November 2020

TRAFFIC STUDY

Proposed Delivery Station Building

240 Ellington Road

South Windsor, CT

PREPARED BY:
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Architecture
Engineering
Environmental
Land Surveying

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EXECUTIVE SUMMARY

This traffic study has been prepared for a change of use of an existing lot at 240 Ellington Road. The study area is along a suburban stretch of CT Route 30 (Ellington Road) that is primarily industrial with residential neighborhoods to the northeast. The current proposal has an 182,000 SF package delivery station. A package delivery station will provide "last mile" package delivery services to residences and businesses with an approximate 60-minute driving time radius of the Site.

This study investigated the potential traffic impacts of the proposed development during the weekday morning (AM) and evening (PM) traffic periods. To assess existing traffic conditions in the vicinity of the Site, peak hour manual turning movement traffic volumes, vehicle classification and pedestrian counts were recorded at key intersections within the study area.

The level of traffic likely generated by the proposed development has been estimated by the tenant to determine the potential traffic impact on the study intersections. The tenant completed a detailed analysis determining the number and time of site traffic arrivals and departures at the Site, which is a function of the delivery area population and business density. The proposed distribution station is projected to generate 2 (1 enter, 1 exit) vehicle trips, trucks only, during the weekday AM Peak Hour and 61 (41 enter, 20 exit) during the weekday PM Peak Hour.

A detailed traffic analysis was also conducted at key intersections and roadways in the general vicinity of the Site in accordance with methodologies outlined in the Highway Capacity Manual 2010, published by the Transportation Research Board. After analyses of the No Build and Build Scenarios of the AM and PM Peak Hours, both AM and PM Peak Hour scenarios required a Build Improvements analysis.

EXECUTIVE SUMMARY

After analyses of the Existing, No Build, and Build Scenarios of the AM and PM Peak Hours, it should be noted that there is no notable deterioration from the other proposed developments in the vicinity whose traffic volumes have been included in the No Build scenarios. The following is a summary of the results/recommendations for this SITE:

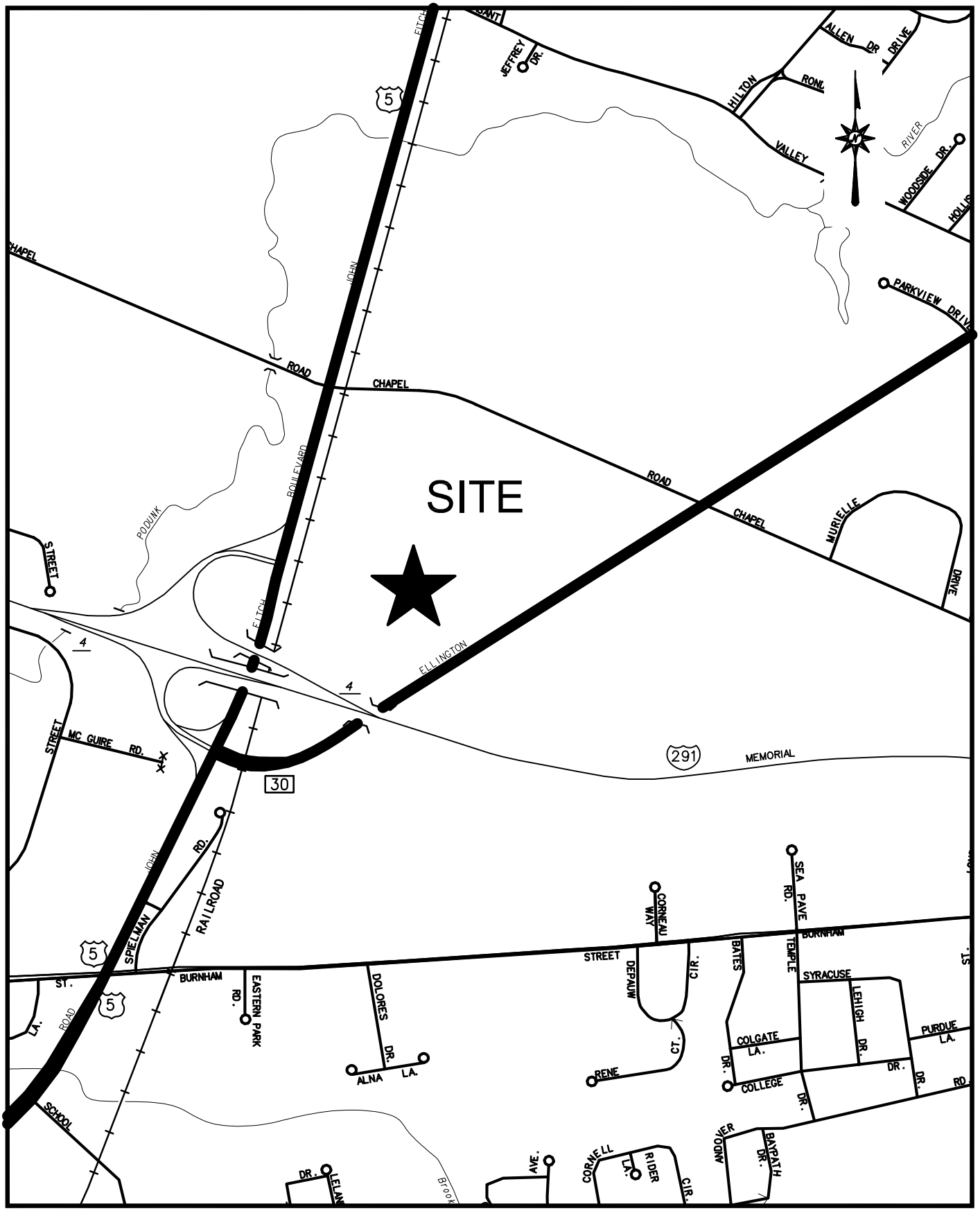
- Install 12" white Stop Bars and "Stop" Signs (R1-1) at site driveway access / egress.
- Any notable deterioration for movements performing at undesirable Levels of Service are either at the undesirable Level of Service in the Existing scenarios or deteriorate between the Existing and No Build scenarios.
- The timings were adjusted to balance the needs of intersections and provide as little impact by using the optimization tool in the Synchro software to develop Build Improved Scenarios. The optimization of phase splits improves efficiency and levels of service along the corridor.

I. INTRODUCTION

This traffic study has been prepared for a change of use of an existing lot at 240 Ellington Road. The study area is along a suburban stretch of CT Route 30 (Ellington Road) that is primarily industrial with residential neighborhoods to the northeast. The focus of this study was to evaluate the traffic flows and operating conditions on the roadways and intersections projected to be used by motorists traveling to and from the proposed development and to quantify the potential traffic impacts on these roadways and intersections. The study area is along a suburban stretch of Ellington Road that is primarily industrial with various office complexes. The development is proposing a 182,000 SF package delivery station. See **Figure 1** for a location map.

The Site will serve as a package delivery station, which will provide "last mile" package delivery services to residences and businesses with an approximate 60-minute driving time radius of the Site. The project will include retrofitting the existing 182,000 SF warehouse building and will include 371 parking spaces. Access to the Site will be via a single curb cut on Ellington Road.

The study investigated the potential traffic impacts associated with the development in the weekday AM and PM peak hour periods. The existing curb cut is to remain in the redevelopment of the Site. The greatest cumulative impacts of project related traffic are likely to occur during the weekday AM and PM peak hours, when traffic consists mostly of commuters. As such, traffic operating conditions at the study intersections were analyzed during these peak periods.



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LOCATION MAP

PROPOSED DEVELOPMENT
240 ELLINGTON ROAD
SOUTH WINDSOR, CONNECTICUT
NOT TO SCALE

FIGURE 1

II. EXISTING CONDITIONS

An investigation of the existing traffic conditions on the adjacent roadway network formed the basis for assessing any traffic issues associated with the proposed development. This investigation included a field reconnaissance, traffic counting, and research of pertinent planning and traffic data available with Connecticut Department of Transportation (CTDOT) and the Town of South Windsor.

Access Network

The project study area consists of the signalized intersections at the following locations:

- U.S. Route 5 (John Fitch Boulevard) at CT Route 30 (Ellington Road) and I-291 EB Ramps
- U.S. Route 5 (John Fitch Boulevard) at I-291 WB Ramps
- U.S. Route 5 (John Fitch Boulevard) at Chapel Road
- CT Route 30 (Ellington Road) at Chapel Road

Major roadways in the vicinity of the project include U.S. Route 5 (John Fitch Boulevard), CT Route 30 (Ellington Road), I-291, and Chapel Road.

U.S. Route 5 (John Fitch Boulevard) is a principal arterial with a speed limit of 50 mph. It originates in New Haven at I-91 and extends northward to the Canadian Border at Derby Line, VT. Within the vicinity of the Site, there are two travel lanes in each direction and a wide median. Turn lanes are present at each intersection. The average daily traffic (ADT), provided by CTDOT, near the Site varies from 21,700 Vehicles Per Day (vpd) and 25,800 vpd. Illumination is sporadic and sidewalks are not present along the roadway. The East Windsor Secondary Railroad Line runs parallel with U.S. Route 5 within the study area.

CT Route 30 (Ellington Road) is a principal arterial with a speed limit of 40 mph that transitions to 45 mph just north of the proposed Site drive. It originates at U.S. Route 5 (John Fitch Boulevard) and extends northward to CT Route 190 (Chestnut Hill Road) in

Stafford. Within the vicinity of the Site, there is a single travel lane in each direction. Turn lanes are present at each intersection. The ADT provided by CTDOT, near the Site is 7,300 vpd. Illumination is sporadic and sidewalks are not present along the roadway.

I-291 is an interstate highway that originates from an interchange with I-91 in Windsor and extends to an interchange with I-84 in Manchester. Along most of its length, I-291 is two lanes, has a speed limit of 65 mph, and has illumination. Within the vicinity of the Site, I-291 has an interchange (Interchange 4) with U.S. Route 5 (John Fitch Boulevard). The ADT, provided by CTDOT, was 20,300 vpd westbound and 20,000 vpd eastbound.

Chapel Road is a town-maintained roadway that is classified as a local street west of U.S. Route 5 and as a collector east of it. It originates at Main Street in South Windsor and extends east into Manchester where it ends at the Tolland Turnpike. In the vicinity of the Site, Chapel Road has a single travel lane in each direction and a double yellow line for delineation. The posted speed limit is 35 mph. There is illumination and a sidewalk along the westbound side of the roadway. The ADT, provided by CTDOT, varies from 3,000 vpd to 4,000 vpd near the Site.

Intersection Characteristics

Several key intersections were reviewed in this study to determine if they would be impacted by the expected site traffic volumes. They are as follows:

- **U.S. Route 5 (John Fitch Boulevard) at Chapel Road–** At this semi-actuated, 7-phase signalized intersection, U.S. Route 5 has exclusive left turn lanes and two travel lanes in both directions. An exclusive right turn lane is present on the northbound side of the road as well. The eastbound Chapel Road approach has a single shared left/thru/right lane. The westbound Chapel Road approach has an exclusive left turn lane and shared thru/right turn lane. Protected left turns are present along the U.S. Route 5 approaches. Emergency and railroad pre-

emption are present at the intersection. Railroad pre-emption triggers a protected right turn northbound along U.S. Route 5 and an internally illuminated "No Right Turn" Sign. The signal is part of a closed loop coordinated system along U.S. Route 5. There is a 90" cycle length during the AM Peak Hour and an 85" cycle length in the PM Peak Hour.

- **U.S. Route 5 (John Fitch Boulevard) at I-291 EB Ramps and CT Route 30 (Ellington Road) –** At this semi-actuated, 7-phase signalized intersection there are two travel lanes and exclusive left turn lanes in both directions along U.S. Route 5. The northbound side also has an exclusive right turn lane and the southbound side has a yield controlled right turn lane. The eastbound I-291 EB Off Ramp approach has dual exclusive left turn lane, a single through lane, and a free flowing, channelized right turn lane. The westbound CT Route 30 approach has an exclusive left turn lane and a single left/thru/right turn lane. There is a protected left turn on both approaches of U.S. Route 5. The I-291 and CT Route 30 approaches are split phased. Emergency and railroad pre-emption are present at the intersection. Railroad pre-emption triggers a protected right turn northbound along U.S. Route 5 and an internally illuminated "No Right Turn" Sign. The signal is part of a closed loop coordinated system along U.S. Route 5. There is a 90" cycle length during the AM Peak Hour and an 85" cycle length in the PM Peak Hour.

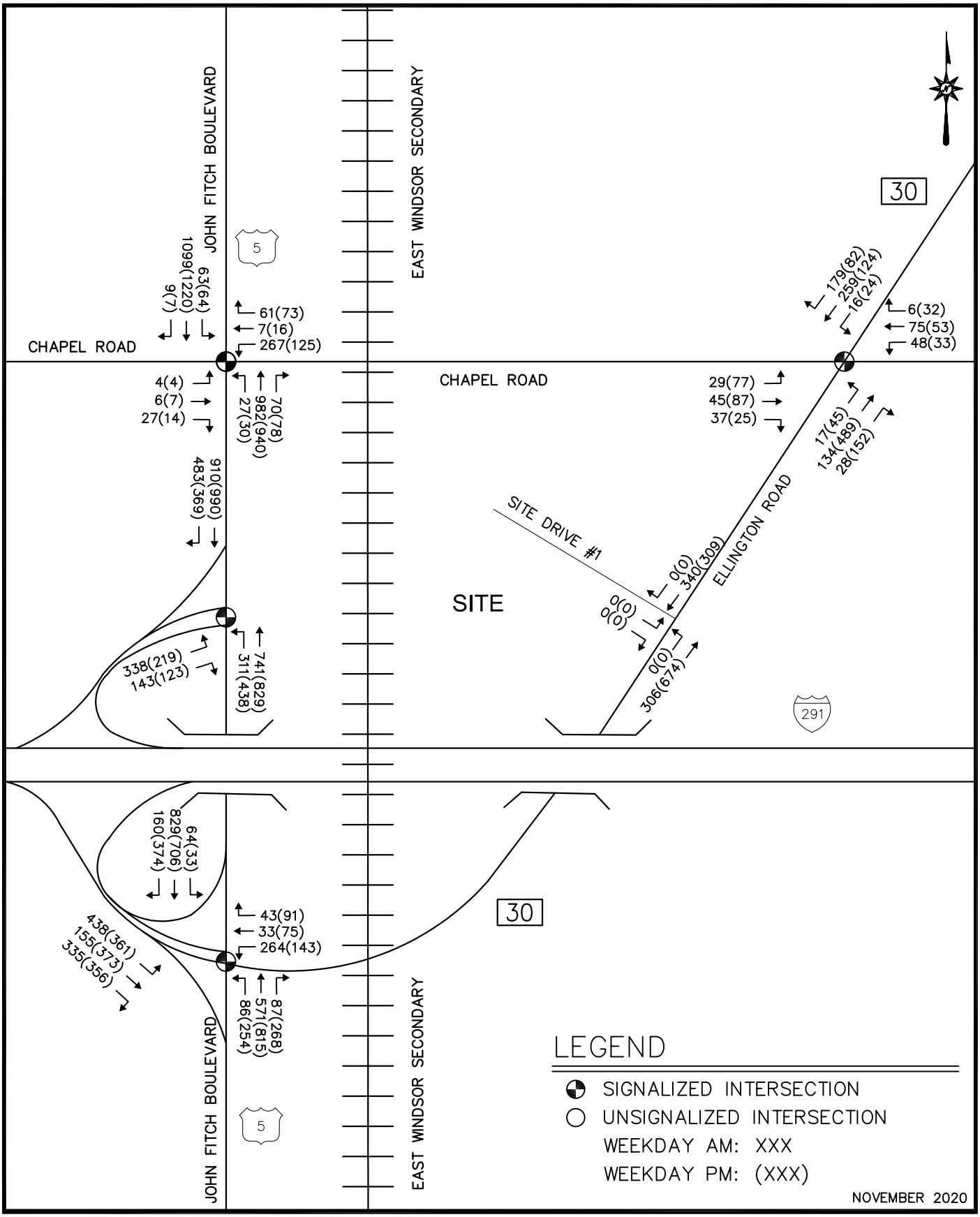
- **U.S. Route 5 (John Fitch Boulevard) at I-291 WB Ramps –** At this semi-actuated, 3-phase signalized intersection there are two travel lanes in both directions. An exclusive left turn lane is present along U.S. Route 5 northbound and a channelized, yield controlled right turn lane is present on the southbound side. The eastbound I-291 WB Off Ramp approach has dual exclusive left turn lane and an exclusive right turn lane. There is a protected left turn on the northbound U.S. Route 5 approach. Emergency pre-emption is present at the intersection. The signal is part of a closed loop coordinated system along U.S. Route 5. There is

a 90" cycle length during the AM Peak Hour and an 85" cycle length in the PM Peak Hour.

- **CT Route 30 (Ellington Road) at Chapel Road –** At this fully actuated, 4-phase signalized intersection there are exclusive left turn lanes and a shared thru/right turn lane on both Chapel Road and the northbound CT Route 30 approaches. The southbound CT Route 30 approach has a shared left/thru and an exclusive right turn lane. There is permitted/protected left turn on both Chapel Road eastbound and CT Route 30 Northbound.

Existing Traffic Volumes

Existing traffic volumes from July 10, 2018 for the AM and PM Peak Hours were provided by CTDOT. See **Appendix** Figure 3 for Langan Existing Traffic Volumes. The volumes were then balanced for this traffic study and a growth factor of 1% was applied to develop 2020 Existing Traffic Volumes. The current peak hour traffic volumes for the intersections are illustrated in **Figure 2**.



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EXISTING TRAFFIC VOLUMES (2020)

PROPOSED DEVELOPMENT
240 ELLINGTON ROAD
SOUTH WINDSOR, CONNECTICUT
NOT TO SCALE

FIGURE 2

Crash Data Analysis

As part of the existing conditions analysis, crash data for the most recent four and a half-year period, January 1, 2015 through October 1, 2020, was obtained from the Connecticut Crash Data Repository.

Two hundred twenty-one (221) crashes in the study area were reviewed; the most common crashes were the front to rear at fifty-six percent (56%). The majority of crashes resulted in "No Apparent Injury" at fifty-eight percent (58%). There were no fatalities and only five (5) crashes associated with "Suspected Serious Injury" in the corridor for the five-year period. According to the crash records mentioned above, the intersection of US 5 / John Fitch Blvd at I-291 Southbound Ramps experienced the majority of the crashes in the corridor at forty (40) percent. Below **Table 1** summaries the crash data.

Table 1 – Crash Data Summary

Proposed Delivery Station, South Windsor, CT				
	CT Route 30 / Ellington Road at Chapel Road	**US 5 / John Fitch Blvd at Chapel Road**	**US 5 / John Fitch Blvd at I-291 Northbound Ramps**	**US 5 / John Fitch Blvd at I-291 Southbound Ramps**
Year				
2015	3	8	16	10
2016	5	6	12	15
2017	1	6	11	15
2018	2	12	4	17
2019	5	12	10	20
2020	5	6	9	11
Total	**21**	**50**	**62**	**88**
Crash Type				
Angle	6	15	6	13
Front to Front	0	0	0	1
Front to Rear	10	26	40	48
Not Applicable	5	3	9	13
Other	0	3	0	0
Rear to Rear	0	1	0	0
Rear to Side	0	0	1	0
Sideswipe, Opposite Direction	0	0	1	0
Sideswipe, Same Direction	0	2	5	13
Total	**21**	**50**	**62**	**88**
Severity				
Fatal Injury (K)	0	0	0	0
Suspected Serious Injury (A)	0	3	0	2
Suspected Minor Injury (B)	5	11	6	12
Possible Injury (C)	5	10	21	18
No Apparent Injury (O)	11	26	35	56
Unknown	0	0	0	0
Total	**21**	**50**	**62**	**88**
Note: Data collected from the Connecticut Crash Data Repository				

III. PROJECTED TRAFFIC CONDITIONS

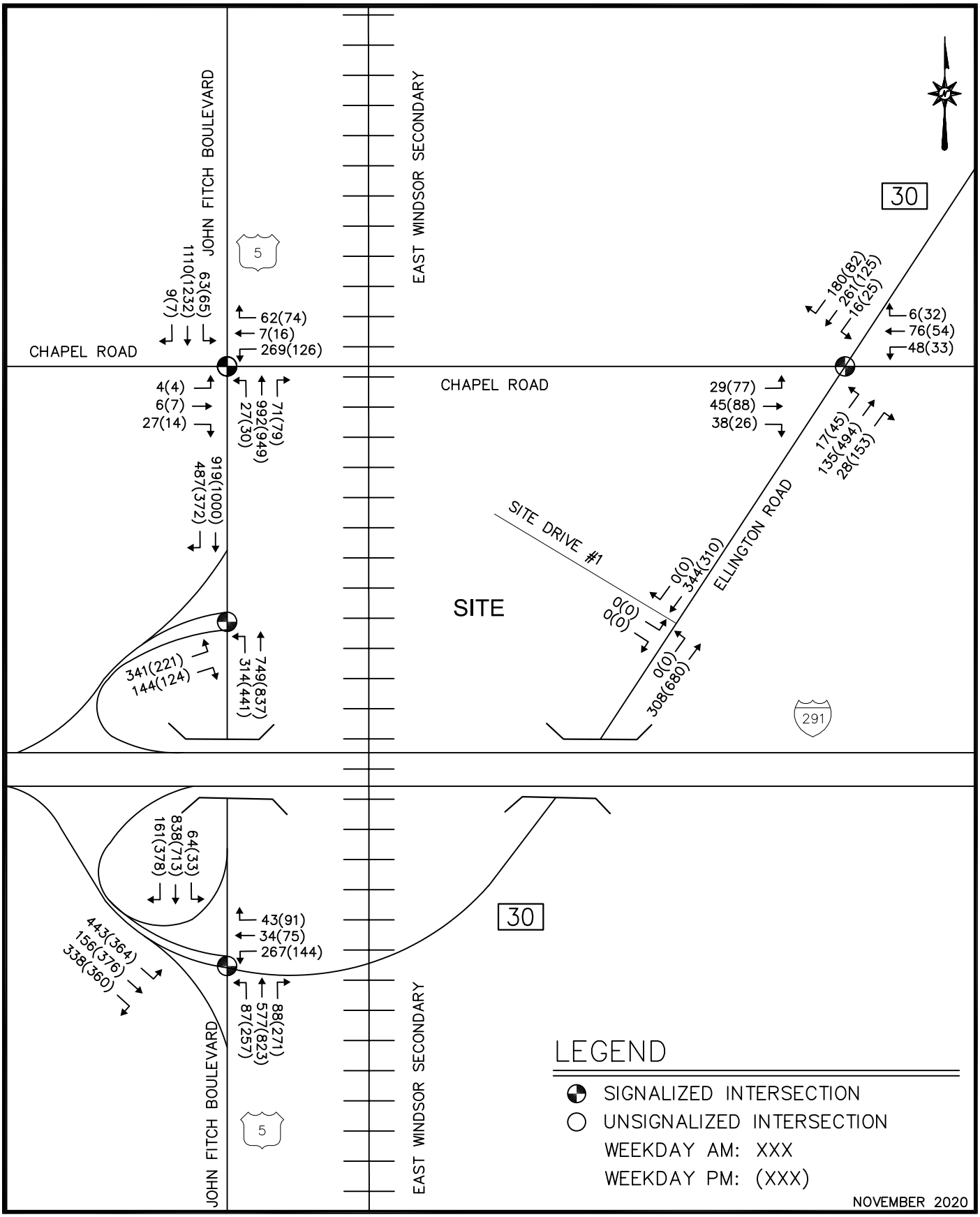
In order to evaluate traffic conditions when the proposed development is completed in 2021, future traffic volumes networks for forecast under the 2021 No Build Conditions (without the proposed distribution station development) and under 2021 Build Conditions (with the proposed distribution station development) were developed. The projected traffic volumes on the roadway network under 2021 No Build conditions were assumed to include all existing traffic and new traffic resulting from background sources of traffic growth, independent of the proposed development. The project traffic volumes on the roadway network under 2021 Build conditions were assumed to include the anticipated project site-generated traffic volumes in addition to the assumed background traffic growth. A 1% annual growth rate was applied to the 2020 existing traffic volumes to develop the 2021 traffic volumes. The annual growth volumes were added to the Existing Traffic Volumes to determine the 2021 No Build Conditions (without the proposed distribution station development) and under 2021 Build Conditions (with the proposed distribution station development).

No Build Traffic Volumes

In addition to applying a growth rate, any approved or pending developments in the area that may add substantial traffic volume to the study intersections were considered. In discussions with Connecticut Department of Transportation, there were three planned developments proposed in the vicinity of this development. The projected volumes from those developments can be found in the **Appendix,** as Figures 4A, 4B and 4C. The proposed developments have been identified by Office of the State Traffic Administration (OSTA) as:

- OSTA Number: 132-1905-01, 360 Ellington Road Warehouse/Distribution Center;
- OSTA Number: 132-1808-01, Warehouse-359 Ellington Road;
- OSTA Number: 132-1204-01, Nutmeg Village: 388, 438 Pleasant Valley Road

The projected volumes from those developments were then added to the Horizon Year traffic volumes to determine the No Build (2021) Traffic Volumes. **Figure 3** graphically illustrates the No Build Traffic Volumes.



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NO BUILD TRAFFIC VOLUMES (2021)

PROPOSED DEVELOPMENT
240 ELLINGTON ROAD
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FIGURE 3

Trip Generation and On-Site Circulation

The level of traffic likely generated by the proposed delivery station has been estimated by the tenant to determine the potential traffic impact on the study intersections. The tenant completed a detailed analysis determining the number and time of site traffic arrivals and departures at the site, which is a function of the delivery area population and business density. The Tenant anticipates that this facility will employ approximately 134 associates/managers on-site over various shifts during the course of the day. All associates/managers will utilize one existing drive at 240 Ellington Road.

Delivery stations operate 24/7 to support delivery of packages to customer locations between 11:00 AM and 9:00 PM. At the proposed South Windsor, CT facility, the Client anticipates approximately 14-line haul trucks delivering packages to the delivery station each day, primarily between the hours of 10:00 PM to 8:00 AM. The customer packages are sorted, picked to the delivery routes, placed onto movable racks and staged for dispatch. Approximately 54 associates and 15 managers support this operation and the shift structure is designed between 2:00 AM and 12:30 PM, which mitigates traffic impact during rush hour periods. Additionally, there will be approximately 22 managers and dispatchers supervising the delivery operations, arriving at 6:00 AM and departing at 2:30 PM followed by another shift of dispatchers arriving at 1:30 PM and departing at 10:00 PM.

The delivery associates arrive at a delivery station at 9:20 AM. Starting at 9:50 AM and ending at 11:10 AM, 153 delivery vans will load and depart from the delivery station at a rate of 50 vans every 20 minutes to facilitate a regulated traffic flow into the surrounding area. The 1st wave of delivery vans leave at 10:10:00 AM. The departure window is designed to mitigate impact on rush hour periods. Approximately 8-10 hours after dispatch, delivery routes are completed, and the vans return to the station between 7:10 PM and 9:10 PM. The drivers park the delivery van onsite and leave using a personal vehicle.

The Client will also use "Flex" to deliver packages from this location. Flex works in concert with an advanced logistics systems and technology that the Client has been building since day one. The Client anticipates approximately 40 traditional passenger vehicles entering the facility staggered between 4:30 PM and 6:00 PM. Flex vehicles will load and depart every 15 minutes.

Approximately 21 associates will work in the delivery station between 12:00 PM and 10:30 PM to support the Flex and DSP drivers as they return to the station. After the check out and release of all delivery vehicles by 9:40 PM, delivery station associates prepare the delivery station for the next day's packages.

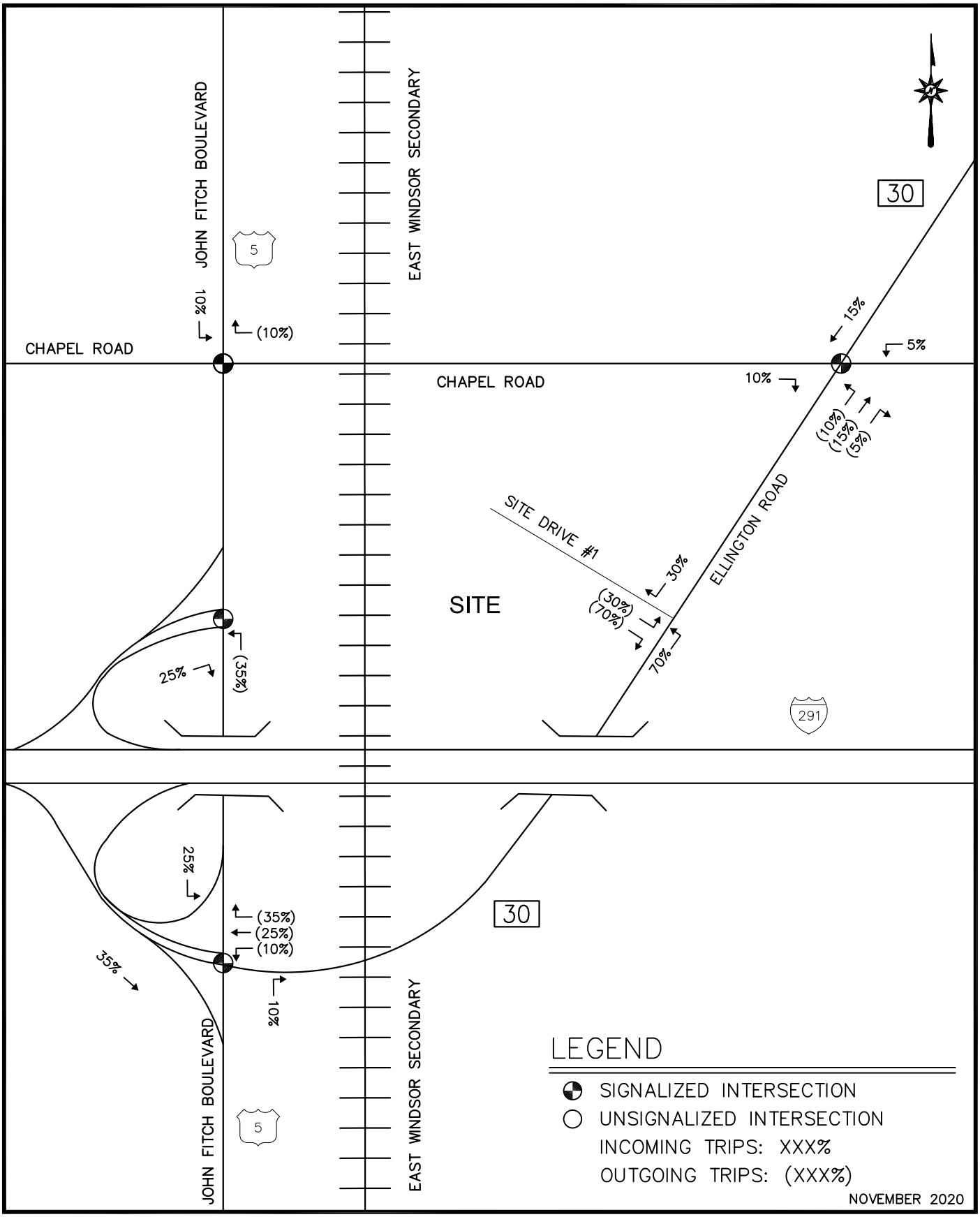
The delivery station is anticipated to generate a total of approximately 988 trips per day; the majority of which are off-peak hours. A summary of the trip generation projections for the proposed distribution station is presented in **Table 2**. As indicated in this table, the proposed delivery station is projected to generate 1 (1 enter, 0 exit) vehicle trips, trucks only, during the weekday AM peak hour and 61 (41 enter, 20 exit) during the weekday PM peak hour. The Site is currently unoccupied.

Table 2 – Peak Hour Trip Generation

	Trips					
Trips By	**AM Peak Hour**			**PM Peak Hour**		
	Total	In	Out	Total	In	Out
Associates/Managers	0	0	0	0	0	0
DSP	0	0	0	0	0	0
Flex Drivers	0	0	0	60	40	20
Trucks	2	1	1	1	1	0
Net New Trips	**2**	**1**	**1**	**61**	**41**	**20**
Ref: Trip Generation developed by Tenant 11/15/2020						

Trip Distribution

The directional distribution of traffic is typically a function of population densities, competing opportunities, existing travel patterns adjacent to the Site, and the efficiency and limitations of the existing roadway system. Based upon the Site's close proximity to Interstate 91, it is anticipated that the majority of employees/delivery vehicles will utilize I-91 for access and egress from the Site. The trip distribution was reviewed and approved by CTDOT. The distribution of the anticipated traffic volumes was based on arrival/departure patterns shown in **Figure 4**.



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TRIP DISTRIBUTION

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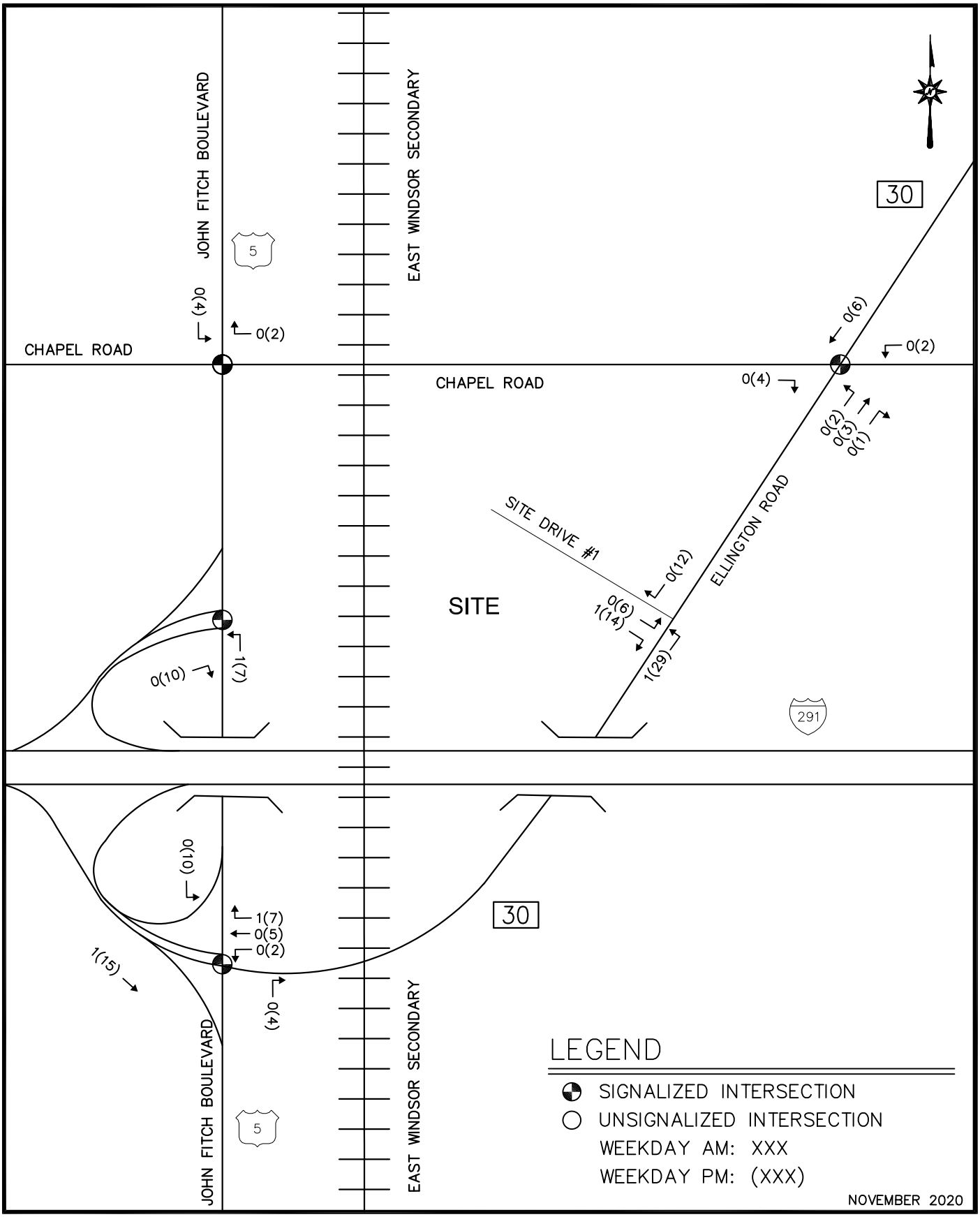
FIGURE 4

Assigned Site Generated Traffic Volumes

The generated trips are multiplied by the corresponding proportions to ascertain the site-generated traffic volumes. **Figure 5** shows the site-generated peak hour traffic generated by the Site assigned to the nearby roadway network.



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TRIP GENERATED TRAFFIC
PROPOSED DEVELOPMENT
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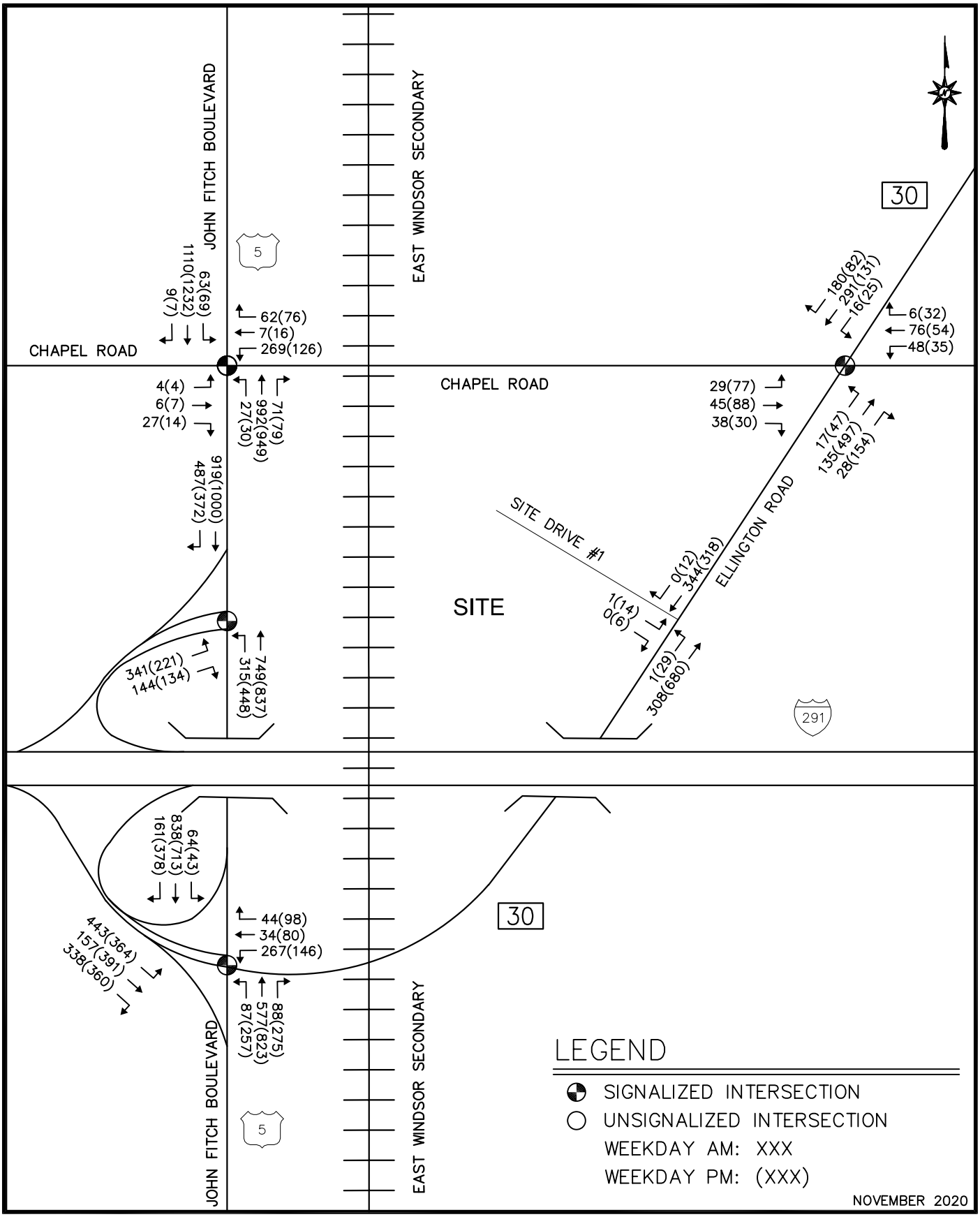
FIGURE 5

Build Traffic Volumes

The assigned site-generated traffic volumes were superimposed onto the 2021 No Build Traffic volumes to establish the future 2021 Build Traffic volumes, as illustrated in **Figure 6**.



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BUILD TRAFFIC VOLUMES (2021)

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NOT TO SCALE

FIGURE 6

IV. ROADWAY ADEQUACY

The intersection capacity analyses were prepared using the methodology described in the Highway Capacity Manual (HCM), published by the Transportation Research Board (TRB) for the existing and build traffic volume scenarios to simulate the traffic impact of a proposed delivery station on the adjacent roadway network. As documented in the HCM, intersection performance is influenced by several factors, including traffic demand; lane configurations; lane widths; turning restrictions; roadway grades; and signal phasing. The existing physical roadway characteristics and signal phasing and timing settings were determined by observing conditions in the field and reviewing the current traffic control signal plans provided by the Connecticut Department of Transportation.

Synchro™ software (Version 11) was used to model the study intersections based on the parameters mentioned above. The Synchro software is widely utilized by the traffic engineering industry and is consistent with the procedures in the HCM.

Signalized Intersections

Signalized intersections are analyzed in terms of vehicle capacity and motorist delay. Capacity is the maximum rate of vehicle flow through an intersection given typical operating conditions. The number of vehicles traveling through an intersection is divided by the capacity of the intersection to determine an overall volume to capacity ratio (v/c). A v/c value under 1.00 indicates that the number of vehicles traveling through an intersection is less than capacity.

As stated in the HCM, level of service for signalized intersections is defined in terms of control delay. Control delay measures the increase in delay a motorist experiences while encountering a traffic control signal. These factors include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. This delay is measured per vehicle for a 15-minute analysis period and is associated with the levels of service, which are summarized in **Table 3** below:

Table 3 – Signalized Intersection – Level of Service

Level of Service[1]	Average Control Delay (seconds per vehicle)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

[1]If volume-to-capacity ratio is over 1.0 for a lane group, LOS F. Intersection and approach-based LOS is based solely on control delay.

Level of Service A represents the optimum level where most motorists arrive at the subject intersection during the green phase and thus experience virtually no delay. Conversely, Level of Service F indicates that motorists are delayed over 80 seconds while traveling through the intersection and can often imply a complete breakdown of

that location. Level of Service D is generally considered the limit of acceptable motorist delay.

Unsignalized Intersections

Unsignalized intersections are generally evaluated in terms of average side street delay, as well as the capacity of the roadway approach. This analysis is based on the random arrival of vehicles and the associated gaps generated by this random arrival within the traffic stream. There is no overall level of service for unsignalized intersections. The relationship between levels of service and average side street delay are summarized in **Table 4** below:

Table 4 – Unsignalized Intersection – Level of Service

Level of Service[1]	Average Control Delay (seconds per vehicle)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

[1]If volume-to-capacity ratio is over 1.0 for a lane group, LOS F. Intersection and approach-based LOS is based solely on control delay.

It should be noted that unsignalized levels of service do not correspond to those for signalized intersections, nor do they constitute warrants for the installation of traffic control signals. It is also recognized that the methodology is overly conservative and that computations can indicate operations at poor levels of service (E or F) with even very low side street volumes, although they often function without serious problems in the real world.

Table 5 shows the levels of service (LOS) at the subject intersections. A more detailed table is included in the Appendix.

Table 5 – Peak Hour Levels of Service

	AM				PM			
	2020 Existing	2021 No Build	2021 Build	2021 Build Improved	2020 Existing	2021 No Build	2021 Build	2021 Build Improved
US Route 5 (John Fitch Blvd) at I-291 EB On /Off-Ramps and Route 30 (Ellington Rd.) [1]	**D/35.8**	**D/36.1**	**D/36.0**	**D/36.0**	**D/35.4**	**D/36.0**	**D/38.1**	**D/35.1**
I-291 EB Left	D/0.80/185	D/0.80/185	D/0.79/185	D/0.79/185	C/0.59/150	C/0.59/150	C/0.59/150	C/0.53/145
I-291 EB Thru	D/0.49/145	D/0.49/145	D/0.50/150	D/0.50/150	F/1.05/#420	F/1.06/#425	F/1.10/#445	E/0.99/#420
I-291 EB Right	A/0.25/25	A/0.25/25	A/0.25/25	A/0.25/25	A/0.25/25	A/0.25/25	A/0.25/25	A/0.25/25
Route 30 (Ellington Rd.) WB Left	E/0.76/185	E/0.76/#185	E/0.76/#185	E/0.76/#185	D/0.69/#155	D/0.70/#160	E/0.71/160	E/0.71/#160
Route 30 (Ellington Rd.) WB Thru	D/0.77/#175	D/0.77/#185	D/0.77/#185	D/0.77/#185	E/0.83/#195	E/0.84/#195	E/0.90/220	E/0.90/#220
US Route 5 (John Fitch Blvd) SB Left	D/0.60/105	E/0.61/105	E/0.61/105	E/0.61/105	E/0.87/#225	E/0.87/#230	E/0.87/230	E/0.95/#275
US Route 5 (John Fitch Blvd) SB Thru	C/0.49/230	C/0.50/235	C/0.50/235	C/0.50/325	C/0.72/300	C/0.73/305	C/0.74/305	C/0.74/290
US Route 5 (John Fitch Blvd) SB Right	A/0.14/25	A/0.15/25	A/0.15/25	A/0.15/25	A/0.40/35	A/0.41/35	A/0.41/35	A/0.41/35
US Route 5 (John Fitch Blvd) NB Left	D/0.45/m50	D/0.45/m50	D/0.45/m50	D/0.45/m50	E/0.29/m25	E/0.29/m25	E/0.34/m30	E/0.48/m40
US Route 5 (John Fitch Blvd) NB Thru	D/0.71/m295	D/0.73/m300	D/0.73/m300	D/0.73/m300	D/0.94/m#285	D/0.95/m#285	D/0.95/m#280	D/0.98/#320
US Route 5 (John Fitch Blvd) NB Right	C/0.27/m75	C/0.28/m75	C/0.28/m75	C/0.28/m75	B/0.61/m205	B/0.61/m205	B/0.61/m200	A/0.62/m75
US Route 5 (John Fitch Blvd) at I-291 WB On /Off Ramps[1]	**C/28.3**	**C/29.1**	**C/29.1**	**C/27.6**	**B/19.7**	**C/20.5**	**C/21.1**	**B/15.1**
I-291 EB Left	C/0.39/130	C/0.39/130	C/0.39/130	C/0.39/130	D/0.55/95	D/0.56/95	D/0.56/95	D/0.73/#115
I-291 EB Right	A/0.28/45	A/0.29/45	A/0.29/45	A/0.29/45	A/0.42/45	A/0.42/45	A/0.45/45	B/0.51/50
US Route 5 (John Fitch Blvd) NB Left	D/0.67/295	D/0.68/m295	D/0.68/m295	D/0.68/m295	C/0.73/m120	C/0.73/m120	C/0.73/m120	C/0.83/m#215
US Route 5 (John Fitch Blvd) NB Thru	B/0.36/170	B/0.36/170	B/0.36/170	B/0.36/170	A/0.36/25	A/0.36/25	A/0.36/m25	A/0.35/m70
US Route 5 (John Fitch Blvd) SB Thru	E/1.02/m#340	E/1.03/m#345	E/1.03/m#345	D/1.03/#435	D/0.93/#525	D/0.95/#530	D/0.96/#530	B/0.76/205
US Route 5 (John Fitch Blvd) SB Right	A/0.35/m25	A/0.35/m25	A/0.35/m25	A/0.35/m25	A/0.25/m25	A/0.25/m25	A/0.25/m25	A/0.25/25

Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec
Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft
[1] – Signalized Intersection
[2] – Unsignalized Intersections, data populated from the model.
– 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m – Volume for 95th percentile queue is metered by upstream signal.

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	AM				PM			
	2020 Existing	2021 No Build	2021 Build	2021 Build Improved	2020 Existing	2021 No Build	2021 Build	2021 Build Improved
US Route 5 (John Fitch Blvd) at Chapel Road[1]	**E/60.0**	**E/62.7**	**E/62.6**	**C/26.0**	**B/15.8**	**B/15.9**	B/16.0	B/13.6
Chapel Road EB Left	A/0.07/25	A/0.07/25	A/0.07/25	B/0.09/25	B/0.11/30	B/0.11/30	B/0.11/30	B/0.10/25
Chapel Road Thru/ Right	C/0.59/220	C/0.59/220	C/0.59/220	D/0.77/#285	E/0.84/#155	E/0.84/#155	E/0.84/#155	D/0.74/125
Chapel Road WB Left	A/0.12/30	A/0.12/30	A/0.12/30	A/0.15/35	B/0.33/45	B/0.33/45	B/0.34/45	B/0.31/40
Chapel Road WB Thru/Right	D/0.17/50	D/0.17/50	D/0.17/50	D/0.28/40	D/0.21/45	D/0.21/45	D/0.21/45	C/0.24/m35
Route 30 (Ellington Rd.) NB Left	E/1.06/#440	E/1.08/#450	E/1.08/#450	B/0.78/385	B/0.51/175	B/0.51/175	B/0.51/175	A/0.53/160
Route 30 (Ellington Rd.) NB Thru/Right	A/0.15/25	A/0.15/25	A/0.15/25	A/0.12/25	A/0.09/25	A/0.09/25	A/0.09/25	A/0.09/m10
Route 30 (Ellington Rd.) SB Thru/Left	D/0.35/80	D/0.35/80	D/0.35/80	D/0.51/#85	D/0.38/75	D/0.38/75	D/0.40/75	D/0.44/80
Route 30 (Ellington Rd.) SB Right	E/1.03/#510	E/1.04/#515	E/1.04/#515	C/0.74/285	B/0.58/340	B/0.58/345	B/0.58/345	B/0.60/365
Route 30 (Ellington Rd.) at Chapel Road [1]	**B/17.1**	**B/17.1**	**B/17.1**	**B/17.9**	**C/21.3**	**C/21.6**	**C/21.7**	**B/13.6**
Chapel Road Thru/ Left / Right	B/0.09/30	B/0.09/30	B/0.09/30	B/0.09/30	B/0.22/60	B/0.22/60	B/0.22/60	B/0.10/25
Chapel Road WB Left	A/0.14/45	A/0.14/45	A/0.14/45	A/0.15/45	B/0.20/75	B/0.20/75	B/0.21/75	D/0.74/125
Chapel Road WB Thru / Right	C/0.17/55	C/0.17/60	C/0.17/55	C/0.20/55	C/0.18/45	C/0.18/45	C/0.20/50	B/0.31/40
US Route 5 (John Fitch Blvd) NB Left	C/0.20/80	C/0.20/80	C/0.20/80	C/0.24/80	C/0.31/75	C/0.31/80	C/0.31/80	C/0.24/m35
US Route 5 (John Fitch Blvd) NB Thru	B/0.04/25	B/0.04/25	B/0.04/25	B/0.05/25	B/0.08/35	B/0.08/35	B/0.09/35	A/0.53/160
US Route 5 (John Fitch Blvd) NB Right	B/0.18/90	B/0.19/90	B/0.18/90	B/0.22/90	C/0.75/425	C/0.76/435	C/0.76/440	A/0.09/m10
US Route 5 (John Fitch Blvd) SB Thru	C/0.50/200	C/0.50/205	C/0.50/200	C/0.57/200	C/0.38/120	C/0.39/125	C/0.41/130	D/0.44/80
US Route 5 (John Fitch Blvd) SB Right	A/0.30/45	A/0.30/45	A/0.30/45	A/0.33/45	A/0.16/25	A/0.16/25	A/0.16/25	B/0.60/365

Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec
Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft
[1] – Signalized Intersection
[2] – Unsignalized Intersections, data populated from the model.
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	AM				PM			
	2020 Existing	2021 No Build	2021 Build	2021 Build Improved	2020 Existing	2021 No Build	2021 Build	2021 Build Improved
Route 30 (Ellington Rd.) at Site Drive [2]	**A/0.2**	**A/0.2**	**A/0.2**	**A/0.2**	**A/0.2**	**A/0.2**	**A/0.2**	**A/0.2**
Site Drive Left	-	-	-	-	-	-	C/0.07/25	C/0.07/25
Site Drive Right	-	-	B/0.00/25	B/0.00/25	-	-	B/0.01/25	B/0.01/25
Route 30 (Ellington Rd.) SB Thru	A/0.22/25	A/0.22/25	A/0.22/25	A/0.22/25	A/0.20/25	A/0.20/25	A/0.21/25	A/0.21/25
Route 30 (Ellington Rd.) SB Right	-	-	-	-	-	-	A/0.21/25	A/0.21/25
Route 30 (Ellington Rd.) NB Left	-	-	A/0.00/25	A/0.00/25	-	-	A/0.03/25	A/0.03/25
Route 30 (Ellington Rd.) NB Thru	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.03/25	A/0.03/25

Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec
Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft
[1] – Signalized Intersection
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– 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m – Volume for 95th percentile queue is metered by upstream signal.

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As illustrated in **Table 5**, the AM and PM Peak Hour Existing Scenario traffic operations were analyzed as the base conditions for comparison with the Build Scenarios. In both Existing Scenarios and the No Build Scenarios, several intersections and approaches are projected to operate at undesirable levels of service. Specific movements that experience Levels of Service E or F in the No Build Scenarios during the AM and PM Peak Hours are as follows:

- US Route 5 (John Fitch Boulevard) at I-291 Eastbound On / Off Ramps and Route 30 (Ellington Road.)
    - I-291 EB Thru
    - Route 30 (Ellington Rd.) WB Left
    - Route 30 (Ellington Rd.) WB Thru
    - US Route 5 (John Fitch Blvd) SB Left
    - US Route 5 (John Fitch Blvd) NB Left
- US Route 5 (John Fitch Boulevard) at I-291 Westbound On / Off Ramps
    - US Route 5 (John Fitch Blvd) SB Thru
- US Route 5 (John Fitch Boulevard) at Chapel Road
    - Chapel Road Thru/ Right
    - Route 30 (Ellington Rd.) NB Left
    - Route 30 (Ellington Rd.) SB Right

From the analysis of the Build Scenarios, there are low impacts to the roadway network for the proposed package delivery station. The additional traffic on US Route 5 (John Fitch Boulevard) increases delay for both northbound and southbound thru movements that already serve at LOS C or higher. On CT Route 30 (Ellington Road) movements towards I-291 were and continue to perform at near capacity levels.

In order to mitigate the delays, timings can be modified. The phase splits were adjusted to balance the needs of intersections and provide as little impact by using the optimization tool in the Synchro software to develop Build Improved Scenarios. By optimizing the phase splits for AM and PM Peak Hour, simulation improves efficiency

and level of service along the corridor. With adjusted phase splits overall LOS of US Route 5 at I-291 EB On/Off-Ramps /Route 30 (Ellington Rd.) improved from LOS D to LOS C in PM peak. During AM Peak Hour, US Route 5 (John Fitch Blvd) at Chapel Road with signal timing adjustments overall improves from LOS E to LOS C.

No other specific intersection movements or overall delay experience impact and the Site driveways operate at acceptable levels of service.

V. CONCLUSIONS AND RECOMMENDATIONS

This traffic study has been prepared for a new tenant and a change of use of an existing lot at 240 Ellington Road. The study area is along a suburban stretch of CT Route 30 (Ellington Road) that is primarily industrial with residential neighborhoods to the northeast. The focus of this study was to evaluate the traffic flows and operating conditions on the roadways and intersections projected to be used by motorists traveling to and from the proposed development and to quantify the potential traffic impacts on these roadways and intersections. After analyses of the Existing, No Build, and Build Scenarios of the AM and PM Peak Hours, it should be noted that there is no notable deterioration from the other proposed developments in the vicinity of this development where those traffic volumes have been included in the No Build scenarios. The following is a summary of the results/recommendations for this Site:

- Install 12" white Stop Bars and "Stop" Signs (R1-1) at site driveway access / egress.
- Any notable deterioration for movements performing at undesirable Levels of Service are either at the undesirable Level of Service in the Existing scenarios or deteriorate between the Existing and No Build scenarios.
- The phase timings were adjusted to balance the needs of intersections and provide as little impact by using the optimization tool in the Synchro software to develop Build Improved Scenarios. By optimizing the phase timings for AM and PM Peak Hour, simulation improve efficiency and levels of service along the corridor.

APPENDIX

OSTA APPROVED DEVELOPMENTS IN VICINITY OF THIS DEVELOPMENT

18 October 2019

Mr. Daniel Madrigal & Mr. Zachary Zweifler
Scannell Properties

RE: Traffic Assessment
240 Ellington Road
South Windsor, Connecticut
Langan Project No. 140211901

Dear Mr. Madrigal and Mr. Zweifler,

Langan has prepared this traffic assessment to determine the potential traffic impacts for the warehouse development located at 240 Ellington Road in South Windsor, Connecticut. Our assessment indicates that the anticipated traffic associated with the proposed development is not anticipated to have a significant adverse impact to the traffic operating conditions of the intersections studied; therefore no off-site improvements are warranted based on our traffic analysis.

PROJECT DESCRIPTION

The subject site is one parcel totaling ±16.0 acres located at 240 Ellington Road (Route 30) in South Windsor, Connecticut (See Figure 1). The site is bordered to the north by the proposed 360 Ellington Road development, to the east by Ellington Road (Route 30), to the south by the Veterans Memorial Highway (Interstate 291) and to the west by the Connecticut Southern Railroad tracks.

The project includes the construction of a ±182,000 square-foot warehouse building along with associated site improvements including parking, drainage, storage, utilities and landscaping. The site plan proposes 130 standard vehicle parking spaces (including 5 ADA spaces), 42 loading docks and 42 potential future trailer parking spaces.

Vehicular access to development will include one unsignalized, full-movement driveway on Ellington Road that will service the employee parking area along with the truck parking and loading operations for the facility.

Due to the developments program of over 100,000 square-feet and 200 parking spaces, it will require review and approval from the CTDOT Office of the State Traffic Administration (OSTA) as an Administrative Decision (AD) since there is no required mitigation on the state highway facilities (Route 30).

EXISTING TRAFFIC CONDITIONS

Existing Roadways

Ellington Road (Route 30) is a posted 40-45 MPH, northeast-southwest, two-way urban principal arterial roadway. Ellington Road typically provides one12-foot wide travel lanes with a 2-foot wide shoulder in each direction. Turn lanes are provided at major intersections.

John Fitch Boulevard (U.S. Route 5) is a posted 50 MPH, north-south, divided two-way urban principal arterial roadway. John Fitch Boulevard typically provides two 12-foot wide travel lanes with variable width shoulders in each direction, separated by a variable width median. Turn lanes are provided at major intersections.

Chapel Road is a posted 35 MPH, east-west, two-way urban collector roadway. Chapel Road typically provides one 12-foot wide travel lane with a variable width shoulder in each direction with turn lanes provided at major intersections.

Study Intersections

John Fitch Boulevard forms a four-way signalized intersection with Ellington Road and the I-291 eastbound ramps with the following geometry:

- John Fitch Boulevard northbound provides one left-turn only lane with approximately 400 feet of storage, two thru lanes and one right-turn only lane with approximately 600 feet of storage
- John Fitch Boulevard southbound provides one left-turn only lane with approximately 125 feet of storage, two thru lanes and one yield-controlled channelized right-turn lane with approximately 600 feet of storage
- I-291 off-ramp eastbound provides two left-turn only lanes with approximately 300 feet of storage, one thru lane and one free-flowing channelized right-turn lane
- Ellington Road westbound provides one left-turn only lane with approximately 875 feet of storage and one shared left-turn/thru/right-turn lane

John Fitch Boulevard forms a signalized "T" intersection with the I-291 westbound ramps with the following geometry:

- John Fitch Boulevard northbound provides one left-turn only lane with approximately 325 feet of storage and two thru lanes
- John Fitch Boulevard southbound provides two thru lanes and one yield-controlled channelized right-turn lane with approximately 400 feet of storage.
- I-291off-ramp eastbound provides two left-turn only lanes and one right-turn only lane, each with approximately 300 feet of storage

John Fitch Boulevard forms a four-way signalized intersection with Chapel Road with the following geometry:

- John Fitch Boulevard northbound provides one left-turn only lane with approximately 275 feet of storage, two thru lanes and one right-turn only lane with approximately 275 feet of storage
- John Fitch Boulevard southbound provides one left-turn only lane with approximately 300 feet of storage, one thru lane and one shared thru/right-turn lane
- Chapel Road eastbound provides one shared left-turn/thru/right-turn lane
- Chapel Road westbound provides one left-turn only lane with approximately 375 feet of storage and one shared thru/right-turn lane

Ellington Road forms a four-way signalized intersection with Chapel Road with the following geometry:

- Ellington Road northbound provides one left-turn only lane with approximately 100 feet of storage and one shared thru/right-turn lane
- Ellington Road southbound provides one shared left-turn/thru lane one thru lane and one right–turn only lane with approximately 300 feet of storage
- Chapel Road eastbound provides one left-turn only lane with approximately 175 feet of storage and one shared thru/right-turn lane
- Chapel Road westbound provides one left-turn only lane with approximately 125 feet of storage and one shared thru/right-turn lane

METHODOLOGY

To assess the potential traffic impacts of the project it is appropriate to evaluate the peak traffic generation periods of the development. In this case, it is anticipated that the peak periods of the development will generally coincide with the peak periods of the adjacent roadway network. Langan employed the methodology outlined below and described in detail in subsequent sections of this assessment.

- Determine the 2021 peak-hour background traffic volumes and traffic operating conditions for the key intersections.
- Determine the traffic peak-hour volumes to be generated by the proposed development. Distribute and assign the traffic throughout the study area.
- Combine the 2021 background traffic volumes with the assigned proposed traffic to establish 2021 build traffic volumes. Determine peak-hour traffic operating conditions and identify mitigation of potential impacts for the build condition.
- Investigate safety-related conditions within the area roadway network.

EXISTING/BACKGROUND TRAFFIC VOLUMES

Manual turning-movement and vehicle-classification counts were conducted on Tuesday July 10th, 2018. Traffic counts at the following intersections were included in our study (See Figure 2 in Appendix B):

- John Fitch Boulevard (U.S. Route 5) & 291 Eastbound Ramps/Ellington Road (Route 30)
- John Fitch Boulevard (U.S. Route 5) & 291 Westbound Ramps
- John Fitch Boulevard (U.S. Route 5) & Chapel Road
- Ellington Road (Route 30) & Chapel Road

Turning movement counts for the study intersections were conducted Tuesday morning from 6:30 a.m. to 9:30 a.m. and Tuesday afternoon from 3:30 p.m. to 6:30 p.m. The peak periods of the roadways generally occur between 7:15 to 8:15 a.m. and between 4:30 to 5:30 p.m. See Figure 3 in Appendix B for the 2018 existing traffic volumes.

Background traffic represents the conditions that will likely exist at the time of the anticipated opening of development in 2021, and does not include the anticipated traffic associated with the proposed development. These conditions include a number of elements that may influence the study area, including: traffic volumes anticipated to exist due to normal growth projection and traffic volumes and improvements from development projects approved, under construction or under formal land-use consideration. Based on conversations with CTDOT and town staff there are proposed warehouse developments at 359 & 360 Ellington Road and a proposed earth processing/storage facility at 420 John Fitch Boulevard that need to be considered as part of this traffic assessment.

Background traffic growth was estimated based on analysis of traffic counts conducted by Connecticut Department of Transportation (CTDOT). Historical average daily traffic (ADT) counts conducted by the CTDOT in South Windsor show that the two-way ADT on John Fitch Boulevard, just south of Ellington Road (CTDOT count station No. 25) decreased from 21,800 vehicles-per-day (vpd) in 2010 to 21,200 vpd in 2013. The two-way ADT on John Fitch Boulevard, just north of Ellington Road (CTDOT count station No. 79), decreased from 21,500 vpd in 2010 to 20,000 vpd in 2013. The two-way ADT on Ellington Road, just east of John Fitch Boulevard (CTDOT count station No. 3), decreased from 8,700 vpd in 2010 to 6,400 vpd in 2013. Although the historical data indicates that traffic volumes have decreased in the vicinity of the site, to be conservative, an annual growth rate of 1.0% was applied to the 2018 existing traffic volumes to project them into the 2021 build year. See Figure 4A in Appendix B for the 2021 background traffic volumes based on a 1% growth rate. Figures 4B, 4C and 4D show the anticipated background traffic volumes associated with the 359 Ellington Road warehouse development, the earth processing/storage facility at 420 John Fitch Boulevard and the 360 Ellington Road warehouse development, respectively. The combined 2021 background traffic volumes are illustrated in Figure 4.

TRIP GENERATION

The anticipated number of peak-hour trips generated by the development based on user provided data is summarized in Table 1 below.

The anticipated number of peak-hour trips generated by the development is based on data provided by the Institute of Transportation Engineers (ITE) Trip Generation Manual 10th Edition. Land Use Code 150: Warehousing was used for the gross floor area of the development. Table 1 provides a summary of the anticipated trips generated during the peak-hour by the proposed development based on ITE data.

TABLE 1
ANTICIPATED PEAK-HOUR TRIP GENERATION – ITE DATA

	A.M. PEAK HOUR			P.M. PEAK HOUR		
	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
±182,000 SF Warehouse	36	11	47	14	36	50

[1] Volumes based on ITE Trip Generation Manual 10th Edition: Land Use Code 150: Warehousing

The site-generated traffic peak-hour volumes were distributed to and from the site based on existing traffic patterns/volumes on the roadway network. The anticipated percent distribution of the site-generated trips for the development is illustrated in Figure 5. Figure 6 illustrates the assignment of the site-generated trips indicated in Table 1 into the study area roadway network. The 2021 build traffic volumes are illustrated in Figure 7 in Appendix B.

CAPACITY ANALYSIS

To determine the traffic impacts on the area roadway network, we analyzed the operating conditions of the following study intersections and site driveways:

- John Fitch Boulevard (U.S. Route 5) & 291 Eastbound Ramps/Ellington Road (Route 30)
- John Fitch Boulevard (U.S. Route 5) & 291 Westbound Ramps
- John Fitch Boulevard (U.S. Route 5) & Chapel Road
- Ellington Road (Route 30) & Chapel Road
- Ellington Road & Site Driveway

The intersections were analyzed using Synchro Plus SimTraffic 10 capacity analysis software for the 2018 existing, 2021 background and 2021 build peak-hour conditions. Copies of the 2021 background and build analysis reports are provided in Appendix C and Appendix D. Table 2 provides a comparison of the traffic operating conditions for the periods evaluated. The existing levels of service shown in Table 2 were taken from the traffic studies completed by Langan for the 359 Ellington Road and 360 Ellington Road warehouse developments.

TABLE 2 PEAK-HOUR LEVEL OF SERVICE SUMMARY – A.M. (P.M.)			
INTERSECTION	**2018 EXISTING**	**2021 BACKGROUND**	**2021 BUILD**
Signalized Intersections			
John Fitch Boulevard (U.S. Route 5) & 291 Eastbound Ramps/ Ellington Road (Route 30)	**Overall: C (C)** EB-L: D (C) EB-T: C (E) EB-R: A (A) WB-L: D (D) WB-LTR: D (C) NB-L: E (E) NB-T: C (C) NB-R: A (A) SB-L: E (D) SB-T: B (D) SB-R: A (A)	**Overall: C (D)** EB-L: D (C) EB-T: C (F) EB-R: A (A) WB-L: E (D) WB-LTR: D (E) NB-L: E (E) NB-T: C (C) NB-R: A (A) SB-L: E (D) SB-T: B (D) SB-R: A (A)	**Overall: C (D)** EB-L: D (C) EB-T: C (F) EB-R: A (A) WB-L: E (D) WB-LTR: D (E) NB-L: E (E) NB-T: C (C) NB-R: A (A) SB-L: E (D) SB-T: C (D) SB-R: A (A)
John Fitch Boulevard (U.S. Route 5) & 291 Westbound Ramps	**Overall: B (B)** EB-L: D (D) EB-R: A (B) NB-L: D (C) NB-T: A (A) SB-T: B (C) SB-R: A (A)	**Overall: B (B)** EB-L: D (D) EB-R: A (A) NB-L: D (C) NB-T: A (A) SB-T: B (C) SB-R: A (A)	**Overall: B (B)** EB-L: D (D) EB-R: A (B) NB-L: D (C) NB-T: A (A) SB-T: B (C) SB-R: A (A)
John Fitch Boulevard (U.S. Route 5) & Chapel Road	**Overall: B (B)** EB-LTR: B (B) WB-L: D (D) WB-TR: A (B) NB-L: D (D) NB-T: B (B) NB-R: A (A) SB-L: D (D) SB-TR: B (A)	**Overall: C (B)** EB-LTR: A (B) WB-L: D (E) WB-TR: A (B) NB-L: D (D) NB-T: C (B) NB-R: A (A) SB-L: D (D) SB-TR: B (A)	**Overall: C (B)** EB-LTR: A (B) WB-L: D (E) WB-TR: A (B) NB-L: D (D) NB-T: C (B) NB-R: A (A) SB-L: D (D) SB-TR: B (A)
Ellington Road (Route 30) & Chapel Road	**Overall: B (B)** EB-L: B (B) EB-TR: B (B) WB-L: C (C) WB-TR: C (C) NB-L: B (B) NB-TR: B (C) SB-LT: C (C) SB-R: A (A)	**Overall: B (C)** EB-L: B (B) EB-TR: B (B) WB-L: C (C) WB-TR: C (C) NB-L: B (B) NB-TR: B (C) SB-LT: C (C) SB-R: A (A)	**Overall: B (C)** EB-L: B (B) EB-TR: A (B) WB-L: C (C) WB-TR: C (C) NB-L: B (B) NB-TR: B (C) SB-LT: C (C) SB-R: A (A)
Unsignalized Intersections			
Ellington Road (Route 30) & Site Driveway	N/A	N/A	EB: A (A) WB: A (A) SB: B (B)

Table 2 indicates that the study-area intersections will maintain acceptable overall levels-of-service (LOS), after the proposed development. Additionally, the individual lane group levels-of-service will maintain acceptable or background levels-of-service. As mentioned in our previous traffic assessments for the 359 and 360 Ellington Road warehouse developments, signal timing optimization can help improve some of the individual lane group levels-of-service. The intersections studied are adequate to accommodate the increase in peak-hour traffic volumes from the project without any required off-site improvement mitigation measures.

QUEUING ANALYSIS

In addition to the traffic operating conditions, we evaluated the resulting vehicular queuing to assess the impacts at study intersections. In evaluating queuing length, the industry standard is to utilize the 95th percentile queue length developed by the analysis. This length represents the queuing experience during the peak periods, which accounts for 5% of the analysis period. Queues are calculated in feet, and approximately 25 feet of queue is equal to a single vehicle.

The Synchro analyses indicate that the 95th percentile queue lengths at all analyzed intersections do not increase more than one car length for all lane approaches. Any increase in queuing due to the proposed development is minimal and the existing roadway network can fully accommodate the anticipated queues.

SAFETY ANALYSIS

Intersection Sight Distance (ISD)

Based on a review of speed data compiled by CTDOT, the 85th percentile design speed on Ellington Road (Route 30) in the project vicinity is 48 MPH northbound and 46 MPH southbound. Table 3 compares the proposed intersection sight distances (ISDs) with the CTDOT standards identified in the Highway Design Manual. The intersection sight distances provided at the proposed driveway on Ellington Road are adequate for tractor-trailers and passenger car vehicles exiting the development. See Appendix A for a Site Plan identifying the intersection sight distances.

TABLE 3
INTERSECTION SIGHT DISTANCE SUMMARY

LOCATION	REQUIRED		ACTUAL	
	LEFT	RIGHT	LEFT	RIGHT
Site Driveway & Ellington Road	780 ft[1]	815 ft[1]	780 ft	815 ft

[1] Tractor/Semitrailer ISD based on CTDOT Highway Design Manual and an 85th percentile speed of 48 MPH northbound and 46 MPH southbound

Accidents

Langan analyzed the most recent three years of accident data (2016 to 2018) available from the UConn Connecticut Crash Data Repository in the vicinity of the project and study intersections. Table 4 provides a summary of the accident data at the study intersections.

TABLE 4
ACCIDENT DATA SUMMARY

INTERSECTION	NUMBER OF ACCIDENTS		SEVERITY			CONDITIONS			
	Total	Yearly Average	Property Damage Only	Personal Injury	Fatality	Clear (Dry)	Rain/ Snow	Day	Night
John Fitch Boulevard & 291 EB Ramps/ Ellington Road	42	14.00	28 (67%)	14 (33%)	0 (0%)	35 (83%)	7 (17%)	32 (76%)	10 (24%)
John Fitch Boulevard & 291 WB Ramps	13	4.33	5 (38%)	8 (62%)	0 (0%)	12 (92%)	1 (8%)	7 (54%)	6 (46%)
John Fitch Boulevard & Chapel Road	21	7.00	11 (52%)	10 (48%)	0 (0%)	19 (90%)	2 (10%)	15 (71%)	6 (29%)
Ellington Road & Chapel Road	7	2.33	2 (29%)	5 (71%)	0 (0%)	7 (100%)	0 (0%)	4 (57%)	3 (43%)

Accidents trends included rear-ends (59%), angle collisions (19%), sideswipes (6%) and striking stationary objects (10%). About 45% of the total accidents referenced above resulted in injuries, of which all but two were classified as possible and/or minor injuries. No fatalities were reported.

SUMMARY AND CONCLUSIONS

This assessment investigates the potential traffic impacts generated by the proposed warehouse development at 240 Ellington Road on the surrounding area roadway network. The assessment indicates that the anticipated traffic associated with the proposed development is not anticipated to have a significant adverse impact to the traffic operating conditions of the intersections studied. The intersections studied are adequate to accommodate the increase in peak-hour traffic volumes from the project without any required off-site improvement mitigation measures.

Sincerely,

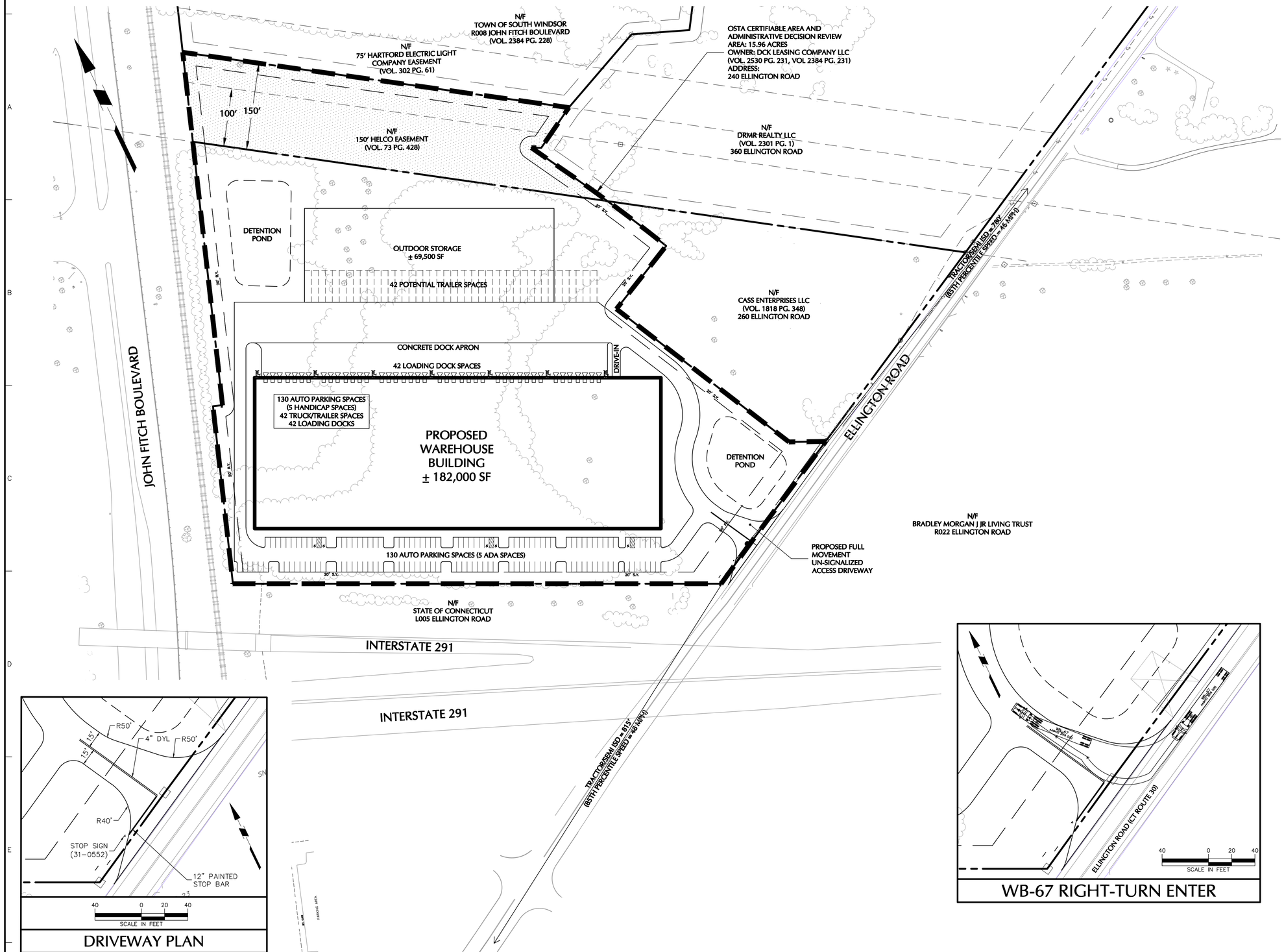
Langan CT, Inc.

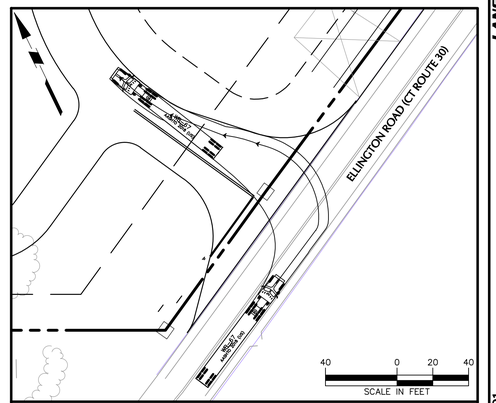
Luke Mauro, P.E., PTOE
Project Engineer

John D. Plante, P.E.
Managing Principal/Executive Vice President

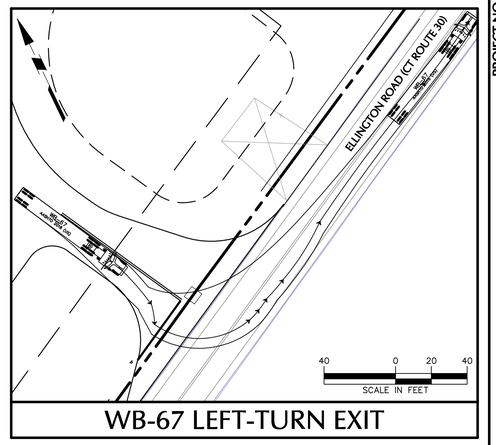
Appendix A

Overall Traffic Site Plan





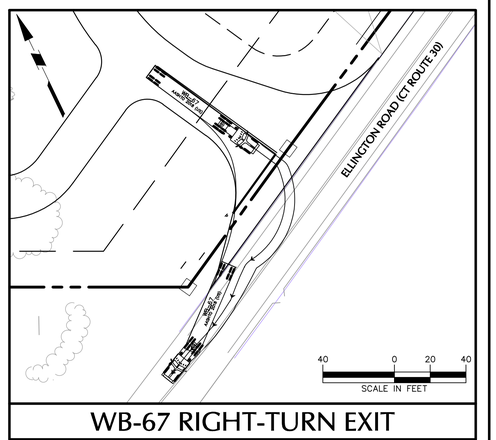
WB-67 LEFT-TURN ENTER



WB-67 LEFT-TURN EXIT

DRIVEWAY PLAN

WB-67 RIGHT-TURN ENTER



WB-67 RIGHT-TURN EXIT

BUILDING AND PARKING SUMMARY

ALLOWABLE DEVELOPMENT WITH ADMINISTRATIVE DECISION

LAND USE	SQUARE FOOTAGE	CAR PARKING	TRAILER PARKING	LOADING DOCK
WAREHOUSE	182,000 GSF	130 (5 ADA)	42	42

80 0 40 80
SCALE IN FEET

Date	Description	No.
REVISIONS		

SIGNATURE DATE SIGNED

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Project: 240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title: OSTA SITE PLAN

Project No. 140211901
Date 09/30/2019
Drawn By IJAB
Checked By LAM

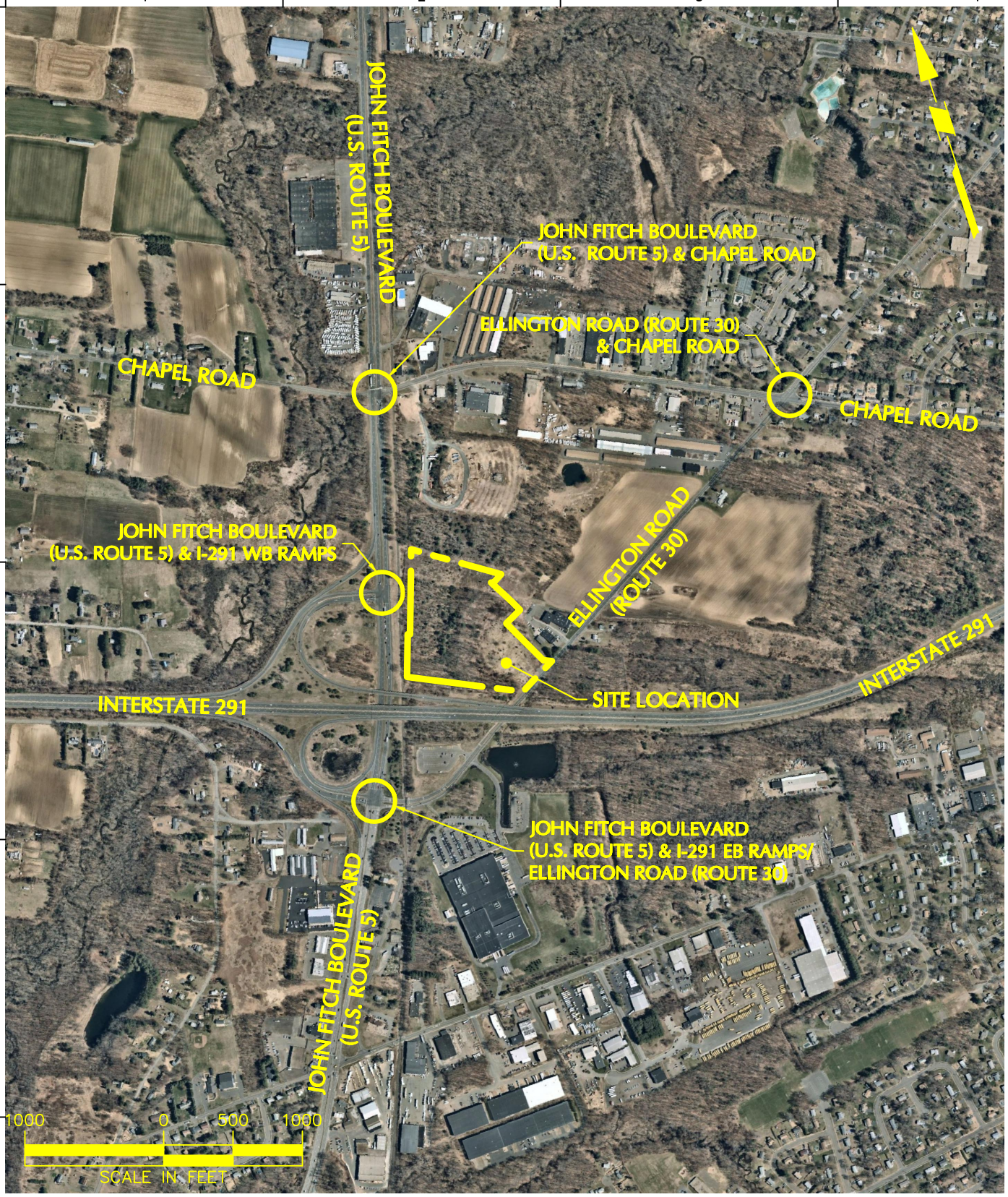
Drawing No. CS101
Sheet 1 of 1

LANGAN
PROJECT NO. 140211901

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\OSTA\140211901-CS101-0101.dwg Date: 10/2/2019 Time: 09:20 User: ibrown Style Table: Langan.stb Layout: ARCHD-BL

Appendix B

Traffic Figures



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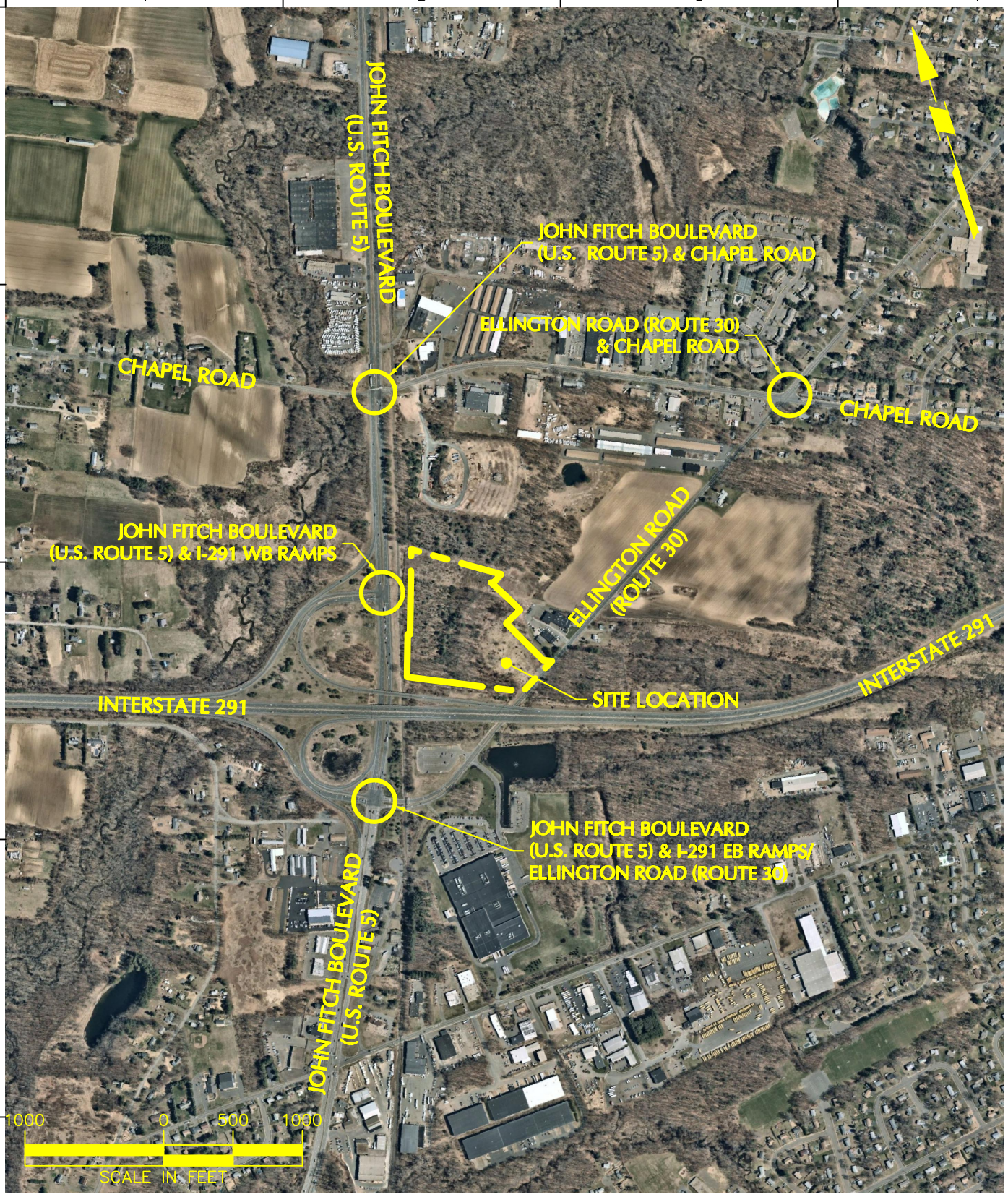
Project
240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title
LOCATION MAP

Project No. 140211901
Date 09/30/2019
Drawn By IJAB
Checked By LAM

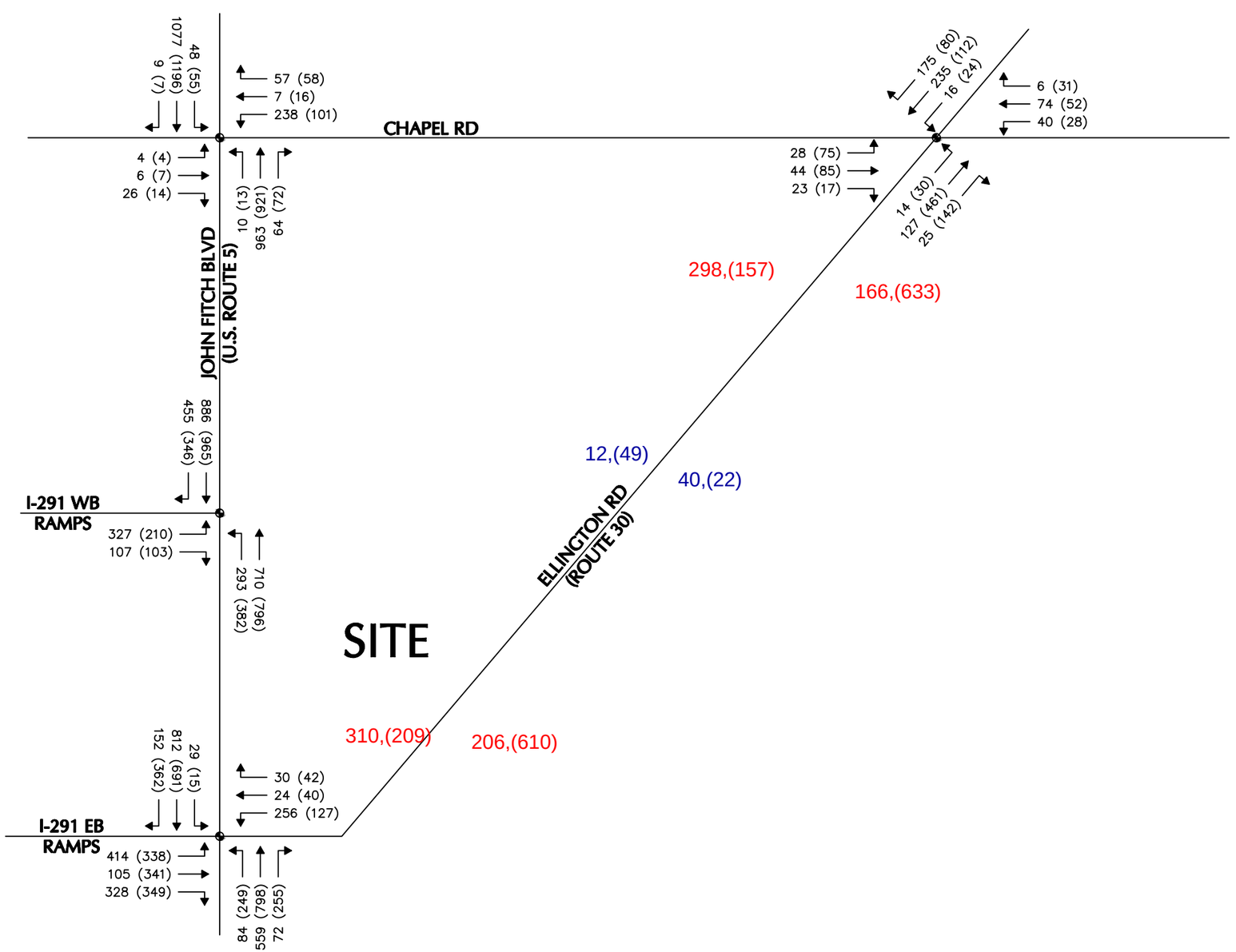
Drawing No.
FIG. 1
Sheet 1 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0101.dwg Date: 10/18/2019 Time: 14:59 User: lmauro Style Table: Langan.stb Layout: FIG. 1



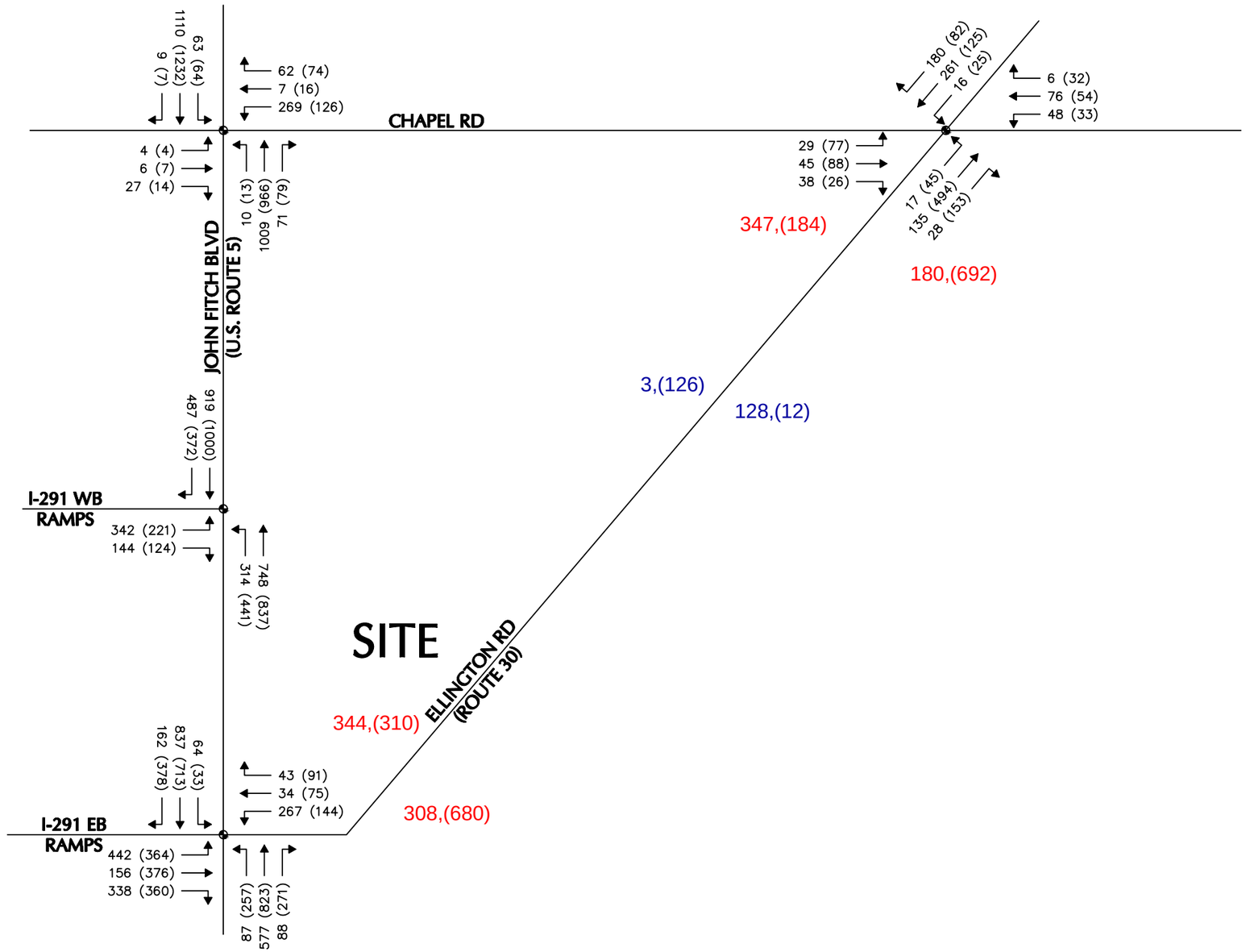
LANGAN Langan CT, Inc. 555 Long Wharf Drive New Haven, CT 06511 T: 203.562.5771 F: 203.789.6142 www.langan.com	Project **240 ELLINGTON ROAD** SOUTH WINDSOR HARTFORD COUNTY CONNECTICUT	Drawing Title **STUDY INTERSECTIONS MAP**	Project No. 140211901 Date 10/17/2019 Drawn By IJAB Checked By LAM	Drawing No. **FIG. 2** Sheet 2 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0101.dwg Date: 10/18/2019 Time: 14:59 User: lmauro Style Table: Langan.stb Layout: FIG. 2



LANGAN Langan CT, Inc. 555 Long Wharf Drive New Haven, CT 06511 T: 203.562.5771 F: 203.789.6142 www.Langan.com	Project 240 ELLINGTON ROAD SOUTH WINDSOR HARTFORD COUNTY CONNECTICUT	Drawing Title 2018 EXISTING PEAK-HOUR TRAFFIC VOLUMES	Project No. 140211901 Date 10/17/2019 Drawn By IJAB Checked By LAM	Drawing No. FIG. 3 Sheet 3 of 11	

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0102.dwg Date: 10/18/2019 Time: 14:59 User: lmauro Style Table: Langan.stb Layout: FIG. 3



LEGEND

TRAFFIC SIGNAL	
PEAK–HOUR VOLUMES	AM (PM)
DIRECTION OF TRAFFIC	

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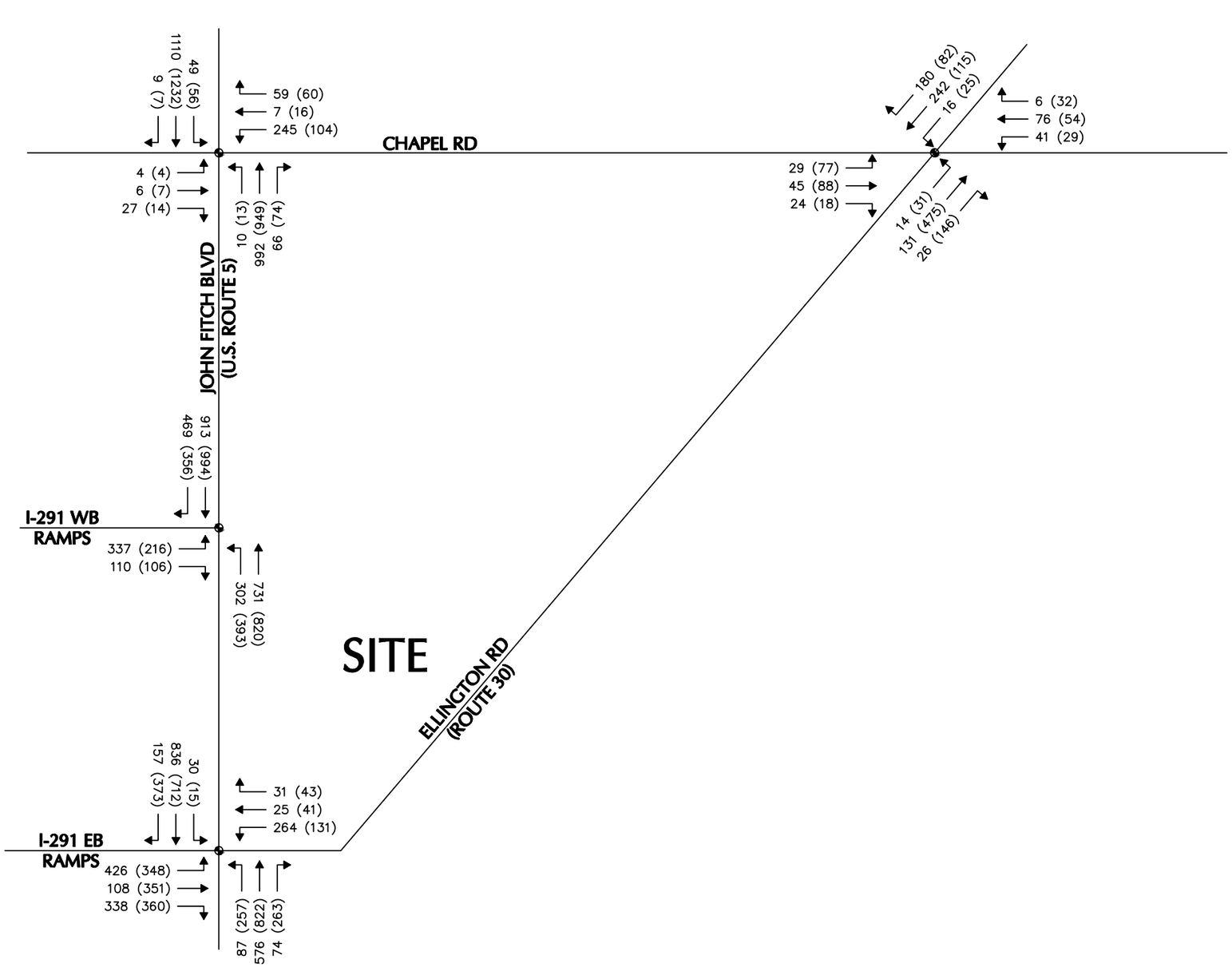
Project
240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title
2021 BACKGROUND PEAK-HOUR TRAFFIC VOLUMES

Project No.	140211901
Date	10/17/2019
Drawn By	IJAB
Checked By	LAM

Drawing No.
FIG. 4
Sheet 4 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0103.dwg Date: 10/18/2019 Time: 15:00 User: lmauro Style Table: Langan.stb Layout: FIG. 4



LEGEND

TRAFFIC SIGNAL	
PEAK–HOUR VOLUMES	AM (PM)
DIRECTION OF TRAFFIC	

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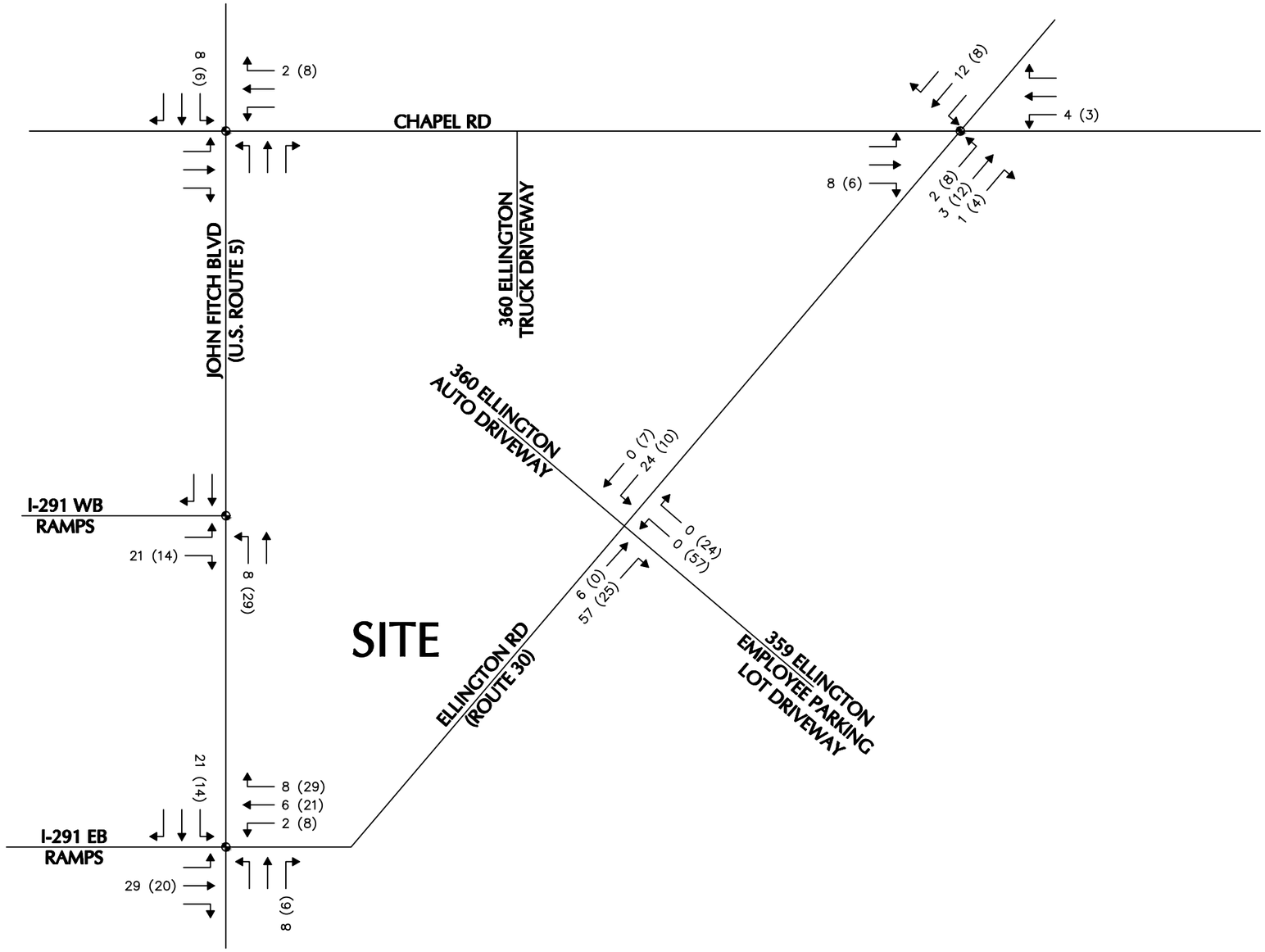
Project
240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title
2021 BACKGROUND AMBIENT PEAK-HOUR TRAFFIC GROWTH

Project No. 140211901
Date 10/17/2019
Drawn By IJAB
Checked By LAM

Drawing No.
FIG. 4A
Sheet 5 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0103.dwg Date: 10/18/2019 Time: 15:00 User: lmauro Style Table: Langan.stb Layout: FIG. 4 A



LEGEND

TRAFFIC SIGNAL	
PEAK–HOUR VOLUMES	AM (PM)
DIRECTION OF TRAFFIC	

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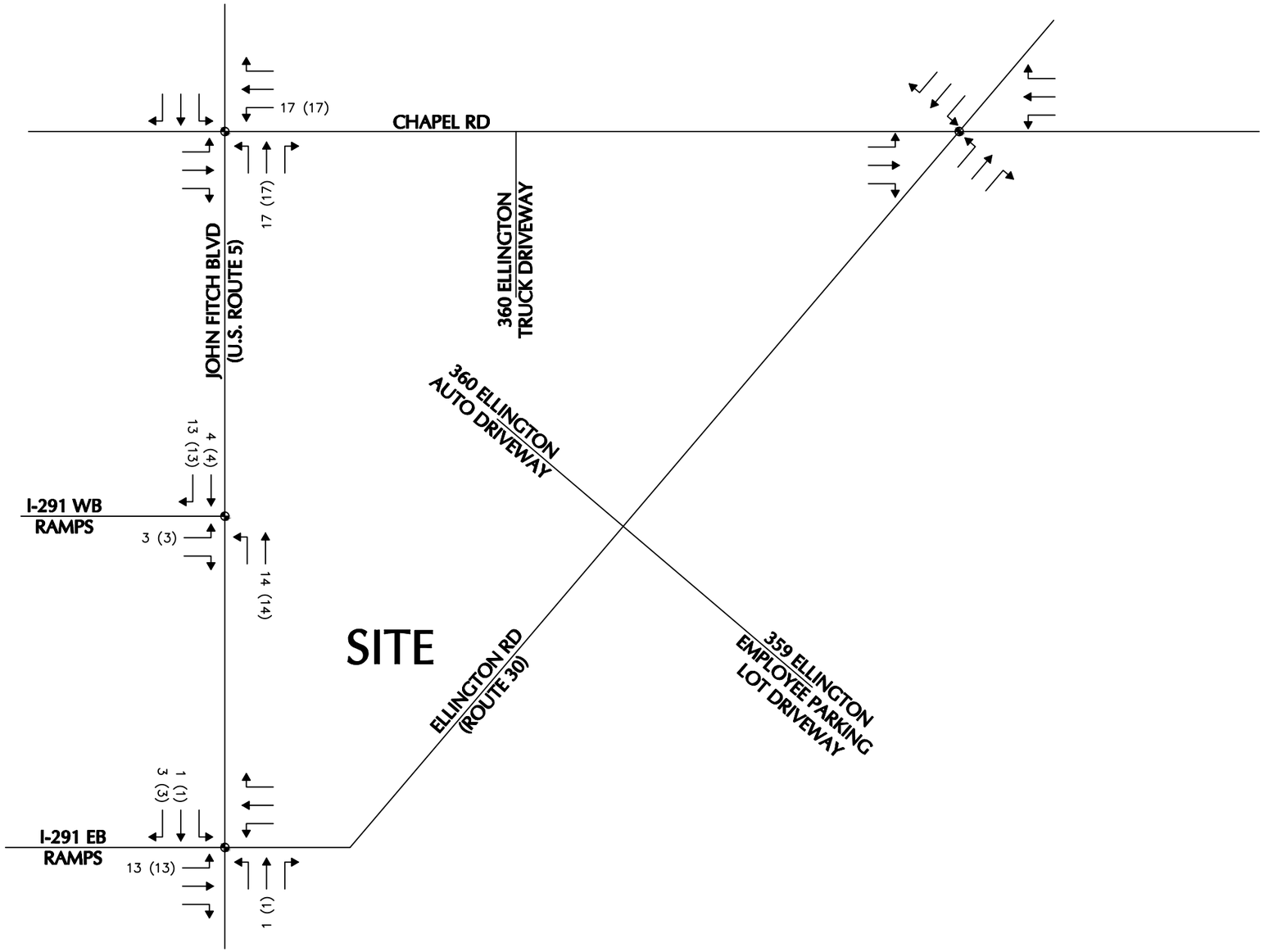
Project
240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title
359 ELLINGTON ROAD BACKGROUND PEAK-HOUR VOLUMES

Project No. 140211901
Date 10/17/2019
Drawn By IJAB
Checked By LAM

Drawing No.
FIG. 4B
Sheet 6 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0103.dwg Date: 10/18/2019 Time: 15:00 User: lmauro Style Table: Langan.stb Layout: FIG. 4 B



LEGEND

TRAFFIC SIGNAL	
PEAK–HOUR VOLUMES	AM (PM)
DIRECTION OF TRAFFIC	

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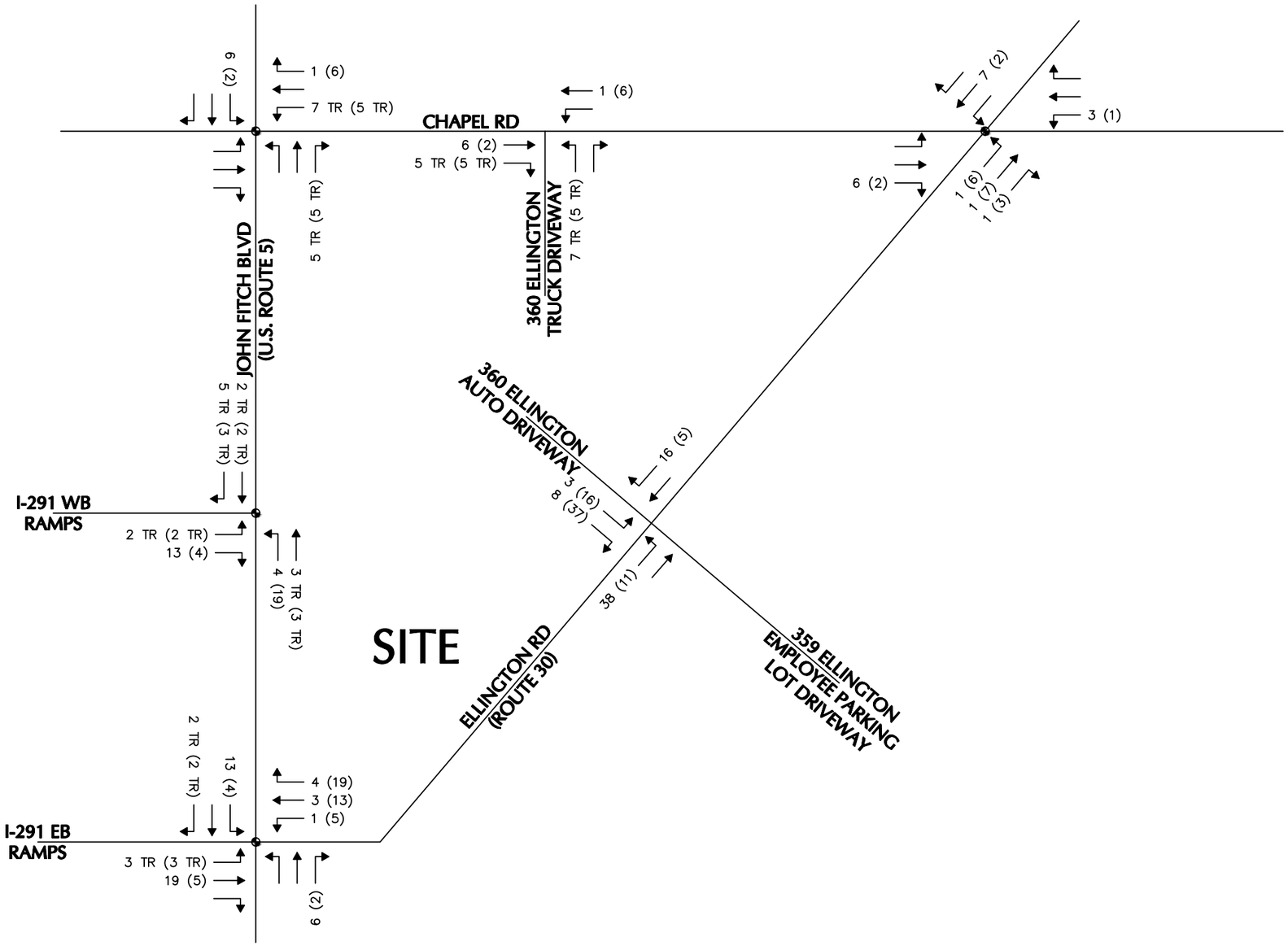
Project
240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title
420 JOHN FITCH BLVD
BACKGROUND
PEAK-HOUR TRAFFIC
VOLUMES

Project No. 140211901
Date 10/17/2019
Drawn By IJAB
Checked By LAM

Drawing No.
FIG. 4C
Sheet 7 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0103.dwg Date: 10/18/2019 Time: 15:00 User: lmauro Style Table: Langan.stb Layout: FIG. 4 C



LEGEND

TRAFFIC SIGNAL	
PEAK–HOUR VOLUMES	AM (PM)
DIRECTION OF TRAFFIC	

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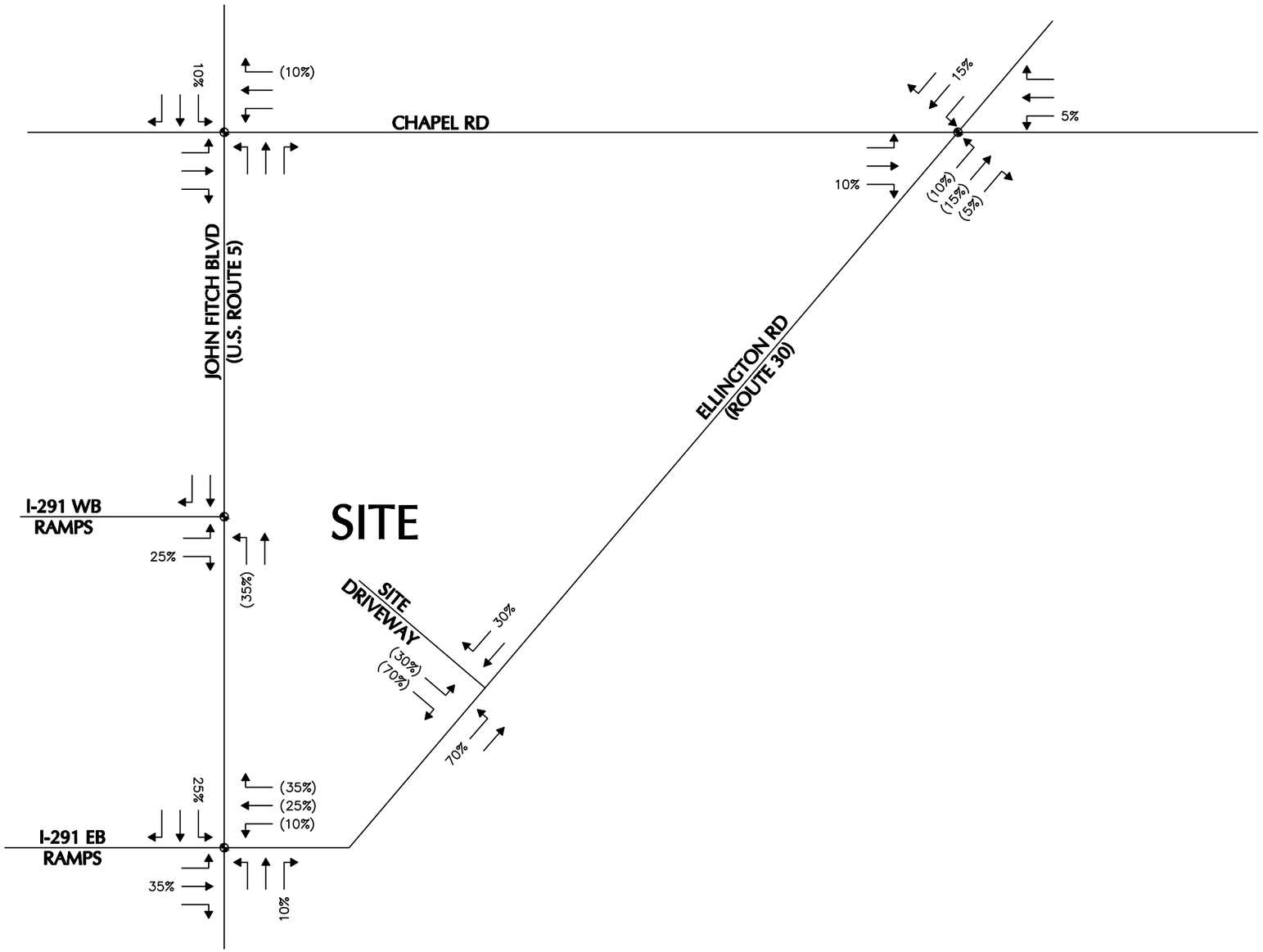
Project
240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title
360 ELLINGTON ROAD BACKGROUND PEAK-HOUR TRAFFIC VOLUMES

Project No. 140211901
Date 10/17/2019
Drawn By IJAB
Checked By LAM

Drawing No.
FIG. 4D
Sheet 8 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0103.dwg Date: 10/18/2019 Time: 15:00 User: lmauro Style Table: Langan.stb Layout: FIG. 4 D



LEGEND

TRAFFIC SIGNAL	
PEAK–HOUR VOLUMES	AM (PM)
DIRECTION OF TRAFFIC	

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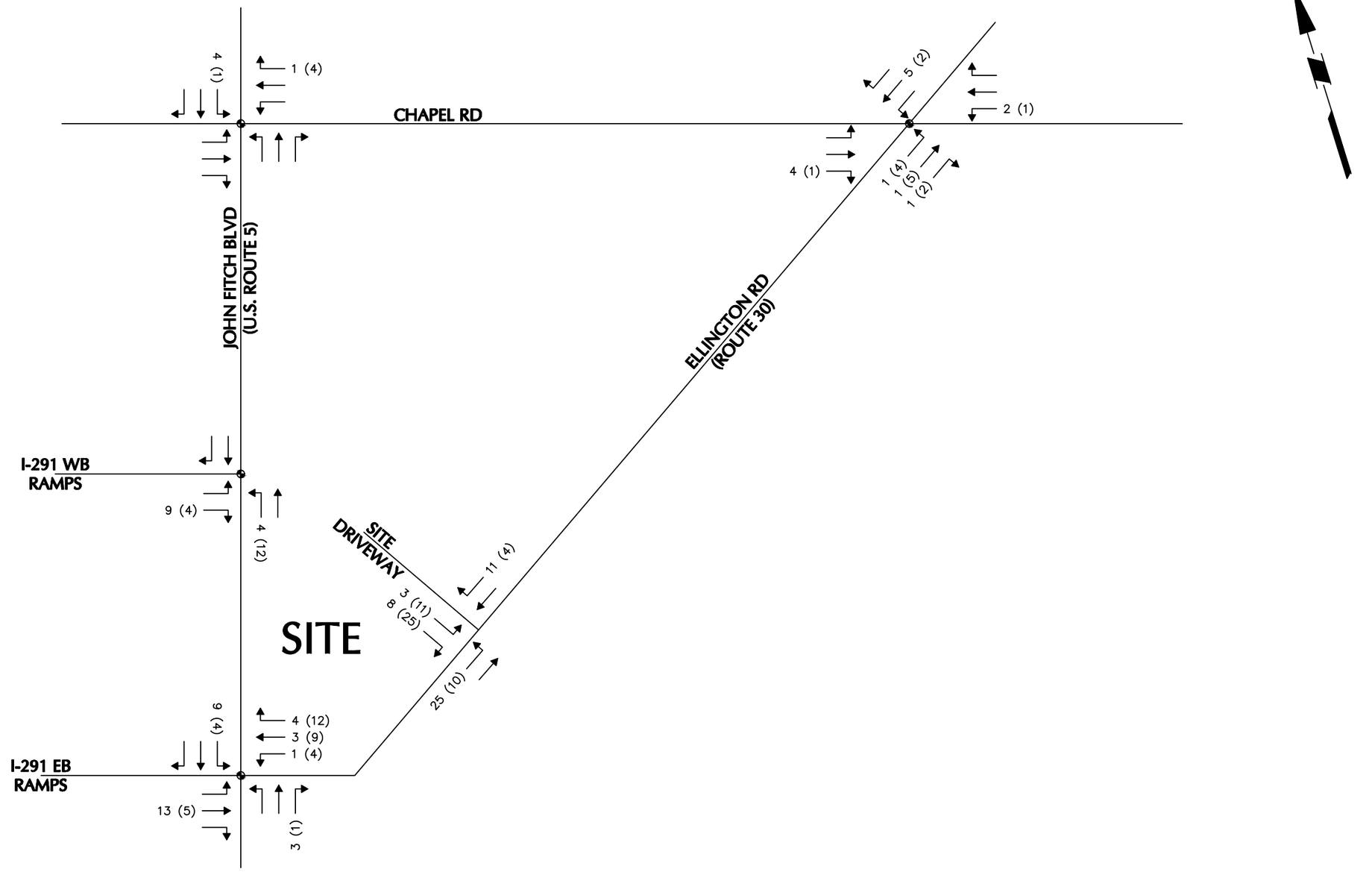
Project
240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title
TRIP DISTRIBUTION

Project No. 140211901
Date 10/17/2019
Drawn By IJAB
Checked By LAM

Drawing No.
FIG. 5
Sheet 9 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0104.dwg Date: 10/18/2019 Time: 15:00 User: lmauro Style Table: Langan.stb Layout: FIG. 5



LEGEND

TRAFFIC SIGNAL	
PEAK–HOUR VOLUMES	AM (PM)
DIRECTION OF TRAFFIC	

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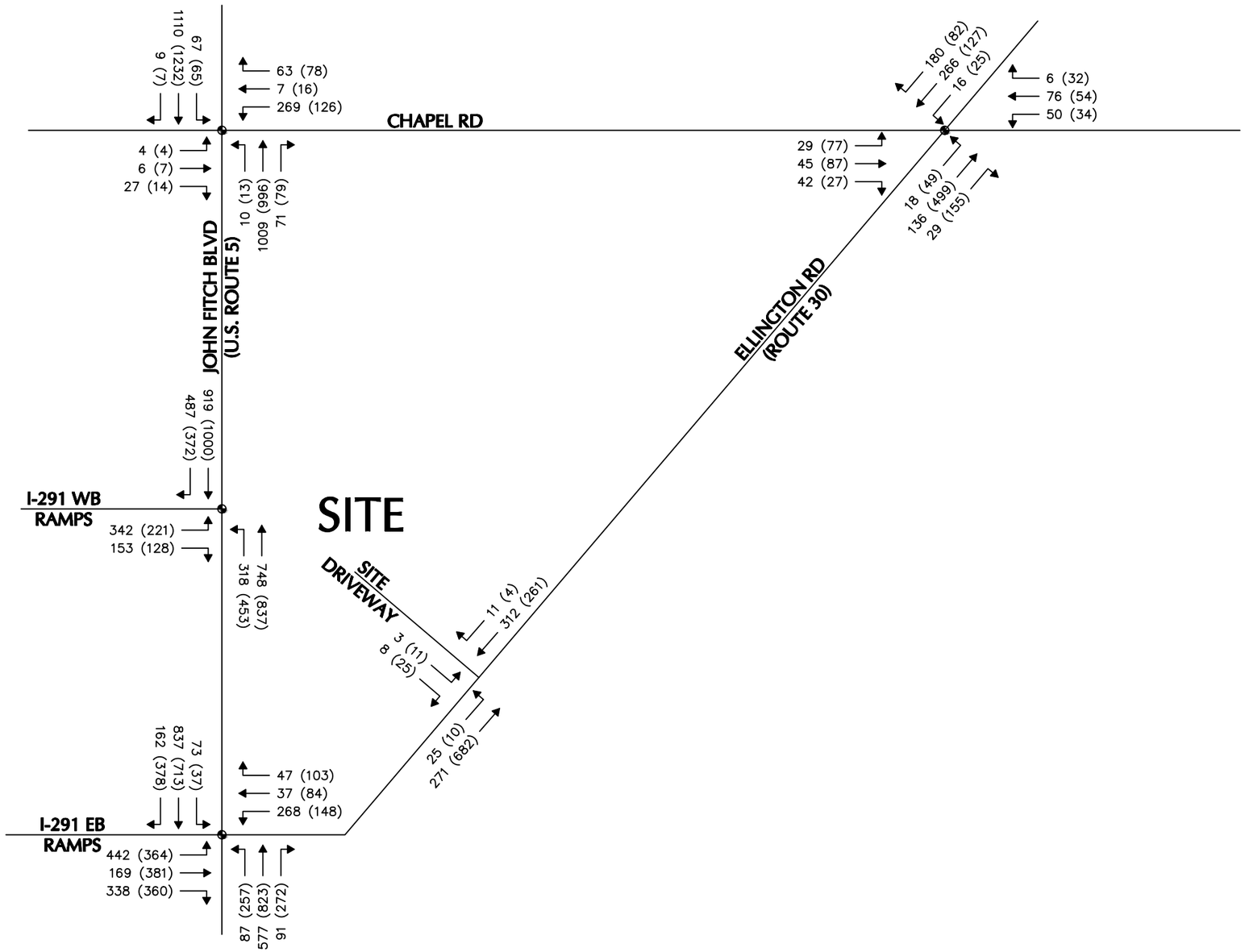
Project
240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title
TRIP ASSIGNMENT

Project No. 140211901
Date 10/17/2019
Drawn By IJAB
Checked By LAM

Drawing No.
FIG. 6
Sheet 10 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0105.dwg Date: 10/18/2019 Time: 15:00 User: lmauro Style Table: Langan.stb Layout: FIG. 6



LEGEND

TRAFFIC SIGNAL	
PEAK-HOUR VOLUMES	AM (PM)
DIRECTION OF TRAFFIC	

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Project
240 ELLINGTON ROAD
SOUTH WINDSOR
HARTFORD COUNTY CONNECTICUT

Drawing Title
2021 BUILD PEAK-HOUR TRAFFIC VOLUMES

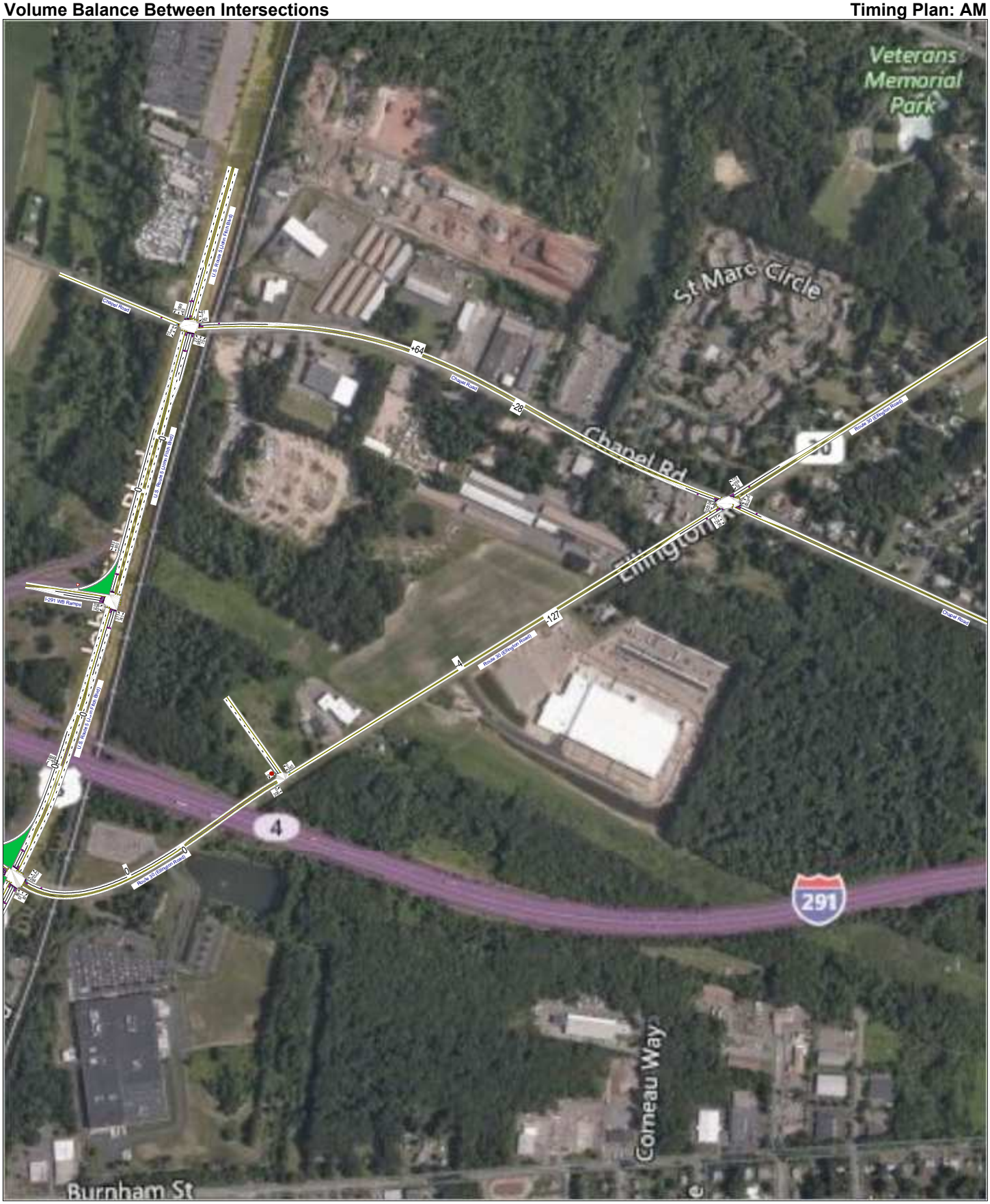
Project No. 140211901
Date 10/17/2019
Drawn By IJAB
Checked By LAM

Drawing No.
FIG. 7
Sheet 11 of 11

Filename: \\langan.com\data\NHV\data9\140211901\Project Data\CAD\01\SheetFiles\Traffic\140211901-KT101-0106.dwg Date: 10/18/2019 Time: 15:00 User: lmauro Style Table: Langan.stb Layout: FIG. 7

CAPACITY ANALYSES

EXISTING


Veterans Memorial Park
St Marc Circle
Chapel Rd
Ellington
Comeau Way
Burnham St
291
4
Orford Road
Route 30 (Elliot Road)
Route 3X (Elliot Road)
I-291 WB Ramps
U.S. Route 3 (John Stark Hwy)
+64
-26
-127

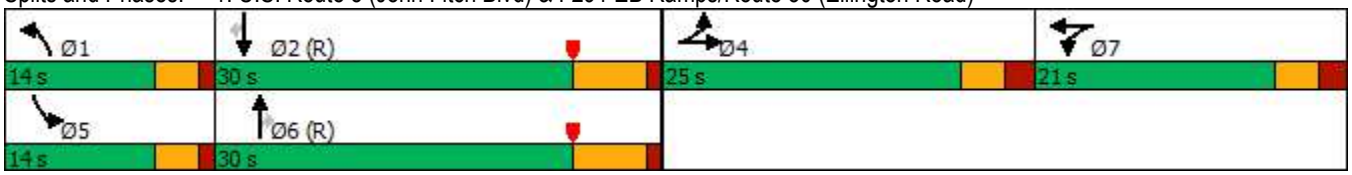
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	438	155	335	264	33	43	86	571	87	64	829	160
Future Volume (vph)	438	155	335	264	33	43	86	571	87	64	829	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		250	850		0	400		615	130		750
Storage Lanes	2		1	1		0	1		1	1		1
Taper Length (ft)	215			88			115			96		
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.962				0.850			0.850
Flt Protected	0.950			0.950	0.973		0.950			0.950		
Satd. Flow (prot)	3242	1845	1583	1698	1549	0	1687	3539	1615	1805	3505	1455
Flt Permitted	0.950			0.950	0.973		0.950			0.950		
Satd. Flow (perm)	3242	1845	1583	1698	1549	0	1687	3539	1615	1805	3505	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			390		17				133			172
Link Speed (mph)		30			40			50			50	
Link Distance (ft)		649			1552			1239			1507	
Travel Time (s)		14.8			26.5			16.9			20.6	
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.90	0.90	0.90	0.93	0.93	0.93
Heavy Vehicles (%)	8%	3%	2%	1%	20%	18%	7%	2%	0%	0%	3%	11%
Adj. Flow (vph)	509	180	390	297	37	48	96	634	97	69	891	172
Shared Lane Traffic (%)				35%								
Lane Group Flow (vph)	509	180	390	193	189	0	96	634	97	69	891	172
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Free	Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		7	7		1	6		5	2	
Permitted Phases			Free						6			2
Detector Phase	4	4		7	7		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	14.0	14.0		14.0	14.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	25.0	25.0		21.0	21.0		14.0	30.0	30.0	14.0	30.0	30.0
Total Split (%)	27.8%	27.8%		23.3%	23.3%		15.6%	33.3%	33.3%	15.6%	33.3%	33.3%
Maximum Green (s)	20.0	20.0		16.0	16.0		10.0	24.0	24.0	10.0	24.0	24.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	17.8	17.8	90.0	13.6	13.6		8.5	32.8	32.8	7.7	32.0	32.0
Actuated g/C Ratio	0.20	0.20	1.00	0.15	0.15		0.09	0.36	0.36	0.09	0.36	0.36
v/c Ratio	0.80	0.49	0.25	0.76	0.77		0.60	0.49	0.14	0.45	0.71	0.27
Control Delay	44.1	36.6	0.4	55.2	53.2		54.8	26.3	2.7	36.3	48.9	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	36.6	0.4	55.2	53.2		54.8	26.3	2.7	36.3	48.9	25.6
LOS	D	D	A	E	D		D	C	A	D	D	C
Approach Delay		27.1			54.2			26.8			44.6	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	140	90	0	110	98		53	156	0	42	288	67
Queue Length 95th (ft)	182	144	0	182	#174		102	228	20	m48	m295	m72
Internal Link Dist (ft)		569			1472			1159			1427	
Turn Bay Length (ft)	220		250	850			400		615	130		750
Base Capacity (vph)	720	410	1583	301	289		187	1289	672	200	1247	628
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.44	0.25	0.64	0.65		0.51	0.49	0.14	0.34	0.71	0.27

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 77 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 35.8 Intersection LOS: D
Intersection Capacity Utilization 66.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

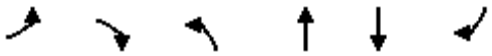
Splits and Phases: 1: U.S. Route 5 (John Fitch Blvd) & I-291 EB Ramps/Route 30 (Ellington Road)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	509	180	390	193	189	96	634	97	69	891	172
v/c Ratio	0.80	0.49	0.25	0.76	0.77	0.60	0.49	0.14	0.45	0.71	0.27
Control Delay	44.1	36.6	0.4	55.2	53.2	54.8	26.3	2.7	36.3	48.9	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	36.6	0.4	55.2	53.2	54.8	26.3	2.7	36.3	48.9	25.6
Queue Length 50th (ft)	140	90	0	110	98	53	156	0	42	288	67
Queue Length 95th (ft)	182	144	0	182	#174	102	228	20	m48	m295	m72
Internal Link Dist (ft)		569			1472		1159			1427	
Turn Bay Length (ft)	220		250	850		400		615	130		750
Base Capacity (vph)	720	410	1583	301	289	187	1289	672	200	1247	628
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.44	0.25	0.64	0.65	0.51	0.49	0.14	0.34	0.71	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	338	143	311	741	910	483
Future Volume (vph)	338	143	311	741	910	483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265	205	350			865
Storage Lanes	1	1	1			1
Taper Length (ft)	155		125			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3400	1568	1703	3539	3438	1495
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3400	1568	1703	3539	3438	1495
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		155				519
Link Speed (mph)	30			50	50	
Link Distance (ft)	458			1507	1447	
Travel Time (s)	10.4			20.6	19.7	
Peak Hour Factor	0.92	0.92	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	6%	2%	5%	8%
Adj. Flow (vph)	367	155	331	797	978	519
Shared Lane Traffic (%)						
Lane Group Flow (vph)	367	155	331	797	978	519
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	Prot	Prot	NA	NA	Free
Protected Phases	4	4	1	1 2	2	
Permitted Phases						Free
Minimum Split (s)	13.0	13.0	10.9		20.7	
Total Split (s)	29.0	29.0	30.1		30.9	
Total Split (%)	32.2%	32.2%	33.4%		34.3%	
Maximum Green (s)	25.0	25.0	26.1		25.2	
Yellow Time (s)	3.0	3.0	3.0		4.7	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0		5.7	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	25.0	25.0	26.1	57.0	25.2	90.0
Actuated g/C Ratio	0.28	0.28	0.29	0.63	0.28	1.00

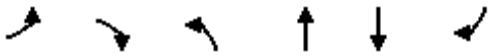
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.39	0.28	0.67	0.36	1.02	0.35
Control Delay	27.8	5.9	42.8	10.2	56.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	5.9	42.8	10.2	56.7	0.7
LOS	C	A	D	B	E	A
Approach Delay	21.3			19.7	37.2	
Approach LOS	C			B	D	
Queue Length 50th (ft)	87	0	206	122	~324	0
Queue Length 95th (ft)	126	45	292	166	m#340	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	944	547	493	2241	962	1495
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	0.39	0.28	0.67	0.36	1.02	0.35

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Yellow
Natural Cycle: 60
Control Type: Pretimed
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 28.3 Intersection LOS: C
Intersection Capacity Utilization 63.4% ICU Level of Service B
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: U.S. Route 5 (John Fitch Blvd) & I-291 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	367	155	331	797	978	519
v/c Ratio	0.39	0.28	0.67	0.36	1.02	0.35
Control Delay	27.8	5.9	42.8	10.2	56.7	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	5.9	42.8	10.2	56.7	0.7
Queue Length 50th (ft)	87	0	206	122	~324	0
Queue Length 95th (ft)	126	45	292	166	m#340	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	944	547	493	2241	962	1495
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	0.39	0.28	0.67	0.36	1.02	0.35

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

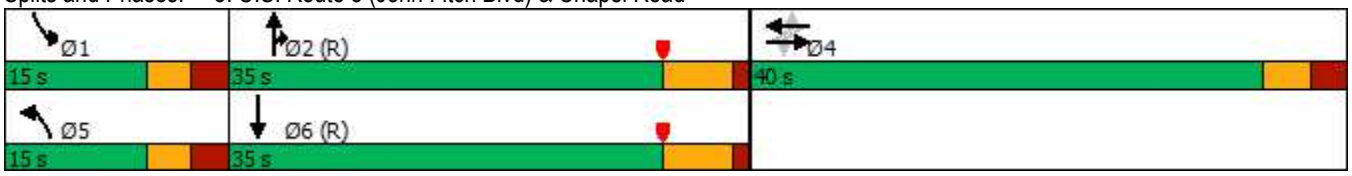
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	6	27	267	7	61	27	982	70	63	1099	9
Future Volume (vph)	4	6	27	267	7	61	27	982	70	63	1099	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		0	235		250	265		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			215			150			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.902			0.866				0.850		0.999	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1694	0	1719	1549	0	1805	3438	1538	1787	3502	0
Flt Permitted		0.981		0.726			0.950			0.950		
Satd. Flow (perm)	0	1670	0	1314	1549	0	1805	3438	1538	1787	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			67				101		1	
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		712			2970			1447			852	
Travel Time (s)		13.9			57.9			19.7			11.6	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	0%	5%	0%	7%	0%	5%	5%	1%	3%	0%
Adj. Flow (vph)	5	8	34	293	8	67	33	1183	84	66	1157	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	293	75	0	33	1183	84	66	1166	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA	Prot	Prot	NA	
Protected Phases		4			4		5	2	2	1	6	
Permitted Phases	4			4								
Minimum Split (s)	14.8	14.8		14.8	14.8		11.5	20.9	20.9	11.5	23.9	
Total Split (s)	40.0	40.0		40.0	40.0		15.0	35.0	35.0	15.0	35.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		16.7%	38.9%	38.9%	16.7%	38.9%	
Maximum Green (s)	34.2	34.2		34.2	34.2		9.5	29.1	29.1	9.5	29.1	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.7	4.7	3.0	4.7	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.5	1.2	1.2	2.5	1.2	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.8		5.8	5.8		5.5	5.9	5.9	5.5	5.9	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)		34.2		34.2	34.2		9.5	29.1	29.1	9.5	29.1	
Actuated g/C Ratio		0.38		0.38	0.38		0.11	0.32	0.32	0.11	0.32	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.07		0.59	0.12		0.17	1.06	0.15	0.35	1.03	
Control Delay		8.8		28.1	6.3		46.4	72.7	4.8	43.2	66.1	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		8.8		28.1	6.3		46.4	72.7	4.8	43.2	66.1	
LOS		A		C	A		D	E	A	D	E	
Approach Delay		8.8			23.7			67.6			64.8	
Approach LOS		A			C			E			E	
Queue Length 50th (ft)		5		131	3		20	~371	4	35	~377	
Queue Length 95th (ft)		22		217	30		47	#440	15	76	#507	
Internal Link Dist (ft)		632			2890			1367			772	
Turn Bay Length (ft)				350			235		250	265		
Base Capacity (vph)		655		499	630		190	1111	565	188	1132	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		0.07		0.59	0.12		0.17	1.06	0.15	0.35	1.03	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 33.6 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 70
Control Type: Pretimed
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 60.0 Intersection LOS: E
Intersection Capacity Utilization 71.5% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: U.S. Route 5 (John Fitch Blvd) & Chapel Road

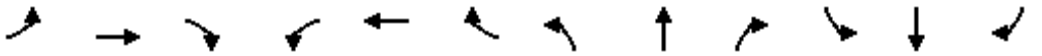


Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	293	75	33	1183	84	66	1166
v/c Ratio	0.07	0.59	0.12	0.17	1.06	0.15	0.35	1.03
Control Delay	8.8	28.1	6.3	46.4	72.7	4.8	43.2	66.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	28.1	6.3	46.4	72.7	4.8	43.2	66.1
Queue Length 50th (ft)	5	131	3	20	~371	4	35	~377
Queue Length 95th (ft)	22	217	30	47	#440	15	76	#507
Internal Link Dist (ft)	632		2890		1367			772
Turn Bay Length (ft)		350		235		250	265	
Base Capacity (vph)	655	499	630	190	1111	565	188	1132
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.59	0.12	0.17	1.06	0.15	0.35	1.03

Intersection Summary

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

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

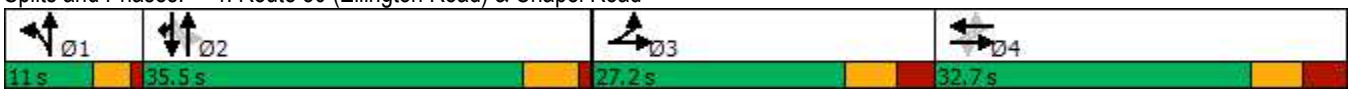


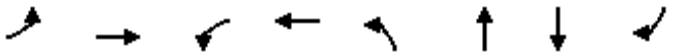
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	45	37	48	75	6	17	134	28	16	259	179
Future Volume (vph)	29	45	37	48	75	6	17	134	28	16	259	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	120		0	225		0	0		260
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	285			180			140			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.989			0.974				0.850
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1703	1745	0	1787	1855	0	1612	1788	0	0	1867	1599
Flt Permitted	0.696			0.691			0.469				0.978	
Satd. Flow (perm)	1248	1745	0	1300	1855	0	796	1788	0	0	1832	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			4			12				195
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		2970			2542			2681			1721	
Travel Time (s)		57.9			49.5			40.6			26.1	
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	6%	1%	2%	1%	1%	5%	12%	4%	1%	9%	1%	1%
Adj. Flow (vph)	36	56	46	56	87	7	19	152	32	17	282	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	102	0	56	94	0	19	184	0	0	299	195
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		Perm	NA	Prot
Protected Phases	3	3 4			4		1	1 2			2	2
Permitted Phases	4			4			2			2		
Detector Phase	3	3 4		4	4		1	1 2		2	2	2
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		4.5			18.0	18.0	18.0
Minimum Split (s)	12.2			22.7	22.7		9.0			23.5	23.5	23.5
Total Split (s)	27.2			32.7	32.7		11.0			35.5	35.5	35.5
Total Split (%)	25.6%			30.7%	30.7%		10.3%			33.4%	33.4%	33.4%
Maximum Green (s)	20.0			25.0	25.0		7.0			30.0	30.0	30.0
Yellow Time (s)	4.1			4.1	4.1		3.0			4.5	4.5	4.5
All-Red Time (s)	3.1			3.6	3.6		1.0			1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)	7.2			7.7	7.7		4.0				5.5	5.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		None			Min	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				7.0	7.0					7.0	7.0	7.0
Flash Dont Walk (s)				11.0	11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0					0	0	0
Act Effct Green (s)	18.6	27.7		16.6	16.6		31.1	37.1			21.8	21.8
Actuated g/C Ratio	0.28	0.42		0.25	0.25		0.47	0.56			0.33	0.33
v/c Ratio	0.09	0.14		0.17	0.20		0.04	0.18			0.50	0.30
Control Delay	15.2	9.7		28.0	26.7		12.1	12.5			25.9	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	15.2	9.7		28.0	26.7		12.1	12.5			25.9	4.9
LOS	B	A		C	C		B	B			C	A
Approach Delay		11.1			27.2			12.5			17.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	9	14		20	33		5	46			117	0
Queue Length 95th (ft)	26	41		55	78		16	86			200	44
Internal Link Dist (ft)		2890			2462			2601			1641	
Turn Bay Length (ft)	160			120			225					260
Base Capacity (vph)	702	1033		539	771		467	1149			911	893
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.05	0.10		0.10	0.12		0.04	0.16			0.33	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 106.4			
Actuated Cycle Length: 66.7			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

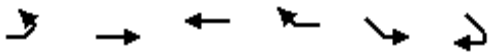
Splits and Phases: 4: Route 30 (Ellington Road) & Chapel Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	36	102	56	94	19	184	299	195
v/c Ratio	0.09	0.14	0.17	0.20	0.04	0.18	0.50	0.30
Control Delay	15.2	9.7	28.0	26.7	12.1	12.5	25.9	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	9.7	28.0	26.7	12.1	12.5	25.9	4.9
Queue Length 50th (ft)	9	14	20	33	5	46	117	0
Queue Length 95th (ft)	26	41	55	78	16	86	200	44
Internal Link Dist (ft)		2890		2462		2601	1641	
Turn Bay Length (ft)	160		120		225			260
Base Capacity (vph)	702	1033	539	771	467	1149	911	893
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.10	0.10	0.12	0.04	0.16	0.33	0.22

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	306	340	0	0	0
Future Volume (vph)	0	306	340	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1863	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	0	1863	1863	0	1863	1863
Link Speed (mph)		45	40		30	
Link Distance (ft)		1552	2681		507	
Travel Time (s)		23.5	45.7		11.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	333	370	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	333	370	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.2%		ICU Level of Service A	
Analysis Period (min) 15			

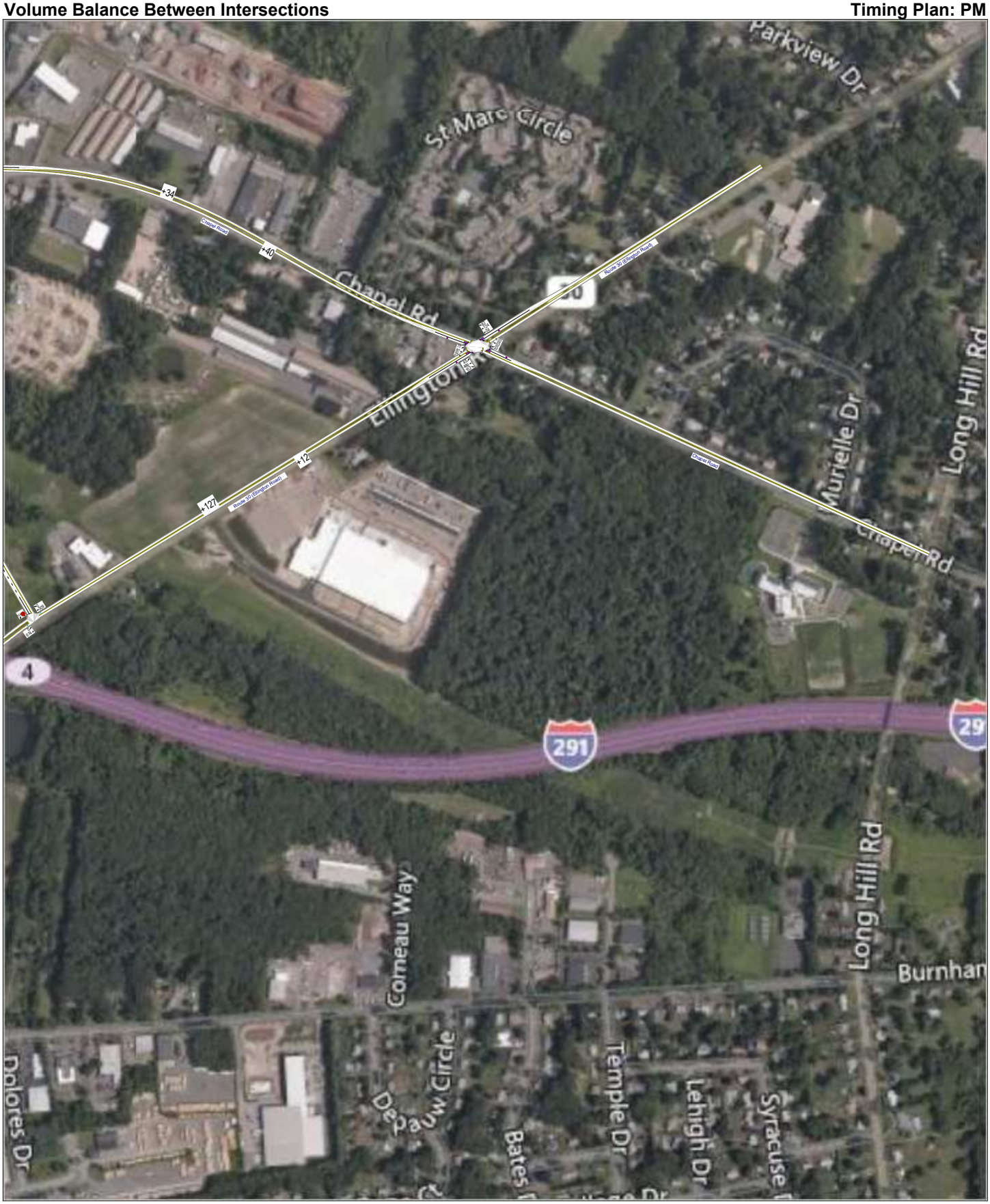
Intersection	
Int Delay, s/veh	0

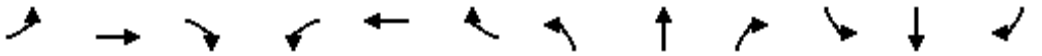
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	0	306	340	0	0	0
Future Vol, veh/h	0	306	340	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	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	333	370	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	370	0	-	0	703	370
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	333	-
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	1189	-	-	-	404	676
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	726	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1189	-	-	-	404	676
Mov Cap-2 Maneuver	-	-	-	-	404	-
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	726	-

Approach	EB	WB	SE
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1	SELn2
Capacity (veh/h)	1189	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	0
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-


Parkview Dr
St Marc Circle
Chapel Rd
Ellington
Murielle Dr
Long Hill Rd
291
4
29
Comeau Way
Long Hill Rd
Burnham
Dolores Dr
DePauw Circle
Temple Dr
Lehigh Dr
Syracuse



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	373	356	143	75	91	254	815	268	33	706	374
Future Volume (vph)	361	373	356	143	75	91	254	815	268	33	706	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		250	850		0	400		615	130		750
Storage Lanes	2		1	1		0	1		1	1		1
Taper Length (ft)	215			88			115			96		
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.924				0.850			0.850
Flt Protected	0.950			0.950	0.996		0.950			0.950		
Satd. Flow (prot)	3213	1863	1599	1715	1646	0	1787	3574	1599	1583	3574	1553
Flt Permitted	0.950			0.950	0.996		0.950			0.950		
Satd. Flow (perm)	3213	1863	1599	1715	1646	0	1787	3574	1599	1583	3574	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			396		50				335			394
Link Speed (mph)		30			40			50			50	
Link Distance (ft)		467			1538			1239			1507	
Travel Time (s)		10.6			26.2			16.9			20.6	
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.80	0.80	0.80	0.95	0.95	0.95
Heavy Vehicles (%)	9%	2%	1%	0%	1%	1%	1%	1%	1%	14%	1%	4%
Adj. Flow (vph)	401	414	396	164	86	105	318	1019	335	35	743	394
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	401	414	396	148	207	0	318	1019	335	35	743	394
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Free	Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		7	7		1	6		5	2	
Permitted Phases			Free						6			2
Detector Phase	4	4		7	7		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	14.0	14.0		14.0	14.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	23.0	23.0		16.0	16.0		23.0	23.0	23.0	23.0	23.0	23.0
Total Split (%)	27.1%	27.1%		18.8%	18.8%		27.1%	27.1%	27.1%	27.1%	27.1%	27.1%
Maximum Green (s)	18.0	18.0		11.0	11.0		19.0	17.0	17.0	19.0	17.0	17.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max

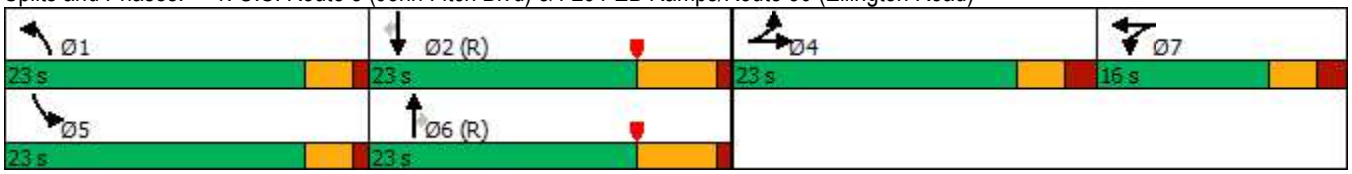
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	18.0	18.0	85.0	10.6	10.6		17.5	33.5	33.5	6.6	18.9	18.9
Actuated g/C Ratio	0.21	0.21	1.00	0.12	0.12		0.21	0.39	0.39	0.08	0.22	0.22
v/c Ratio	0.59	1.05	0.25	0.69	0.83		0.87	0.72	0.40	0.29	0.94	0.61
Control Delay	34.3	94.3	0.4	53.9	55.8		56.3	27.4	4.2	57.4	37.7	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	94.3	0.4	53.9	55.8		56.3	27.4	4.2	57.4	37.7	16.2
LOS	C	F	A	D	E		E	C	A	E	D	B
Approach Delay		43.7			55.0			28.3			31.1	
Approach LOS		D			E			C			C	
Queue Length 50th (ft)	100	~244	0	80	87		161	256	0	14	~238	148
Queue Length 95th (ft)	146	#419	0	#155	#194		#225	297	34	m23	m#284	m202
Internal Link Dist (ft)		387			1458			1159			1427	
Turn Bay Length (ft)	220		250	850			400		615	130		750
Base Capacity (vph)	680	394	1599	221	256		399	1407	832	353	794	651
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.59	1.05	0.25	0.67	0.81		0.80	0.72	0.40	0.10	0.94	0.61

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 84 (99%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 35.4 Intersection LOS: D
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Route 5 (John Fitch Blvd) & I-291 EB Ramps/Route 30 (Ellington Road)



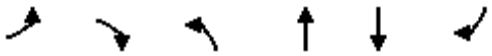
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	401	414	396	148	207	318	1019	335	35	743	394
v/c Ratio	0.59	1.05	0.25	0.69	0.83	0.87	0.72	0.40	0.29	0.94	0.61
Control Delay	34.3	94.3	0.4	53.9	55.8	56.3	27.4	4.2	57.4	37.7	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	94.3	0.4	53.9	55.8	56.3	27.4	4.2	57.4	37.7	16.2
Queue Length 50th (ft)	100	~244	0	80	87	161	256	0	14	~238	148
Queue Length 95th (ft)	146	#419	0	#155	#194	#225	297	34	m23	m#284	m202
Internal Link Dist (ft)		387			1458		1159			1427	
Turn Bay Length (ft)	220		250	850		400		615	130		750
Base Capacity (vph)	680	394	1599	221	256	399	1407	832	353	794	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	1.05	0.25	0.67	0.81	0.80	0.72	0.40	0.10	0.94	0.61

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

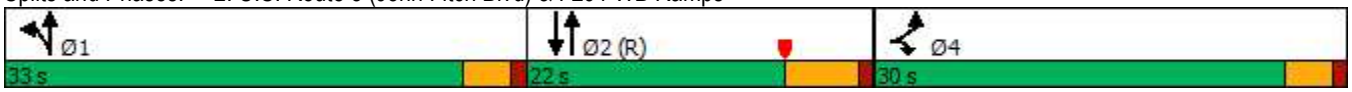


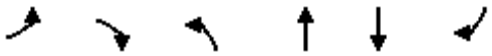
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	219	123	438	829	990	369
Future Volume (vph)	219	123	438	829	990	369
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265	205	350			865
Storage Lanes	1	1	1			1
Taper Length (ft)	155		125			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3273	1538	1787	3438	3539	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3273	1538	1787	3438	3539	1524
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		145				384
Link Speed (mph)	30			50	50	
Link Distance (ft)	458			1507	1447	
Travel Time (s)	10.4			20.6	19.7	
Peak Hour Factor	0.85	0.85	0.88	0.88	0.96	0.96
Heavy Vehicles (%)	7%	5%	1%	5%	2%	6%
Adj. Flow (vph)	258	145	498	942	1031	384
Shared Lane Traffic (%)						
Lane Group Flow (vph)	258	145	498	942	1031	384
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	Prot	Prot	NA	NA	Free
Protected Phases	4	4	1	1 2	2	
Permitted Phases						Free
Detector Phase	4	4	1	1 2	2	
Switch Phase						
Minimum Initial (s)	9.0	9.0	6.0		15.0	
Minimum Split (s)	13.0	13.0	10.9		20.7	
Total Split (s)	30.0	30.0	33.0		22.0	
Total Split (%)	35.3%	35.3%	38.8%		25.9%	
Maximum Green (s)	26.0	26.0	29.0		16.3	
Yellow Time (s)	3.0	3.0	3.0		4.7	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0		5.7	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	12.1	12.1	32.5	64.9	26.7	85.0
Actuated g/C Ratio	0.14	0.14	0.38	0.76	0.31	1.00
v/c Ratio	0.55	0.42	0.73	0.36	0.93	0.25
Control Delay	38.2	9.8	20.2	1.4	40.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	9.8	20.2	1.4	40.1	0.3
LOS	D	A	C	A	D	A
Approach Delay	28.0			7.9	29.3	
Approach LOS	C			A	C	
Queue Length 50th (ft)	67	0	101	15	288	0
Queue Length 95th (ft)	93	41	m118	20	#523	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	1001	571	707	2625	1110	1524
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	0.26	0.25	0.70	0.36	0.93	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 47 (55%), Referenced to phase 2:NBSB and 6:, Start of Yellow			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 70.5%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 2: U.S. Route 5 (John Fitch Blvd) & I-291 WB Ramps





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	258	145	498	942	1031	384
v/c Ratio	0.55	0.42	0.73	0.36	0.93	0.25
Control Delay	38.2	9.8	20.2	1.4	40.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	9.8	20.2	1.4	40.1	0.3
Queue Length 50th (ft)	67	0	101	15	288	0
Queue Length 95th (ft)	93	41	m118	20	#523	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	1001	571	707	2625	1110	1524
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	0.26	0.25	0.70	0.36	0.93	0.25

Intersection Summary

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

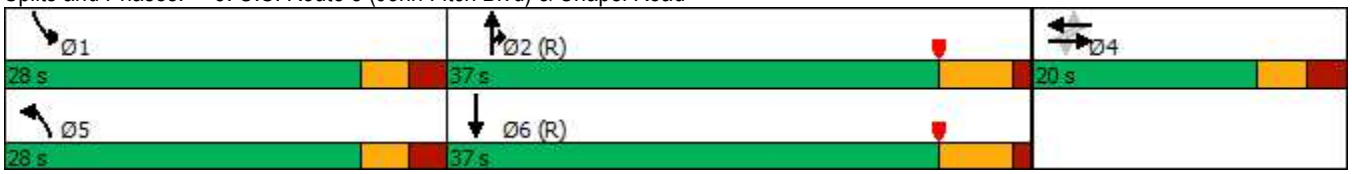
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	7	14	125	16	73	30	940	78	64	1220	7
Future Volume (vph)	4	7	14	125	16	73	30	940	78	64	1220	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		0	235		250	265		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			215			150			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.924			0.877				0.850		0.999	
Flt Protected		0.992		0.950			0.950			0.950		
Satd. Flow (prot)	0	1742	0	1517	1639	0	1805	3406	1482	1719	3536	0
Flt Permitted		0.950		0.736			0.950			0.950		
Satd. Flow (perm)	0	1668	0	1175	1639	0	1805	3406	1482	1719	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			91				107		1	
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		712			2964			1447			852	
Travel Time (s)		13.9			57.7			19.7			11.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	19%	0%	2%	0%	6%	9%	5%	2%	0%
Adj. Flow (vph)	5	9	18	156	20	91	31	969	80	68	1298	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	0	156	111	0	31	969	80	68	1305	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA	Prot	Prot	NA	
Protected Phases		4			4		5	2	2	1	6	
Permitted Phases	4			4								
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	14.8	14.8		14.8	14.8		11.5	20.9	20.9	11.5	23.9	
Total Split (s)	20.0	20.0		20.0	20.0		28.0	37.0	37.0	28.0	37.0	
Total Split (%)	23.5%	23.5%		23.5%	23.5%		32.9%	43.5%	43.5%	32.9%	43.5%	
Maximum Green (s)	14.2	14.2		14.2	14.2		22.5	31.1	31.1	22.5	31.1	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.7	4.7	3.0	4.7	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.5	1.2	1.2	2.5	1.2	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.8		5.8	5.8		5.5	5.9	5.9	5.5	5.9	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)		13.5		13.5	13.5		7.1	47.7	47.7	8.9	54.3	
Actuated g/C Ratio		0.16		0.16	0.16		0.08	0.56	0.56	0.10	0.64	
v/c Ratio		0.11		0.84	0.33		0.21	0.51	0.09	0.38	0.58	
Control Delay		19.5		70.8	12.9		42.0	11.3	1.7	40.9	11.7	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		19.5		70.8	12.9		42.0	11.3	1.7	40.9	11.7	
LOS		B		E	B		D	B	A	D	B	
Approach Delay		19.5			46.7			11.5			13.1	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)		6		81	9		16	128	1	35	150	
Queue Length 95th (ft)		26		#151	42		43	171	5	71	336	
Internal Link Dist (ft)		632			2884			1367			772	
Turn Bay Length (ft)				350			235		250	265		
Base Capacity (vph)		293		196	349		477	1913	879	455	2257	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		0.11		0.80	0.32		0.06	0.51	0.09	0.15	0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 43 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 66.9%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

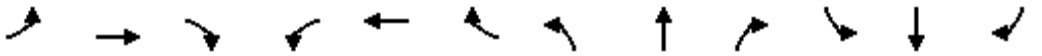
Splits and Phases: 3: U.S. Route 5 (John Fitch Blvd) & Chapel Road



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	156	111	31	969	80	68	1305
v/c Ratio	0.11	0.84	0.33	0.21	0.51	0.09	0.38	0.58
Control Delay	19.5	70.8	12.9	42.0	11.3	1.7	40.9	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	70.8	12.9	42.0	11.3	1.7	40.9	11.7
Queue Length 50th (ft)	6	81	9	16	128	1	35	150
Queue Length 95th (ft)	26	#151	42	43	171	5	71	336
Internal Link Dist (ft)	632		2884		1367			772
Turn Bay Length (ft)		350		235		250	265	
Base Capacity (vph)	293	196	349	477	1913	879	455	2257
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.80	0.32	0.06	0.51	0.09	0.15	0.58

Intersection Summary

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

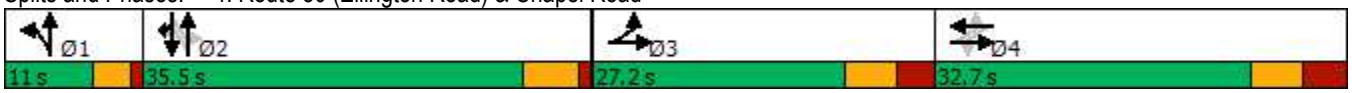


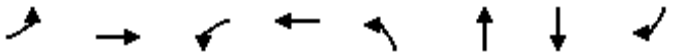
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	87	25	33	53	32	45	489	152	24	124	82
Future Volume (vph)	77	87	25	33	53	32	45	489	152	24	124	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	120		0	225		0	0		260
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	285			180			140			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967			0.943			0.964				0.850
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1787	1788	0	1752	1781	0	1805	1832	0	0	1854	1599
Flt Permitted	0.689			0.668			0.631				0.769	
Satd. Flow (perm)	1296	1788	0	1232	1781	0	1199	1832	0	0	1437	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			27			18				163
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		2964			2542			2670			1721	
Travel Time (s)		57.7			49.5			40.5			26.1	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.97	0.97	0.97	0.84	0.84	0.84
Heavy Vehicles (%)	1%	1%	9%	3%	1%	0%	0%	0%	0%	0%	2%	1%
Adj. Flow (vph)	96	109	31	41	66	40	46	504	157	29	148	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	140	0	41	106	0	46	661	0	0	177	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		Perm	NA	Prot
Protected Phases	3	3 4			4		1	1 2			2	2
Permitted Phases	4			4			2			2		
Detector Phase	3	3 4		4	4		1	1 2		2	2	2
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		4.5			18.0	18.0	18.0
Minimum Split (s)	12.2			22.7	22.7		9.0			23.5	23.5	23.5
Total Split (s)	27.2			32.7	32.7		11.0			35.5	35.5	35.5
Total Split (%)	25.6%			30.7%	30.7%		10.3%			33.4%	33.4%	33.4%
Maximum Green (s)	20.0			25.0	25.0		7.0			30.0	30.0	30.0
Yellow Time (s)	4.1			4.1	4.1		3.0			4.5	4.5	4.5
All-Red Time (s)	3.1			3.6	3.6		1.0			1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)	7.2			7.7	7.7		4.0				5.5	5.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		None			Min	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				7.0	7.0					7.0	7.0	7.0
Flash Dont Walk (s)				11.0	11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0					0	0	0
Act Effct Green (s)	24.9	32.1		15.1	15.1		35.2	39.3			26.7	26.7
Actuated g/C Ratio	0.30	0.39		0.18	0.18		0.43	0.48			0.32	0.32
v/c Ratio	0.22	0.20		0.18	0.31		0.08	0.75			0.38	0.16
Control Delay	19.0	16.0		33.4	26.8		12.5	23.9			24.5	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	19.0	16.0		33.4	26.8		12.5	23.9			24.5	1.2
LOS	B	B		C	C		B	C			C	A
Approach Delay		17.2			28.7			23.1			16.2	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)	34	43		19	37		12	259			70	0
Queue Length 95th (ft)	58	71		44	74		31	423			120	3
Internal Link Dist (ft)		2884			2462			2590			1641	
Turn Bay Length (ft)	160			120			225					260
Base Capacity (vph)	623	922		375	561		562	957			525	687
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.15	0.15		0.11	0.19		0.08	0.69			0.34	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 106.4			
Actuated Cycle Length: 82.7			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 21.3		Intersection LOS: C	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

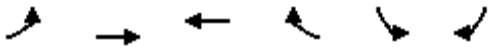
Splits and Phases: 4: Route 30 (Ellington Road) & Chapel Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	96	140	41	106	46	661	177	98
v/c Ratio	0.22	0.20	0.18	0.31	0.08	0.75	0.38	0.16
Control Delay	19.0	16.0	33.4	26.8	12.5	23.9	24.5	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	16.0	33.4	26.8	12.5	23.9	24.5	1.2
Queue Length 50th (ft)	34	43	19	37	12	259	70	0
Queue Length 95th (ft)	58	71	44	74	31	423	120	3
Internal Link Dist (ft)		2884		2462		2590	1641	
Turn Bay Length (ft)	160		120		225			260
Base Capacity (vph)	623	922	375	561	562	957	525	687
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.11	0.19	0.08	0.69	0.34	0.14

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	674	309	0	0	0
Future Volume (vph)	0	674	309	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1863	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	0	1863	1863	0	1863	1863
Link Speed (mph)		45	40		30	
Link Distance (ft)		1538	2670		359	
Travel Time (s)		23.3	45.5		8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	733	336	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	733	336	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

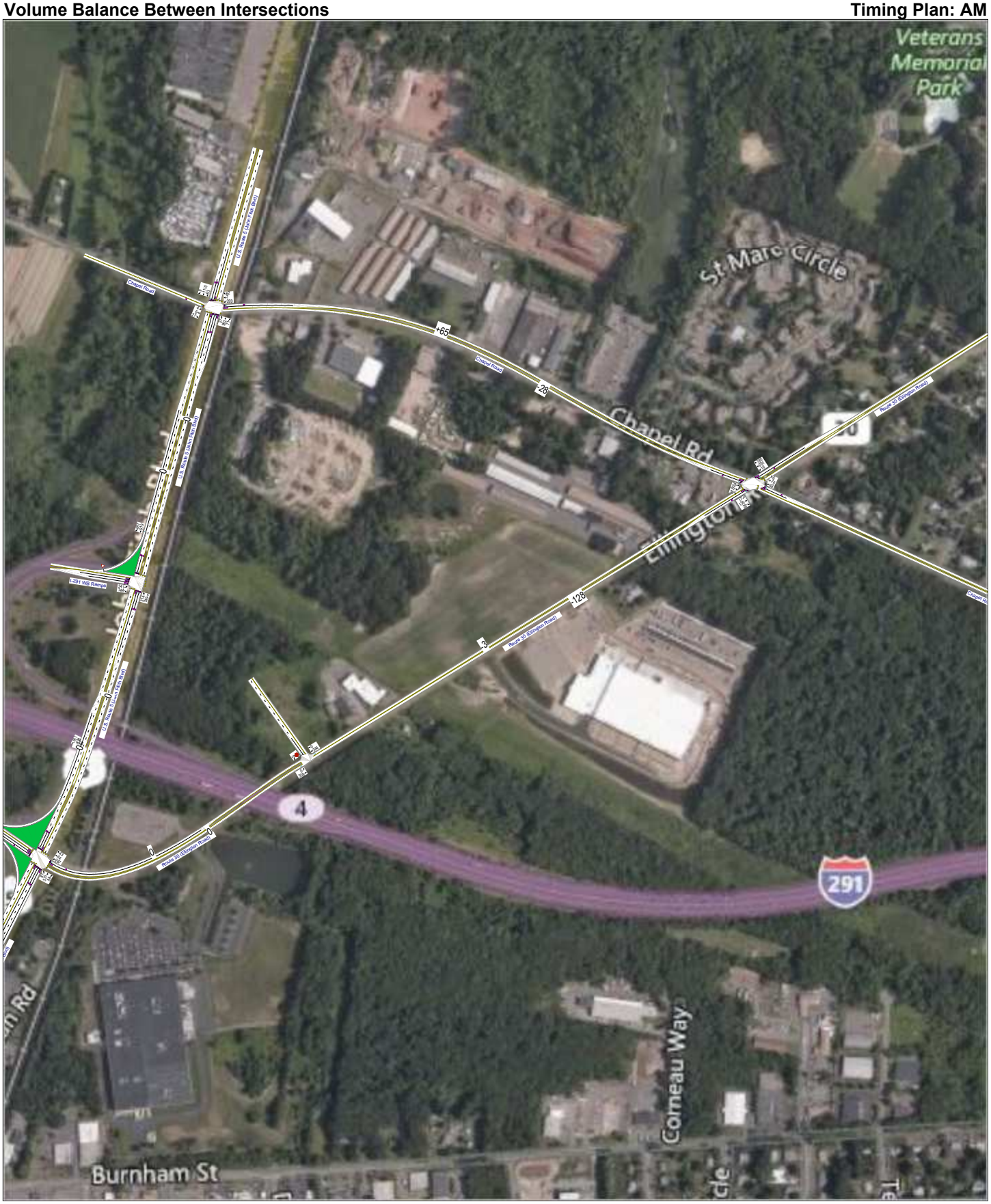
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	674	309	0	0	0
Future Vol, veh/h	0	674	309	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	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	733	336	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	336	0	-	0	1069	336
Stage 1	-	-	-	-	336	-
Stage 2	-	-	-	-	733	-
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	1223	-	-	-	245	706
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	475	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1223	-	-	-	245	706
Mov Cap-2 Maneuver	-	-	-	-	245	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	475	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1223	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	0
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

NO BUILD


Veterans Memorial Park
St Marc Circle
Chapel Rd
Ellington Rd
Route 83 (Ellington Road)
Comeau Way
Burnham St
291
4
I-291 WB Ramps
U.S. Route 5 (North Main St)
Chapel Road

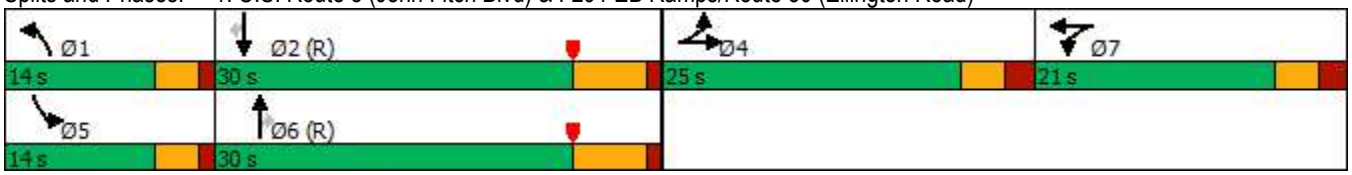
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	443	156	338	267	34	43	87	577	88	64	838	161
Future Volume (vph)	443	156	338	267	34	43	87	577	88	64	838	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		250	850		0	400		615	130		750
Storage Lanes	2		1	1		0	1		1	1		1
Taper Length (ft)	215			88			115			96		
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.962				0.850			0.850
Flt Protected	0.950			0.950	0.973		0.950			0.950		
Satd. Flow (prot)	3242	1845	1583	1698	1549	0	1687	3539	1615	1805	3505	1455
Flt Permitted	0.950			0.950	0.973		0.950			0.950		
Satd. Flow (perm)	3242	1845	1583	1698	1549	0	1687	3539	1615	1805	3505	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			393		16				133			173
Link Speed (mph)		30			40			50			50	
Link Distance (ft)		649			1552			1239			1507	
Travel Time (s)		14.8			26.5			16.9			20.6	
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.90	0.90	0.90	0.93	0.93	0.93
Heavy Vehicles (%)	8%	3%	2%	1%	20%	18%	7%	2%	0%	0%	3%	11%
Adj. Flow (vph)	515	181	393	300	38	48	97	641	98	69	901	173
Shared Lane Traffic (%)				35%								
Lane Group Flow (vph)	515	181	393	195	191	0	97	641	98	69	901	173
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Free	Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		7	7		1	6		5	2	
Permitted Phases			Free						6			2
Detector Phase	4	4		7	7		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	14.0	14.0		14.0	14.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	25.0	25.0		21.0	21.0		14.0	30.0	30.0	14.0	30.0	30.0
Total Split (%)	27.8%	27.8%		23.3%	23.3%		15.6%	33.3%	33.3%	15.6%	33.3%	33.3%
Maximum Green (s)	20.0	20.0		16.0	16.0		10.0	24.0	24.0	10.0	24.0	24.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	17.9	17.9	90.0	13.6	13.6		8.5	32.6	32.6	7.7	31.9	31.9
Actuated g/C Ratio	0.20	0.20	1.00	0.15	0.15		0.09	0.36	0.36	0.09	0.35	0.35
v/c Ratio	0.80	0.49	0.25	0.76	0.77		0.61	0.50	0.15	0.45	0.73	0.28
Control Delay	44.3	36.5	0.4	55.6	54.3		55.1	26.5	2.8	36.1	49.1	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	36.5	0.4	55.6	54.3		55.1	26.5	2.8	36.1	49.1	25.6
LOS	D	D	A	E	D		E	C	A	D	D	C
Approach Delay		27.2			54.9			27.0			44.8	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	141	90	0	111	100		53	159	0	42	292	67
Queue Length 95th (ft)	185	144	0	#184	#185		103	232	21	m47	m296	m72
Internal Link Dist (ft)		569			1472			1159			1427	
Turn Bay Length (ft)	220		250	850			400		615	130		750
Base Capacity (vph)	720	410	1583	301	288		187	1283	670	200	1241	626
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.44	0.25	0.65	0.66		0.52	0.50	0.15	0.34	0.73	0.28

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 77 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 36.1 Intersection LOS: D
Intersection Capacity Utilization 66.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

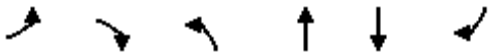
Splits and Phases: 1: U.S. Route 5 (John Fitch Blvd) & I-291 EB Ramps/Route 30 (Ellington Road)



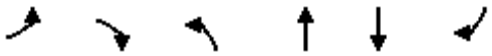
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	515	181	393	195	191	97	641	98	69	901	173
v/c Ratio	0.80	0.49	0.25	0.76	0.77	0.61	0.50	0.15	0.45	0.73	0.28
Control Delay	44.3	36.5	0.4	55.6	54.3	55.1	26.5	2.8	36.1	49.1	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	36.5	0.4	55.6	54.3	55.1	26.5	2.8	36.1	49.1	25.6
Queue Length 50th (ft)	141	90	0	111	100	53	159	0	42	292	67
Queue Length 95th (ft)	185	144	0	#184	#185	103	232	21	m47	m296	m72
Internal Link Dist (ft)		569			1472		1159			1427	
Turn Bay Length (ft)	220		250	850		400		615	130		750
Base Capacity (vph)	720	410	1583	301	288	187	1283	670	200	1241	626
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.44	0.25	0.65	0.66	0.52	0.50	0.15	0.34	0.73	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	341	144	314	749	919	487
Future Volume (vph)	341	144	314	749	919	487
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265	205	350			865
Storage Lanes	1	1	1			1
Taper Length (ft)	155		125			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3400	1568	1703	3539	3438	1495
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3400	1568	1703	3539	3438	1495
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		157				524
Link Speed (mph)	30			50	50	
Link Distance (ft)	458			1507	1447	
Travel Time (s)	10.4			20.6	19.7	
Peak Hour Factor	0.92	0.92	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	6%	2%	5%	8%
Adj. Flow (vph)	371	157	334	805	988	524
Shared Lane Traffic (%)						
Lane Group Flow (vph)	371	157	334	805	988	524
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	Prot	Prot	NA	NA	Free
Protected Phases	4	4	1	1 2	2	
Permitted Phases						Free
Minimum Split (s)	13.0	13.0	10.9		20.7	
Total Split (s)	29.0	29.0	30.1		30.9	
Total Split (%)	32.2%	32.2%	33.4%		34.3%	
Maximum Green (s)	25.0	25.0	26.1		25.2	
Yellow Time (s)	3.0	3.0	3.0		4.7	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0		5.7	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	25.0	25.0	26.1	57.0	25.2	90.0
Actuated g/C Ratio	0.28	0.28	0.29	0.63	0.28	1.00



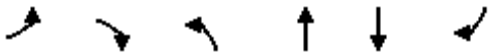
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.39	0.29	0.68	0.36	1.03	0.35
Control Delay	27.9	5.9	42.9	10.2	59.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	5.9	42.9	10.2	59.1	0.7
LOS	C	A	D	B	E	A
Approach Delay	21.3			19.8	38.9	
Approach LOS	C			B	D	
Queue Length 50th (ft)	88	0	207	123	~331	0
Queue Length 95th (ft)	127	44	m293	169	m#341	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	944	548	493	2241	962	1495
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	0.39	0.29	0.68	0.36	1.03	0.35

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Yellow
Natural Cycle: 60
Control Type: Pretimed
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: U.S. Route 5 (John Fitch Blvd) & I-291 WB Ramps



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	371	157	334	805	988	524
v/c Ratio	0.39	0.29	0.68	0.36	1.03	0.35
Control Delay	27.9	5.9	42.9	10.2	59.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	5.9	42.9	10.2	59.1	0.7
Queue Length 50th (ft)	88	0	207	123	~331	0
Queue Length 95th (ft)	127	44	m293	169	m#341	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	944	548	493	2241	962	1495
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	0.39	0.29	0.68	0.36	1.03	0.35

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	6	27	269	7	62	27	992	71	63	1110	9
Future Volume (vph)	4	6	27	269	7	62	27	992	71	63	1110	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		0	235		250	265		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			215			150			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.902			0.866				0.850		0.999	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1694	0	1719	1548	0	1805	3438	1538	1787	3502	0
Flt Permitted		0.981		0.726			0.950			0.950		
Satd. Flow (perm)	0	1670	0	1314	1548	0	1805	3438	1538	1787	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			68				101		1	
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		712			2970			1447			852	
Travel Time (s)		13.9			57.9			19.7			11.6	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	0%	5%	0%	7%	0%	5%	5%	1%	3%	0%
Adj. Flow (vph)	5	8	34	296	8	68	33	1195	86	66	1168	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	296	76	0	33	1195	86	66	1177	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA	Prot	Prot	NA	
Protected Phases		4			4		5	2	2	1	6	
Permitted Phases	4			4								
Minimum Split (s)	14.8	14.8		14.8	14.8		11.5	20.9	20.9	11.5	23.9	
Total Split (s)	40.0	40.0		40.0	40.0		15.0	35.0	35.0	15.0	35.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		16.7%	38.9%	38.9%	16.7%	38.9%	
Maximum Green (s)	34.2	34.2		34.2	34.2		9.5	29.1	29.1	9.5	29.1	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.7	4.7	3.0	4.7	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.5	1.2	1.2	2.5	1.2	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.8		5.8	5.8		5.5	5.9	5.9	5.5	5.9	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)		34.2		34.2	34.2		9.5	29.1	29.1	9.5	29.1	
Actuated g/C Ratio		0.38		0.38	0.38		0.11	0.32	0.32	0.11	0.32	

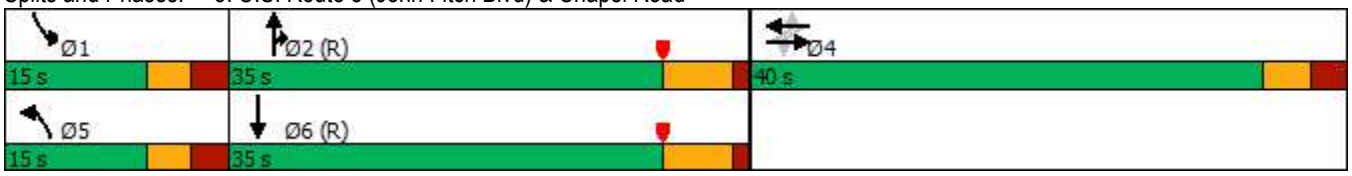
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.07		0.59	0.12		0.17	1.08	0.15	0.35	1.04	
Control Delay		8.8		28.3	6.3		46.4	76.4	5.0	43.2	68.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		8.8		28.3	6.3		46.4	76.4	5.0	43.2	68.9	
LOS		A		C	A		D	E	A	D	E	
Approach Delay		8.8			23.8			71.0			67.5	
Approach LOS		A			C			E			E	
Queue Length 50th (ft)		5		132	3		0	~377	4	35	~384	
Queue Length 95th (ft)		22		220	30		48	#448	16	76	#515	
Internal Link Dist (ft)		632			2890			1367			772	
Turn Bay Length (ft)				350			235		250	265		
Base Capacity (vph)		655		499	630		190	1111	565	188	1132	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		0.07		0.59	0.12		0.17	1.08	0.15	0.35	1.04	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 33.6 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 75
Control Type: Pretimed
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 62.7 Intersection LOS: E
Intersection Capacity Utilization 71.9% ICU Level of Service C
Analysis Period (min) 15

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

Splits and Phases: 3: U.S. Route 5 (John Fitch Blvd) & Chapel Road

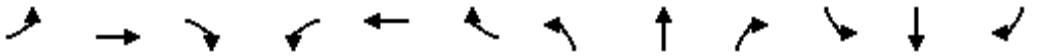


Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	296	76	33	1195	86	66	1177
v/c Ratio	0.07	0.59	0.12	0.17	1.08	0.15	0.35	1.04
Control Delay	8.8	28.3	6.3	46.4	76.4	5.0	43.2	68.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	28.3	6.3	46.4	76.4	5.0	43.2	68.9
Queue Length 50th (ft)	5	132	3	0	~377	4	35	~384
Queue Length 95th (ft)	22	220	30	48	#448	16	76	#515
Internal Link Dist (ft)	632		2890		1367			772
Turn Bay Length (ft)		350		235		250	265	
Base Capacity (vph)	655	499	630	190	1111	565	188	1132
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.59	0.12	0.17	1.08	0.15	0.35	1.04

Intersection Summary

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

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

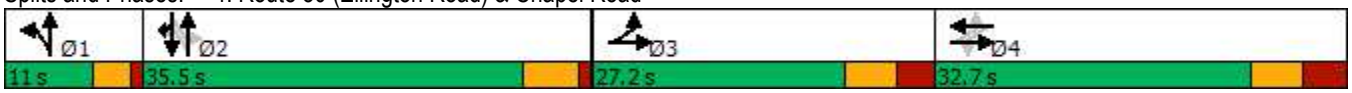


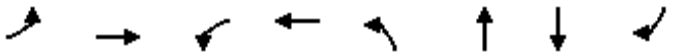
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	45	38	48	76	6	17	135	28	16	261	180
Future Volume (vph)	29	45	38	48	76	6	17	135	28	16	261	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	120		0	225		0	0		260
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	285			180			140			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.931			0.989			0.974				0.850
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1703	1743	0	1787	1855	0	1612	1788	0	0	1867	1599
Flt Permitted	0.695			0.690			0.467				0.978	
Satd. Flow (perm)	1246	1743	0	1298	1855	0	792	1788	0	0	1832	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			4			12				196
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		2970			2542			2681			1721	
Travel Time (s)		57.9			49.5			40.6			26.1	
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	6%	1%	2%	1%	1%	5%	12%	4%	1%	9%	1%	1%
Adj. Flow (vph)	36	56	48	56	88	7	19	153	32	17	284	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	104	0	56	95	0	19	185	0	0	301	196
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		Perm	NA	Prot
Protected Phases	3	3 4			4		1	1 2			2	2
Permitted Phases	4			4			2			2		
Detector Phase	3	3 4		4	4		1	1 2		2	2	2
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		4.5			18.0	18.0	18.0
Minimum Split (s)	12.2			22.7	22.7		9.0			23.5	23.5	23.5
Total Split (s)	27.2			32.7	32.7		11.0			35.5	35.5	35.5
Total Split (%)	25.6%			30.7%	30.7%		10.3%			33.4%	33.4%	33.4%
Maximum Green (s)	20.0			25.0	25.0		7.0			30.0	30.0	30.0
Yellow Time (s)	4.1			4.1	4.1		3.0			4.5	4.5	4.5
All-Red Time (s)	3.1			3.6	3.6		1.0			1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)	7.2			7.7	7.7		4.0				5.5	5.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		None			Min	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				7.0	7.0					7.0	7.0	7.0
Flash Dont Walk (s)				11.0	11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0					0	0	0
Act Effct Green (s)	18.7	27.7		16.6	16.6		31.1	37.1			21.9	21.9
Actuated g/C Ratio	0.28	0.41		0.25	0.25		0.47	0.56			0.33	0.33
v/c Ratio	0.09	0.14		0.17	0.20		0.04	0.19			0.50	0.30
Control Delay	15.3	9.6		28.1	26.8		12.1	12.6			25.9	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	15.3	9.6		28.1	26.8		12.1	12.6			25.9	4.9
LOS	B	A		C	C		B	B			C	A
Approach Delay		11.0			27.3			12.5			17.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	9	14		20	34		5	46			118	0
Queue Length 95th (ft)	26	41		56	80		16	87			202	44
Internal Link Dist (ft)		2890			2462			2601			1641	
Turn Bay Length (ft)	160			120			225					260
Base Capacity (vph)	701	1032		538	771		466	1148			911	894
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.05	0.10		0.10	0.12		0.04	0.16			0.33	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 106.4			
Actuated Cycle Length: 66.8			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

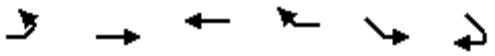
Splits and Phases: 4: Route 30 (Ellington Road) & Chapel Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	36	104	56	95	19	185	301	196
v/c Ratio	0.09	0.14	0.17	0.20	0.04	0.19	0.50	0.30
Control Delay	15.3	9.6	28.1	26.8	12.1	12.6	25.9	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	9.6	28.1	26.8	12.1	12.6	25.9	4.9
Queue Length 50th (ft)	9	14	20	34	5	46	118	0
Queue Length 95th (ft)	26	41	56	80	16	87	202	44
Internal Link Dist (ft)		2890		2462		2601	1641	
Turn Bay Length (ft)	160		120		225			260
Base Capacity (vph)	701	1032	538	771	466	1148	911	894
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.10	0.10	0.12	0.04	0.16	0.33	0.22

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	308	344	0	0	0
Future Volume (vph)	0	308	344	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1863	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	0	1863	1863	0	1863	1863
Link Speed (mph)		45	40		30	
Link Distance (ft)		1552	2681		507	
Travel Time (s)		23.5	45.7		11.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	335	374	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	335	374	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.4%		ICU Level of Service A	
Analysis Period (min) 15			

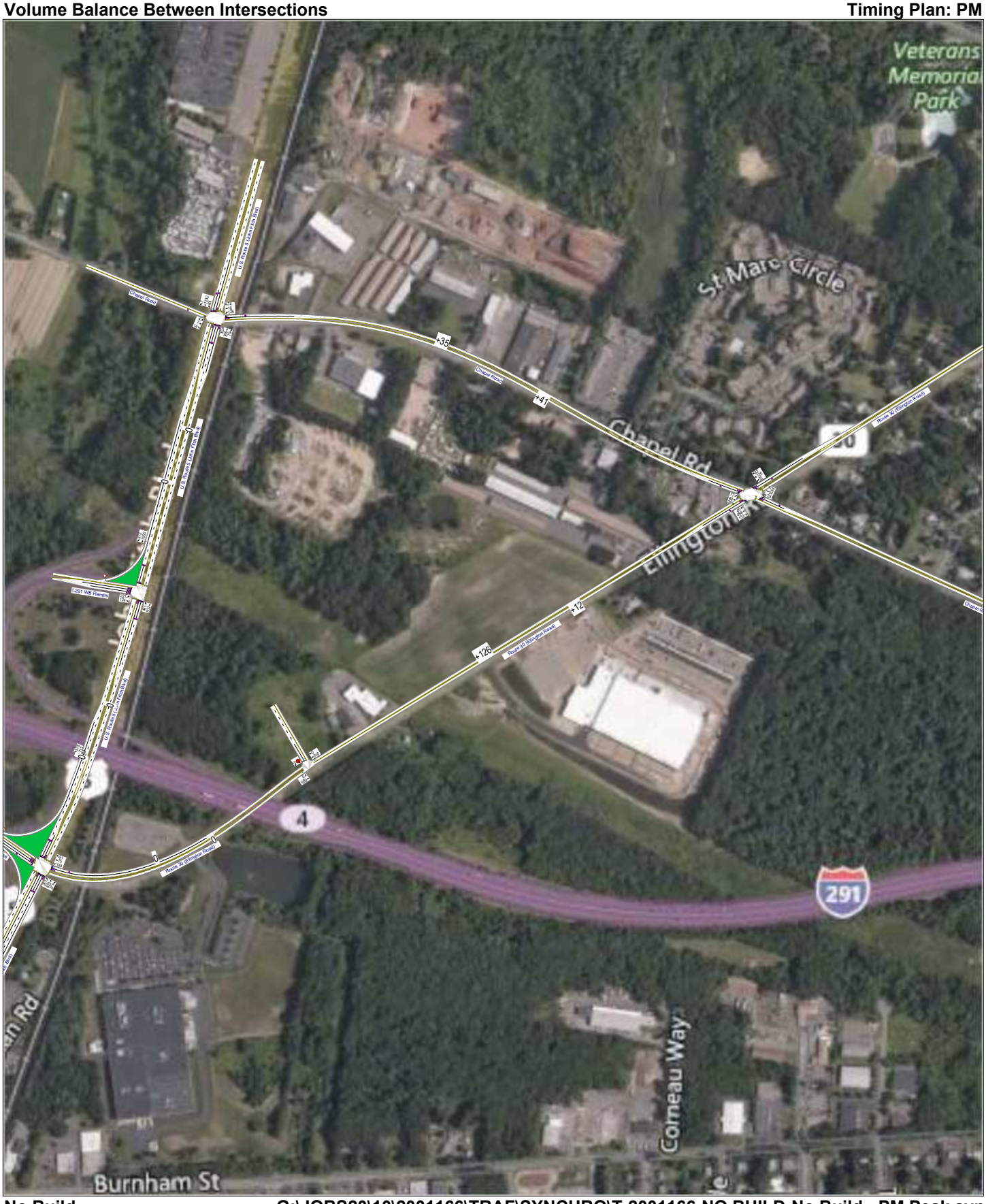
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	0	308	344	0	0	0
Future Vol, veh/h	0	308	344	0	0	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	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	335	374	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	374	0	-	0	709	374
Stage 1	-	-	-	-	374	-
Stage 2	-	-	-	-	335	-
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	1184	-	-	-	401	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	725	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1184	-	-	-	401	672
Mov Cap-2 Maneuver	-	-	-	-	401	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	725	-

Approach	EB	WB	SE
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1	SELn2
Capacity (veh/h)	1184	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	0
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	376	360	144	75	91	257	823	271	33	713	378
Future Volume (vph)	364	376	360	144	75	91	257	823	271	33	713	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		250	850		0	400		615	130		750
Storage Lanes	2		1	1		0	1		1	1		1
Taper Length (ft)	215			88			115			96		
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.924				0.850			0.850
Flt Protected	0.950			0.950	0.996		0.950			0.950		
Satd. Flow (prot)	3213	1863	1599	1715	1646	0	1787	3574	1599	1583	3574	1553
Flt Permitted	0.950			0.950	0.996		0.950			0.950		
Satd. Flow (perm)	3213	1863	1599	1715	1646	0	1787	3574	1599	1583	3574	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			400		50				339			398
Link Speed (mph)		30			40			50			50	
Link Distance (ft)		467			1538			1239			1507	
Travel Time (s)		10.6			26.2			16.9			20.6	
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.80	0.80	0.80	0.95	0.95	0.95
Heavy Vehicles (%)	9%	2%	1%	0%	1%	1%	1%	1%	1%	14%	1%	4%
Adj. Flow (vph)	404	418	400	166	86	105	321	1029	339	35	751	398
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	404	418	400	149	208	0	321	1029	339	35	751	398
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Free	Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		7	7		1	6		5	2	
Permitted Phases			Free						6			2
Detector Phase	4	4		7	7		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	14.0	14.0		14.0	14.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	23.0	23.0		16.0	16.0		23.0	23.0	23.0	23.0	23.0	23.0
Total Split (%)	27.1%	27.1%		18.8%	18.8%		27.1%	27.1%	27.1%	27.1%	27.1%	27.1%
Maximum Green (s)	18.0	18.0		11.0	11.0		19.0	17.0	17.0	19.0	17.0	17.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max

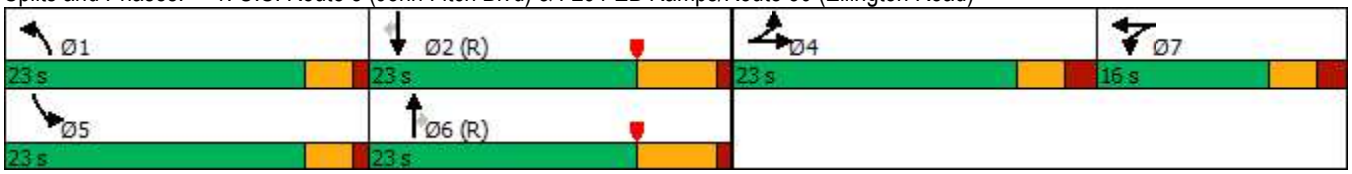
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	18.0	18.0	85.0	10.6	10.6		17.6	33.5	33.5	6.6	18.8	18.8
Actuated g/C Ratio	0.21	0.21	1.00	0.12	0.12		0.21	0.39	0.39	0.08	0.22	0.22
v/c Ratio	0.59	1.06	0.25	0.70	0.84		0.87	0.73	0.41	0.29	0.95	0.61
Control Delay	34.4	97.2	0.4	54.3	56.4		57.0	27.7	4.2	57.5	39.0	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	97.2	0.4	54.3	56.4		57.0	27.7	4.2	57.5	39.0	16.2
LOS	C	F	A	D	E		E	C	A	E	D	B
Approach Delay		44.7			55.5			28.5			31.9	
Approach LOS		D			E			C			C	
Queue Length 50th (ft)	101	~249	0	81	87		163	260	0	14	~243	149
Queue Length 95th (ft)	147	#423	0	#157	#195		#229	301	34	m23	m#282	m201
Internal Link Dist (ft)		387			1458			1159			1427	
Turn Bay Length (ft)	220		250	850			400		615	130		750
Base Capacity (vph)	680	394	1599	221	256		399	1407	835	353	792	654
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.59	1.06	0.25	0.67	0.81		0.80	0.73	0.41	0.10	0.95	0.61

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 84 (99%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 36.0 Intersection LOS: D
Intersection Capacity Utilization 79.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Route 5 (John Fitch Blvd) & I-291 EB Ramps/Route 30 (Ellington Road)



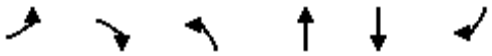
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	404	418	400	149	208	321	1029	339	35	751	398
v/c Ratio	0.59	1.06	0.25	0.70	0.84	0.87	0.73	0.41	0.29	0.95	0.61
Control Delay	34.4	97.2	0.4	54.3	56.4	57.0	27.7	4.2	57.5	39.0	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	97.2	0.4	54.3	56.4	57.0	27.7	4.2	57.5	39.0	16.2
Queue Length 50th (ft)	101	~249	0	81	87	163	260	0	14	~243	149
Queue Length 95th (ft)	147	#423	0	#157	#195	#229	301	34	m23	m#282	m201
Internal Link Dist (ft)		387			1458		1159			1427	
Turn Bay Length (ft)	220		250	850		400		615	130		750
Base Capacity (vph)	680	394	1599	221	256	399	1407	835	353	792	654
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	1.06	0.25	0.67	0.81	0.80	0.73	0.41	0.10	0.95	0.61

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

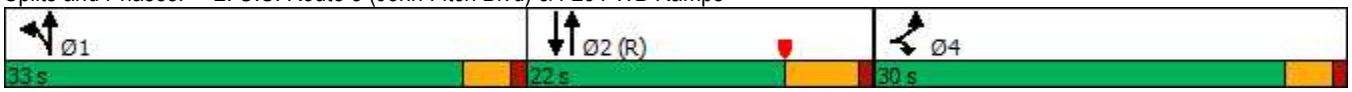


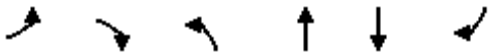
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	221	124	441	837	1000	372
Future Volume (vph)	221	124	441	837	1000	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265	205	350			865
Storage Lanes	1	1	1			1
Taper Length (ft)	155		125			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3273	1538	1787	3438	3539	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3273	1538	1787	3438	3539	1524
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		146				388
Link Speed (mph)	30			50	50	
Link Distance (ft)	458			1507	1447	
Travel Time (s)	10.4			20.6	19.7	
Peak Hour Factor	0.85	0.85	0.88	0.88	0.96	0.96
Heavy Vehicles (%)	7%	5%	1%	5%	2%	6%
Adj. Flow (vph)	260	146	501	951	1042	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	260	146	501	951	1042	388
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	Prot	Prot	NA	NA	Free
Protected Phases	4	4	1	1 2	2	
Permitted Phases						Free
Detector Phase	4	4	1	1 2	2	
Switch Phase						
Minimum Initial (s)	9.0	9.0	6.0		15.0	
Minimum Split (s)	13.0	13.0	10.9		20.7	
Total Split (s)	30.0	30.0	33.0		22.0	
Total Split (%)	35.3%	35.3%	38.8%		25.9%	
Maximum Green (s)	26.0	26.0	29.0		16.3	
Yellow Time (s)	3.0	3.0	3.0		4.7	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0		5.7	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	12.2	12.2	32.7	64.8	26.5	85.0
Actuated g/C Ratio	0.14	0.14	0.38	0.76	0.31	1.00
v/c Ratio	0.56	0.42	0.73	0.36	0.95	0.25
Control Delay	38.2	9.7	20.2	1.4	42.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	9.7	20.2	1.4	42.6	0.3
LOS	D	A	C	A	D	A
Approach Delay	27.9			7.9	31.1	
Approach LOS	C			A	C	
Queue Length 50th (ft)	67	0	101	16	294	0
Queue Length 95th (ft)	94	41	m118	20	#530	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	1001	571	709	2621	1101	1524
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	0.26	0.26	0.71	0.36	0.95	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 47 (55%), Referenced to phase 2:NBSB and 6:, Start of Yellow			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 20.5		Intersection LOS: C	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 2: U.S. Route 5 (John Fitch Blvd) & I-291 WB Ramps





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	260	146	501	951	1042	388
v/c Ratio	0.56	0.42	0.73	0.36	0.95	0.25
Control Delay	38.2	9.7	20.2	1.4	42.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	9.7	20.2	1.4	42.6	0.3
Queue Length 50th (ft)	67	0	101	16	294	0
Queue Length 95th (ft)	94	41	m118	20	#530	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	1001	571	709	2621	1101	1524
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	0.26	0.26	0.71	0.36	0.95	0.25

Intersection Summary

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

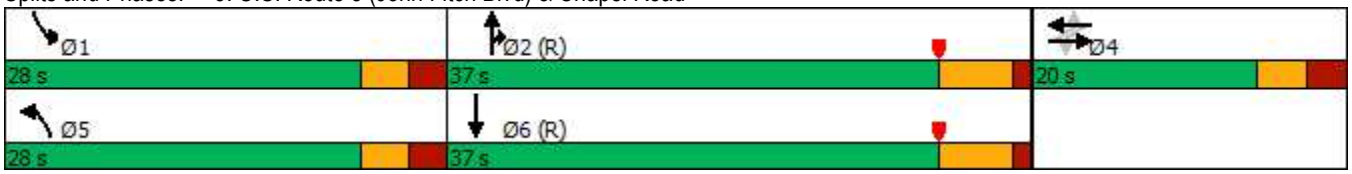
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	7	14	126	16	74	30	949	79	64	1232	7
Future Volume (vph)	4	7	14	126	16	74	30	949	79	64	1232	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		0	235		250	265		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			215			150			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.924			0.877				0.850		0.999	
Flt Protected		0.992		0.950			0.950			0.950		
Satd. Flow (prot)	0	1742	0	1517	1639	0	1805	3406	1482	1719	3536	0
Flt Permitted		0.950		0.736			0.950			0.950		
Satd. Flow (perm)	0	1668	0	1175	1639	0	1805	3406	1482	1719	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			93				107		1	
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		712			2964			1447			852	
Travel Time (s)		13.9			57.7			19.7			11.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	19%	0%	2%	0%	6%	9%	5%	2%	0%
Adj. Flow (vph)	5	9	18	158	20	93	31	978	81	68	1311	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	0	158	113	0	31	978	81	68	1318	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA	Prot	Prot	NA	
Protected Phases		4			4		5	2	2	1	6	
Permitted Phases	4			4								
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	14.8	14.8		14.8	14.8		11.5	20.9	20.9	11.5	23.9	
Total Split (s)	20.0	20.0		20.0	20.0		28.0	37.0	37.0	28.0	37.0	
Total Split (%)	23.5%	23.5%		23.5%	23.5%		32.9%	43.5%	43.5%	32.9%	43.5%	
Maximum Green (s)	14.2	14.2		14.2	14.2		22.5	31.1	31.1	22.5	31.1	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.7	4.7	3.0	4.7	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.5	1.2	1.2	2.5	1.2	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.8		5.8	5.8		5.5	5.9	5.9	5.5	5.9	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)		13.5		13.5	13.5		7.1	47.7	47.7	8.9	54.2	
Actuated g/C Ratio		0.16		0.16	0.16		0.08	0.56	0.56	0.10	0.64	
v/c Ratio		0.11		0.84	0.33		0.21	0.51	0.09	0.38	0.58	
Control Delay		19.5		71.9	12.8		42.2	11.3	1.7	40.9	11.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		19.5		71.9	12.8		42.2	11.3	1.7	40.9	11.8	
LOS		B		E	B		D	B	A	D	B	
Approach Delay		19.5			47.3			11.5			13.2	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)		6		82	9		16	129	1	35	152	
Queue Length 95th (ft)		26		#153	42		43	172	5	71	341	
Internal Link Dist (ft)		632			2884			1367			772	
Turn Bay Length (ft)				350			235		250	265		
Base Capacity (vph)		293		196	351		477	1911	878	455	2255	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		0.11		0.81	0.32		0.06	0.51	0.09	0.15	0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 43 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 15.9		Intersection LOS: B	
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: U.S. Route 5 (John Fitch Blvd) & Chapel Road



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	158	113	31	978	81	68	1318
v/c Ratio	0.11	0.84	0.33	0.21	0.51	0.09	0.38	0.58
Control Delay	19.5	71.9	12.8	42.2	11.3	1.7	40.9	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	71.9	12.8	42.2	11.3	1.7	40.9	11.8
Queue Length 50th (ft)	6	82	9	16	129	1	35	152
Queue Length 95th (ft)	26	#153	42	43	172	5	71	341
Internal Link Dist (ft)	632		2884		1367			772
Turn Bay Length (ft)		350		235		250	265	
Base Capacity (vph)	293	196	351	477	1911	878	455	2255
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.81	0.32	0.06	0.51	0.09	0.15	0.58

Intersection Summary

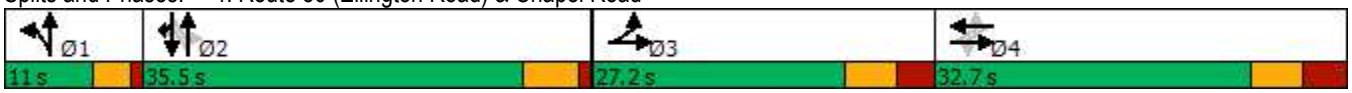
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

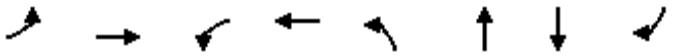
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	88	26	33	54	32	45	494	153	25	125	82
Future Volume (vph)	77	88	26	33	54	32	45	494	153	25	125	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	120		0	225		0	0		260
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	285			180			140			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965			0.944			0.964				0.850
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1787	1783	0	1752	1782	0	1805	1832	0	0	1854	1599
Flt Permitted	0.687			0.666			0.628				0.750	
Satd. Flow (perm)	1292	1783	0	1229	1782	0	1193	1832	0	0	1402	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			26			17				163
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		2964			2542			2670			1721	
Travel Time (s)		57.7			49.5			40.5			26.1	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.97	0.97	0.97	0.84	0.84	0.84
Heavy Vehicles (%)	1%	1%	9%	3%	1%	0%	0%	0%	0%	0%	2%	1%
Adj. Flow (vph)	96	110	33	41	68	40	46	509	158	30	149	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	143	0	41	108	0	46	667	0	0	179	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		Perm	NA	Prot
Protected Phases	3	3 4			4		1	1 2			2	2
Permitted Phases	4			4			2			2		
Detector Phase	3	3 4		4	4		1	1 2		2	2	2
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		4.5			18.0	18.0	18.0
Minimum Split (s)	12.2			22.7	22.7		9.0			23.5	23.5	23.5
Total Split (s)	27.2			32.7	32.7		11.0			35.5	35.5	35.5
Total Split (%)	25.6%			30.7%	30.7%		10.3%			33.4%	33.4%	33.4%
Maximum Green (s)	20.0			25.0	25.0		7.0			30.0	30.0	30.0
Yellow Time (s)	4.1			4.1	4.1		3.0			4.5	4.5	4.5
All-Red Time (s)	3.1			3.6	3.6		1.0			1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)	7.2			7.7	7.7		4.0				5.5	5.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		None			Min	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				7.0	7.0					7.0	7.0	7.0
Flash Dont Walk (s)				11.0	11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0					0	0	0
Act Effct Green (s)	25.0	32.2		15.1	15.1		35.6	39.6			27.0	27.0
Actuated g/C Ratio	0.30	0.39		0.18	0.18		0.43	0.48			0.32	0.32
v/c Ratio	0.22	0.20		0.18	0.31		0.08	0.76			0.39	0.16
Control Delay	19.0	16.0		33.5	27.3		12.5	24.2			24.9	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	19.0	16.0		33.5	27.3		12.5	24.2			24.9	1.2
LOS	B	B		C	C		B	C			C	A
Approach Delay		17.2			29.0			23.5			16.5	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)	34	44		19	39		12	265			71	0
Queue Length 95th (ft)	57	72		44	77		32	432			122	2
Internal Link Dist (ft)		2884			2462			2590			1641	
Turn Bay Length (ft)	160			120			225					260
Base Capacity (vph)	621	917		372	557		562	951			509	684
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.15	0.16		0.11	0.19		0.08	0.70			0.35	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 106.4			
Actuated Cycle Length: 83.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 21.6		Intersection LOS: C	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			

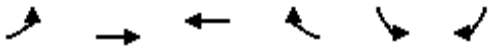
Splits and Phases: 4: Route 30 (Ellington Road) & Chapel Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	96	143	41	108	46	667	179	98
v/c Ratio	0.22	0.20	0.18	0.31	0.08	0.76	0.39	0.16
Control Delay	19.0	16.0	33.5	27.3	12.5	24.2	24.9	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	16.0	33.5	27.3	12.5	24.2	24.9	1.2
Queue Length 50th (ft)	34	44	19	39	12	265	71	0
Queue Length 95th (ft)	57	72	44	77	32	432	122	2
Internal Link Dist (ft)		2884		2462		2590	1641	
Turn Bay Length (ft)	160		120		225			260
Base Capacity (vph)	621	917	372	557	562	951	509	684
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.16	0.11	0.19	0.08	0.70	0.35	0.14

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	680	310	0	0	0
Future Volume (vph)	0	680	310	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1863	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	0	1863	1863	0	1863	1863
Link Speed (mph)		45	40		30	
Link Distance (ft)		1538	2670		359	
Travel Time (s)		23.3	45.5		8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	739	337	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	739	337	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

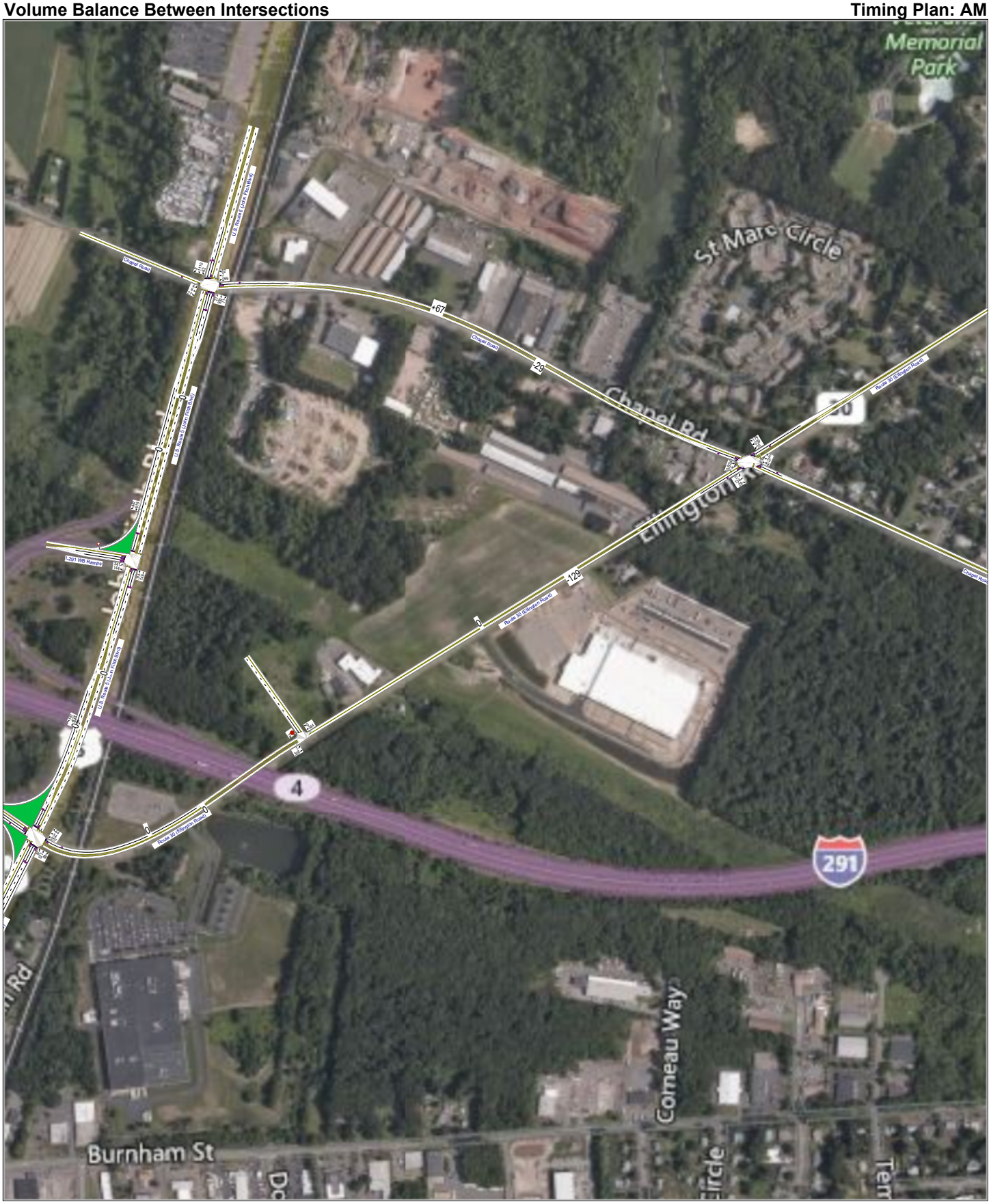
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	680	310	0	0	0
Future Vol, veh/h	0	680	310	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	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	739	337	0	0	0

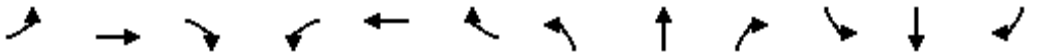
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	337	0	-	0	1076	337
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	739	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1222	-	-	-	243	705
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	472	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1222	-	-	-	243	705
Mov Cap-2 Maneuver	-	-	-	-	243	-
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	472	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1222	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	0
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

BUILD


Memorial Park
St Marc Circle
Chapel Rd
Ellington
Burnham St
Comeau Way
291
4
129
67
Chapel Road
Route 30 (Ellington Road)
US Route 4 (Main Street)
I-291 WB Ramps



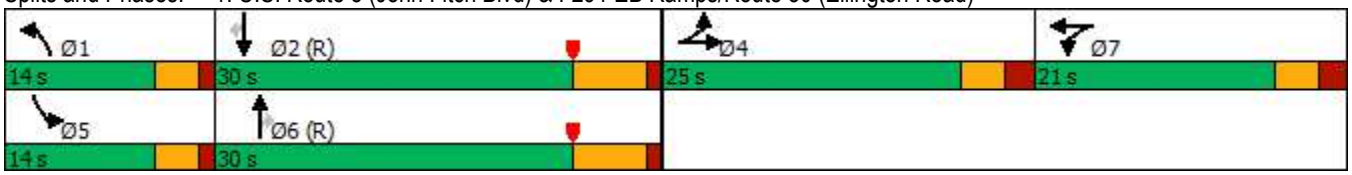
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	443	157	338	267	34	44	87	577	88	64	838	161
Future Volume (vph)	443	157	338	267	34	44	87	577	88	64	838	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		250	850		0	400		615	130		750
Storage Lanes	2		1	1		0	1		1	1		1
Taper Length (ft)	215			88			115			96		
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.962				0.850			0.850
Flt Protected	0.950			0.950	0.973		0.950			0.950		
Satd. Flow (prot)	3242	1845	1583	1698	1549	0	1687	3539	1615	1805	3505	1455
Flt Permitted	0.950			0.950	0.973		0.950			0.950		
Satd. Flow (perm)	3242	1845	1583	1698	1549	0	1687	3539	1615	1805	3505	1455
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			393		17				133			173
Link Speed (mph)		30			40			50			50	
Link Distance (ft)		649			1552			1239			1507	
Travel Time (s)		14.8			26.5			16.9			20.6	
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.90	0.90	0.90	0.93	0.93	0.93
Heavy Vehicles (%)	8%	3%	2%	1%	20%	18%	7%	2%	0%	0%	3%	11%
Adj. Flow (vph)	515	183	393	300	38	49	97	641	98	69	901	173
Shared Lane Traffic (%)				35%								
Lane Group Flow (vph)	515	183	393	195	192	0	97	641	98	69	901	173
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Free	Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		7	7		1	6		5	2	
Permitted Phases			Free						6			2
Detector Phase	4	4		7	7		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	14.0	14.0		14.0	14.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	25.0	25.0		21.0	21.0		14.0	30.0	30.0	14.0	30.0	30.0
Total Split (%)	27.8%	27.8%		23.3%	23.3%		15.6%	33.3%	33.3%	15.6%	33.3%	33.3%
Maximum Green (s)	20.0	20.0		16.0	16.0		10.0	24.0	24.0	10.0	24.0	24.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	18.0	18.0	90.0	13.6	13.6		8.5	32.5	32.5	7.7	31.7	31.7
Actuated g/C Ratio	0.20	0.20	1.00	0.15	0.15		0.09	0.36	0.36	0.09	0.35	0.35
v/c Ratio	0.79	0.50	0.25	0.76	0.77		0.61	0.50	0.15	0.45	0.73	0.28
Control Delay	43.8	36.4	0.4	55.6	54.1		55.1	26.6	2.8	36.2	49.3	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	36.4	0.4	55.6	54.1		55.1	26.6	2.8	36.2	49.3	25.6
LOS	D	D	A	E	D		E	C	A	D	D	C
Approach Delay		26.9			54.9			27.1			44.9	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	141	91	0	111	100		53	159	0	42	292	67
Queue Length 95th (ft)	185	146	0	#184	#185		103	232	21	m47	m296	m72
Internal Link Dist (ft)		569			1472			1159			1427	
Turn Bay Length (ft)	220		250	850			400		615	130		750
Base Capacity (vph)	720	410	1583	301	289		187	1277	668	200	1235	624
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.45	0.25	0.65	0.66		0.52	0.50	0.15	0.34	0.73	0.28

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 77 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 36.0 Intersection LOS: D
Intersection Capacity Utilization 66.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

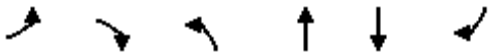
Splits and Phases: 1: U.S. Route 5 (John Fitch Blvd) & I-291 EB Ramps/Route 30 (Ellington Road)



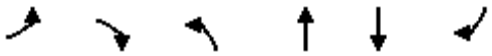
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	515	183	393	195	192	97	641	98	69	901	173
v/c Ratio	0.79	0.50	0.25	0.76	0.77	0.61	0.50	0.15	0.45	0.73	0.28
Control Delay	43.8	36.4	0.4	55.6	54.1	55.1	26.6	2.8	36.2	49.3	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	36.4	0.4	55.6	54.1	55.1	26.6	2.8	36.2	49.3	25.6
Queue Length 50th (ft)	141	91	0	111	100	53	159	0	42	292	67
Queue Length 95th (ft)	185	146	0	#184	#185	103	232	21	m47	m296	m72
Internal Link Dist (ft)		569			1472		1159			1427	
Turn Bay Length (ft)	220		250	850		400		615	130		750
Base Capacity (vph)	720	410	1583	301	289	187	1277	668	200	1235	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.45	0.25	0.65	0.66	0.52	0.50	0.15	0.34	0.73	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	341	144	315	749	919	487
Future Volume (vph)	341	144	315	749	919	487
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265	205	350			865
Storage Lanes	1	1	1			1
Taper Length (ft)	155		125			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3400	1568	1703	3539	3438	1495
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3400	1568	1703	3539	3438	1495
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		157				524
Link Speed (mph)	30			50	50	
Link Distance (ft)	458			1507	1447	
Travel Time (s)	10.4			20.6	19.7	
Peak Hour Factor	0.92	0.92	0.94	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	6%	2%	5%	8%
Adj. Flow (vph)	371	157	335	805	988	524
Shared Lane Traffic (%)						
Lane Group Flow (vph)	371	157	335	805	988	524
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	Prot	Prot	NA	NA	Free
Protected Phases	4	4	1	1 2	2	
Permitted Phases						Free
Minimum Split (s)	13.0	13.0	10.9		20.7	
Total Split (s)	29.0	29.0	30.1		30.9	
Total Split (%)	32.2%	32.2%	33.4%		34.3%	
Maximum Green (s)	25.0	25.0	26.1		25.2	
Yellow Time (s)	3.0	3.0	3.0		4.7	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0		5.7	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	25.0	25.0	26.1	57.0	25.2	90.0
Actuated g/C Ratio	0.28	0.28	0.29	0.63	0.28	1.00



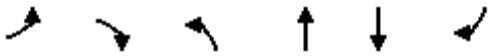
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.39	0.29	0.68	0.36	1.03	0.35
Control Delay	27.9	5.9	42.9	10.2	59.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	5.9	42.9	10.2	59.1	0.7
LOS	C	A	D	B	E	A
Approach Delay	21.3			19.8	38.9	
Approach LOS	C			B	D	
Queue Length 50th (ft)	88	0	208	123	~331	0
Queue Length 95th (ft)	127	44	m294	169	m#341	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	944	548	493	2241	962	1495
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	0.39	0.29	0.68	0.36	1.03	0.35

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Yellow
Natural Cycle: 60
Control Type: Pretimed
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 64.0% ICU Level of Service B
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: U.S. Route 5 (John Fitch Blvd) & I-291 WB Ramps



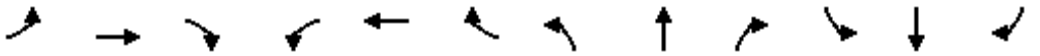
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	371	157	335	805	988	524
v/c Ratio	0.39	0.29	0.68	0.36	1.03	0.35
Control Delay	27.9	5.9	42.9	10.2	59.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	5.9	42.9	10.2	59.1	0.7
Queue Length 50th (ft)	88	0	208	123	~331	0
Queue Length 95th (ft)	127	44	m294	169	m#341	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	944	548	493	2241	962	1495
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	0.39	0.29	0.68	0.36	1.03	0.35

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



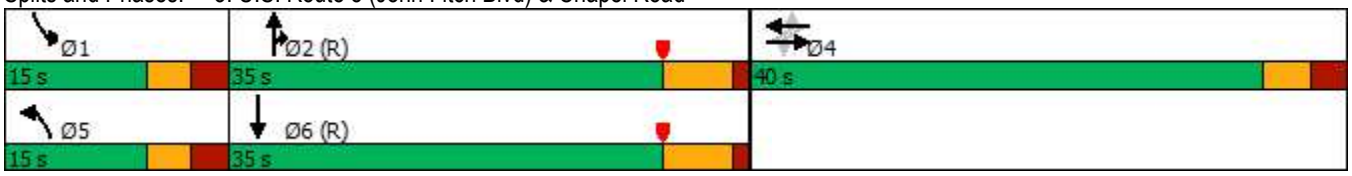
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	6	27	269	7	62	27	992	71	63	1110	9
Future Volume (vph)	4	6	27	269	7	62	27	992	71	63	1110	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		0	235		250	265		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			215			150			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.902			0.866				0.850		0.999	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1694	0	1719	1548	0	1805	3438	1538	1787	3502	0
Flt Permitted		0.981		0.726			0.950			0.950		
Satd. Flow (perm)	0	1670	0	1314	1548	0	1805	3438	1538	1787	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			68				101		1	
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		712			2970			1447			852	
Travel Time (s)		13.9			57.9			19.7			11.6	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	0%	5%	0%	7%	0%	5%	5%	1%	3%	0%
Adj. Flow (vph)	5	8	34	296	8	68	33	1195	86	66	1168	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	296	76	0	33	1195	86	66	1177	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA	Prot	Prot	NA	
Protected Phases		4			4		5	2	2	1	6	
Permitted Phases	4			4								
Minimum Split (s)	14.8	14.8		14.8	14.8		11.5	20.9	20.9	11.5	23.9	
Total Split (s)	40.0	40.0		40.0	40.0		15.0	35.0	35.0	15.0	35.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		16.7%	38.9%	38.9%	16.7%	38.9%	
Maximum Green (s)	34.2	34.2		34.2	34.2		9.5	29.1	29.1	9.5	29.1	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.7	4.7	3.0	4.7	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.5	1.2	1.2	2.5	1.2	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.8		5.8	5.8		5.5	5.9	5.9	5.5	5.9	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)		34.2		34.2	34.2		9.5	29.1	29.1	9.5	29.1	
Actuated g/C Ratio		0.38		0.38	0.38		0.11	0.32	0.32	0.11	0.32	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.07		0.59	0.12		0.17	1.08	0.15	0.35	1.04	
Control Delay		8.8		28.3	6.3		46.5	76.4	5.0	43.2	68.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		8.8		28.3	6.3		46.5	76.4	5.0	43.2	68.9	
LOS		A		C	A		D	E	A	D	E	
Approach Delay		8.8			23.8			70.9			67.5	
Approach LOS		A			C			E			E	
Queue Length 50th (ft)		5		132	3		0	~377	4	35	~384	
Queue Length 95th (ft)		22		220	30		47	#448	16	76	#515	
Internal Link Dist (ft)		632			2890			1367			772	
Turn Bay Length (ft)				350			235		250	265		
Base Capacity (vph)		655		499	630		190	1111	565	188	1132	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		0.07		0.59	0.12		0.17	1.08	0.15	0.35	1.04	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 33.6 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 75
Control Type: Pretimed
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 62.6 Intersection LOS: E
Intersection Capacity Utilization 71.9% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: U.S. Route 5 (John Fitch Blvd) & Chapel Road

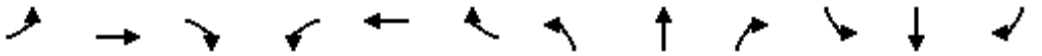


Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	296	76	33	1195	86	66	1177
v/c Ratio	0.07	0.59	0.12	0.17	1.08	0.15	0.35	1.04
Control Delay	8.8	28.3	6.3	46.5	76.4	5.0	43.2	68.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	28.3	6.3	46.5	76.4	5.0	43.2	68.9
Queue Length 50th (ft)	5	132	3	0	~377	4	35	~384
Queue Length 95th (ft)	22	220	30	47	#448	16	76	#515
Internal Link Dist (ft)	632		2890		1367			772
Turn Bay Length (ft)		350		235		250	265	
Base Capacity (vph)	655	499	630	190	1111	565	188	1132
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.59	0.12	0.17	1.08	0.15	0.35	1.04

Intersection Summary

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

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

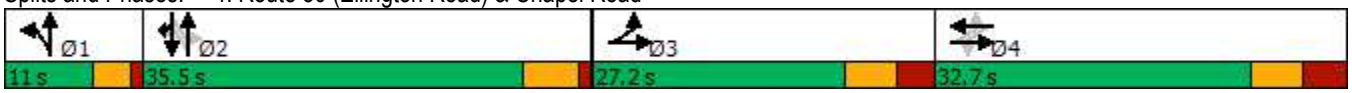


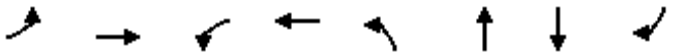
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	45	37	48	75	6	17	134	28	16	259	179
Future Volume (vph)	29	45	37	48	75	6	17	134	28	16	259	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	120		0	225		0	0		260
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	285			180			140			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.989			0.974				0.850
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1703	1745	0	1787	1855	0	1612	1788	0	0	1867	1599
Flt Permitted	0.696			0.691			0.469				0.978	
Satd. Flow (perm)	1248	1745	0	1300	1855	0	796	1788	0	0	1832	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			4			12				195
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		2970			2542			2681			1721	
Travel Time (s)		57.9			49.5			40.6			26.1	
Peak Hour Factor	0.80	0.80	0.80	0.86	0.86	0.86	0.88	0.88	0.88	0.92	0.92	0.92
Heavy Vehicles (%)	6%	1%	2%	1%	1%	5%	12%	4%	1%	9%	1%	1%
Adj. Flow (vph)	36	56	46	56	87	7	19	152	32	17	282	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	102	0	56	94	0	19	184	0	0	299	195
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		Perm	NA	Prot
Protected Phases	3	3 4			4		1	1 2			2	2
Permitted Phases	4			4			2			2		
Detector Phase	3	3 4		4	4		1	1 2		2	2	2
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		4.5			18.0	18.0	18.0
Minimum Split (s)	12.2			22.7	22.7		9.0			23.5	23.5	23.5
Total Split (s)	27.2			32.7	32.7		11.0			35.5	35.5	35.5
Total Split (%)	25.6%			30.7%	30.7%		10.3%			33.4%	33.4%	33.4%
Maximum Green (s)	20.0			25.0	25.0		7.0			30.0	30.0	30.0
Yellow Time (s)	4.1			4.1	4.1		3.0			4.5	4.5	4.5
All-Red Time (s)	3.1			3.6	3.6		1.0			1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)	7.2			7.7	7.7		4.0				5.5	5.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		None			Min	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				7.0	7.0					7.0	7.0	7.0
Flash Dont Walk (s)				11.0	11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0					0	0	0
Act Effct Green (s)	18.6	27.7		16.6	16.6		31.1	37.1			21.8	21.8
Actuated g/C Ratio	0.28	0.42		0.25	0.25		0.47	0.56			0.33	0.33
v/c Ratio	0.09	0.14		0.17	0.20		0.04	0.18			0.50	0.30
Control Delay	15.2	9.7		28.0	26.7		12.1	12.5			25.9	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	15.2	9.7		28.0	26.7		12.1	12.5			25.9	4.9
LOS	B	A		C	C		B	B			C	A
Approach Delay		11.1			27.2			12.5			17.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	9	14		20	33		5	46			117	0
Queue Length 95th (ft)	26	41		55	78		16	86			200	44
Internal Link Dist (ft)		2890			2462			2601			1641	
Turn Bay Length (ft)	160			120			225					260
Base Capacity (vph)	702	1033		539	771		467	1149			911	893
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.05	0.10		0.10	0.12		0.04	0.16			0.33	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 106.4			
Actuated Cycle Length: 66.7			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

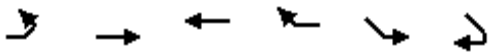
Splits and Phases: 4: Route 30 (Ellington Road) & Chapel Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	36	102	56	94	19	184	299	195
v/c Ratio	0.09	0.14	0.17	0.20	0.04	0.18	0.50	0.30
Control Delay	15.2	9.7	28.0	26.7	12.1	12.5	25.9	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	9.7	28.0	26.7	12.1	12.5	25.9	4.9
Queue Length 50th (ft)	9	14	20	33	5	46	117	0
Queue Length 95th (ft)	26	41	55	78	16	86	200	44
Internal Link Dist (ft)		2890		2462		2601	1641	
Turn Bay Length (ft)	160		120		225			260
Base Capacity (vph)	702	1033	539	771	467	1149	911	893
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.10	0.10	0.12	0.04	0.16	0.33	0.22

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	1	308	344	0	0	1
Future Volume (vph)	1	308	344	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	1863	1863	0	1863	1583
Flt Permitted						
Satd. Flow (perm)	0	1863	1863	0	1863	1583
Link Speed (mph)		45	40		30	
Link Distance (ft)		1552	2681		507	
Travel Time (s)		23.5	45.7		11.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	335	374	0	0	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	336	374	0	0	1
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.1%		ICU Level of Service A	
Analysis Period (min) 15			

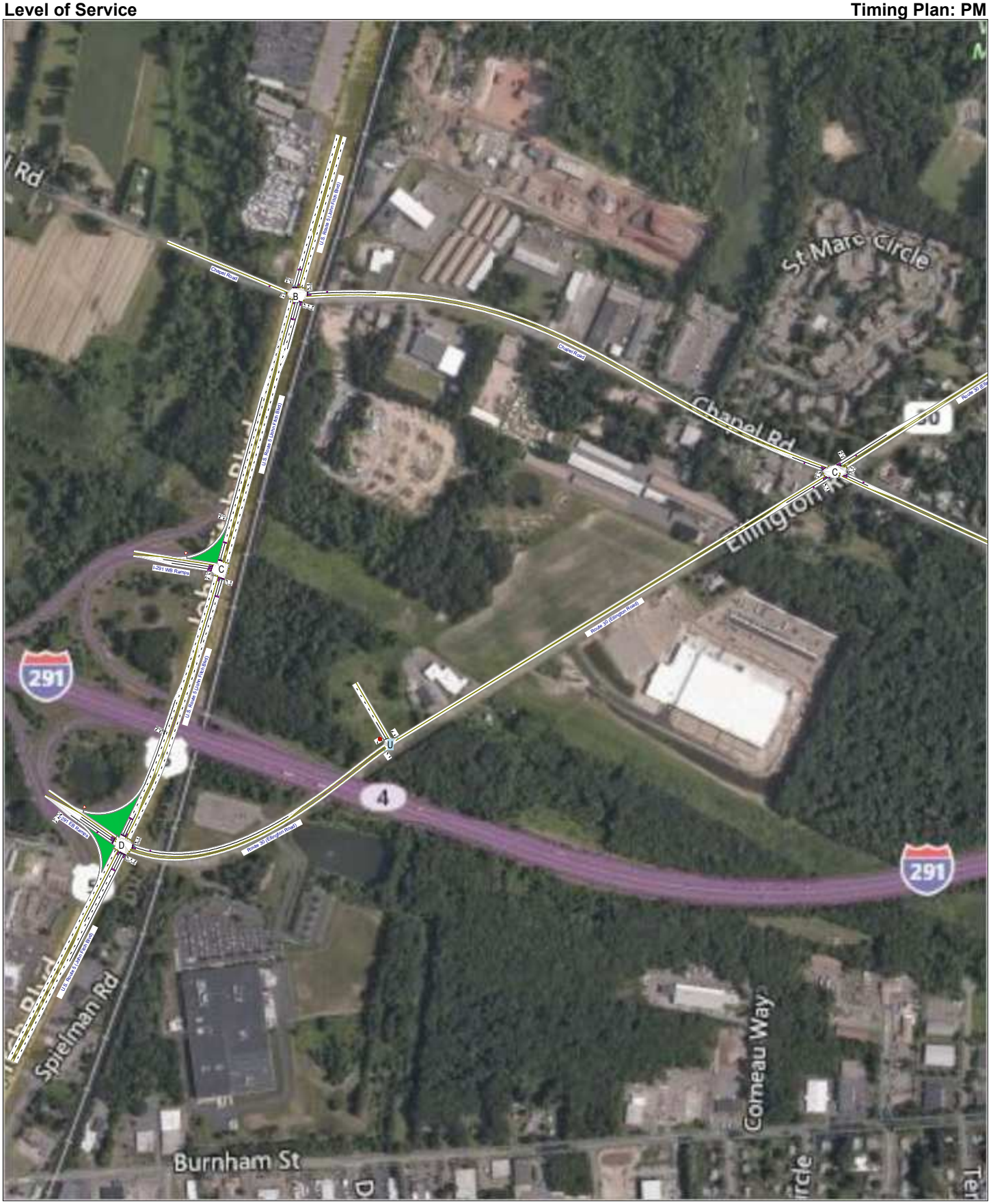
Intersection	
Int Delay, s/veh	0

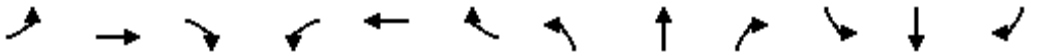
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	1	308	344	0	0	1
Future Vol, veh/h	1	308	344	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	335	374	0	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	374	0	-	0	711	374
Stage 1	-	-	-	-	374	-
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	1184	-	-	-	400	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1184	-	-	-	400	672
Mov Cap-2 Maneuver	-	-	-	-	400	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	723	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1	SELn2
Capacity (veh/h)	1184	-	-	-	-	672
HCM Lane V/C Ratio	0.001	-	-	-	-	0.002
HCM Control Delay (s)	8	0	-	-	0	10.4
HCM Lane LOS	A	A	-	-	A	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0


St Marc Circle
Chapel Rd
Ellington Rd
291
4
Spielman Rd
Corneau Way
Burnham St
B
C
D
U



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	391	360	146	80	98	257	823	275	43	713	378
Future Volume (vph)	364	391	360	146	80	98	257	823	275	43	713	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		250	850		0	400		615	130		750
Storage Lanes	2		1	1		0	1		1	1		1
Taper Length (ft)	215			88			115			96		
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.924				0.850			0.850
Flt Protected	0.950			0.950	0.996		0.950			0.950		
Satd. Flow (prot)	3213	1863	1599	1715	1646	0	1787	3574	1599	1583	3574	1553
Flt Permitted	0.950			0.950	0.996		0.950			0.950		
Satd. Flow (perm)	3213	1863	1599	1715	1646	0	1787	3574	1599	1583	3574	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			400		50				344			398
Link Speed (mph)		30			40			50			50	
Link Distance (ft)		467			1538			1239			1507	
Travel Time (s)		10.6			26.2			16.9			20.6	
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.80	0.80	0.80	0.95	0.95	0.95
Heavy Vehicles (%)	9%	2%	1%	0%	1%	1%	1%	1%	1%	14%	1%	4%
Adj. Flow (vph)	404	434	400	168	92	113	321	1029	344	45	751	398
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	404	434	400	151	222	0	321	1029	344	45	751	398
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Free	Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		7	7		1	6		5	2	
Permitted Phases			Free						6			2
Detector Phase	4	4		7	7		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	14.0	14.0		14.0	14.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	23.0	23.0		16.0	16.0		23.0	23.0	23.0	23.0	23.0	23.0
Total Split (%)	27.1%	27.1%		18.8%	18.8%		27.1%	27.1%	27.1%	27.1%	27.1%	27.1%
Maximum Green (s)	18.0	18.0		11.0	11.0		19.0	17.0	17.0	19.0	17.0	17.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max

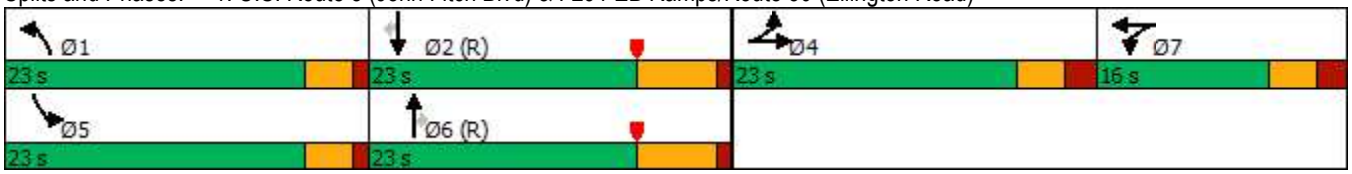
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	18.0	18.0	85.0	10.6	10.6		17.6	33.1	33.1	7.0	18.8	18.8
Actuated g/C Ratio	0.21	0.21	1.00	0.12	0.12		0.21	0.39	0.39	0.08	0.22	0.22
v/c Ratio	0.59	1.10	0.25	0.71	0.90		0.87	0.74	0.41	0.34	0.95	0.61
Control Delay	34.4	109.6	0.4	55.0	65.5		57.0	28.4	4.3	55.4	38.7	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	109.6	0.4	55.0	65.5		57.0	28.4	4.3	55.4	38.7	15.9
LOS	C	F	A	E	E		E	C	A	E	D	B
Approach Delay		49.8			61.3			28.9			31.7	
Approach LOS		D			E			C			C	
Queue Length 50th (ft)	101	~266	0	82	96		163	263	0	18	~243	148
Queue Length 95th (ft)	147	#443	0	#160	#216		#229	305	35	m28	m#277	m198
Internal Link Dist (ft)		387			1458			1159			1427	
Turn Bay Length (ft)	220		250	850			400		615	130		750
Base Capacity (vph)	680	394	1599	221	256		399	1390	832	353	792	654
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.59	1.10	0.25	0.68	0.87		0.80	0.74	0.41	0.13	0.95	0.61

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 84 (99%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 38.1 Intersection LOS: D
Intersection Capacity Utilization 80.3% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: U.S. Route 5 (John Fitch Blvd) & I-291 EB Ramps/Route 30 (Ellington Road)



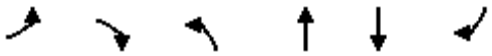
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	404	434	400	151	222	321	1029	344	45	751	398
v/c Ratio	0.59	1.10	0.25	0.71	0.90	0.87	0.74	0.41	0.34	0.95	0.61
Control Delay	34.4	109.6	0.4	55.0	65.5	57.0	28.4	4.3	55.4	38.7	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	109.6	0.4	55.0	65.5	57.0	28.4	4.3	55.4	38.7	15.9
Queue Length 50th (ft)	101	~266	0	82	96	163	263	0	18	~243	148
Queue Length 95th (ft)	147	#443	0	#160	#216	#229	305	35	m28	m#277	m198
Internal Link Dist (ft)		387			1458		1159			1427	
Turn Bay Length (ft)	220		250	850		400		615	130		750
Base Capacity (vph)	680	394	1599	221	256	399	1390	832	353	792	654
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	1.10	0.25	0.68	0.87	0.80	0.74	0.41	0.13	0.95	0.61

Intersection Summary

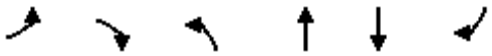
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



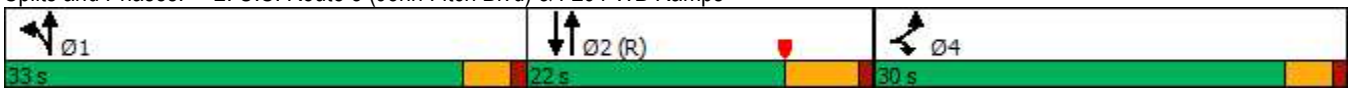
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	221	134	448	837	1000	372
Future Volume (vph)	221	134	448	837	1000	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265	205	350			865
Storage Lanes	1	1	1			1
Taper Length (ft)	155		125			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3273	1538	1787	3438	3539	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3273	1538	1787	3438	3539	1524
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		158				388
Link Speed (mph)	30			50	50	
Link Distance (ft)	458			1507	1447	
Travel Time (s)	10.4			20.6	19.7	
Peak Hour Factor	0.85	0.85	0.88	0.88	0.96	0.96
Heavy Vehicles (%)	7%	5%	1%	5%	2%	6%
Adj. Flow (vph)	260	158	509	951	1042	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	260	158	509	951	1042	388
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	Prot	Prot	NA	NA	Free
Protected Phases	4	4	1	1 2	2	
Permitted Phases						Free
Detector Phase	4	4	1	1 2	2	
Switch Phase						
Minimum Initial (s)	9.0	9.0	6.0		15.0	
Minimum Split (s)	13.0	13.0	10.9		20.7	
Total Split (s)	30.0	30.0	33.0		22.0	
Total Split (%)	35.3%	35.3%	38.8%		25.9%	
Maximum Green (s)	26.0	26.0	29.0		16.3	
Yellow Time (s)	3.0	3.0	3.0		4.7	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0		5.7	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	

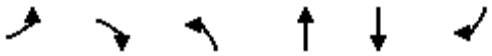


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	12.2	12.2	33.0	64.8	26.1	85.0
Actuated g/C Ratio	0.14	0.14	0.39	0.76	0.31	1.00
v/c Ratio	0.56	0.45	0.73	0.36	0.96	0.25
Control Delay	38.2	9.8	20.1	1.5	44.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	9.8	20.1	1.5	44.9	0.3
LOS	D	A	C	A	D	A
Approach Delay	27.4			8.0	32.8	
Approach LOS	C			A	C	
Queue Length 50th (ft)	67	0	103	17	295	0
Queue Length 95th (ft)	94	43	m120	m21	#530	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	1001	580	714	2621	1087	1524
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	0.26	0.27	0.71	0.36	0.96	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 47 (55%), Referenced to phase 2:NBSB and 6:, Start of Yellow			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 21.1		Intersection LOS: C	
Intersection Capacity Utilization 71.4%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 2: U.S. Route 5 (John Fitch Blvd) & I-291 WB Ramps





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	260	158	509	951	1042	388
v/c Ratio	0.56	0.45	0.73	0.36	0.96	0.25
Control Delay	38.2	9.8	20.1	1.5	44.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	9.8	20.1	1.5	44.9	0.3
Queue Length 50th (ft)	67	0	103	17	295	0
Queue Length 95th (ft)	94	43	m120	m21	#530	m0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	1001	580	714	2621	1087	1524
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	0.26	0.27	0.71	0.36	0.96	0.25

Intersection Summary

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

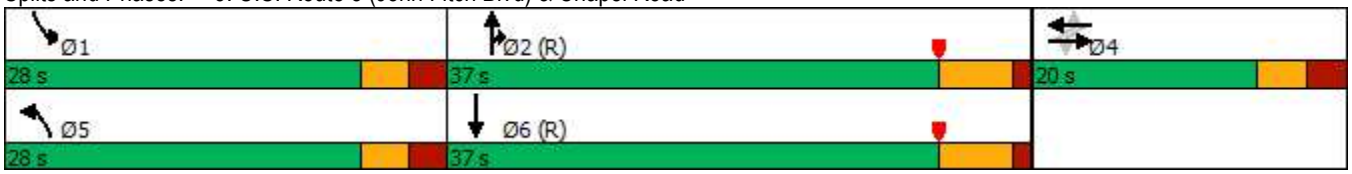
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	7	14	126	16	76	30	949	79	69	1232	7
Future Volume (vph)	4	7	14	126	16	76	30	949	79	69	1232	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		0	235		250	265		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			215			150			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.924			0.876				0.850		0.999	
Flt Protected		0.992		0.950			0.950			0.950		
Satd. Flow (prot)	0	1742	0	1517	1637	0	1805	3406	1482	1719	3536	0
Flt Permitted		0.950		0.736			0.950			0.950		
Satd. Flow (perm)	0	1668	0	1175	1637	0	1805	3406	1482	1719	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			95				107		1	
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		712			2964			1447			852	
Travel Time (s)		13.9			57.7			19.7			11.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	19%	0%	2%	0%	6%	9%	5%	2%	0%
Adj. Flow (vph)	5	9	18	158	20	95	31	978	81	73	1311	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	0	158	115	0	31	978	81	73	1318	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA	Prot	Prot	NA	
Protected Phases		4			4		5	2	2	1	6	
Permitted Phases	4			4								
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	14.8	14.8		14.8	14.8		11.5	20.9	20.9	11.5	23.9	
Total Split (s)	20.0	20.0		20.0	20.0		28.0	37.0	37.0	28.0	37.0	
Total Split (%)	23.5%	23.5%		23.5%	23.5%		32.9%	43.5%	43.5%	32.9%	43.5%	
Maximum Green (s)	14.2	14.2		14.2	14.2		22.5	31.1	31.1	22.5	31.1	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.7	4.7	3.0	4.7	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.5	1.2	1.2	2.5	1.2	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.8		5.8	5.8		5.5	5.9	5.9	5.5	5.9	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)		13.5		13.5	13.5		7.1	47.5	47.5	9.1	54.2	
Actuated g/C Ratio		0.16		0.16	0.16		0.08	0.56	0.56	0.11	0.64	
v/c Ratio		0.11		0.84	0.34		0.21	0.51	0.09	0.40	0.58	
Control Delay		19.5		71.9	12.8		42.0	11.4	1.7	41.1	11.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		19.5		71.9	12.8		42.0	11.4	1.7	41.1	11.8	
LOS		B		E	B		D	B	A	D	B	
Approach Delay		19.5			47.0			11.6			13.3	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)		6		82	9		16	129	1	37	152	
Queue Length 95th (ft)		26		#153	42		43	173	5	75	341	
Internal Link Dist (ft)		632			2884			1367			772	
Turn Bay Length (ft)				350			235		250	265		
Base Capacity (vph)		293		196	352		477	1902	875	455	2255	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		0.11		0.81	0.33		0.06	0.51	0.09	0.16	0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 43 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 16.0		Intersection LOS: B	
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

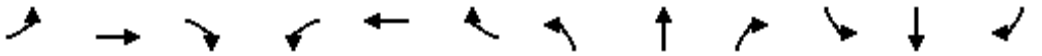
Splits and Phases: 3: U.S. Route 5 (John Fitch Blvd) & Chapel Road



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	158	115	31	978	81	73	1318
v/c Ratio	0.11	0.84	0.34	0.21	0.51	0.09	0.40	0.58
Control Delay	19.5	71.9	12.8	42.0	11.4	1.7	41.1	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	71.9	12.8	42.0	11.4	1.7	41.1	11.8
Queue Length 50th (ft)	6	82	9	16	129	1	37	152
Queue Length 95th (ft)	26	#153	42	43	173	5	75	341
Internal Link Dist (ft)	632		2884		1367			772
Turn Bay Length (ft)		350		235		250	265	
Base Capacity (vph)	293	196	352	477	1902	875	455	2255
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.81	0.33	0.06	0.51	0.09	0.16	0.58

Intersection Summary

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

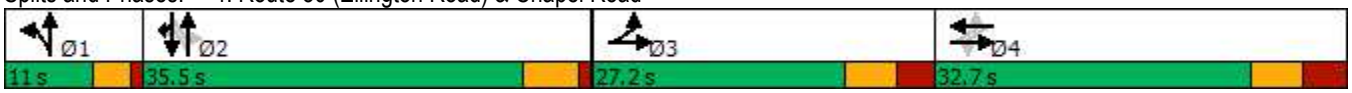


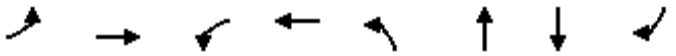
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	88	30	35	54	32	47	497	154	25	131	82
Future Volume (vph)	77	88	30	35	54	32	47	497	154	25	131	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	120		0	225		0	0		260
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	285			180			140			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.944			0.964				0.850
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1787	1772	0	1752	1782	0	1805	1832	0	0	1854	1599
Flt Permitted	0.687			0.663			0.618				0.748	
Satd. Flow (perm)	1292	1772	0	1223	1782	0	1174	1832	0	0	1398	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			26			17				163
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		2964			2542			2670			1721	
Travel Time (s)		57.7			49.5			40.5			26.1	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.97	0.97	0.97	0.84	0.84	0.84
Heavy Vehicles (%)	1%	1%	9%	3%	1%	0%	0%	0%	0%	0%	2%	1%
Adj. Flow (vph)	96	110	38	44	68	40	48	512	159	30	156	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	148	0	44	108	0	48	671	0	0	186	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		Perm	NA	Prot
Protected Phases	3	3 4			4		1	1 2			2	2
Permitted Phases	4			4			2			2		
Detector Phase	3	3 4		4	4		1	1 2		2	2	2
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		4.5			18.0	18.0	18.0
Minimum Split (s)	12.2			22.7	22.7		9.0			23.5	23.5	23.5
Total Split (s)	27.2			32.7	32.7		11.0			35.5	35.5	35.5
Total Split (%)	25.6%			30.7%	30.7%		10.3%			33.4%	33.4%	33.4%
Maximum Green (s)	20.0			25.0	25.0		7.0			30.0	30.0	30.0
Yellow Time (s)	4.1			4.1	4.1		3.0			4.5	4.5	4.5
All-Red Time (s)	3.1			3.6	3.6		1.0			1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)	7.2			7.7	7.7		4.0				5.5	5.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		None			Min	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				7.0	7.0					7.0	7.0	7.0
Flash Dont Walk (s)				11.0	11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0					0	0	0
Act Effct Green (s)	25.1	32.3		15.1	15.1		35.8	39.8			27.2	27.2
Actuated g/C Ratio	0.30	0.39		0.18	0.18		0.43	0.48			0.33	0.33
v/c Ratio	0.22	0.21		0.20	0.31		0.09	0.76			0.41	0.16
Control Delay	19.0	15.8		33.9	27.4		12.6	24.4			25.2	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	19.0	15.8		33.9	27.4		12.6	24.4			25.2	1.2
LOS	B	B		C	C		B	C			C	A
Approach Delay		17.1			29.3			23.6			16.9	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)	34	45		21	39		13	268			74	0
Queue Length 95th (ft)	57	74		46	76		33	438			128	2
Internal Link Dist (ft)		2884			2462			2590			1641	
Turn Bay Length (ft)	160			120			225					260
Base Capacity (vph)	619	911		369	555		556	947			505	682
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.16	0.16		0.12	0.19		0.09	0.71			0.37	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 106.4			
Actuated Cycle Length: 83.4			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 21.7		Intersection LOS: C	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

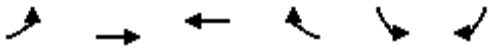
Splits and Phases: 4: Route 30 (Ellington Road) & Chapel Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	96	148	44	108	48	671	186	98
v/c Ratio	0.22	0.21	0.20	0.31	0.09	0.76	0.41	0.16
Control Delay	19.0	15.8	33.9	27.4	12.6	24.4	25.2	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	15.8	33.9	27.4	12.6	24.4	25.2	1.2
Queue Length 50th (ft)	34	45	21	39	13	268	74	0
Queue Length 95th (ft)	57	74	46	76	33	438	128	2
Internal Link Dist (ft)		2884		2462		2590	1641	
Turn Bay Length (ft)	160		120		225			260
Base Capacity (vph)	619	911	369	555	556	947	505	682
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.16	0.12	0.19	0.09	0.71	0.37	0.14

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	680	318	12	14	6
Future Volume (vph)	29	680	318	12	14	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995			0.850
Flt Protected		0.998			0.950	
Satd. Flow (prot)	0	1859	1853	0	1770	1583
Flt Permitted		0.998			0.950	
Satd. Flow (perm)	0	1859	1853	0	1770	1583
Link Speed (mph)		45	40		30	
Link Distance (ft)		1538	2670		359	
Travel Time (s)		23.3	45.5		8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	739	346	13	15	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	771	359	0	15	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

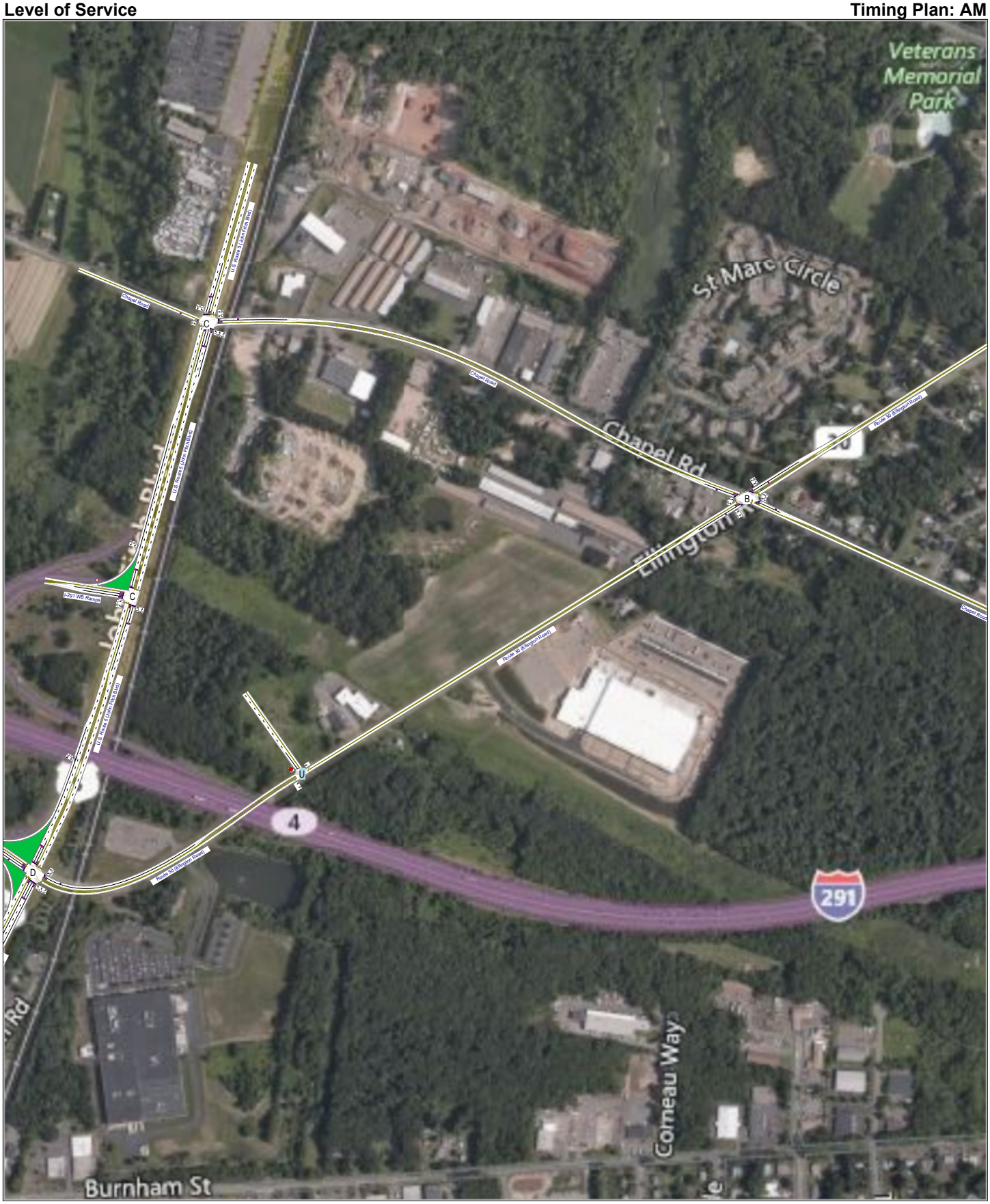
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	680	318	12	14	6
Future Vol, veh/h	29	680	318	12	14	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	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	32	739	346	13	15	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	359	0	-	0	1156	353
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	803	-
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	1200	-	-	-	217	691
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	441	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1200	-	-	-	207	691
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	441	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1200	-	-	-	207	691
HCM Lane V/C Ratio	0.026	-	-	-	0.074	0.009
HCM Control Delay (s)	8.1	0	-	-	23.8	10.3
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0

BUILD IMPROVED


Veterans Memorial Park
St Marc Circle
Chapel Rd
Ellington
Route 30 (Ellington Road)
I-291 WB Ramps
U.S. Route 4 (North Main Street)
291
4
Corneau Way
Burnham St
B
C
D
U

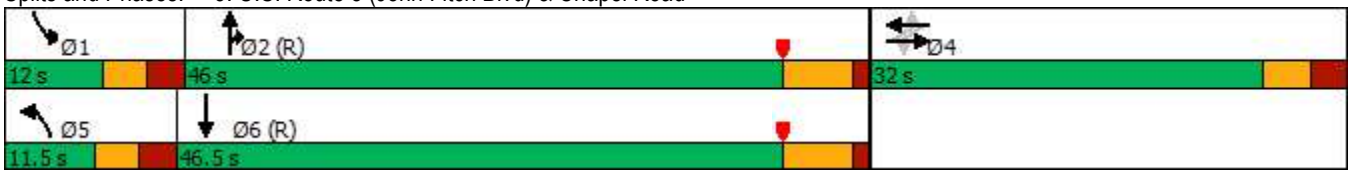
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	6	27	269	7	62	27	992	71	63	1110	9
Future Volume (vph)	4	6	27	269	7	62	27	992	71	63	1110	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		0	235		250	265		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			215			150			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.902			0.866				0.850		0.999	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1694	0	1719	1548	0	1805	3438	1538	1787	3502	0
Flt Permitted		0.979		0.726			0.950			0.950		
Satd. Flow (perm)	0	1666	0	1314	1548	0	1805	3438	1538	1787	3502	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			68				101		1	
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		712			2970			1447			852	
Travel Time (s)		13.9			57.9			19.7			11.6	
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.83	0.83	0.83	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	0%	5%	0%	7%	0%	5%	5%	1%	3%	0%
Adj. Flow (vph)	5	8	34	296	8	68	33	1195	86	66	1168	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	296	76	0	33	1195	86	66	1177	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA	Prot	Prot	NA	
Protected Phases		4			4		5	2	2	1	6	
Permitted Phases	4			4								
Minimum Split (s)	14.8	14.8		14.8	14.8		11.5	20.9	20.9	11.5	23.9	
Total Split (s)	32.0	32.0		32.0	32.0		11.5	46.0	46.0	12.0	46.5	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		12.8%	51.1%	51.1%	13.3%	51.7%	
Maximum Green (s)	26.2	26.2		26.2	26.2		6.0	40.1	40.1	6.5	40.6	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.7	4.7	3.0	4.7	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.5	1.2	1.2	2.5	1.2	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.8		5.8	5.8		5.5	5.9	5.9	5.5	5.9	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)		26.2		26.2	26.2		6.0	40.1	40.1	6.5	40.6	
Actuated g/C Ratio		0.29		0.29	0.29		0.07	0.45	0.45	0.07	0.45	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.09		0.77	0.15		0.28	0.78	0.12	0.51	0.74	
Control Delay		11.7		45.0	8.3		41.3	24.5	4.8	54.8	24.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		11.7		45.0	8.3		41.3	24.5	4.8	54.8	24.0	
LOS		B		D	A		D	C	A	D	C	
Approach Delay		11.7			37.5			23.6			25.7	
Approach LOS		B			D			C			C	
Queue Length 50th (ft)		5		153	3		15	382	4	37	281	
Queue Length 95th (ft)		25		#283	35		39	327	19	#85	361	
Internal Link Dist (ft)		632			2890			1367			772	
Turn Bay Length (ft)				350			235		250	265		
Base Capacity (vph)		509		382	498		120	1531	741	129	1580	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		0.09		0.77	0.15		0.28	0.78	0.12	0.51	0.74	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 80 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 75
Control Type: Pretimed
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 26.0 Intersection LOS: C
Intersection Capacity Utilization 71.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

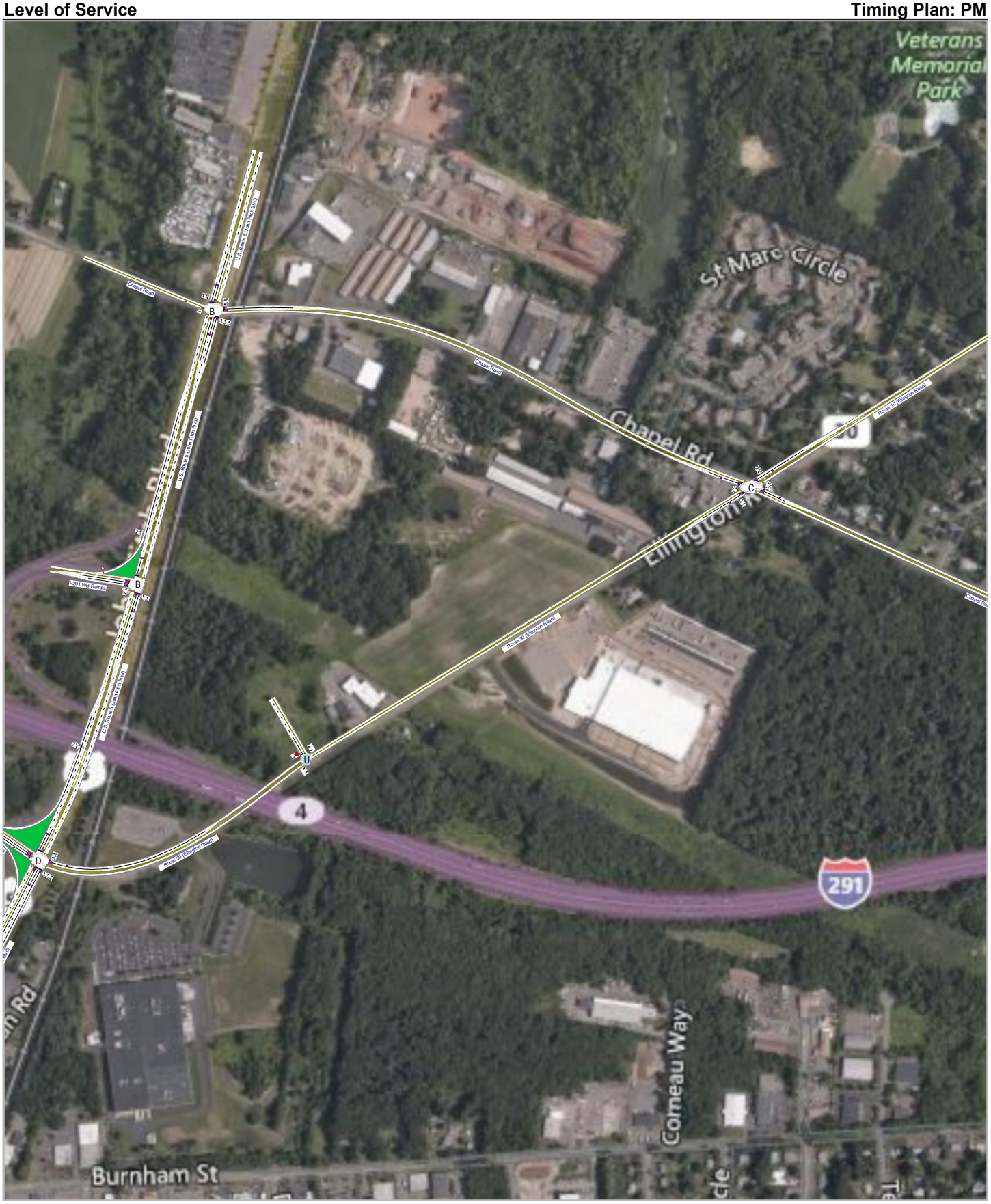
Splits and Phases: 3: U.S. Route 5 (John Fitch Blvd) & Chapel Road

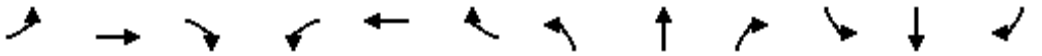


Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	296	76	33	1195	86	66	1177
v/c Ratio	0.09	0.77	0.15	0.28	0.78	0.12	0.51	0.74
Control Delay	11.7	45.0	8.3	41.3	24.5	4.8	54.8	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	45.0	8.3	41.3	24.5	4.8	54.8	24.0
Queue Length 50th (ft)	5	153	3	15	382	4	37	281
Queue Length 95th (ft)	25	#283	35	39	327	19	#85	361
Internal Link Dist (ft)	632		2890		1367			772
Turn Bay Length (ft)		350		235		250	265	
Base Capacity (vph)	509	382	498	120	1531	741	129	1580
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.77	0.15	0.28	0.78	0.12	0.51	0.74

Intersection Summary

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


Veterans Memorial Park
St Marc Circle
Chanel Rd
Ellington
Route 30 (Dwight Road)
Chanel Road
U.S. Route 5 (North Main Street)
I-291 WB Ramps
B
C
D
U
4
291
Comeau Way
Burnham St



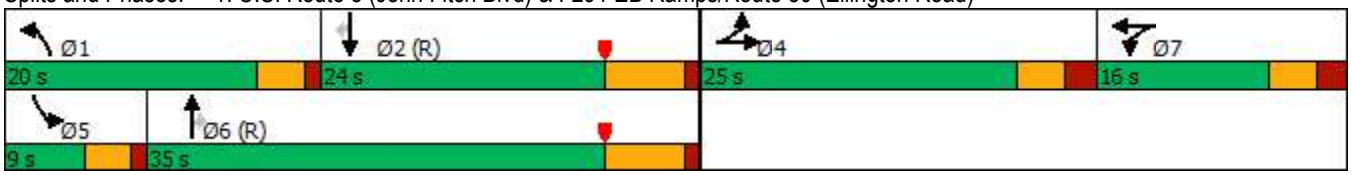
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	364	391	360	146	80	98	257	823	275	43	713	378
Future Volume (vph)	364	391	360	146	80	98	257	823	275	43	713	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	220		250	850		0	400		615	130		750
Storage Lanes	2		1	1		0	1		1	1		1
Taper Length (ft)	215			88			115			96		
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.924				0.850			0.850
Flt Protected	0.950			0.950	0.996		0.950			0.950		
Satd. Flow (prot)	3213	1863	1599	1715	1646	0	1787	3574	1599	1583	3574	1553
Flt Permitted	0.950			0.950	0.996		0.950			0.950		
Satd. Flow (perm)	3213	1863	1599	1715	1646	0	1787	3574	1599	1583	3574	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			400		50				344			398
Link Speed (mph)		30			40			50			50	
Link Distance (ft)		467			1538			1239			1507	
Travel Time (s)		10.6			26.2			16.9			20.6	
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.80	0.80	0.80	0.95	0.95	0.95
Heavy Vehicles (%)	9%	2%	1%	0%	1%	1%	1%	1%	1%	14%	1%	4%
Adj. Flow (vph)	404	434	400	168	92	113	321	1029	344	45	751	398
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	404	434	400	151	222	0	321	1029	344	45	751	398
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Split	NA	Free	Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		7	7		1	6		5	2	
Permitted Phases			Free						6			2
Detector Phase	4	4		7	7		1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	14.0	14.0		14.0	14.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	25.0	25.0		16.0	16.0		20.0	35.0	35.0	9.0	24.0	24.0
Total Split (%)	29.4%	29.4%		18.8%	18.8%		23.5%	41.2%	41.2%	10.6%	28.2%	28.2%
Maximum Green (s)	20.0	20.0		11.0	11.0		16.0	29.0	29.0	5.0	18.0	18.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	20.0	20.0	85.0	10.6	10.6		16.1	33.0	33.0	5.0	18.3	18.3
Actuated g/C Ratio	0.24	0.24	1.00	0.12	0.12		0.19	0.39	0.39	0.06	0.22	0.22
v/c Ratio	0.53	0.99	0.25	0.71	0.90		0.95	0.74	0.41	0.48	0.98	0.62
Control Delay	31.5	75.6	0.4	55.0	65.5		73.6	27.7	4.1	71.1	38.8	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	75.6	0.4	55.0	65.5		73.6	27.7	4.1	71.1	38.8	8.3
LOS	C	E	A	E	E		E	C	A	E	D	A
Approach Delay		36.9			61.3			31.6			29.9	
Approach LOS		D			E			C			C	
Queue Length 50th (ft)	97	232	0	82	96		171	264	0	26	186	59
Queue Length 95th (ft)	142	#419	0	#160	#216		#272	290	33	m35	#316	m73
Internal Link Dist (ft)		387			1458			1159			1427	
Turn Bay Length (ft)	220		250	850			400		615	130		750
Base Capacity (vph)	756	438	1599	221	256		339	1387	831	93	767	646
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.99	0.25	0.68	0.87		0.95	0.74	0.41	0.48	0.98	0.62

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 68 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 35.1 Intersection LOS: D
Intersection Capacity Utilization 80.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

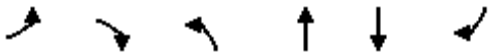
Splits and Phases: 1: U.S. Route 5 (John Fitch Blvd) & I-291 EB Ramps/Route 30 (Ellington Road)



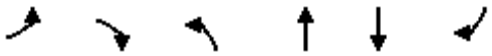
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	404	434	400	151	222	321	1029	344	45	751	398
v/c Ratio	0.53	0.99	0.25	0.71	0.90	0.95	0.74	0.41	0.48	0.98	0.62
Control Delay	31.5	75.6	0.4	55.0	65.5	73.6	27.7	4.1	71.1	38.8	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	75.6	0.4	55.0	65.5	73.6	27.7	4.1	71.1	38.8	8.3
Queue Length 50th (ft)	97	232	0	82	96	171	264	0	26	186	59
Queue Length 95th (ft)	142	#419	0	#160	#216	#272	290	33	m35	#316	m73
Internal Link Dist (ft)		387			1458		1159			1427	
Turn Bay Length (ft)	220		250	850		400		615	130		750
Base Capacity (vph)	756	438	1599	221	256	339	1387	831	93	767	646
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.99	0.25	0.68	0.87	0.95	0.74	0.41	0.48	0.98	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



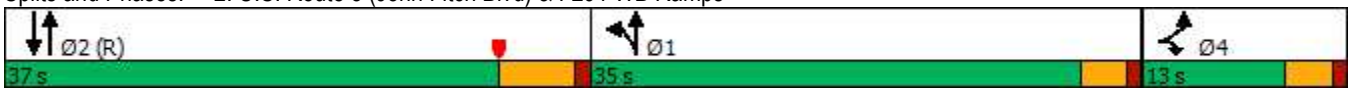
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	221	134	448	837	1000	372
Future Volume (vph)	221	134	448	837	1000	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	265	205	350			865
Storage Lanes	1	1	1			1
Taper Length (ft)	155		125			
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3273	1538	1787	3438	3539	1524
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3273	1538	1787	3438	3539	1524
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		158				388
Link Speed (mph)	30			50	50	
Link Distance (ft)	458			1507	1447	
Travel Time (s)	10.4			20.6	19.7	
Peak Hour Factor	0.85	0.85	0.88	0.88	0.96	0.96
Heavy Vehicles (%)	7%	5%	1%	5%	2%	6%
Adj. Flow (vph)	260	158	509	951	1042	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	260	158	509	951	1042	388
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Turn Type	Prot	Prot	Prot	NA	NA	Free
Protected Phases	4	4	1	1 2	2	
Permitted Phases						Free
Detector Phase	4	4	1	1 2	2	
Switch Phase						
Minimum Initial (s)	9.0	9.0	6.0		15.0	
Minimum Split (s)	13.0	13.0	10.9		20.7	
Total Split (s)	13.0	13.0	35.0		37.0	
Total Split (%)	15.3%	15.3%	41.2%		43.5%	
Maximum Green (s)	9.0	9.0	31.0		31.3	
Yellow Time (s)	3.0	3.0	3.0		4.7	
All-Red Time (s)	1.0	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0		5.7	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	

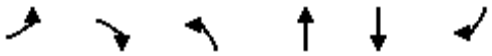


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	9.2	9.2	29.3	67.8	32.8	85.0
Actuated g/C Ratio	0.11	0.11	0.34	0.80	0.39	1.00
v/c Ratio	0.73	0.51	0.83	0.35	0.76	0.25
Control Delay	50.3	12.8	27.2	2.4	18.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	12.8	27.2	2.4	18.0	0.3
LOS	D	B	C	A	B	A
Approach Delay	36.1			11.0	13.2	
Approach LOS	D			B	B	
Queue Length 50th (ft)	70	0	103	65	267	0
Queue Length 95th (ft)	#112	47	m#212	m66	202	0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	355	308	651	2810	1365	1524
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	0.73	0.51	0.78	0.34	0.76	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 50 (59%), Referenced to phase 2:NBSB and 6:, Start of Yellow			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 15.1		Intersection LOS: B	
Intersection Capacity Utilization 71.4%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 2: U.S. Route 5 (John Fitch Blvd) & I-291 WB Ramps





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	260	158	509	951	1042	388
v/c Ratio	0.73	0.51	0.83	0.35	0.76	0.25
Control Delay	50.3	12.8	27.2	2.4	18.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	12.8	27.2	2.4	18.0	0.3
Queue Length 50th (ft)	70	0	103	65	267	0
Queue Length 95th (ft)	#112	47	m#212	m66	202	0
Internal Link Dist (ft)	378			1427	1367	
Turn Bay Length (ft)	265	205	350			865
Base Capacity (vph)	355	308	651	2810	1365	1524
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	0.73	0.51	0.78	0.34	0.76	0.25

Intersection Summary

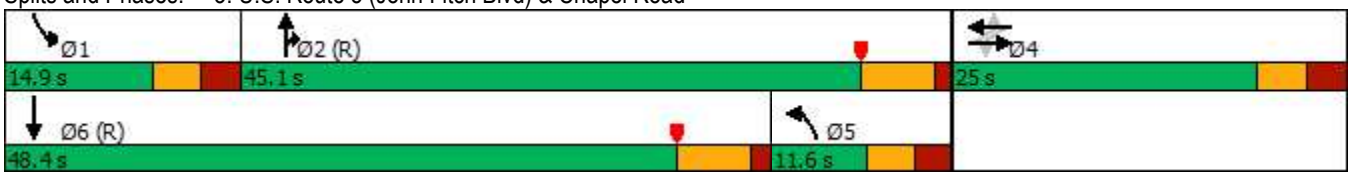
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	7	14	126	16	76	30	949	79	69	1232	7
Future Volume (vph)	4	7	14	126	16	76	30	949	79	69	1232	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	350		0	235		250	265		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			215			150			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.924			0.876				0.850		0.999	
Flt Protected		0.992		0.950			0.950			0.950		
Satd. Flow (prot)	0	1742	0	1517	1637	0	1805	3406	1482	1719	3536	0
Flt Permitted		0.954		0.736			0.950			0.950		
Satd. Flow (perm)	0	1675	0	1175	1637	0	1805	3406	1482	1719	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			95				107		1	
Link Speed (mph)		35			35			50			50	
Link Distance (ft)		712			2964			1447			852	
Travel Time (s)		13.9			57.7			19.7			11.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.97	0.97	0.97	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	19%	0%	2%	0%	6%	9%	5%	2%	0%
Adj. Flow (vph)	5	9	18	158	20	95	31	978	81	73	1311	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	0	158	115	0	31	978	81	73	1318	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA	Prot	Prot	NA	
Protected Phases		4			4		5	2	2	1	6	
Permitted Phases	4			4								
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	14.8	14.8		14.8	14.8		11.5	20.9	20.9	11.5	23.9	
Total Split (s)	25.0	25.0		25.0	25.0		11.6	45.1	45.1	14.9	48.4	
Total Split (%)	29.4%	29.4%		29.4%	29.4%		13.6%	53.1%	53.1%	17.5%	56.9%	
Maximum Green (s)	19.2	19.2		19.2	19.2		6.1	39.2	39.2	9.4	42.5	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.7	4.7	3.0	4.7	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.5	1.2	1.2	2.5	1.2	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.8		5.8	5.8		5.5	5.9	5.9	5.5	5.9	
Lead/Lag							Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	
Act Effct Green (s)		15.5		15.5	15.5		6.1	46.3	46.3	8.3	53.1	
Actuated g/C Ratio		0.18		0.18	0.18		0.07	0.54	0.54	0.10	0.62	
v/c Ratio		0.10		0.74	0.31		0.24	0.53	0.09	0.44	0.60	
Control Delay		17.0		52.5	10.9		29.7	6.5	0.9	44.3	13.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		17.0		52.5	10.9		29.7	6.5	0.9	44.3	13.0	
LOS		B		D	B		C	A	A	D	B	
Approach Delay		17.0			35.0			6.8			14.6	
Approach LOS		B			C			A			B	
Queue Length 50th (ft)		6		79	9		14	103	2	37	170	
Queue Length 95th (ft)		24		121	39		m33	160	m8	78	362	
Internal Link Dist (ft)		632			2884			1367			772	
Turn Bay Length (ft)				350			235		250	265		
Base Capacity (vph)		392		265	443		129	1855	856	190	2210	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		0.08		0.60	0.26		0.24	0.53	0.09	0.38	0.60	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 36 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 13.6		Intersection LOS: B	
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

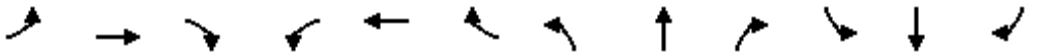
Splits and Phases: 3: U.S. Route 5 (John Fitch Blvd) & Chapel Road



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	32	158	115	31	978	81	73	1318
v/c Ratio	0.10	0.74	0.31	0.24	0.53	0.09	0.44	0.60
Control Delay	17.0	52.5	10.9	29.7	6.5	0.9	44.3	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	52.5	10.9	29.7	6.5	0.9	44.3	13.0
Queue Length 50th (ft)	6	79	9	14	103	2	37	170
Queue Length 95th (ft)	24	121	39	m33	160	m8	78	362
Internal Link Dist (ft)	632		2884		1367			772
Turn Bay Length (ft)		350		235		250	265	
Base Capacity (vph)	392	265	443	129	1855	856	190	2210
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.60	0.26	0.24	0.53	0.09	0.38	0.60

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

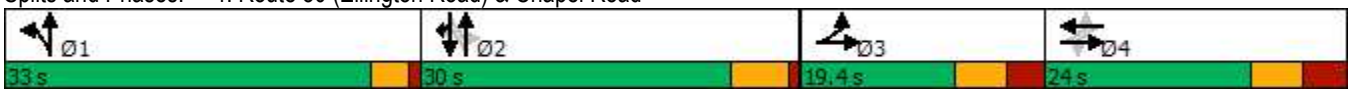


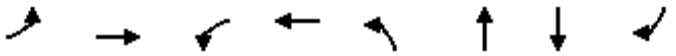
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	88	30	35	54	32	47	497	154	25	131	82
Future Volume (vph)	77	88	30	35	54	32	47	497	154	25	131	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		0	120		0	225		0	0		260
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	285			180			140			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.944			0.964				0.850
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1787	1772	0	1752	1782	0	1805	1832	0	0	1854	1599
Flt Permitted	0.687			0.663			0.540				0.828	
Satd. Flow (perm)	1292	1772	0	1223	1782	0	1026	1832	0	0	1547	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			24			24				163
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		2964			2542			2670			1721	
Travel Time (s)		57.7			49.5			40.5			26.1	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.97	0.97	0.97	0.84	0.84	0.84
Heavy Vehicles (%)	1%	1%	9%	3%	1%	0%	0%	0%	0%	0%	2%	1%
Adj. Flow (vph)	96	110	38	44	68	40	48	512	159	30	156	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	148	0	44	108	0	48	671	0	0	186	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		Perm	NA	Prot
Protected Phases	3	3 4			4		1	1 2			2	2
Permitted Phases	4			4			2			2		
Detector Phase	3	3 4		4	4		1	1 2		2	2	2
Switch Phase												
Minimum Initial (s)	5.0			15.0	15.0		4.5			18.0	18.0	18.0
Minimum Split (s)	12.2			22.7	22.7		9.0			23.5	23.5	23.5
Total Split (s)	19.4			24.0	24.0		33.0			30.0	30.0	30.0
Total Split (%)	18.2%			22.6%	22.6%		31.0%			28.2%	28.2%	28.2%
Maximum Green (s)	12.2			16.3	16.3		29.0			24.5	24.5	24.5
Yellow Time (s)	4.1			4.1	4.1		3.0			4.5	4.5	4.5
All-Red Time (s)	3.1			3.6	3.6		1.0			1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0				0.0	0.0
Total Lost Time (s)	7.2			7.7	7.7		4.0				5.5	5.5
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0			3.0	3.0		3.0			3.0	3.0	3.0
Recall Mode	None			None	None		None			Min	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)				7.0	7.0					7.0	7.0	7.0
Flash Dont Walk (s)				11.0	11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0					0	0	0
Act Effct Green (s)	25.8	33.1		15.3	15.3		48.5	52.6			20.7	20.7
Actuated g/C Ratio	0.27	0.34		0.16	0.16		0.50	0.54			0.21	0.21
v/c Ratio	0.24	0.24		0.23	0.36		0.07	0.67			0.56	0.21
Control Delay	25.7	22.4		42.2	34.3		10.9	19.3			42.6	1.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	25.7	22.4		42.2	34.3		10.9	19.3			42.6	1.6
LOS	C	C		D	C		B	B			D	A
Approach Delay		23.7			36.6			18.8			28.4	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	42	58		25	48		13	272			107	0
Queue Length 95th (ft)	74	97		54	90		31	414			168	0
Internal Link Dist (ft)		2884			2462			2590			1641	
Turn Bay Length (ft)	160			120			225					260
Base Capacity (vph)	437	595		207	322		765	1074			394	528
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.22	0.25		0.21	0.34		0.06	0.62			0.47	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 106.4			
Actuated Cycle Length: 96.9			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 23.5		Intersection LOS: C	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

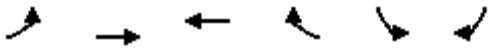
Splits and Phases: 4: Route 30 (Ellington Road) & Chapel Road





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	96	148	44	108	48	671	186	98
v/c Ratio	0.24	0.24	0.23	0.36	0.07	0.67	0.56	0.21
Control Delay	25.7	22.4	42.2	34.3	10.9	19.3	42.6	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	22.4	42.2	34.3	10.9	19.3	42.6	1.6
Queue Length 50th (ft)	42	58	25	48	13	272	107	0
Queue Length 95th (ft)	74	97	54	90	31	414	168	0
Internal Link Dist (ft)		2884		2462		2590	1641	
Turn Bay Length (ft)	160		120		225			260
Base Capacity (vph)	437	595	207	322	765	1074	394	528
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.25	0.21	0.34	0.06	0.62	0.47	0.19

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	680	318	12	14	6
Future Volume (vph)	29	680	318	12	14	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995			0.850
Flt Protected		0.998			0.950	
Satd. Flow (prot)	0	1859	1853	0	1770	1583
Flt Permitted		0.998			0.950	
Satd. Flow (perm)	0	1859	1853	0	1770	1583
Link Speed (mph)		45	40		30	
Link Distance (ft)		1538	2670		359	
Travel Time (s)		23.3	45.5		8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	739	346	13	15	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	771	359	0	15	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	680	318	12	14	6
Future Vol, veh/h	29	680	318	12	14	6
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	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	32	739	346	13	15	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	359	0	-	0	1156	353
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	803	-
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	1200	-	-	-	217	691
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	441	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1200	-	-	-	207	691
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	441	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1200	-	-	-	207	691
HCM Lane V/C Ratio	0.026	-	-	-	0.074	0.009
HCM Control Delay (s)	8.1	0	-	-	23.8	10.3
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0