself. For example, someone fueling their vehicle may also get a car wash. Therefore, a reduction in the overall trips experienced at the site driveways can be anticipated as a result of multi-use trips that include stops at more than one use on the site. Based on information published in the ITE *Trip Generation Handbook*[4]*, Procedure for Estimating Multi-Use Trip Generation*, it is estimated that multi-use trips account for 6 percent of weekday AM peak hour and 7 percent of weekday PM peak hour trips generated by the site. The Multi-Use Development Trip Generation and Internal Capture Worksheets are provided in the Appendix.

Not all of the vehicle trips expected to be generated by the proposed development represent *new* trips on the study area roadway system. Studies have shown that for developments such as the one proposed, a substantial portion of the site-generated vehicle trips are already present in the adjacent passing stream of traffic. Based on information published in the ITE *Trip Generation Handbook*, the average *pass-by* trip percentage is 62 percent during the weekday AM peak hour and 56 percent during the weekday PM peak hour for Gasoline/Service Station with Convenience Market. The lower of the two pass-by trip percentages (56 percent) was applied to the weekday daily volumes. The *pass-by* data are provided in the Appendix.

As shown in Table 5, the proposed redevelopment is expected to generate 118 *additional* vehicles trips (54 entering and 64 exiting) during the weekday AM peak hour and 94 *additional* vehicles trips (51 entering and 43 exiting) during the weekday PM peak hour beyond the study area.

At the site driveways, the proposed redevelopment is expected to generate 350 *additional* vehicles trips (170 entering and 180 exiting) during the weekday AM peak hour and 268 *additional* vehicles trips (138 entering and 130 exiting) during the weekday PM peak hour.

TABLE 5
Peak Hour Trip Generation Summary

Time Period/Direction	Existing Trips [a]	Proposed Trips			Additional Trips	
		Total [b]	Pass-By [c]	New [d]	Total [e]	New [f]
Weekday AM Peak Hour:						
Enter	17	187	116	71	170	54
Exit	6	186	116	70	180	64
Total	23	373	232	141	350	118
Weekday PM Peak Hour:						
Enter	18	156	87	69	138	51
Exit	26	156	87	69	130	43
Total	44	312	174	138	268	94

[a] ITE LUC 840 (Automobile Sales [New]) for 12,187 SF.

[b] External Trips based on ITE LUC 960 (Super Convenience Market/Gas Station) for 12 VFPs and LUC 948 (Automated Car Wash) for 4,182 SF.

[c] 62 percent of Total Trips during the Weekday AM peak hour and 56 percent during the Weekday PM peak hour.

[d] Proposed Total Trips minus Proposed Pass-By Trips.

[e] Proposed Total Trips minus Existing Trips, which represents the Additional Trips to the site driveways.

[f] Proposed New Trips minus Existing Trips, which represents the Additional Trips beyond the study area.

4 *Trip Generation Handbook*; 2nd Edition; Institute of Transportation Engineers; Washington, DC; June 2004.

Trip Distribution

Having estimated project-generated vehicle trips, the next step is to determine the distribution of project traffic and assign these trips to the local roadway network. The directional distribution of site traffic is dependent on expected travel route to and from the site and existing travel patterns. Accordingly, 55 percent of the site traffic is expected to/from the north along Epping Road (NH Route 27), 30 percent is expected to/from the south along Epping Road (NH Route 27/NH Route 111A), and 15 percent is expected to/from the west along Brentwood Road (NH Route 111A).

Build Traffic Volumes

Based on the traffic generation and distribution estimates for this project, the traffic volumes associated with the proposed redevelopment were assigned to the roadway network. The site-generated traffic networks are shown on Figures 6 and 7 for the weekday AM and weekday PM peak hours, respectively. The site-generated traffic volumes were then combined with the 2030 No-Build traffic volumes to develop the 2030 Build peak-hour traffic-volume networks. The 2030 Build weekday AM and weekday PM peak hour traffic volumes are illustrated on Figures 8 and 9, respectively.

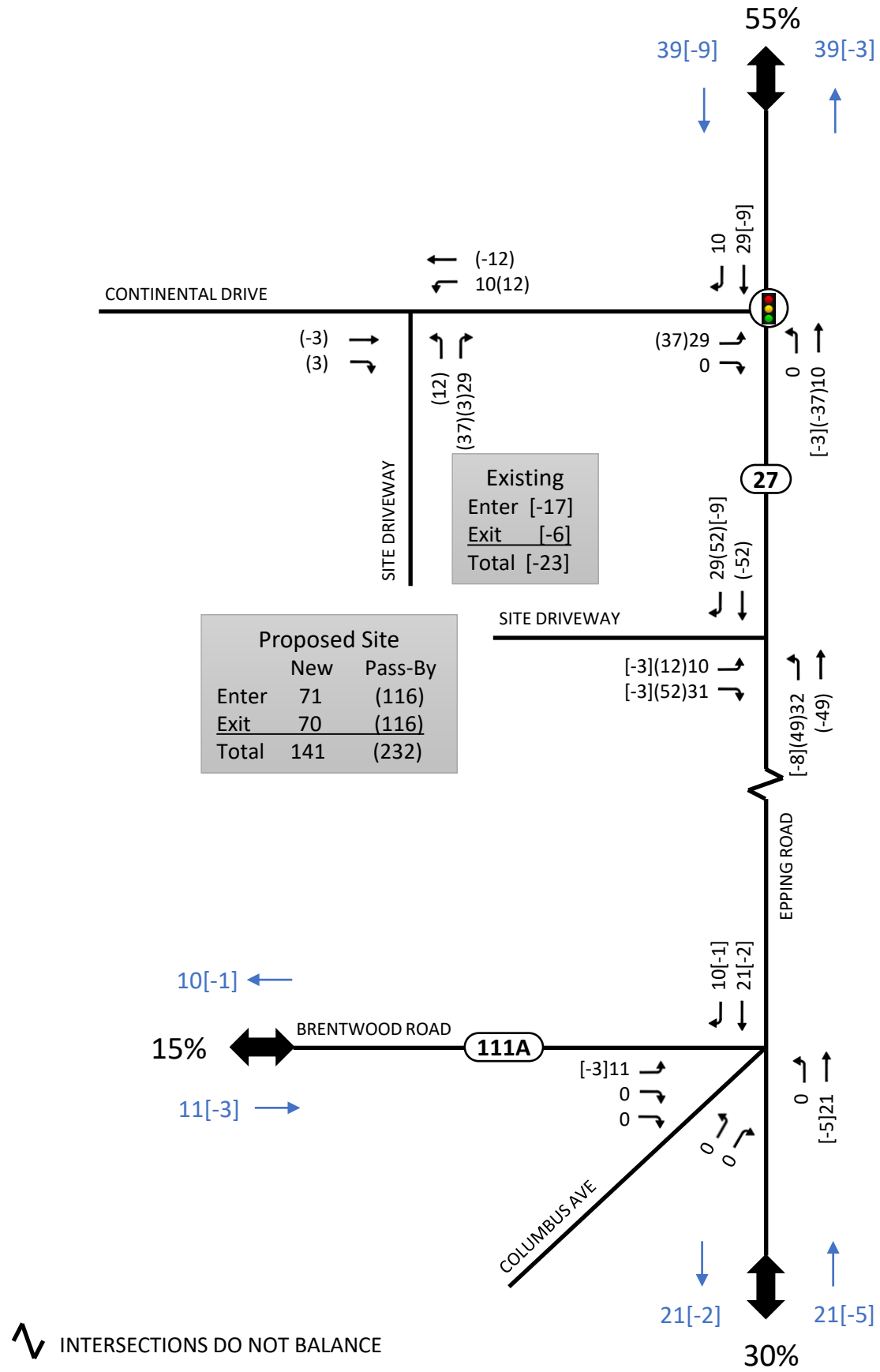


FIGURE 6
SITE GENERATED WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES

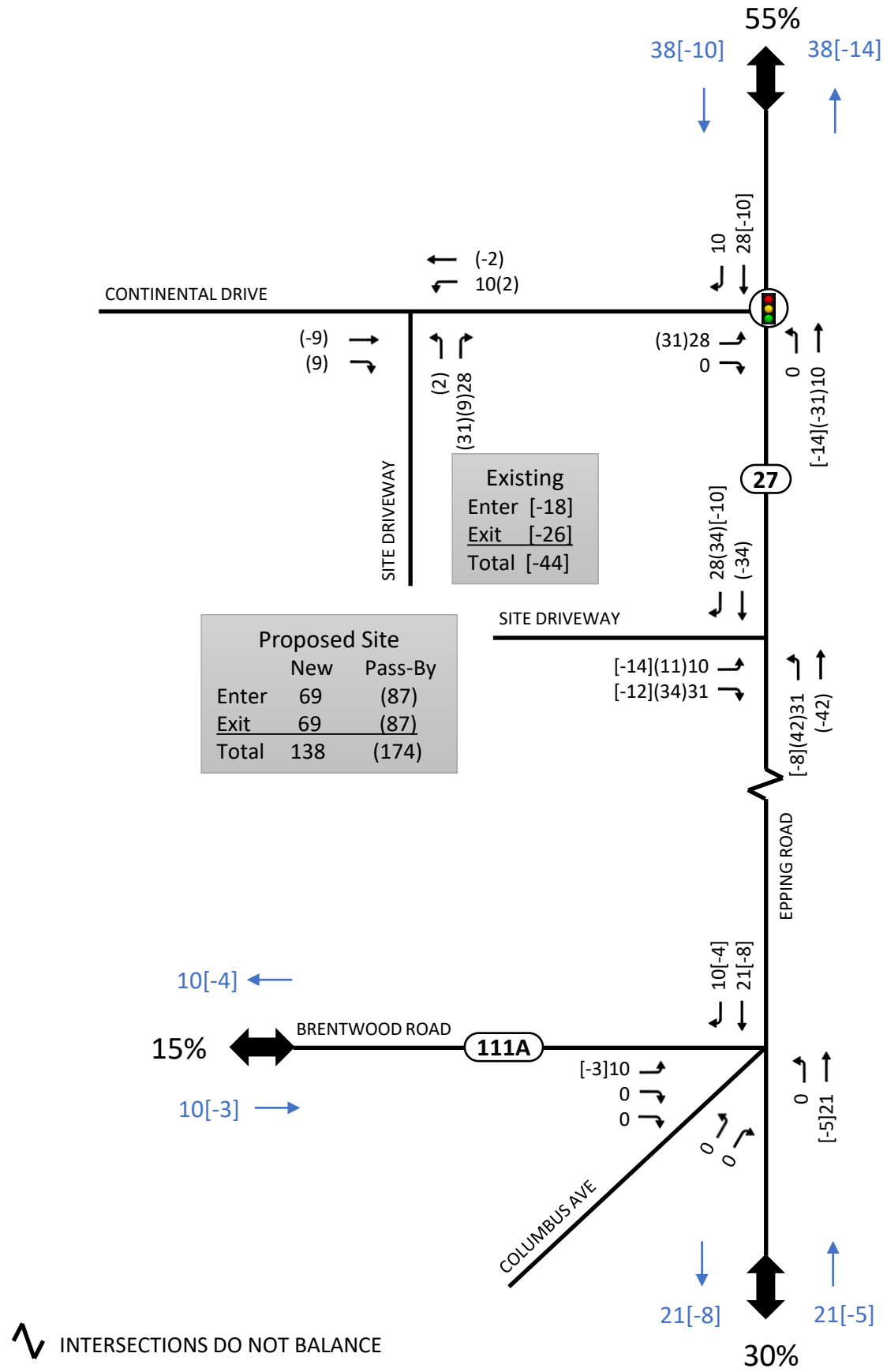
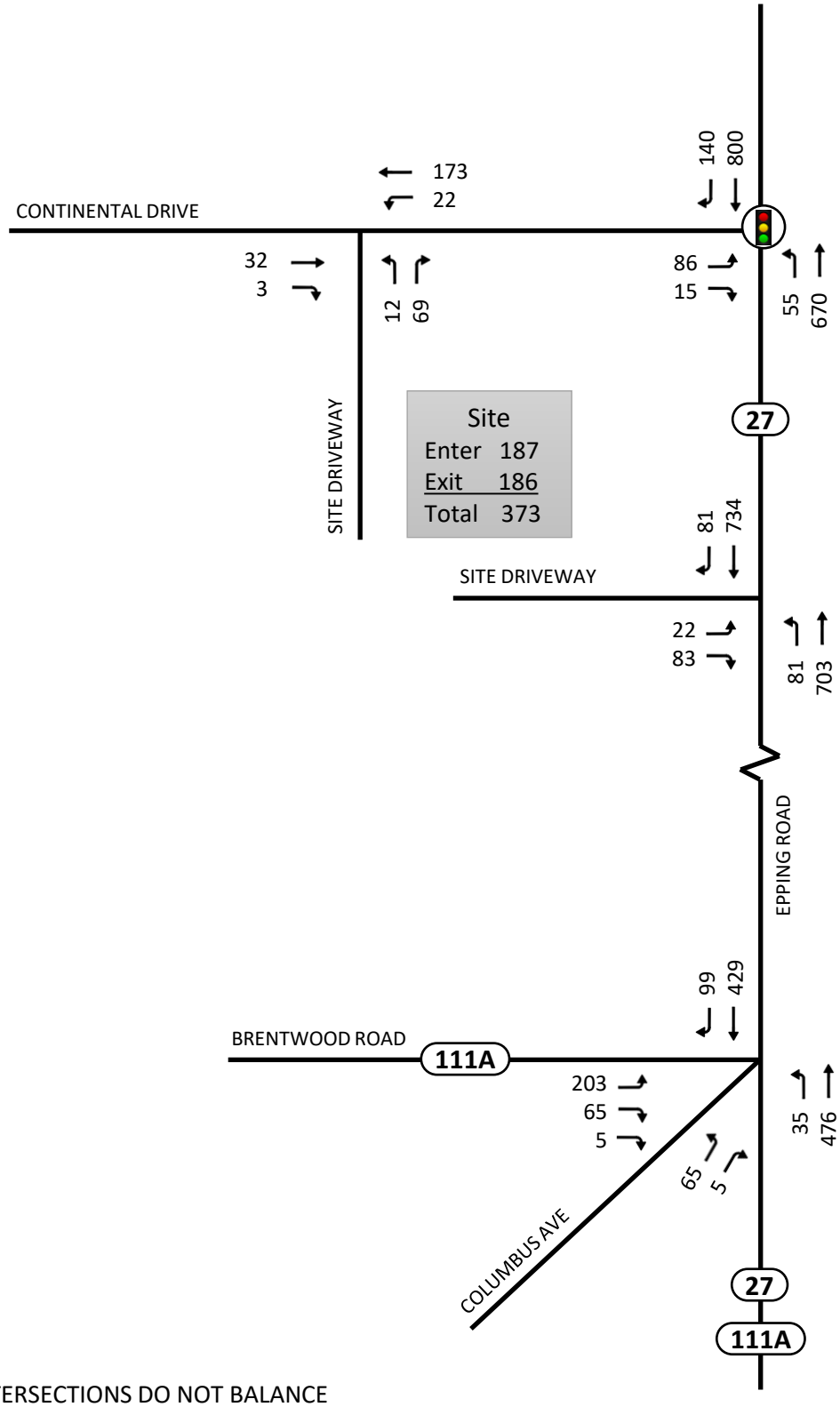
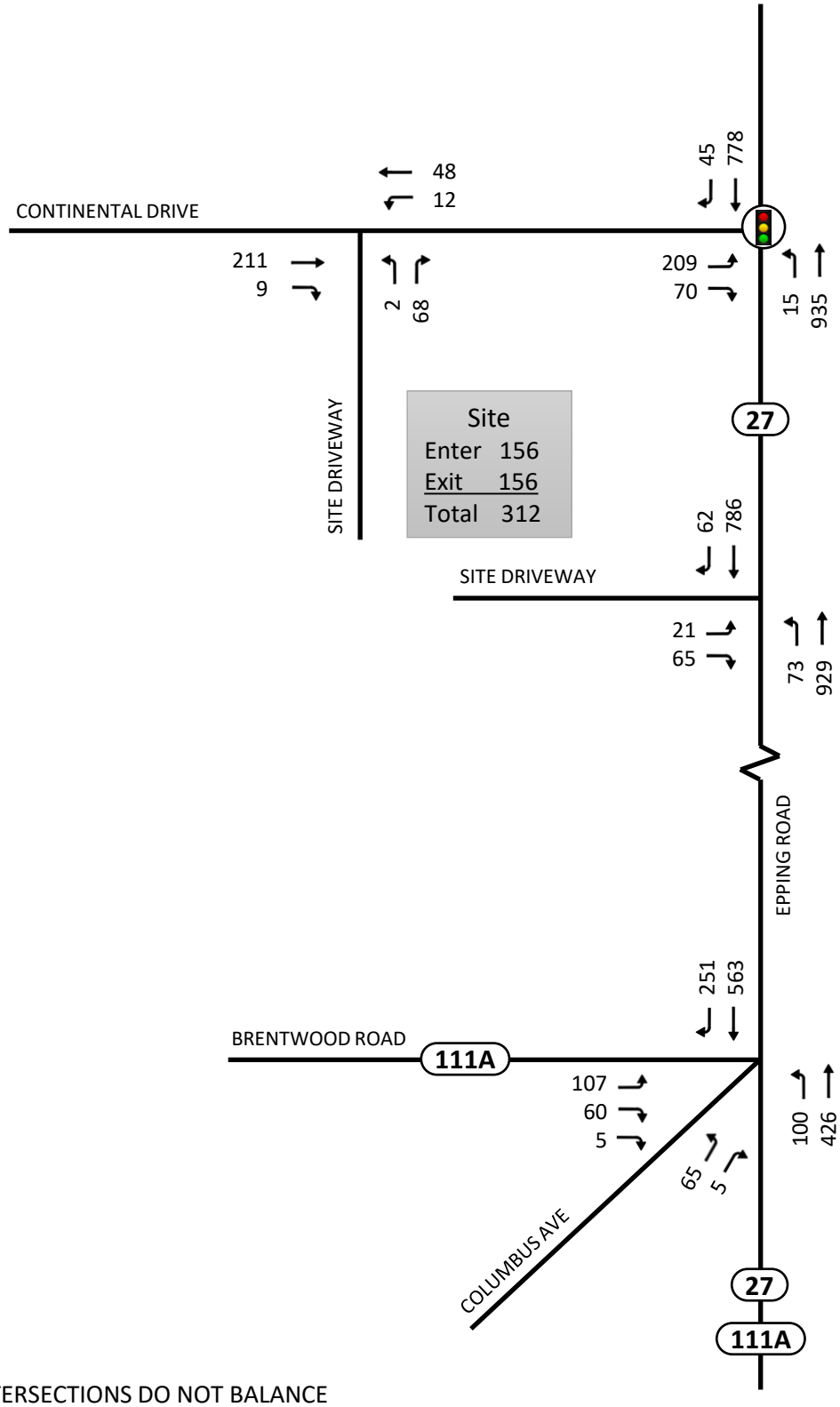


FIGURE 7
SITE GENERATED WEEKDAY PM
PEAK HOUR TRAFFIC VOLUMES



∿ INTERSECTIONS DO NOT BALANCE

FIGURE 8
2030 BUILD WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES



INTERSECTIONS DO NOT BALANCE

FIGURE 9
2030 BUILD WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

Traffic Increases

The proposed redevelopment will result in increases in traffic on the study area roadways. As shown on Figures 6 through 7, traffic-volume increases beyond the study area during the peak hours are expected to be in the range of 13 to 66 vehicles. These increases represent, on average, one additional vehicle approximately every 1 minute to 4.5 minutes during the peak hours.

CAPACITY AND QUEUE ANALYSIS

Capacity and queue analyses were conducted at all study area locations under 2021 Existing, 2030 No-Build, and 2030 Build traffic-volume conditions. The impact of site-generated traffic can be measured by comparing 2030 No-Build conditions to 2030 Build conditions.

Methodology

The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM)[5] and is described in the Appendix.

For signalized intersections, the maximum back of queue during a typical (average) signal cycle and a 95th percentile signal cycle were calculated for each lane group during the peak periods studied. The back of queue is the length of a backup of vehicles from the stop line of a signalized intersection to the last vehicle in the queue that is required to stop, regardless of the signal indication. The length of this queue depends on a number of factors including signal timing, vehicle arrival patterns, and the saturation flow rate. For unsignalized intersections, the 95th percentile queue represents the length of queue of the critical minor-street movement that is not expected to be exceeded 95 percent of the time during the analysis period (typically one hour). In this case, the queue length is a function of the capacity of the movement and the movement's degree of saturation.

Analysis Results

The results of the level-of-service (LOS) and queue analyses are shown in Table 6 and are discussed below. Capacity and queue analyses were conducted at the study area intersections utilizing *Synchro* software.[6] The capacity and queue analysis worksheets for all conditions are provided in the Appendix.

Epping Road (NH Route 27) at Continental Drive

As shown in Table 6, under existing and future traffic-volume conditions, the signalized intersection of Epping Road (NH Route 27) at Continental Drive is expected to operate at an overall LOS A/B with all movements at LOS C or better during the weekday peak hours. There are no drops in level of service as a result of the proposed redevelopment project. Increases in delay as a result of the redevelopment are less than 3 seconds on the overall intersection, and less than 5 seconds on any particular movement. The volume-to-capacity (v/c) ratios are below 1.00 indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

5 *Highway Capacity Manual 6th* Edition, Transportation Research Board; Washington, D.C.; 2016.

6 *Synchro plus SimTraffic 11*; Trafficware LLC.; Sugar Land, TX; 2019.

Epping Road (NH Route 27) at Brentwood Road (NH Route 111A) at Columbus Avenue

Under existing traffic-volume conditions, the Columbus Avenue left-turn movement onto Epping Road operates at LOS D with all other movements at this Epping Road/Brentwood Road/Columbus Avenue location at LOS A/B during the weekday peak hours. With the geometric improvements at this location, the Brentwood Road eastbound left-turn onto Epping Road is expected to operate at LOS D with all other movements at LOS A/B under future traffic-volume conditions. With the proposed redevelopment in place, increases in delay on any movement are expected to be less than 4 seconds with a negligible increase in queue lengths. The v/c ratios are anticipated to be well below 1.00 indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

Epping Road (NH Route 27) at Site Driveway

Under future traffic-volume conditions, the site driveway on Epping Road (NH Route 27) is anticipated to operate with left-turn movements out of the site at LOS D and right-turn movements at LOS C during the weekday peak hours. All queues on site are anticipated to be one vehicle or less with v/c ratios well below 1.00 indicating adequate capacity. The Epping Road northbound left-turn movement into the site is anticipated to be LOS B with queue lengths of one vehicle or less.

Continental Drive at Site Driveway

Under future traffic-volume conditions, the site driveway on Continental Drive is expected to operate with all movements at LOS A/B during the weekday peak hours. Queue lengths are anticipated to be one vehicle or less and v/c ratios are anticipated to be well below 1.00 indicating there will be adequate capacity to accommodate the anticipated traffic volumes. It should be noted that all average queues from the traffic signal are not expected to block the site driveway. Under 2030 Build conditions during the weekday PM peak hour, however, when the uses on Continental Drive are leaving for the day, the 95th percentile queue for the eastbound left-turn lane at the traffic signal is expected the block the Continental Drive site driveway. This is expected to occur approximately two times during the weekday PM peak hour. During these times, queues on the driveway may become longer until the traffic light for the eastbound approach turns green, but there is adequate room on site without disrupting flow into and out of the driveway.

TABLE 6
Intersection Capacity Analysis Summary

Intersection/Peak Hour/Lane Group	2021 Existing				2030 No-Build				2030 Build			
	V/C [a]	Del. [b]	LOS [c]	Queue [d]	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
Epping Road (NH Route 27) at Continental Drive												
Weekday AM:												
Continental Drive EB left turn	0.09	18.7	B	5/26	0.13	24.2	C	10/33	0.39	27.0	C	46/97
Continental Drive EB right turn	0.04	13.7	B	0/14	0.05	18.0	B	0/14	0.04	18.8	B	0/14
Epping Road NB left turn	0.22	18.4	B	14/55	0.28	24.0	C	27/66	0.31	27.7	C	29/66
Epping Road NB through	0.46	2.9	A	77/115	0.54	3.1	A	112/172	0.54	4.0	A	112/167
Epping Road SB through	0.73	9.8	A	198/325	0.81	11.6	B	295/507	0.84	14.9	B	323/548
Epping Road SB right turn	0.12	3.8	A	0/10	0.13	3.5	A	0/11	0.14	3.2	A	0/12
Overall Intersection	**--**	**6.9**	**A**	**--/--**	**--**	**8.1**	**A**	**--/--**	**--**	**10.8**	**B**	**--/--**
Weekday PM:												
Continental Drive EB left turn	0.39	17.4	B	49/121	0.56	24.2	C	77/156	0.69	28.5	C	116/255
Continental Drive EB right turn	0.15	13.4	B	0/26	0.21	18.4	B	0/31	0.20	19.0	B	0/31
Epping Road NB left turn	0.12	21.1	C	6/26	0.14	26.4	C	8/29	0.15	28.8	C	8/29
Epping Road NB through	0.74	6.9	A	166/315	0.83	7.8	A	285/453	0.81	8.5	A	262/410
Epping Road SB through	0.74	11.3	B	201/339	0.80	11.8	B	322/482	0.82	13.7	B	336/506
Epping Road SB right turn	0.03	2.6	A	0/5	0.03	2.2	A	0/5	0.04	2.1	A	0/5
Overall Intersection	**--**	**9.6**	**A**	**--/--**	**--**	**11.0**	**B**	**--/--**	**--**	**12.9**	**B**	**--/--**

[a] Volume-to-capacity ratio.

[b] Average control delay in seconds per vehicle.

[c] Level of service.

[d] Average/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

TABLE 6 (continued)
Intersection Capacity Analysis Summary

Intersection/Peak Hour/Lane Group	2021 Existing				2030 No-Build				2030 Build			
	V/C [a]	Del. [b]	LOS [c]	Queue [d]	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
Epping Road (NH Route 27) at Columbus Avenue												
Weekday AM:												
Columbus Avenue NE approach	0.67	32.0	D	--/118	--	--	--	--/--	--	--	--	--/--
Epping Road NB left turn	0.00	0.0	A	--/<25	--	--	--	--/--	--	--	--	--/--
Weekday PM:												
Columbus Avenue NE approach	0.52	28.1	D	--/70	--	--	--	--/--	--	--	--	--/--
Epping Road NB left turn	0.00	0.0	A	--/<25	--	--	--	--/--	--	--	--	--/--
Epping Road (NH Route 27) at Brentwood Road (NH Route 111A)												
Weekday AM:												
Epping Road NB left turn	0.03	8.0	A	--/<25	0.04	8.4	A	--/<25	0.04	8.4	A	--/<25
Brentwood Road EB approach	0.10	10.4	B	--/<25	--	--	--	--/--	--	--	--	--/--
Brentwood Road EB left turn	--	--	--	--/--	0.60	29.0	D	--/95	0.65	32.5	D	--/108
Brentwood Road EB right turn	--	--	--	--/--	0.14	12.4	B	--/<25	0.14	12.7	B	--/<25
Weekday PM:												
Epping Road NB left turn	0.09	8.4	A	--/<25	0.12	9.2	A	--/<25	0.12	9.3	A	--/<25
Brentwood Road EB approach	0.10	11.1	B	--/<25	--	--	--	--/--	--	--	--	--/--
Brentwood Road EB left turn	--	--	--	--/--	0.43	29.0	D	--/50	0.47	31.4	D	--/58
Brentwood Road EB right turn	--	--	--	--/--	0.18	15.6	C	--/<25	0.18	15.9	C	--/<25
Brentwood Road (NH Route 111A) at Columbus Avenue												
Weekday AM:												
Columbus Avenue NB approach	0.10	8.4	A	--/<25	0.10	10.4	B	--/<25	0.11	10.4	B	--/<25
Brentwood Road EB approach	0.33	9.9	A	--/38	0.00	0.0	A	--/<25	0.00	0.0	A	--/<25
Brentwood Road WB approach	0.06	8.1	A	--/<25	0.00	0.0	A	--/<25	0.00	0.0	A	--/<25
Columbus Avenue SB approach	0.16	8.2	A	--/<25	--	--	--	--/--	--	--	--	--/--
Weekday PM:												
Columbus Avenue NB approach	0.11	8.6	A	--/<25	0.09	9.6	A	--/<25	0.09	9.6	A	--/<25
Brentwood Road EB approach	0.23	9.6	A	--/<25	0.00	0.0	A	--/<25	0.00	0.0	A	--/<25
Brentwood Road WB approach	0.15	9.0	A	--/<25	0.00	0.0	A	--/<25	0.00	0.0	A	--/<25
Columbus Avenue SB approach	0.37	9.8	A	--/43	--	--	--	--/--	--	--	--	--/--

[a] Volume-to-capacity ratio.
[b] Average control delay in seconds per vehicle.
[c] Level of service.
[d] Average/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

TABLE 6 (continued)
Intersection Capacity Analysis Summary

Intersection/Peak Hour/Lane Group	2021 Existing				2030 No-Build				2030 Build			
	V/C [a]	Del. [b]	LOS [c]	Queue [d]	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
Epping Road (NH Route 27) at Site Driveway												
Weekday AM:												
Epping Road NB left turn	0.01	9.1	A	--/<25	0.01	9.8	A	--/<25	0.12	10.4	B	--/<25
Site Driveway EB approach	0.03	21.6	C	--/<25	0.02	18.4	C	--/<25	--	--	--	--/--
Site Driveway EB left turn	--	--	--	--/--	--	--	--	--/--	0.13	26.9	D	--/<25
Site Driveway EB right turn	--	--	--	--/--	--	--	--	--/--	0.26	18.7	C	--/25
Weekday PM:												
Epping Road NB left turn	0.01	9.2	A	--/<25	0.01	9.9	A	--/<25	0.11	10.6	B	--/<25
Site Driveway EB approach	0.18	31.8	D	--/<25	0.12	22.5	C	--/<25	--	--	--	--/--
Site Driveway EB left turn	--	--	--	--/--	--	--	--	--/--	0.16	33.2	D	--/<25
Site Driveway EB right turn	--	--	--	--/--	--	--	--	--/--	0.22	18.7	C	--/<25
Continental Drive at Site Driveway												
Weekday AM:												
Site Driveway NB approach	--	--	--	--/--	--	--	--	--/--	0.09	9.1	A	--/<25
Continental Drive WB left turn	--	--	--	--/--	--	--	--	--/--	0.02	7.3	A	--/<25
Weekday PM:												
Site Driveway NB approach	--	--	--	--/--	--	--	--	--/--	0.10	10.0	B	--/<25
Continental Drive WB left turn	--	--	--	--/--	--	--	--	--/--	0.01	7.8	A	--/<25

[a] Volume-to-capacity ratio.
[b] Average control delay in seconds per vehicle.
[c] Level of service.
[d] Average/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

CONCLUSIONS

Existing and future conditions in the study area have been described, analyzed, and evaluated with respect to traffic operations and the impact of the proposed redevelopment. Conclusions of this effort are presented below.

- The site located at 158 Epping Road (NH Route 27) is currently occupied by a ±12,190 SF vacant Jaguar auto dealership. The project consists of razing the existing buildings on the site and constructing a retail motor fuel outlet with a ±5,500 SF convenience store, a gasoline station with six (6) MPDs having twelve (12) VFPS, and a ±4,182 SF automated car wash having one (1) tunnel. Access and egress are proposed via two (2) full access/egress driveways; one on Epping Road (NH Route 27) and one on Continental Drive.

- Available sight distances at the proposed site driveways exceed the minimum and desirable SSD and ISD requirements for safe operation with exception to the site driveway on Continental Drive, east of the intersection, which is limited to 125 feet due to the adjacent T-intersection Epping Road (NH Route 27). Based on AASHTO requirements, 125 feet is safe for speeds up to 22 mph. Due to the proximity of the intersection, it is not likely that vehicles in the westbound direction will be traveling greater than 22 mph on Continental Drive in between Epping Road and the site driveway as they are entering onto Continental Drive from a turning movement. Left-turn speeds are generally 15 mph and right-turn speeds are generally 9 mph.

- The proposed redevelopment is expected to generate 118 *additional* vehicles trips (54 entering and 64 exiting) during the weekday AM peak hour and 94 *additional* vehicles trips (51 entering and 43 exiting) during the weekday PM peak hour beyond the study area. At the site driveways, the proposed redevelopment is expected to generate 350 *additional* vehicles trips (170 entering and 180 exiting) during the weekday AM peak hour and 268 *additional* vehicles trips (138 entering and 130 exiting) during the weekday PM peak hour. Traffic-volume increases beyond the study area during the peak hours are expected to be in the range of 13 to 66 vehicles. These increases represent, on average, one additional vehicle approximately every 1 minute to 4.5 minutes during the peak hours.

- Under existing and future traffic-volume conditions, the signalized intersection of Epping Road (NH Route 27) at Continental Drive is expected to operate at an overall LOS A/B with all movements at LOS C or better during the weekday peak hours. There are no drops in level of service as a result of the proposed redevelopment project. Increases in delay as a result of the redevelopment are less than 3 seconds on the overall intersection, and less than 5 seconds on any particular movement. The volume-to-capacity (v/c) ratios are below 1.00 indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

- Under existing traffic-volume conditions, the Columbus Avenue left-turn movement onto Epping Road operates at LOS D with all other movements at this Epping Road/Brentwood Road/Columbus Avenue location at LOS A/B during the weekday peak hours. With the geometric improvements at this location, the Brentwood Road eastbound left-turn onto Epping Road is expected to operate at LOS D with all other movements at LOS A/B under future traffic-volume conditions. With the proposed redevelopment in place, increases in delay on any movement are expected to be less than 4 seconds with a negligible increase in queue lengths. The v/c ratios are anticipated to be well below 1.00 indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

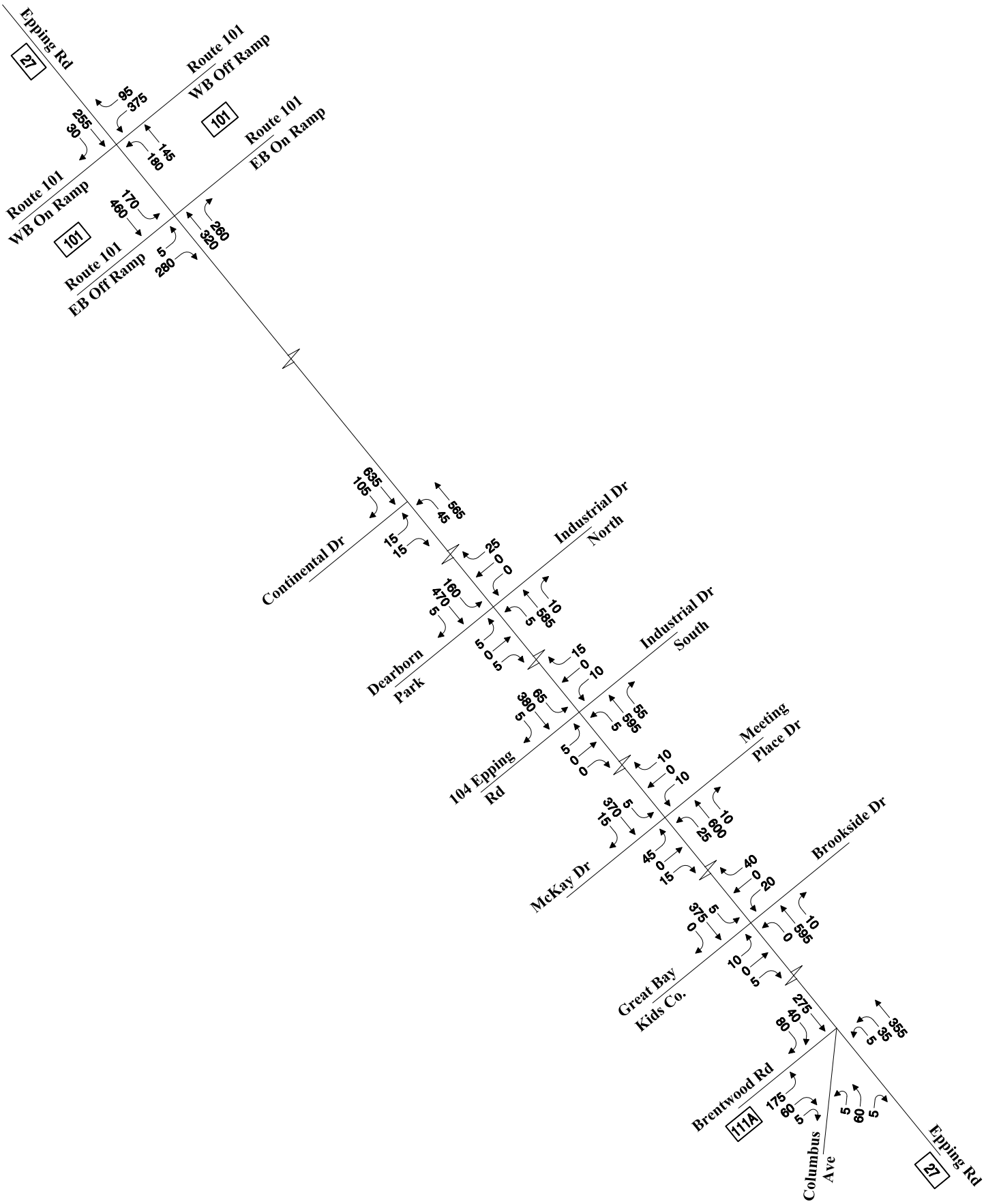
- Under future traffic-volume conditions, the site driveway on Epping Road (NH Route 27) is anticipated to operate with left-turn movements out of the site at LOS D and right-turn movements at LOS C during the weekday peak hours. All queues on site are anticipated to be one vehicle or less with v/c ratios well below 1.00 indicating adequate capacity. The Epping Road northbound left-turn movement into the site is anticipated to be LOS B with queue lengths of one vehicle or less.

- Under future traffic-volume conditions, the site driveway on Continental Drive is expected to operate with all movements at LOS A/B during the weekday peak hours. Queue lengths are anticipated to be one vehicle or less and v/c ratios are anticipated to be well below 1.00 indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

- APPENDIX

- ***Traffic-Count Data***
- ***Speed Data***
- ***Mid-Term Improvements***
- ***Trip Generation Calculations***
- ***Capacity Analysis Methodology***
- ***Capacity and Queue Analysis Worksheets***

TRAFFIC-COUNT DATA

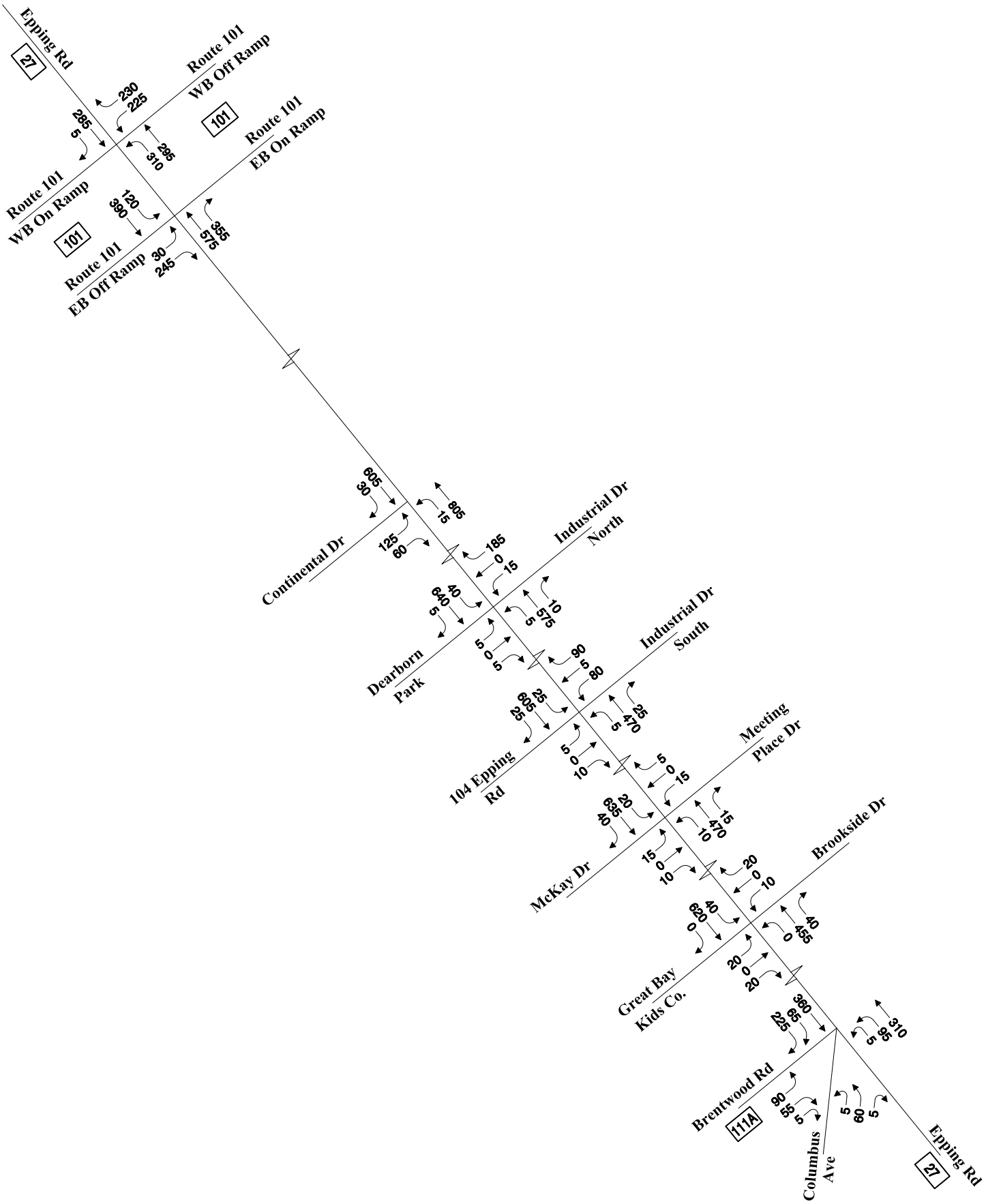


Not to Scale

GPI 2021 Existing AM

2020 Base Weekday Morning
Peak Hour Traffic Volumes

Figure 2

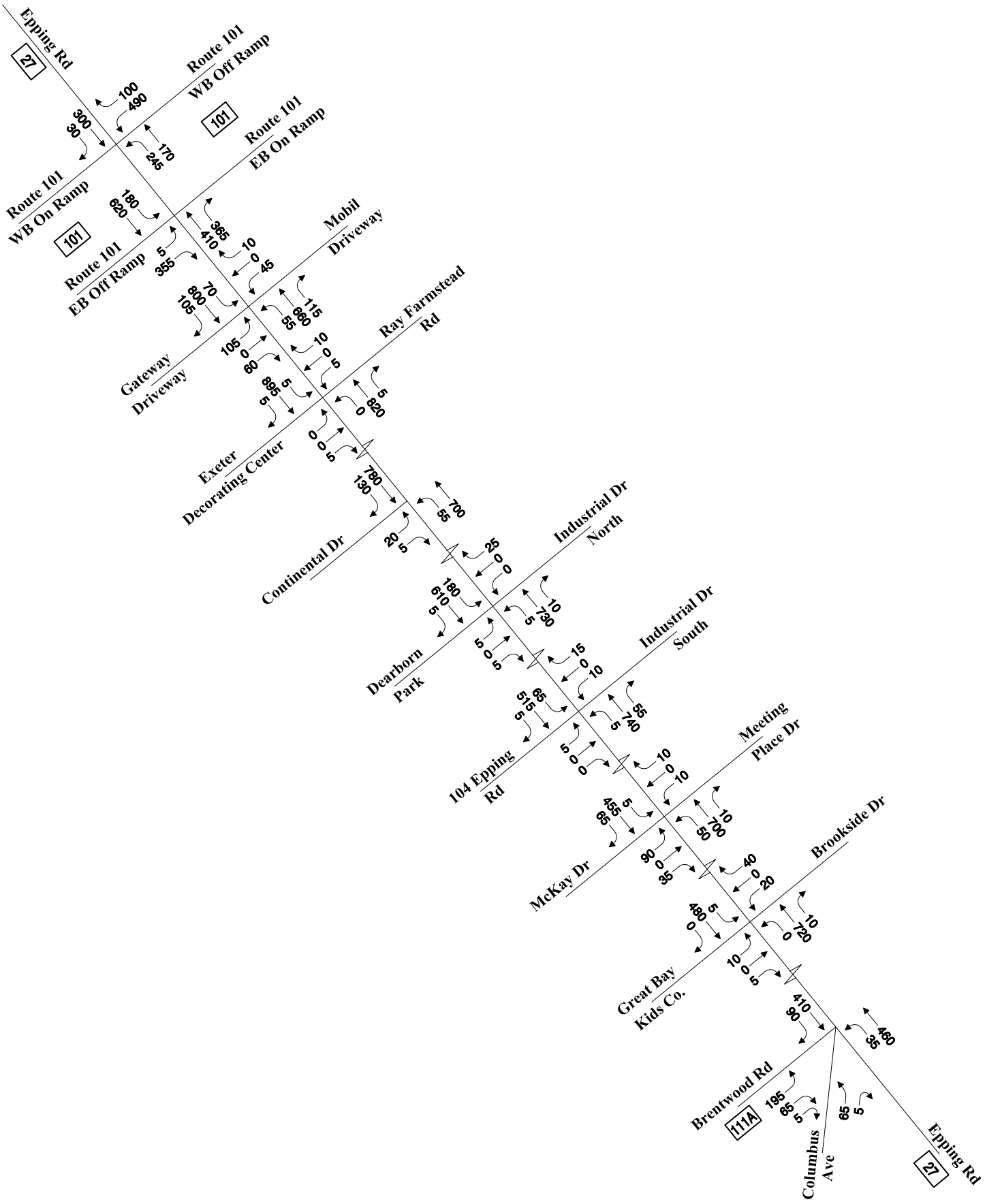


Not to Scale

GPI 2021 Existing PM

2020 Base Weekday Evening
Peak Hour Traffic Volumes

Figure 3

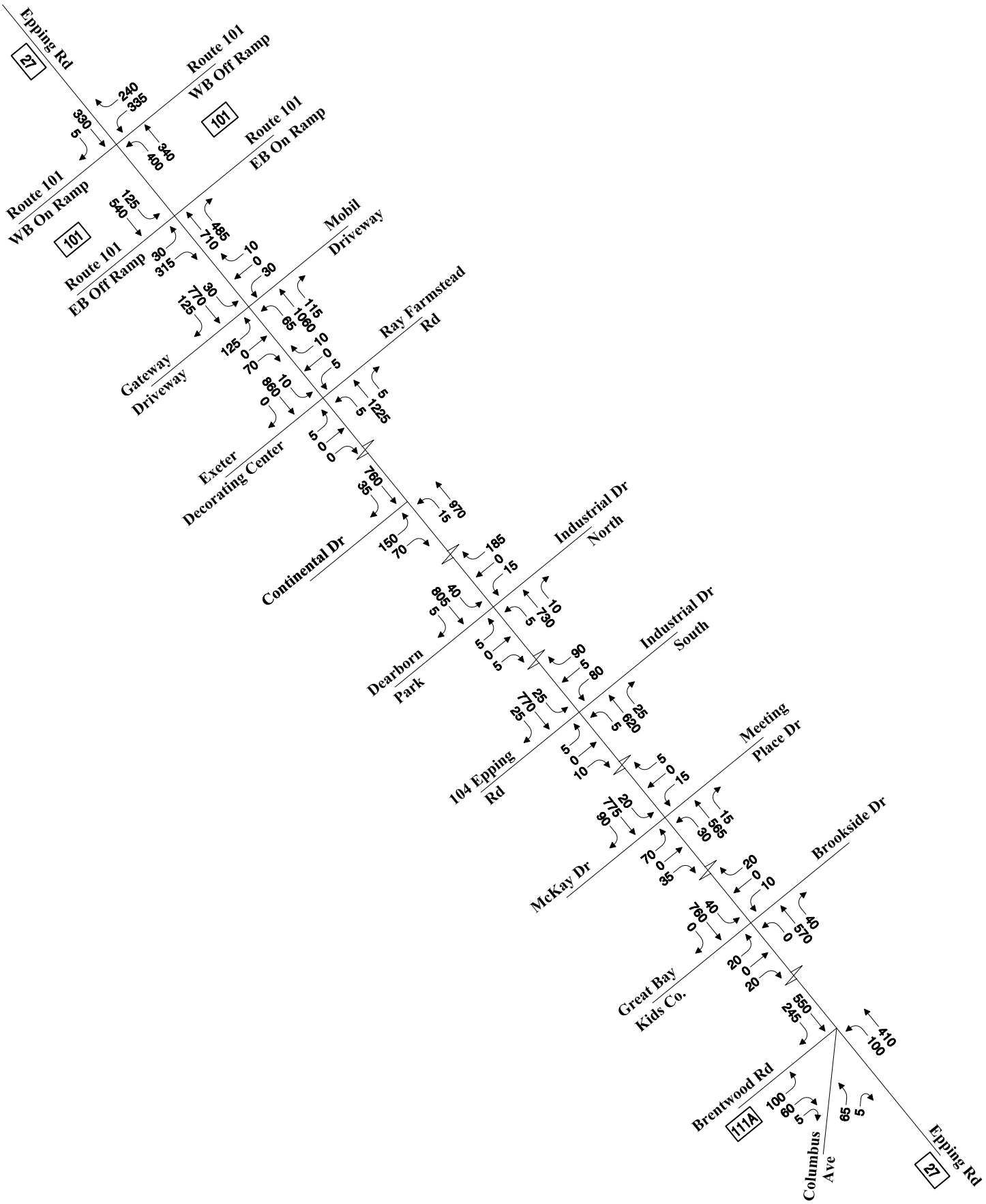


Not to Scale

GPI 2030 No-Build AM

2030 Mid-Term Build
Weekday Morning
Peak Hour Traffic Volumes

Figure 10

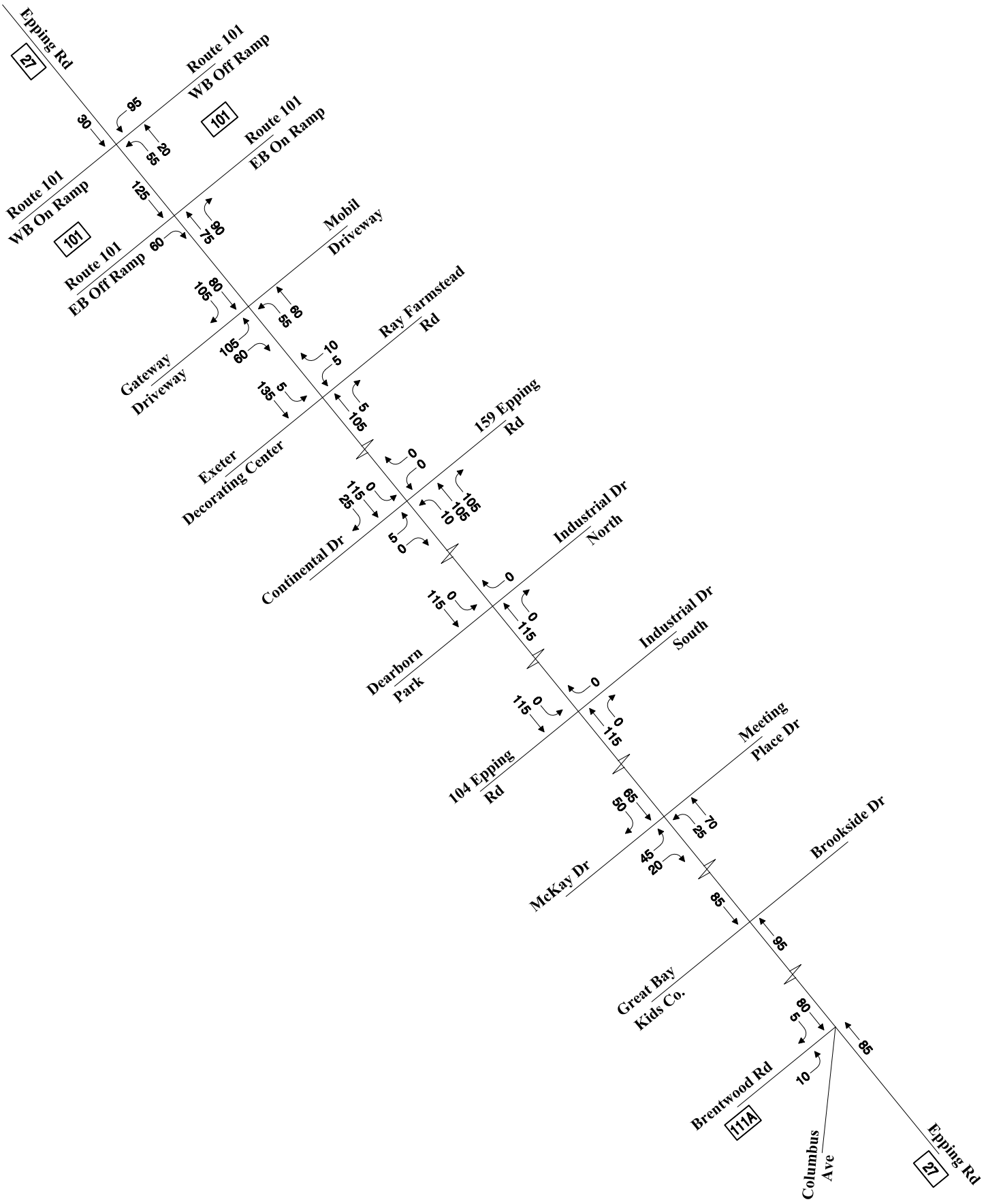


Not to Scale

GPI 2030 No-Build PM

2030 Mid-Term Build
Weekday Evening
Peak Hour Traffic Volumes

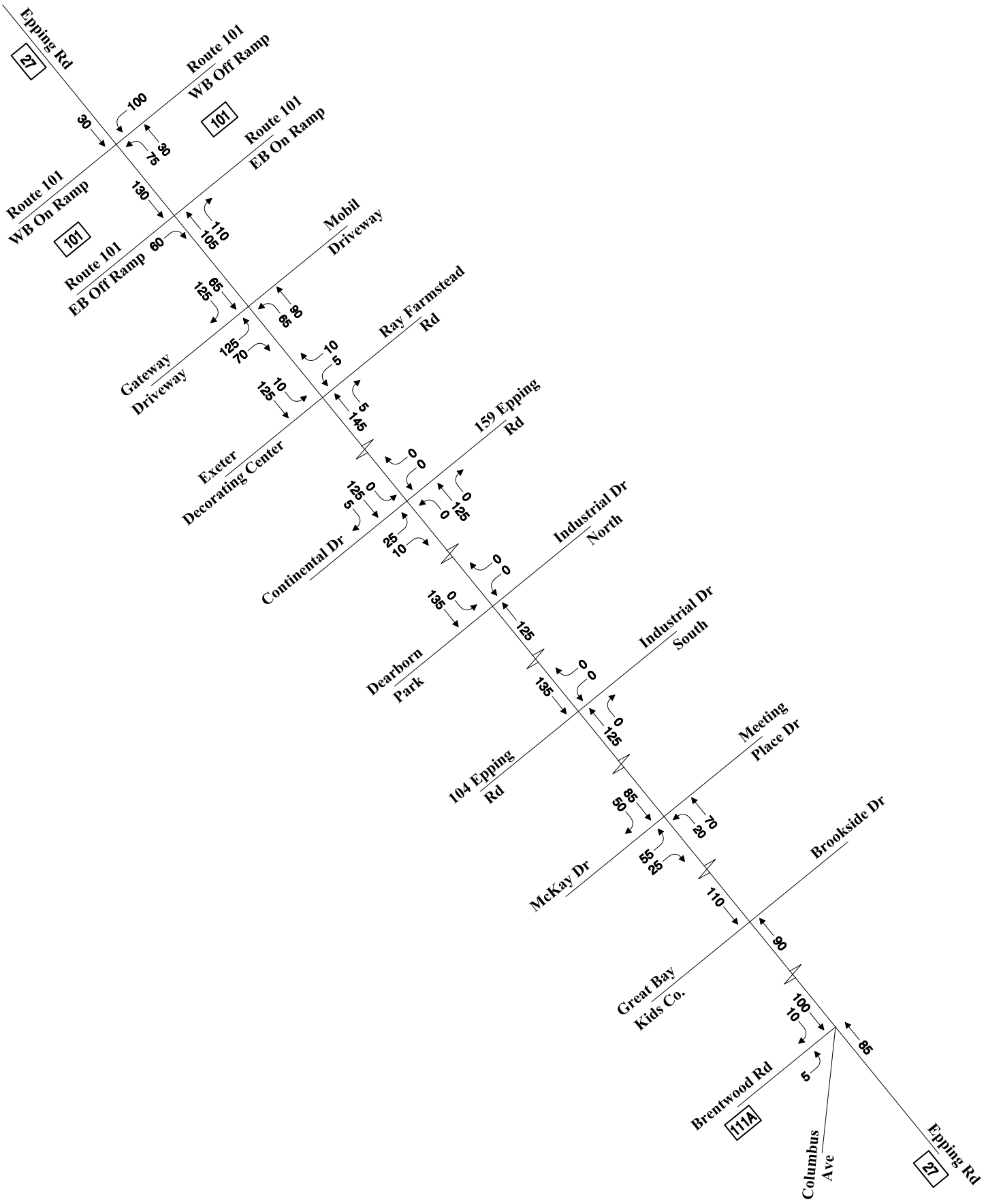
Figure 11



Not to Scale

Known Developments
Site-Generated Traffic Volumes
Weekday Morning

Figure A-3



Not to Scale

Known Developments
Site-Generated Traffic Volumes
Weekday Evening

Figure A-4

SPEED DATA

Location : NH Route 27
Location : North of Continental Drive
City/State: Exeter, NH

1857SPD1

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/25/20	0	0	0	2	7	2	1	0	1	0	0	0	0	0	13
01:00	0	0	0	2	4	1	1	0	0	0	0	0	0	0	8
02:00	0	0	0	0	3	4	1	0	0	0	0	0	0	0	8
03:00	0	0	0	1	6	4	2	0	0	0	0	0	0	0	13
04:00	0	0	0	2	15	13	6	0	0	0	0	0	0	0	36
05:00	0	1	0	29	95	72	17	5	0	0	0	0	0	0	219
06:00	2	0	0	17	108	151	56	5	1	0	0	0	0	0	340
07:00	1	6	4	18	101	164	55	3	2	0	0	0	0	0	354
08:00	2	4	1	18	77	97	72	9	2	0	0	0	0	0	282
09:00	3	5	9	13	77	79	40	5	0	0	0	0	0	0	231
10:00	1	3	3	21	61	94	41	9	1	0	0	0	0	0	234
11:00	1	1	3	18	62	96	48	3	0	0	0	0	0	0	232
12 PM	2	3	5	27	108	118	44	10	2	0	0	0	0	0	319
13:00	1	1	2	25	113	123	31	6	0	0	0	0	0	0	302
14:00	0	3	1	24	103	99	27	3	0	0	0	0	0	0	260
15:00	1	0	1	30	117	83	24	3	0	0	0	0	0	0	259
16:00	3	1	6	20	84	91	19	2	0	0	0	0	0	0	226
17:00	2	0	1	6	94	94	37	4	0	0	0	0	0	0	238
18:00	0	0	0	15	49	48	27	0	0	0	0	0	0	0	139
19:00	0	0	0	12	39	32	12	3	0	0	0	0	0	0	98
20:00	0	0	0	9	24	18	6	1	0	0	0	0	0	0	58
21:00	0	0	0	6	25	20	10	1	0	0	0	0	0	0	62
22:00	0	0	0	3	15	3	3	0	0	0	0	0	0	0	24
23:00	0	0	0	1	10	5	2	1	0	0	0	0	0	0	19
Total	19	28	36	319	1397	1511	582	73	9	0	0	0	0	0	3974

Daily

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	36 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	2908
Percent in Pace :	73.2%
Number of Vehicles > 35 MPH :	2175
Percent of Vehicles > 35 MPH :	54.7%

Location : NH Route 27
Location : North of Continental Drive
City/State: Exeter, NH

1857SPD1

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/26/20	0	0	0	0	3	2	1	0	0	0	0	0	0	0	6
01:00	0	0	0	1	4	2	1	0	0	0	0	0	0	0	8
02:00	0	0	1	1	1	2	0	0	1	0	0	0	0	0	6
03:00	0	0	1	3	9	5	2	0	0	0	0	0	0	0	20
04:00	0	0	1	2	10	13	3	1	0	0	0	0	0	0	30
05:00	0	2	1	32	97	75	16	2	0	0	0	0	0	0	225
06:00	1	1	1	15	90	161	65	7	2	0	0	0	0	0	343
07:00	2	7	3	18	71	156	60	13	0	0	0	0	0	0	330
08:00	1	2	0	11	73	124	70	7	1	0	0	0	0	0	289
09:00	0	3	0	7	60	108	39	5	0	0	0	0	0	0	222
10:00	3	1	4	21	78	75	34	6	0	0	0	0	0	0	222
11:00	3	1	1	18	88	75	28	2	0	0	0	0	0	0	216
12 PM	0	1	7	19	104	126	30	3	0	0	0	0	0	0	290
13:00	0	4	10	26	124	134	36	10	1	0	0	0	0	0	345
14:00	2	0	2	24	110	99	32	2	0	0	0	0	0	0	271
15:00	0	2	2	32	132	88	19	1	1	0	0	0	0	0	277
16:00	6	10	0	16	100	105	29	1	0	0	0	0	0	0	267
17:00	0	1	6	11	59	113	34	5	0	0	0	0	0	0	229
18:00	0	0	0	9	56	57	34	4	1	0	0	0	0	0	161
19:00	0	0	0	13	34	41	14	2	0	0	0	0	0	0	104
20:00	0	0	0	8	26	23	9	0	0	0	0	0	0	0	66
21:00	0	0	0	6	25	24	4	2	0	0	0	0	0	0	61
22:00	0	0	0	2	8	7	2	1	0	0	0	0	0	0	20
23:00	0	0	0	0	9	3	2	1	0	0	0	0	0	0	15
Total	18	35	40	295	1371	1618	564	75	7	0	0	0	0	0	4023

Daily

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	36 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	2989
Percent in Pace :	74.3%
Number of Vehicles > 35 MPH :	2264
Percent of Vehicles > 35 MPH :	56.3%

Grand Total	37	63	76	614	2768	3129	1146	148	16	0	0	0	0	0	7997

Overall

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	36 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	5897
Percent in Pace :	73.7%
Number of Vehicles > 35 MPH :	4439
Percent of Vehicles > 35 MPH :	55.5%

Location : NH Route 27
Location : North of Continental Drive
City/State: Exeter, NH

1857SPD1

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/25/20	0	0	0	1	10	7	4	0	0	0	0	0	0	0	22
01:00	0	0	0	0	1	1	1	1	0	0	0	0	0	0	4
02:00	0	0	0	4	1	4	0	0	0	0	0	0	0	0	9
03:00	0	0	0	3	3	7	3	0	0	0	0	0	0	0	16
04:00	1	0	0	2	9	12	4	3	0	0	0	0	0	0	31
05:00	4	0	1	4	30	37	12	0	0	0	0	0	0	0	88
06:00	0	2	1	8	51	79	40	6	0	0	0	0	0	0	187
07:00	0	0	2	10	53	82	66	7	0	0	0	0	0	0	220
08:00	2	0	0	10	39	84	55	10	1	0	0	0	0	0	201
09:00	1	4	3	11	67	99	54	9	1	2	0	0	1	0	252
10:00	2	3	4	14	80	87	46	4	1	0	0	0	0	0	241
11:00	3	6	4	17	70	123	49	9	1	0	0	0	0	0	282
12 PM	1	3	3	18	62	160	89	9	1	0	0	0	0	0	346
13:00	1	1	2	8	61	128	72	12	0	0	0	0	0	0	285
14:00	2	4	0	24	89	204	84	9	3	1	0	0	0	0	420
15:00	0	1	5	15	165	207	78	10	0	0	0	0	0	0	481
16:00	0	3	4	27	173	213	81	16	2	1	0	0	0	0	520
17:00	1	1	0	7	105	143	73	9	0	0	0	0	0	0	339
18:00	1	2	1	8	31	103	46	3	0	0	0	0	0	0	195
19:00	0	1	0	6	35	40	21	2	0	0	0	0	0	0	105
20:00	0	0	0	0	16	30	10	1	0	0	0	0	0	0	57
21:00	0	0	0	1	15	11	5	1	0	0	0	0	0	0	33
22:00	0	0	1	3	23	27	13	1	1	0	0	0	0	0	69
23:00	0	0	0	0	3	11	2	0	1	0	0	0	0	0	17
Total	19	31	31	201	1192	1899	908	122	12	4	0	0	1	0	4420

Daily

15th Percentile :	31 MPH
50th Percentile :	36 MPH
85th Percentile :	42 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	37 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	3091
Percent in Pace :	69.9%
Number of Vehicles > 35 MPH :	2946
Percent of Vehicles > 35 MPH :	66.7%

Location : NH Route 27
Location : North of Continental Drive
City/State: Exeter, NH

1857SPD1

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
03/26/20	0	0	0	3	12	4	0	2	0	0	0	0	0	0	21
01:00	0	0	0	3	2	2	1	0	0	0	0	0	0	0	8
02:00	0	0	0	0	5	2	1	0	0	0	0	0	0	0	8
03:00	0	0	0	1	11	1	2	1	0	0	0	0	0	0	16
04:00	1	0	0	3	12	16	2	1	0	0	0	0	0	0	35
05:00	0	1	3	13	32	22	9	0	0	0	0	0	0	0	80
06:00	0	0	0	5	54	74	52	6	0	0	1	0	1	0	193
07:00	2	0	3	18	61	95	61	9	1	0	0	0	0	0	250
08:00	1	2	4	13	63	100	53	2	1	0	0	0	0	0	239
09:00	1	1	0	8	60	90	64	9	0	0	0	0	0	0	233
10:00	0	6	0	21	76	90	56	5	0	0	0	1	0	0	255
11:00	0	1	0	14	83	129	51	5	0	0	0	0	0	0	283
12 PM	0	1	2	20	104	133	56	9	0	1	0	0	0	0	326
13:00	0	1	0	12	65	136	63	8	2	0	0	0	0	0	287
14:00	3	1	0	34	114	169	71	8	1	0	0	0	1	0	402
15:00	0	5	12	46	158	241	59	3	0	0	0	0	1	0	525
16:00	1	5	10	36	162	214	77	13	1	0	0	0	2	0	521
17:00	0	6	0	13	104	172	96	12	2	0	0	0	0	0	405
18:00	0	1	0	5	30	78	52	10	3	0	0	0	0	0	179
19:00	0	0	0	6	36	43	20	9	1	0	0	0	0	0	115
20:00	0	0	0	1	25	28	7	2	0	0	0	0	0	0	63
21:00	0	0	0	4	11	12	9	2	0	0	0	0	0	0	38
22:00	0	0	0	1	17	21	12	1	1	0	0	0	0	0	53
23:00	0	0	0	1	8	12	8	1	0	1	0	0	0	0	31
Total	9	31	34	281	1305	1884	882	118	13	2	1	1	5	0	4566

Daily

15th Percentile :	31 MPH
50th Percentile :	36 MPH
85th Percentile :	41 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	37 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	3189
Percent in Pace :	69.8%
Number of Vehicles > 35 MPH :	2906
Percent of Vehicles > 35 MPH :	63.6%

Grand Total	28	62	65	482	2497	3783	1790	240	25	6	1	1	6	0	8986

Overall

15th Percentile :	31 MPH
50th Percentile :	36 MPH
85th Percentile :	42 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	37 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	6280
Percent in Pace :	69.9%
Number of Vehicles > 35 MPH :	5852
Percent of Vehicles > 35 MPH :	65.1%

VEHICLE SPEED CALCULATION WORKSHEET

Location:	**Continental Drive, west of Epping Road**	Date:	4/9/2021
Project:	Retail Motor Fuel Outlet - Exeter, NH	Time:	12:00 PM
Weather:	Sunny - 60's	Job #:	NEX-2020283.00

Eastbound Speed (mph)	Westbound Speed (mph)	
33	27	
31	26	
35	24	
34	33	
34	30	
32	36	
29	36	
32	28	
38	30	
34	30	
41	34	
35	28	
37	27	
31	29	
29	32	
34	35	
35	37	
36	33	
31	26	
35	34	
29	32	
36	25	
29	28	
31	27	
30	30	
30		
35		
28		
33	30	= Average Speeds
36	34	= 85th Percentile Speeds

MID-TERM IMPROVEMENTS

COLUMBUS AVE

BRENTWOOD ROAD/
NH 111A

COMINGS CT

NH 27

GREAT BAY KIDS

BROOKSIDE DRIVE

GRID N

PROGRESS PLANS
SUBJECT TO CHANGE
DATE 9/28/2020

100 0 100 200

SCALE IN FEET

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION - BUREAU OF HIGHWAY DESIGN

MID-TERM IMPROVEMENTS

DATE PLOTTED	VHB PROJECT NO.	DRAWING	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
28-Sep-20	52676.00	52676_11X17_3LANE		1	5

POTENTIAL ACCESS AGREEMENT

JAGUAR EXETER

CONTINENTAL DRIVE

EXETER DECORATING CENTER

PORTLAND GLASS OF EXETER

TO BE CONSTRUCTED BY OTHERS

NH 27

RAY FARMSTEAD ROAD

GRID N

PROGRESS PLANS
SUBJECT TO CHANGE
DATE 9/28/2020

100 0 100 200

SCALE IN FEET

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION - BUREAU OF HIGHWAY DESIGN

MID-TERM IMPROVEMENTS

DATE PLOTTED	VHB PROJECT NO.	DRAWING	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
28-Sep-20	52676.00	52676_11X17_3LANE		4	5

TRIP-GENERATION CALCULATIONS

		Existing LUC 840 Total	Proposed LUC 960 Total	Pass-By	New
Weekday Daily	In	160	1,383	774	609
	Out	160	1,383	774	609
	Total	320	2,766	1548	1,218
Weekday AM	In	17	187	116	71
	Out	6	186	116	70
	Total	23	373	232	141
Weekday PM	In	18	156	87	69
	Out	26	156	87	69
	Total	44	312	174	138
Saturday Daily	In	318	1,750	980	770
	Out	318	1,750	980	770
	Total	636	3,500	1960	1,540
aturday Midday	In	4	178	99	79
	Out	5	176	99	77
	Total	9	354	198	156

	Pass-By
Wkday Daily	56%
AM	62%
PM	56%
Saturday	56%
SAT	56%

No daily Car Wash trip estimates available.

Institute of Transportation Engineers (ITE)

Land Use Code (LUC) 840 - Automobile Sales (New)

General Urban/Suburban

Average Vehicle Trips Ends vs 1000 Sq. Feet Gross Floor Area
Independent Variable (X): 12.187

AVERAGE WEEKDAY DAILY

T = 28.65 (X) - 29.45
T = 28.65 * 12.187 - 29.45
T = 319.71
T = 320 vehicle trips
with 50% (160 vph) entering and 50% (160 vph) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 1.87 * (X)
T = 1.87 * 12.187
T = 22.79
T = 23 vehicle trips
with 73% (17 vph) entering and 27% (6 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 1.80 (X) + 21.60
T = 1.80 * 12.187 + 21.60
T = 43.54
T = 44 vehicle trips
with 40% (18 vph) entering and 60% (26 vph) exiting.

SATURDAY DAILY

T = 52.24 * (X)
T = 52.24 * 12.187
T = 636.65
T = 636 vehicle trips
with 50% (318 vpd) entering and 50% (318 vpd) exiting.

SATURDAY PEAK HOUR OF GENERATOR

T = 8.56 (X) - 95.19
T = 8.56 * 12.187 - 95.19
T = 9.13
T = 9 vehicle trips
with 50% (4 vph) entering and 50% (5 vph) exiting.

Institute of Transportation Engineers (ITE)

Land Use Code (LUC) 960 - Super Convenience Market/Gas Station

General Urban/Suburban

Average Vehicle Trips Ends vs: Vehicle Fueling Positions
Independent Variable (X): 12

AVERAGE WEEKDAY DAILY

T = 230.52 * (X)
T = 230.52 * 12
T = 2766.24
T = 2,766 vehicle trips
with 50% (1,383 vpd) entering and 50% (1,383 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 28.08 * (X)
T = 28.08 * 12
T = 336.96
T = 337 vehicle trips
with 50% (169 vph) entering and 50% (168 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 22.96 * (X)
T = 22.96 * 12
T = 275.52
T = 276 vehicle trips
with 50% (138 vph) entering and 50% (138 vph) exiting.

SATURDAY DAILY

T = 291.67 * (X)
T = 291.67 * 12
T = 3500.04
T = 3,500 vehicle trips
with 50% (1,750 vpd) entering and 50% (1,750 vpd) exiting.

SATURDAY PEAK HOUR OF GENERATOR

T = 23.26 * (X)
T = 23.26 * 12
T = 279.12
T = 279 vehicle trips
with 50% (140 vph) entering and 50% (139 vph) exiting.

Institute of Transportation Engineers (ITE)

Land Use Code (LUC) 948 - Automated Car Wash

General Urban/Suburban

Average Vehicle Trips Ends vs: 1,000 Sq. Ft. Gross Floor Area
Independent Variable (X): 4.182

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 14.20 * (X)
T = 14.20 * 4.182
T = 59.38
T = 60 vehicle trips
with 50% (30 vpd) entering and 50% (30 vpd) exiting.

** No weekday morning peak hour data available, weekday evening trips were assumed.*

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 14.20 * (X)
T = 14.20 * 4.182
T = 59.38
T = 60 vehicle trips
with 50% (30 vpd) entering and 50% (30 vpd) exiting.

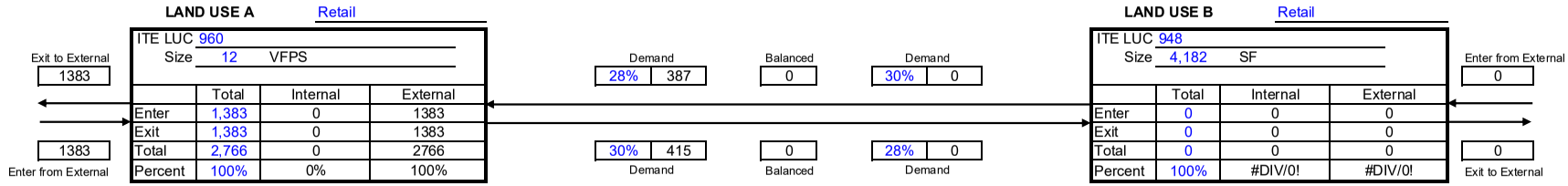
SATURDAY PEAK HOUR OF GENERATOR

T = 30.40 * (X)
T = 30.40 * 4.182
T = 127.13
T = 127 vehicle trips
with 50% (64 vph) entering and 50% (63 vph) exiting.

Analyst: Susannah E. Theriault
Date: March 16, 2021

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Dvlpt: Retail Motor Fuel Outlet
Time Period: Weekday Daily



Net External Trips for Multi-Use Development

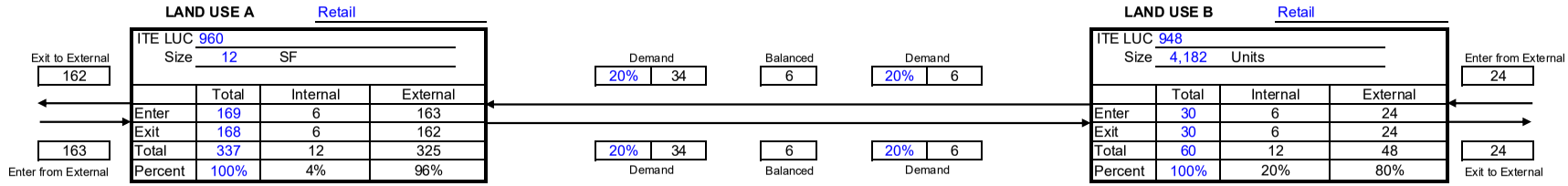
	Enter	Exit	Total	Single-Use Trip Gen Est.	
Land Use A	1383	1383	2766	2766	
Land Use B	0	0	0	0	*Internal Capture*
TOTAL	1383	1383	2766	2766	**0%**

Based on ITE *Trip Generation Handbook*, June 2004.

Analyst: Susannah E. Theriault
Date: March 16, 2021

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Dvlpt: Retail Motor Fuel Outlet
Time Period: Weekday AM



Net External Trips for Multi-Use Development

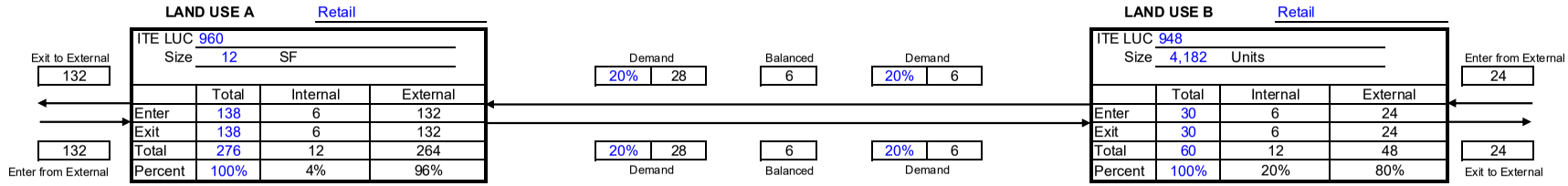
	Enter	Exit	Total	Single-Use Trip Gen Est.	
Land Use A	163	162	325	337	
Land Use B	24	24	48	60	*Internal Capture*
TOTAL	187	186	373	397	**6%**

Based on ITE *Trip Generation Handbook*, June 2004.

Analyst: Susannah E. Theriault
Date: March 16, 2021

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Dvlpt: Retail Motor Fuel Outlet
Time Period: Weekday PM



Net External Trips for Multi-Use Development

	Enter	Exit	Total	Single-Use Trip Gen Est.	
Land Use A	132	132	264	276	
Land Use B	24	24	48	60	*Internal Capture*
TOTAL	156	156	312	336	**7%**

Based on ITE *Trip Generation Handbook*, June 2004.

Table F.36 Pass-By and Non-Pass-By Trips Weekday, PM Peak Period Land Use Code 944—Gasoline/Service Station

SIZE (1,000 SQ. FT. GFA)	VEHICLE FUELING POSITIONS	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			ADJ. STREET PEAK HOUR VOLUME	SOURCE
							PRIMARY	DIVERTED	TOTAL		
—	—	Chicago suburbs, IL	1987	48	3:00–7:00 p.m.	21	—	—	79	—	Kenig, O'Hara, Humes, Flock
—	—	Chicago suburbs, IL	1987	34	3:00–6:00 p.m.	25	—	—	75	—	Kenig, O'Hara, Humes, Flock
—	—	Chicago suburbs, IL	1987	42	3:00–6:00 p.m.	20	—	—	80	—	Kenig, O'Hara, Humes, Flock
2.3	6	Gaithersburg, MD	1992	55	4:00–6:00 p.m.	40	11	49	60	2,760	RBA
2.1	6	Bethesda, MD	1992	30	4:00–6:00 p.m.	53	20	27	47	1,060	RBA
1.7	6	Wheaton, MD	1992	18	4:00–6:00 p.m.	61	6	33	39	2,510	RBA
2.0	8	Gaithersburg, MD	1992	47	4:00–6:00 p.m.	62	23	15	38	2,635	RBA
1.2	6	Damascus, MD	1992	26	4:00–6:00 p.m.	58	11	31	42	1,020	RBA
0.3	12	Wheaton, MD	1992	52	4:00–6:00 p.m.	38	10	52	62	3,835	RBA

Average Pass-By Trip Percentage: 42
"—" means no data were provided

Table F.37 Pass-By and Non-Pass-By Trips Weekday, AM Peak Period Land Use Code 945—Gasoline/Service Station with Convenience Market

SIZE (1,000 SQ. FT. GFA)	VEHICLE FUELING POSITIONS	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			ADJ. STREET PEAK HOUR VOLUME	SOURCE
							PRIMARY	DIVERTED	TOTAL		
0.8	8	Louisville area, KY	1993	61	7:00–9:00 a.m.	60	15	25	40	4,000	Barton-Aschman Assoc.
0.6	8	Louisville, KY	1993	48	7:00–9:00 a.m.	68	13	19	32	1,307	Barton-Aschman Assoc.
0.7	10	Louisville, KY	1993	47	7:00–9:00 a.m.	67	11	22	33	1,105	Barton-Aschman Assoc.
0.7	8	Louisville area, KY	1993	—	7:00–9:00 a.m.	56	22	22	44	1,211	Barton-Aschman Assoc.
0.7	10	Louisville area, KY	1993	—	7:00–9:00 a.m.	46	42	12	54	1,211	Barton-Aschman Assoc.
0.3	—	Louisville area, KY	1993	75	7:00–9:00 a.m.	72	15	13	28	—	Barton-Aschman Assoc.
0.8	8	Silver Spring, MD	1992	36	7:00–9:00 a.m.	47	14	39	53	3,095	RBA
0.4	8	Derwood, MD	1992	46	7:00–9:00 a.m.	75	0	25	25	3,770	RBA
2.2	8	Kensington, MD	1992	31	7:00–9:00 a.m.	47	34	19	53	1,785	RBA
1	8	Silver Spring, MD	1992	35	7:00–9:00 a.m.	78	9	13	22	7,080	RBA

Average Pass-By Trip Percentage: 62
"—" means no data were provided

Figure F.18 Gasoline/Service Station with Convenience Market (945)

Average Pass-By Trip Percentage vs: **1,000 Sq. Ft. Gross Floor Area**
On a: **Weekday, AM Peak Period**
Number of Studies: 10
Average 1,000 Sq. Ft. GFA: 0.8

Data Plot

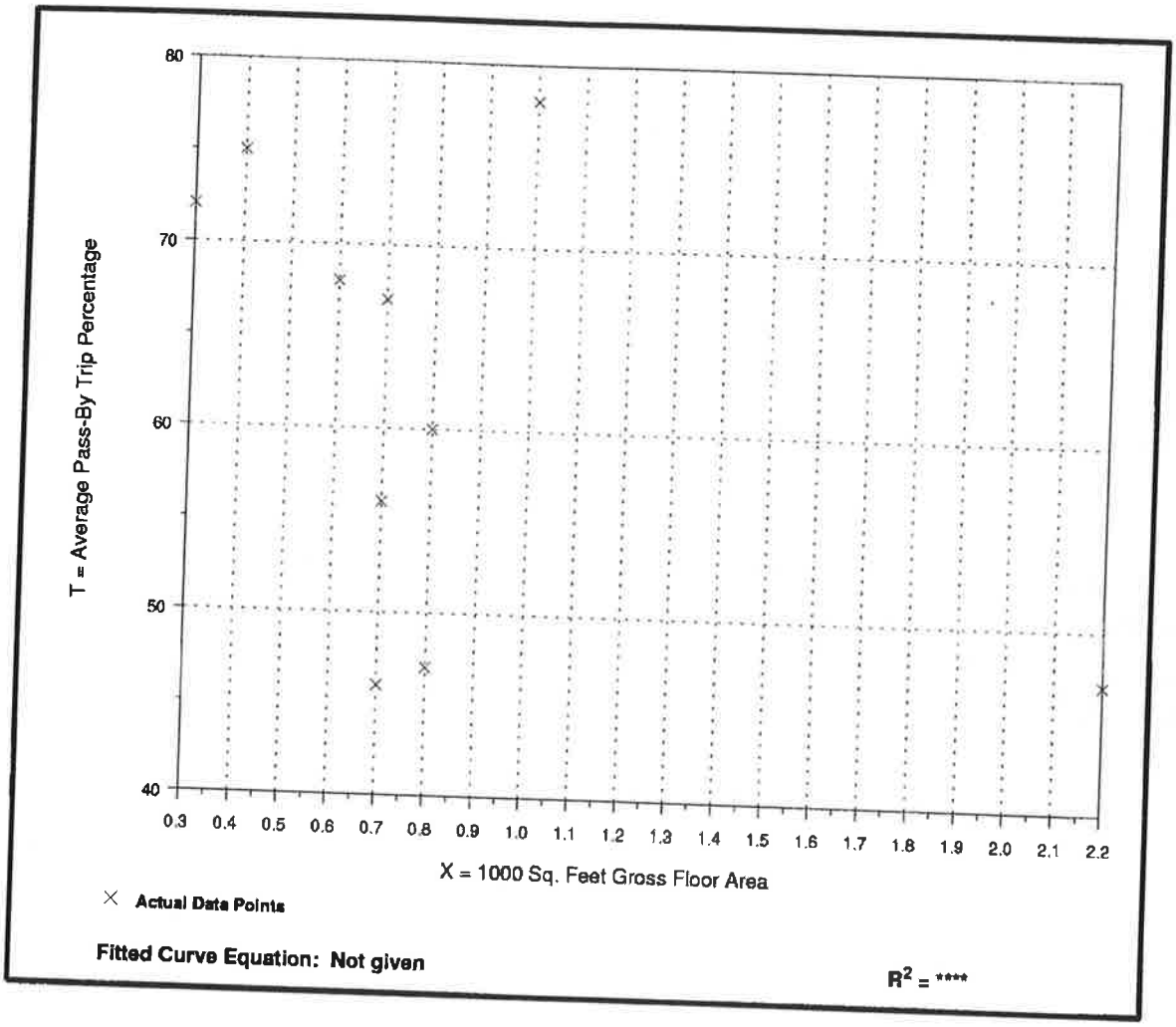


Table F.38 Pass-By and Non-Pass-By Trips Weekday, PM Peak Period
Land Use Code 945—Gasoline/Service Station with Convenience Market

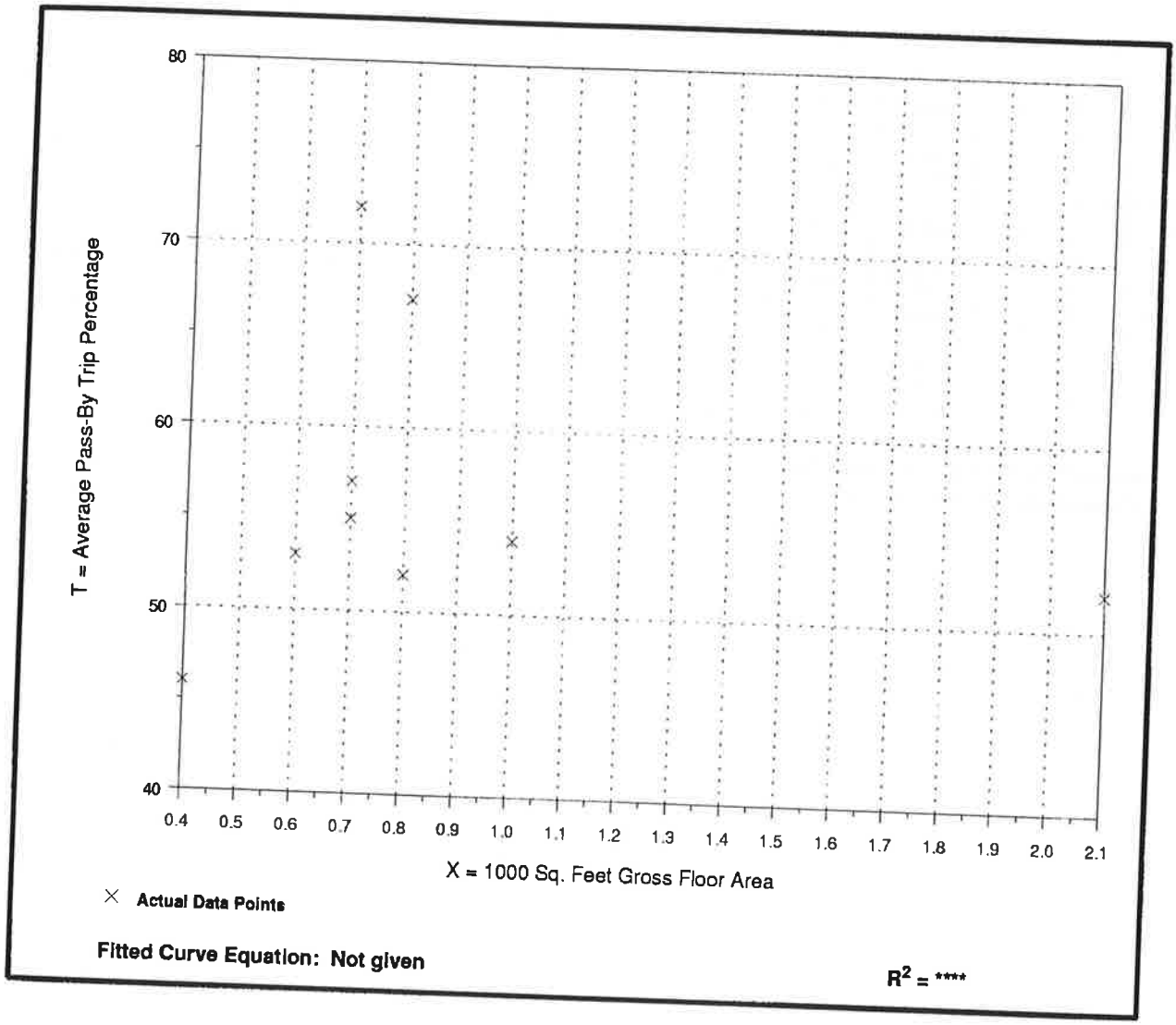
SIZE (1,000 SQ. FT GFA)	VEHICLE FUELING POSITIONS	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			ADJ. STREET PEAK HOUR VOLUME	SOURCE
							PRIMARY	DIVERTED	TOTAL		
0.8	8	Louisville area, KY	1993	83	4:00–6:00 p.m.	52	8	40	48	4,965	Barton-Aschman Assoc.
0.6	8	Louisville, KY	1993	60	4:00–6:00 p.m.	53	20	27	47	1,491	Barton-Aschman Assoc.
0.7	10	Louisville, KY	1993	—	4:00–6:00 p.m.	57	19	24	43	1,812	Barton-Aschman Assoc.
0.7	8	Louisville area, KY	1993	—	4:00–6:00 p.m.	72	7	21	28	2,657	Barton-Aschman Assoc.
0.7	10	Louisville area, KY	1993	—	4:00–6:00 p.m.	55	16	29	45	2,657	Barton-Aschman Assoc.
0.8	8	Silver Spring, MD	1992	36	4:00–6:00 p.m.	67	14	19	33	3,095	RBA
0.4	8	Derwood, MD	1992	46	4:00–6:00 p.m.	46	11	43	54	3,770	RBA
2.1	8	Kensington, MD	1992	31	4:00–6:00 p.m.	52	13	35	48	1,785	RBA
1	8	Silver Spring, MD	1992	35	4:00–6:00 p.m.	54	3	43	46	7,080	RBA

Average Pass-By Trip Percentage: 56
"—" means no data were provided

Figure F.19 Gasoline/Service Station with Convenience Market (945)

Average Pass-By Trip Percentage vs: **1,000 Sq. Ft. Gross Floor Area**
On a: **Weekday, PM Peak Period**
Number of Studies: 9
Average 1,000 Sq. Ft. GFA: 0.9

Data Plot



Fitted Curve Equation: Not given

R^2 = ****

CAPACITY ANALYSIS METHODOLOGY

CAPACITY ANALYSIS METHODOLOGY

A primary result of capacity analysis is the assignment of levels of service to traffic facilities under various traffic flow conditions. The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM).[7] The concept of level of service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year. A description of the operating condition under each level of service is provided below:

- *LOS A* describes conditions with little to no delay to motorists.
- *LOS B* represents a desirable level with relatively low delay to motorists.
- *LOS C* describes conditions with average delays to motorists.
- *LOS D* describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.
- *LOS E* represents operating conditions with high delay values. This level is considered by many agencies to be the limit of acceptable delay.
- *LOS F* is considered to be unacceptable to most drivers with high delay values that often occur, when arrival flow rates exceed the capacity of the intersection.

Unsignalized Intersections

Levels of service for unsignalized intersections are calculated using the operational analysis methodology of the HCM. The procedure accounts for lane configuration on both the minor and major street approaches, conflicting traffic stream volumes, and the type of intersection control (STOP, YIELD, or all-way STOP control). The definition of level of service for unsignalized intersections is a function of average *control* delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level-of-service criteria for unsignalized intersections are shown in Table A-1.

Signalized Intersections

Levels of service for signalized intersections are also calculated using the operational analysis methodology of the HCM. The methodology for signalized intersections assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on average *control* delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Table A-1 summarizes the relationship between level of service and average control delay.

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[7] *Highway Capacity Manual 6th Edition*, Transportation Research Board; Washington, D.C.; 2016.

TABLE A-1
Level-of-Service Criteria for Intersections

Level of Service	Unsignalized Intersection Criteria Average Control Delay (Seconds per Vehicle)	Signalized Intersection Criteria Average Control Delay (Seconds per Vehicle)
A	≤10	≤10
B	>10 and ≤15	>10 and ≤20
C	>15 and ≤25	>20 and ≤35
D	>25 and ≤35	>35 and ≤55
E	>35 and ≤50	>55 and ≤80
F	>50 or v/c > 1.0	>80 or v/c > 1.0

Source *Highway Capacity Manual 6th Edition*, Transportation Research Board; Washington, D.C.; 2016. Pages 19-16, 20-6, and 21-9.

For signalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to the entire intersection. For unsignalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups or to individual intersection approaches.

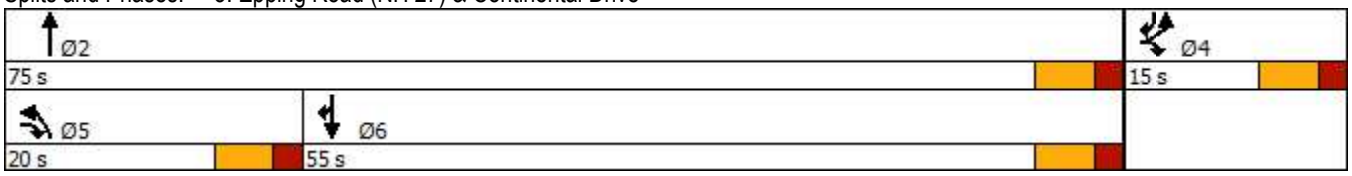
CAPACITY AND QUEUE ANALYSIS WORKSHEETS

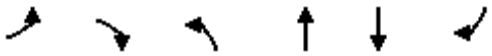
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	15	45	565	635	105
Future Volume (vph)	15	15	45	565	635	105
Turn Type	Prot	pt+ov	Prot	NA	NA	pt+ov
Protected Phases	4	4 5	5	2	6	4 6
Permitted Phases						
Detector Phase	4	4 5	5	2	6	4 6
Switch Phase						
Minimum Initial (s)	8.0		8.0	10.0	10.0	
Minimum Split (s)	14.0		14.0	16.0	16.0	
Total Split (s)	15.0		20.0	75.0	55.0	
Total Split (%)	16.7%		22.2%	83.3%	61.1%	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0		4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	Min	Min	
Act Effct Green (s)	11.3	22.3	11.7	45.5	38.3	49.8
Actuated g/C Ratio	0.19	0.38	0.20	0.77	0.65	0.84
v/c Ratio	0.05	0.03	0.14	0.43	0.57	0.08
Control Delay	29.9	9.5	28.7	4.4	12.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	9.5	28.7	4.4	12.3	0.7
LOS	C	A	C	A	B	A
Approach Delay	19.7			6.2	10.7	
Approach LOS	B			A	B	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 59.1
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 8.9
Intersection LOS: A
Intersection Capacity Utilization 50.7%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Epping Road (NH 27) & Continental Drive





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	16	16	49	614	690	114
v/c Ratio	0.05	0.03	0.14	0.43	0.57	0.08
Control Delay	29.9	9.5	28.7	4.4	12.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	9.5	28.7	4.4	12.3	0.7
Queue Length 50th (ft)	5	0	17	77	198	0
Queue Length 95th (ft)	26	14	55	115	325	10
Internal Link Dist (ft)	2747			332	2112	
Turn Bay Length (ft)		125	225			225
Base Capacity (vph)	373	716	543	1803	1537	1373
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.02	0.09	0.34	0.45	0.08

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	15	45	565	635	105
Future Volume (veh/h)	15	15	45	565	635	105
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	16	49	614	690	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	183	361	223	1349	950	968
Arrive On Green	0.10	0.10	0.13	0.72	0.51	0.51
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	16	16	49	614	690	114
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	0.4	0.4	1.1	6.2	13.1	1.4
Cycle Q Clear(g_c), s	0.4	0.4	1.1	6.2	13.1	1.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	183	361	223	1349	950	968
V/C Ratio(X)	0.09	0.04	0.22	0.46	0.73	0.12
Avail Cap(c_a), veh/h	431	582	627	2923	2099	1942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	13.7	17.9	2.6	8.7	3.7
Incr Delay (d2), s/veh	0.2	0.0	0.5	0.2	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	0.7	3.9	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.7	13.7	18.4	2.9	9.8	3.8
LnGrp LOS	B	B	B	A	A	A
Approach Vol, veh/h	32			663	804	
Approach Delay, s/veh	16.2			4.0	8.9	
Approach LOS	B			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.8		8.7	9.7	27.1
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		69.0		9.0	14.0	49.0
Max Q Clear Time (g_c+I1), s		8.2		2.4	3.1	15.1
Green Ext Time (p_c), s		4.9		0.0	0.1	6.0

Intersection Summary	
HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Intersection						
Int Delay, s/veh	7.6					

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	0	355	275	120	235	0
Future Vol, veh/h	0	355	275	120	235	0
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	0	386	299	130	255	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	429	0	-	0	750	364
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	386	-
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	1130	-	-	-	379	681
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	687	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1130	-	-	-	379	681
Mov Cap-2 Maneuver	-	-	-	-	379	-
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	687	-

Approach	NB	SB	NE
HCM Control Delay, s	0	0	32
HCM LOS			D

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	379	1130	-	-	-
HCM Lane V/C Ratio	0.674	-	-	-	-
HCM Control Delay (s)	32	0	-	-	-
HCM Lane LOS	D	A	-	-	-
HCM 95th %tile Q(veh)	4.7	0	-	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	65	40	355	275	0
Future Vol, veh/h	0	65	40	355	275	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	71	43	386	299	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	771	299	299	0	-	0
Stage 1	299	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	368	741	1262	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	352	741	1262	-	-	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	628	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1262	-	741	-	-
HCM Lane V/C Ratio	0.034	-	0.095	-	-
HCM Control Delay (s)	8	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	175	60	5	5	35	0	5	60	5	0	40	80
Future Vol, veh/h	175	60	5	5	35	0	5	60	5	0	40	80
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	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	190	65	5	5	38	0	5	65	5	0	43	87
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	8.1	8.4	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	73%	12%	0%
Vol Thru, %	86%	25%	88%	33%
Vol Right, %	7%	2%	0%	67%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	240	40	120
LT Vol	5	175	5	0
Through Vol	60	60	35	40
RT Vol	5	5	0	80
Lane Flow Rate	76	261	43	130
Geometry Grp	1	1	1	1
Degree of Util (X)	0.101	0.333	0.057	0.158
Departure Headway (Hd)	4.785	4.591	4.738	4.357
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	749	783	754	823
Service Time	2.818	2.62	2.776	2.386
HCM Lane V/C Ratio	0.101	0.333	0.057	0.158
HCM Control Delay	8.4	9.9	8.1	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	1.5	0.2	0.6

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	3	8	607	641	9
Future Vol, veh/h	3	3	8	607	641	9
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	3	9	674	712	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1409	717	722	0	-	0
Stage 1	717	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	153	430	880	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	151	430	880	-	-	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.6	0.1	0
HCM LOS	C		

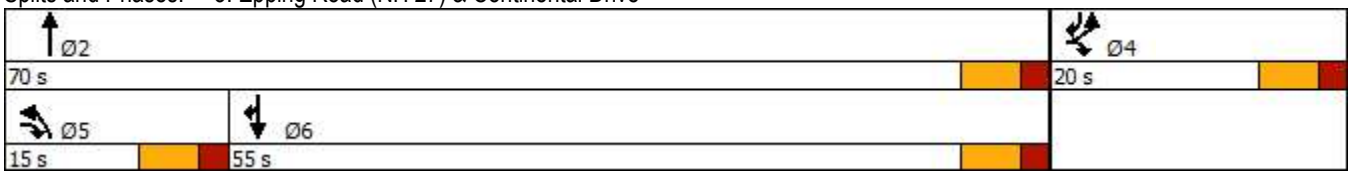
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	880	-	224	-	-
HCM Lane V/C Ratio	0.01	-	0.03	-	-
HCM Control Delay (s)	9.1	0	21.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	125	60	15	805	605	30
Future Volume (vph)	125	60	15	805	605	30
Turn Type	Prot	pt+ov	Prot	NA	NA	pt+ov
Protected Phases	4	4 5	5	2	6	4 6
Permitted Phases						
Detector Phase	4	4 5	5	2	6	4 6
Switch Phase						
Minimum Initial (s)	8.0		8.0	10.0	10.0	
Minimum Split (s)	14.0		14.0	16.0	16.0	
Total Split (s)	20.0		15.0	70.0	55.0	
Total Split (%)	22.2%		16.7%	77.8%	61.1%	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0		4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	Min	Min	
Act Effct Green (s)	13.1	24.0	10.9	46.7	39.7	53.8
Actuated g/C Ratio	0.21	0.38	0.17	0.74	0.63	0.86
v/c Ratio	0.37	0.10	0.05	0.63	0.56	0.02
Control Delay	29.7	5.7	31.3	8.4	13.6	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	5.7	31.3	8.4	13.6	0.8
LOS	C	A	C	A	B	A
Approach Delay	21.9			8.8	12.9	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 62.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 11.9
Intersection LOS: B
Intersection Capacity Utilization 56.0%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Epping Road (NH 27) & Continental Drive



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	136	65	16	875	658	33
v/c Ratio	0.37	0.10	0.05	0.63	0.56	0.02
Control Delay	29.7	5.7	31.3	8.4	13.6	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	5.7	31.3	8.4	13.6	0.8
Queue Length 50th (ft)	49	0	6	166	201	0
Queue Length 95th (ft)	121	26	26	315	339	5
Internal Link Dist (ft)	2747			332	2112	
Turn Bay Length (ft)		125	225			225
Base Capacity (vph)	489	694	336	1729	1505	1377
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.09	0.05	0.51	0.44	0.02

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	125	60	15	805	605	30
Future Volume (veh/h)	125	60	15	805	605	30
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	65	16	875	658	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	352	430	132	1188	894	1071
Arrive On Green	0.20	0.20	0.07	0.64	0.48	0.48
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	136	65	16	875	658	33
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	3.2	1.5	0.4	15.3	13.6	0.3
Cycle Q Clear(g_c), s	3.2	1.5	0.4	15.3	13.6	0.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	352	430	132	1188	894	1071
V/C Ratio(X)	0.39	0.15	0.12	0.74	0.74	0.03
Avail Cap(c_a), veh/h	596	647	410	2580	1994	2002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	13.2	20.7	6.0	10.1	2.6
Incr Delay (d2), s/veh	0.7	0.2	0.4	0.9	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.2	3.5	4.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.4	13.4	21.1	6.9	11.3	2.6
LnGrp LOS	B	B	C	A	B	A
Approach Vol, veh/h	201			891	691	
Approach Delay, s/veh	16.1			7.1	10.8	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.4		13.4	7.5	26.9
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		64.0		14.0	9.0	49.0
Max Q Clear Time (g_c+I1), s		17.3		5.2	2.4	15.6
Green Ext Time (p_c), s		8.7		0.4	0.0	5.3

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Intersection						
Int Delay, s/veh	3.8					
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	0	310	360	290	150	0
Future Vol, veh/h	0	310	360	290	150	0
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	0	337	391	315	163	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	706	0	-	0	886	549
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	337	-
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	892	-	-	-	315	535
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	892	-	-	-	315	535
Mov Cap-2 Maneuver	-	-	-	-	315	-
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	723	-

Approach	NB	SB	NE
HCM Control Delay, s	0	0	28.1
HCM LOS			D

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	315	892	-	-	-
HCM Lane V/C Ratio	0.518	-	-	-	-
HCM Control Delay (s)	28.1	0	-	-	-
HCM Lane LOS	D	A	-	-	-
HCM 95th %tile Q(veh)	2.8	0	-	-	-

Intersection						
Int Delay, s/veh	1.8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	60	100	310	360	0
Future Vol, veh/h	0	60	100	310	360	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	65	109	337	391	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	946	391	391	0	-	0
Stage 1	391	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	290	658	1168	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	257	658	1168	-	-	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	604	-	-	-	-	-
Stage 2	575	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1168	-	658	-	-
HCM Lane V/C Ratio	0.093	-	0.099	-	-
HCM Control Delay (s)	8.4	0	11.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	90	55	5	5	95	0	5	60	5	0	65	225
Future Vol, veh/h	90	55	5	5	95	0	5	60	5	0	65	225
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	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	98	60	5	5	103	0	5	65	5	0	71	245
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	9	8.6	9.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	60%	5%	0%
Vol Thru, %	86%	37%	95%	22%
Vol Right, %	7%	3%	0%	78%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	150	100	290
LT Vol	5	90	5	0
Through Vol	60	55	95	65
RT Vol	5	5	0	225
Lane Flow Rate	76	163	109	315
Geometry Grp	1	1	1	1
Degree of Util (X)	0.105	0.228	0.152	0.372
Departure Headway (Hd)	4.949	5.042	5.029	4.251
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	720	708	708	842
Service Time	3.01	3.107	3.098	2.294
HCM Lane V/C Ratio	0.106	0.23	0.154	0.374
HCM Control Delay	8.6	9.6	9	9.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.9	0.5	1.7

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	12	8	806	655	10
Future Vol, veh/h	14	12	8	806	655	10
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	13	9	896	728	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1648	734	739	0	-	0
Stage 1	734	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	109	420	867	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	107	420	867	-	-	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	465	-	-	-	-	-
Stage 2	391	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.8	0.1	0
HCM LOS	D		

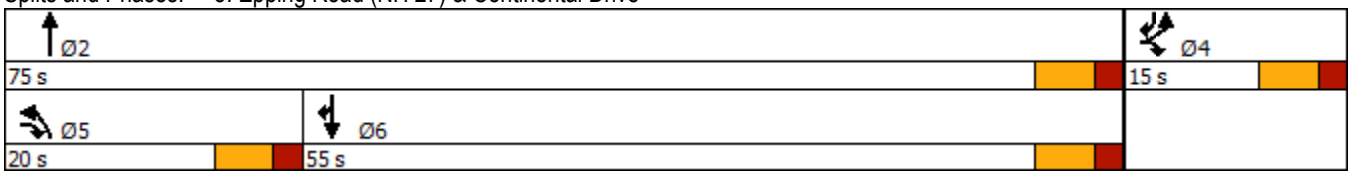
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	867	-	163	-	-
HCM Lane V/C Ratio	0.01	-	0.177	-	-
HCM Control Delay (s)	9.2	0	31.8	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

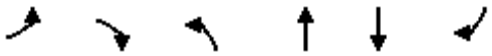
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	15	55	700	780	130
Future Volume (vph)	20	15	55	700	780	130
Turn Type	Prot	pt+ov	Prot	NA	NA	pt+ov
Protected Phases	4	4 5	5	2	6	4 6
Permitted Phases						
Detector Phase	4	4 5	5	2	6	4 6
Switch Phase						
Minimum Initial (s)	8.0		8.0	10.0	10.0	
Minimum Split (s)	14.0		14.0	16.0	16.0	
Total Split (s)	15.0		20.0	75.0	55.0	
Total Split (%)	16.7%		22.2%	83.3%	61.1%	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0		4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	Min	Min	
Act Effct Green (s)	10.3	25.6	11.2	56.0	44.6	60.1
Actuated g/C Ratio	0.14	0.34	0.15	0.75	0.60	0.81
v/c Ratio	0.09	0.03	0.23	0.56	0.78	0.11
Control Delay	34.0	10.0	34.0	5.4	18.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	10.0	34.0	5.4	18.6	0.7
LOS	C	A	C	A	B	A
Approach Delay	23.5			7.5	16.1	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 74.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 12.4
Intersection LOS: B
Intersection Capacity Utilization 59.0%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Epping Road (NH 27) & Continental Drive





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	22	17	61	778	867	144
v/c Ratio	0.09	0.03	0.23	0.56	0.78	0.11
Control Delay	34.0	10.0	34.0	5.4	18.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	10.0	34.0	5.4	18.6	0.7
Queue Length 50th (ft)	10	0	27	112	295	0
Queue Length 95th (ft)	33	14	66	172	507	11
Internal Link Dist (ft)	2747			332	2112	
Turn Bay Length (ft)		125	225			225
Base Capacity (vph)	268	600	390	1704	1310	1301
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.03	0.16	0.46	0.66	0.11

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	15	55	700	780	130
Future Volume (veh/h)	20	15	55	700	780	130
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	17	61	778	867	144
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	176	348	215	1428	1074	1067
Arrive On Green	0.10	0.10	0.12	0.76	0.57	0.57
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	22	17	61	778	867	144
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	0.7	0.5	1.8	9.8	21.4	1.9
Cycle Q Clear(g_c), s	0.7	0.5	1.8	9.8	21.4	1.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	176	348	215	1428	1074	1067
V/C Ratio(X)	0.13	0.05	0.28	0.54	0.81	0.13
Avail Cap(c_a), veh/h	337	491	490	2284	1641	1547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	17.9	23.3	2.8	9.8	3.4
Incr Delay (d2), s/veh	0.3	0.1	0.7	0.3	1.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.8	1.4	7.0	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.2	18.0	24.0	3.1	11.6	3.5
LnGrp LOS	C	B	C	A	B	A
Approach Vol, veh/h	39			839	1011	
Approach Delay, s/veh	21.5			4.6	10.5	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		48.4		9.7	11.0	37.4
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		69.0		9.0	14.0	49.0
Max Q Clear Time (g_c+I1), s		11.8		2.7	3.8	23.4
Green Ext Time (p_c), s		7.1		0.0	0.1	8.0

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	195	70	35	460	410	90
Future Vol, veh/h	195	70	35	460	410	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Stop
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	217	78	39	511	456	100

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1095	506	456	0	-	0
Stage 1	506	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	236	566	1105	-	-	-
Stage 1	606	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	224	566	1105	-	-	-
Mov Cap-2 Maneuver	360	-	-	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	554	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.6	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1105	-	360	566	-	-
HCM Lane V/C Ratio	0.035	-	0.602	0.137	-	-
HCM Control Delay (s)	8.4	0	29	12.4	-	-
HCM Lane LOS	A	A	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	3.8	0.5	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	260	5	0	125	0	70
Future Vol, veh/h	260	5	0	125	0	70
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	289	6	0	139	0	78

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	295	0	431	292
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	139	-
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	-	-	1266	-	581	747
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	888	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1266	-	581	747
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	888	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	747	-	-	1266	-
HCM Lane V/C Ratio	0.104	-	-	-	-
HCM Control Delay (s)	10.4	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	3	8	752	786	9
Future Vol, veh/h	3	3	8	752	786	9
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	3	9	836	873	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1732	878	883	0	-	0
Stage 1	878	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	97	347	766	-	-	-
Stage 1	406	-	-	-	-	-
Stage 2	417	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	95	347	766	-	-	-
Mov Cap-2 Maneuver	229	-	-	-	-	-
Stage 1	397	-	-	-	-	-
Stage 2	417	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.4	0.1	0
HCM LOS	C		

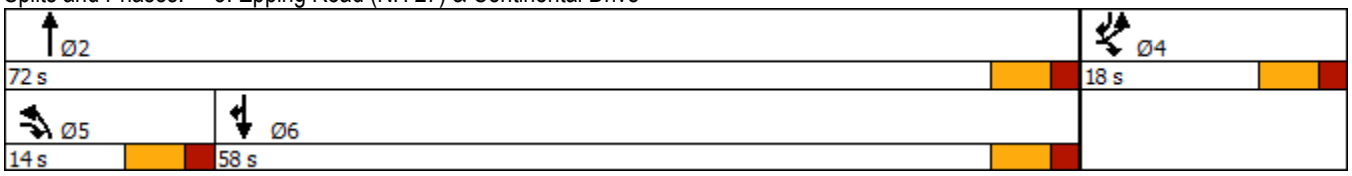
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	766	-	276	-	-
HCM Lane V/C Ratio	0.012	-	0.024	-	-
HCM Control Delay (s)	9.8	0	18.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	150	70	15	970	760	35
Future Volume (vph)	150	70	15	970	760	35
Turn Type	Prot	pt+ov	Prot	NA	NA	pt+ov
Protected Phases	4	4 5	5	2	6	4 6
Permitted Phases						
Detector Phase	4	4 5	5	2	6	4 6
Switch Phase						
Minimum Initial (s)	8.0		8.0	10.0	10.0	
Minimum Split (s)	14.0		14.0	16.0	16.0	
Total Split (s)	18.0		14.0	72.0	58.0	
Total Split (%)	20.0%		15.6%	80.0%	64.4%	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0		4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	Min	Min	
Act Effct Green (s)	12.9	27.2	10.2	57.2	46.5	64.5
Actuated g/C Ratio	0.16	0.35	0.13	0.73	0.59	0.82
v/c Ratio	0.57	0.13	0.07	0.79	0.76	0.03
Control Delay	41.2	6.3	35.9	12.0	18.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	6.3	35.9	12.0	18.7	0.7
LOS	D	A	D	B	B	A
Approach Delay	30.1			12.4	17.9	
Approach LOS	C			B	B	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 78.3
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 16.5
Intersection LOS: B
Intersection Capacity Utilization 66.0%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Epping Road (NH 27) & Continental Drive



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	167	78	17	1078	844	39
v/c Ratio	0.57	0.13	0.07	0.79	0.76	0.03
Control Delay	41.2	6.3	35.9	12.0	18.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	6.3	35.9	12.0	18.7	0.7
Queue Length 50th (ft)	77	0	8	285	322	0
Queue Length 95th (ft)	156	31	29	453	482	5
Internal Link Dist (ft)	2747			332	2112	
Turn Bay Length (ft)		125	225			225
Base Capacity (vph)	323	591	231	1612	1313	1306
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.13	0.07	0.67	0.64	0.03

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	70	15	970	760	35
Future Volume (veh/h)	150	70	15	970	760	35
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	167	78	17	1078	844	39
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	298	371	119	1303	1051	1156
Arrive On Green	0.17	0.17	0.07	0.70	0.56	0.56
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	167	78	17	1078	844	39
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	5.1	2.3	0.5	24.3	21.2	0.4
Cycle Q Clear(g_c), s	5.1	2.3	0.5	24.3	21.2	0.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	298	371	119	1303	1051	1156
V/C Ratio(X)	0.56	0.21	0.14	0.83	0.80	0.03
Avail Cap(c_a), veh/h	424	483	303	2160	1715	1719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.5	18.2	25.9	6.4	10.3	2.2
Incr Delay (d2), s/veh	1.6	0.3	0.5	1.4	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.3	0.2	5.8	7.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.2	18.4	26.4	7.8	11.8	2.2
LnGrp LOS	C	B	C	A	B	A
Approach Vol, veh/h	245			1095	883	
Approach Delay, s/veh	22.3			8.1	11.4	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		45.0		13.9	7.9	37.1
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		66.0		12.0	8.0	52.0
Max Q Clear Time (g_c+I1), s		26.3		7.1	2.5	23.2
Green Ext Time (p_c), s		12.7		0.3	0.0	7.5
Intersection Summary						
HCM 6th Ctrl Delay			11.0			
HCM 6th LOS			B			

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	100	65	100	410	550	245
Future Vol, veh/h	100	65	100	410	550	245
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Stop
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	72	111	456	611	272

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1425	747	611	0	-	0
Stage 1	747	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	149	413	968	-	-	-
Stage 1	468	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	126	413	968	-	-	-
Mov Cap-2 Maneuver	259	-	-	-	-	-
Stage 1	396	-	-	-	-	-
Stage 2	504	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.7	1.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	968	-	259	413	-	-
HCM Lane V/C Ratio	0.115	-	0.429	0.175	-	-
HCM Control Delay (s)	9.2	0	29	15.6	-	-
HCM Lane LOS	A	A	D	C	-	-
HCM 95th %tile Q(veh)	0.4	-	2	0.6	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	160	5	0	345	0	70
Future Vol, veh/h	160	5	0	345	0	70
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	178	6	0	383	0	78

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	184	0	564	181
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	383	-
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	-	-	1391	-	487	862
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1391	-	487	862
Mov Cap-2 Maneuver	-	-	-	-	487	-
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	689	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	862	-	-	1391	-
HCM Lane V/C Ratio	0.09	-	-	-	-
HCM Control Delay (s)	9.6	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	12	8	971	820	10
Future Vol, veh/h	14	12	8	971	820	10
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	13	9	1079	911	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2014	917	922	0	-	0
Stage 1	917	-	-	-	-	-
Stage 2	1097	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	65	330	741	-	-	-
Stage 1	390	-	-	-	-	-
Stage 2	320	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	63	330	741	-	-	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	378	-	-	-	-	-
Stage 2	320	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.5	0.1	0
HCM LOS	C		

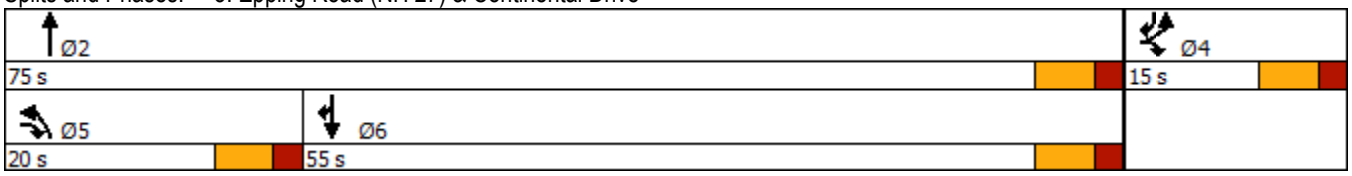
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	741	-	234	-	-
HCM Lane V/C Ratio	0.012	-	0.123	-	-
HCM Control Delay (s)	9.9	0	22.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	86	15	55	670	800	140
Future Volume (vph)	86	15	55	670	800	140
Turn Type	Prot	pt+ov	Prot	NA	NA	pt+ov
Protected Phases	4	4 5	5	2	6	4 6
Permitted Phases						
Detector Phase	4	4 5	5	2	6	4 6
Switch Phase						
Minimum Initial (s)	8.0		8.0	10.0	10.0	
Minimum Split (s)	14.0		14.0	16.0	16.0	
Total Split (s)	15.0		20.0	75.0	55.0	
Total Split (%)	16.7%		22.2%	83.3%	61.1%	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0		4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	Min	Min	
Act Effct Green (s)	10.8	26.1	11.2	57.5	46.1	62.1
Actuated g/C Ratio	0.14	0.34	0.15	0.75	0.60	0.81
v/c Ratio	0.38	0.03	0.24	0.53	0.79	0.12
Control Delay	38.7	9.8	34.9	5.3	19.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	9.8	34.9	5.3	19.7	0.7
LOS	D	A	C	A	B	A
Approach Delay	34.4			7.5	16.9	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 76.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 14.0
Intersection LOS: B
Intersection Capacity Utilization 59.0%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Epping Road (NH 27) & Continental Drive



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	96	17	61	744	889	156
v/c Ratio	0.38	0.03	0.24	0.53	0.79	0.12
Control Delay	38.7	9.8	34.9	5.3	19.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	9.8	34.9	5.3	19.7	0.7
Queue Length 50th (ft)	46	0	29	112	323	0
Queue Length 95th (ft)	97	14	66	167	548	12
Internal Link Dist (ft)	208			332	2112	
Turn Bay Length (ft)		125	225			225
Base Capacity (vph)	260	628	380	1672	1274	1295
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.03	0.16	0.44	0.70	0.12

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	86	15	55	670	800	140
Future Volume (veh/h)	86	15	55	670	800	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	96	17	61	744	889	156
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	243	394	200	1388	1064	1118
Arrive On Green	0.14	0.14	0.11	0.74	0.57	0.57
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	96	17	61	744	889	156
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	3.2	0.5	2.1	11.2	25.7	2.1
Cycle Q Clear(g_c), s	3.2	0.5	2.1	11.2	25.7	2.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	243	394	200	1388	1064	1118
V/C Ratio(X)	0.39	0.04	0.31	0.54	0.84	0.14
Avail Cap(c_a), veh/h	298	443	433	2017	1449	1444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	18.8	26.9	3.6	11.6	3.2
Incr Delay (d2), s/veh	1.0	0.0	0.9	0.3	3.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.9	2.4	9.4	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.0	18.8	27.7	4.0	14.9	3.2
LnGrp LOS	C	B	C	A	B	A
Approach Vol, veh/h	113			805	1045	
Approach Delay, s/veh	25.8			5.8	13.1	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.8		13.0	11.4	41.5
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		69.0		9.0	14.0	49.0
Max Q Clear Time (g_c+I1), s		13.2		5.2	4.1	27.7
Green Ext Time (p_c), s		6.6		0.1	0.1	7.8
Intersection Summary						
HCM 6th Ctrl Delay			10.8			
HCM 6th LOS			B			

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	203	70	35	476	429	99
Future Vol, veh/h	203	70	35	476	429	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Stop
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	226	78	39	529	477	110

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1139	532	477	0	-	0
Stage 1	532	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 223	547	1085	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 212	547	1085	-	-	-
Mov Cap-2 Maneuver	348	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	544	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.4	0.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1085	-	348	547	-	-
HCM Lane V/C Ratio	0.036	-	0.648	0.142	-	-
HCM Control Delay (s)	8.4	0	32.5	12.7	-	-
HCM Lane LOS	A	A	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	4.3	0.5	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	268	5	0	134	0	70
Future Vol, veh/h	268	5	0	134	0	70
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	298	6	0	149	0	78

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	304	0	450	301
Stage 1	-	-	-	-	301	-
Stage 2	-	-	-	-	149	-
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	-	-	1257	-	567	739
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	879	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1257	-	567	739
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	879	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	739	-	-	1257	-
HCM Lane V/C Ratio	0.105	-	-	-	-
HCM Control Delay (s)	10.4	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	83	81	703	734	81
Future Vol, veh/h	22	83	81	703	734	81
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	92	90	781	816	90

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1822	861	906	0	-	0
Stage 1	861	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	85	355	751	-	-	-
Stage 1	414	-	-	-	-	-
Stage 2	371	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	67	355	751	-	-	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	326	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.4	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	751	-	189	355	-	-
HCM Lane V/C Ratio	0.12	-	0.129	0.26	-	-
HCM Control Delay (s)	10.4	0	26.9	18.7	-	-
HCM Lane LOS	B	A	D	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.4	1	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	32	3	22	173	12	69
Future Vol, veh/h	32	3	22	173	12	69
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	3	24	192	13	77

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	39	0	278	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	240	-
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	-	-	1571	-	712	1034
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	800	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1571	-	700	1034
Mov Cap-2 Maneuver	-	-	-	-	700	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	786	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.1
HCM LOS			A

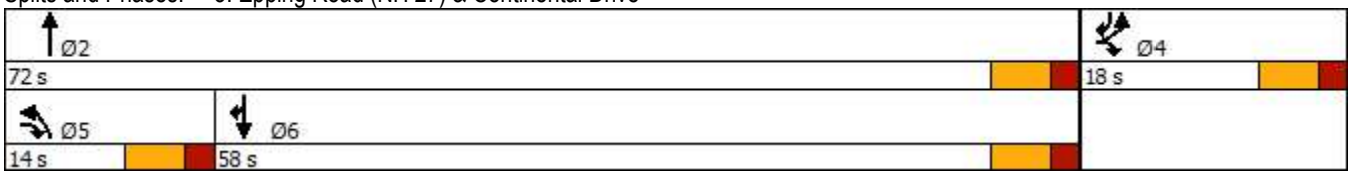
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	966	-	-	1571	-
HCM Lane V/C Ratio	0.093	-	-	0.016	-
HCM Control Delay (s)	9.1	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	209	70	15	935	778	45
Future Volume (vph)	209	70	15	935	778	45
Turn Type	Prot	pt+ov	Prot	NA	NA	pt+ov
Protected Phases	4	4 5	5	2	6	4 6
Permitted Phases						
Detector Phase	4	4 5	5	2	6	4 6
Switch Phase						
Minimum Initial (s)	8.0		8.0	10.0	10.0	
Minimum Split (s)	14.0		14.0	16.0	16.0	
Total Split (s)	18.0		14.0	72.0	58.0	
Total Split (%)	20.0%		15.6%	80.0%	64.4%	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0		4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		None	Min	Min	
Act Effct Green (s)	13.9	28.4	10.4	56.2	45.7	64.9
Actuated g/C Ratio	0.18	0.36	0.13	0.72	0.58	0.83
v/c Ratio	0.74	0.12	0.07	0.78	0.80	0.04
Control Delay	49.9	6.3	36.1	11.7	20.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	6.3	36.1	11.7	20.3	0.6
LOS	D	A	D	B	C	A
Approach Delay	39.0			12.1	19.2	
Approach LOS	D			B	B	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 78.4
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 18.6
Intersection LOS: B
Intersection Capacity Utilization 67.5%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Epping Road (NH 27) & Continental Drive



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	232	78	17	1039	864	50
v/c Ratio	0.74	0.12	0.07	0.78	0.80	0.04
Control Delay	49.9	6.3	36.1	11.7	20.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	6.3	36.1	11.7	20.3	0.6
Queue Length 50th (ft)	116	0	8	262	336	0
Queue Length 95th (ft)	#255	31	29	410	506	5
Internal Link Dist (ft)	208			332	2112	
Turn Bay Length (ft)		125	225			225
Base Capacity (vph)	327	612	233	1581	1328	1315
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.13	0.07	0.66	0.65	0.04

Intersection Summary

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	209	70	15	935	778	45
Future Volume (veh/h)	209	70	15	935	778	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	232	78	17	1039	864	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	334	399	114	1285	1047	1185
Arrive On Green	0.19	0.19	0.06	0.69	0.56	0.56
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	232	78	17	1039	864	50
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	7.7	2.5	0.6	24.9	24.1	0.5
Cycle Q Clear(g_c), s	7.7	2.5	0.6	24.9	24.1	0.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	334	399	114	1285	1047	1185
V/C Ratio(X)	0.69	0.20	0.15	0.81	0.82	0.04
Avail Cap(c_a), veh/h	392	450	280	1997	1586	1641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	18.8	28.2	7.0	11.5	2.1
Incr Delay (d2), s/veh	4.3	0.2	0.6	1.4	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	2.4	0.3	6.7	8.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.5	19.0	28.8	8.5	13.7	2.1
LnGrp LOS	C	B	C	A	B	A
Approach Vol, veh/h	310			1056	914	
Approach Delay, s/veh	26.1			8.8	13.1	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		47.7		15.9	8.1	39.7
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0
Max Green Setting (Gmax), s		66.0		12.0	8.0	52.0
Max Q Clear Time (g_c+I1), s		26.9		9.7	2.6	26.1
Green Ext Time (p_c), s		11.7		0.2	0.0	7.6

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	107	65	100	426	563	251
Future Vol, veh/h	107	65	100	426	563	251
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Stop
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	119	72	111	473	626	279

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1461	766	626	0	-	0
Stage 1	766	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	142	403	956	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	120	403	956	-	-	-
Mov Cap-2 Maneuver	252	-	-	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	495	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.5	1.8	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	956	-	252	403	-	-
HCM Lane V/C Ratio	0.116	-	0.472	0.179	-	-
HCM Control Delay (s)	9.3	0	31.4	15.9	-	-
HCM Lane LOS	A	A	D	C	-	-
HCM 95th %tile Q(veh)	0.4	-	2.3	0.6	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	167	5	0	351	0	70
Future Vol, veh/h	167	5	0	351	0	70
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	186	6	0	390	0	78

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	192	0	579	189
Stage 1	-	-	-	-	189	-
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	-	-	1381	-	477	853
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	684	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	477	853
Mov Cap-2 Maneuver	-	-	-	-	477	-
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	684	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	853	-	-	1381	-
HCM Lane V/C Ratio	0.091	-	-	-	-
HCM Control Delay (s)	9.6	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	65	73	929	786	62
Future Vol, veh/h	21	65	73	929	786	62
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	72	81	1032	873	69

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2102	908	942	0	-	0
Stage 1	908	-	-	-	-	-
Stage 2	1194	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	57	334	728	-	-	-
Stage 1	393	-	-	-	-	-
Stage 2	287	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	42	334	728	-	-	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	290	-	-	-	-	-
Stage 2	287	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.2	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	728	-	151	334	-	-
HCM Lane V/C Ratio	0.111	-	0.155	0.216	-	-
HCM Control Delay (s)	10.6	0	33.2	18.7	-	-
HCM Lane LOS	B	A	D	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.5	0.8	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	211	9	12	48	2	68
Future Vol, veh/h	211	9	12	48	2	68
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	234	10	13	53	2	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	244	0	318	239
Stage 1	-	-	-	-	239	-
Stage 2	-	-	-	-	79	-
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	-	-	1322	-	675	800
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	944	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1322	-	668	800
Mov Cap-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	935	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	796	-	-	1322	-
HCM Lane V/C Ratio	0.098	-	-	0.01	-
HCM Control Delay (s)	10	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-