
TRAFFIC IMPACT STUDY

for

**Proposed Warehouse Development
25 Talbot Lane
South Windsor, Connecticut**

Prepared for:

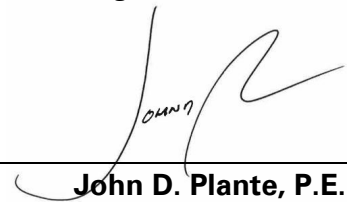
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EXECUTIVE SUMMARY

Langan has prepared this traffic impact study to identify the potential impacts of the proposed warehouse at 25 Talbot Lane in South Windsor, Connecticut (See Figure 1). The project site is approximately 30.37-acres of vacant land.

The project includes the construction of a ±360,000 square-foot warehouse with approximately 269 parking spaces, 118 trailer spaces and 54 loading docks and associated site improvements (See Site Plan in Appendix A). The proposed development will be served by a full movement driveway on Talbot Lane and a secondary gated driveway on Governor's Highway requiring all vehicular traffic to utilize the Talbot Lane driveway. If this secondary driveway is utilized it will be operate as a full-movement driveway, restricting tractor trailer truck to left turns out of the site. The proposed development is anticipated to be in operation in 2023. All tractor trailer truck traffic from the facility will be directed to only travel west on Governor's Highway to comply with the town's restriction of truck traffic on Governor's Highway east of the site.

Langan used the Institute of Transportation Engineers (ITE) land-use code 156 to develop the trip generation for the proposed warehouse and site use. These trip generation volumes were used to evaluate the peak-hour and average daily traffic (ADT) for the 2023 build-year traffic operations conditions.

Video turning-movement and vehicle-classification were conducted in June 2021 at three intersections and used as a basis for this evaluation. The existing roadway infrastructure is adequate to support the nominal increase in traffic volume generated by the proposed warehouse development. No improvements are required or recommended at this time; signal timing optimization at the intersection of Route 5 and Governors Highway can improve signal operations in the future as needed.

1.0 INTRODUCTION

Langan has prepared this traffic impact study to identify the potential impacts of the proposed warehouse at 25 Talbot Lane in South Windsor, Connecticut (See Figure 1 for the Location Map). The 30.37-acre vacant site is on the southwest corner of Governor's Highway and Talbot Lane. Residential lots lie west and south from the project site.

The proposed warehouse will comprise a $\pm 360,000$ square-foot building with approximately 269 parking spaces, 118 trailer spaces and 54 loading docks and associated landscaping, utility improvements and stormwater systems (See Site Plan in Appendix A). The proposed development is anticipated to be in operation by 2023

2.0 SITE ACCESS AND STUDY LOCATIONS

Site Access

The proposed development will construct a primary driveway connection each to Talbot Lane and Governor's Highway. The proposed driveway along Talbot Lane (Driveway 1) will be a full-movement stop-controlled driveway. Governor's Highway has a truck traffic restriction from Talbot Lane to Ellington Road issued by the Town of South Windsor under ordinance #172. The proposed driveway on Governor's Highway (Driveway 2) will be a secondary access and will be gated, requiring all vehicular traffic to utilize the Talbot Lane driveway. (See Site Plan in Appendix A).

Research into the use of Governor's Highway east of the site indicates that there the town of South Windsor police department has no records tractor trailer truck being cited for violating this ordinance restricting trucks on that segment of the town roadway. The development will install clear signage indicating no tractor trailer truck right turns onto Governor's Highway. The proposed site driveway on Governor's Highway will also be designed with curb radii to discourage this movement.

Study Locations

Three key intersections were evaluated in this study (See Figure 2).

- John Fitch Boulevard (US-5) and Governor's Highway
- Talbot Lane and Governor's Highway
- Ellington Road (SR-30) and Governor's Highway/ Podunk Circle

This study will evaluate traffic impacts of the facility's peak-hours on these intersections and the area roadway network.

3.0 EXISTING CONDITIONS

Area Roadway Network

John Fitch Boulevard (U.S. Route 5) is a four lane, north-south major highway under state jurisdiction. The north and south lanes are separated by a 25 foot wide grassy median with guardrails. *U.S. Route 5* provides two 12-foot wide travel lanes in each direction, with a 6-foot shoulder that varies along the length of the road on the outside of each travel lane, with a posted speed limit of 50 MPH.

Governor's Highway is a two lane, east-west, urban major collector road under local jurisdiction, with a posted speed limit of 30 MPH. Governor's Highway provides two 12-foot wide travel lanes and a 3-foot shoulder in each direction that varies along the length of the road.

Ellington Road (State Road 30) is a two lane, northeast-southwest, undivided, major highway under state jurisdiction, with a posted speed limit of 40 MPH. Ellington Road provides two 12-foot wide travel lanes in each direction, with 6-foot wide shoulders on the outside of each travel lane.

Podunk Circle is a two lane, north-south, local road under local jurisdiction, that operates as the main access for residential lots.

Study Intersections

John Fitch Boulevard and Governor's Highway is a signalized four way intersection with the following geometry:

- Governor's Highway – one shared right-turn/left-turn/thru lane on both sides of intersection.
- Southbound John Fitch Boulevard – one shared right-turn/thru lane, one left-turn lane with approximately 260 feet of storage and one thru lane.
- Northbound John Fitch Boulevard - one left turn lane with approximately 260 feet of storage, one right-turn lane with approximately 280 feet of storage and two thru lane.

Talbot Lane and Governor's Highway is a stop-sign controlled "T" intersection with the following geometry:

- Talbot Lane – one share right-turn/left-turn lane.
- Governor's Highway Eastbound – one shared right-turn/thru lane.
- Governor's Highway Westbound – one shared left-turn/thru lane.

Ellington Road and Governor's Highway/Podunk Circle is a signalized four-way intersection with the following geometry:

- Governor's Highway – one shared right-turn/left-turn/thru lane.
- Podunk Circle – one shared right-turn/left-turn/thru lane.
- Ellington Road Southbound – one shared left-turn/thru lane, one right-turn lane with approximately 250 feet of storage.
- Ellington Road Northbound – one shared right-turn/left-turn/thru lane.

Site Driveway and Governor's Highway is gated with a stop sign controlled "T" intersection with the following geometry:

- Site Driveway – One shared left and right-turn lane, allowing full movement for cars and restricting tractor trailer trucks to left-turn only.
- Governor's Highway Eastbound – one shared right-turn/thru lane lane.
- Governor's Highway Westbound – one shared left-turn/thru lane.

4.0 INTERSECTION CAPACITY ANALYSIS MEASURES

Langan conducted capacity analyses for the existing, background and build traffic conditions to assess quality of traffic flow. Capacity analyses provide an indication of the adequacy of the road and intersections to serve traffic demands.

Level of Service Criteria

Level of Service (LOS) is the term used to denote the different operating conditions that occur at an intersection under various traffic volume demands. LOS is a qualitative measure that considers a number of factors including road geometry, speed and travel delay. LOS provides an index to the operational qualities of an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. The LOS designation is reported differently for signalized intersections and unsignalized intersections.

For signalized intersections, the analysis considers the operation of all traffic entering the intersection. For unsignalized intersections, however, the analysis considers the operation of all movements that are in conflict with other movements such as mainline left turns and traffic exiting the side street. An overall LOS is given for signalized intersections. For unsignalized intersections, LOS is given for each specific approach.

The evaluation criteria used to analyze the study area intersections are based on the Highway Capacity Manual (HCM) 6th Edition, published by the Transportation Research Board (TRB). SYNCHRO Plus SimTraffic 10 was used to facilitate computer calculation for the capacity analyses at each intersection.

The HCM 6th Edition defines level of service for signalized intersections as follows:

<u>Level of Service</u>	<u>Control Delay per Vehicle (sec/veh)</u>
A	≤10
B	>10 – 20
C	>20 – 35
D	>35 – 55
E	>55 – 80
F	>80

The HCM defines level of service for unsignalized intersections as follows:

<u>Level of Service</u>	<u>Control Delay per Vehicle (sec/veh)</u>
A	≤10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	> 50

5.0 METHODOLOGY AND ANALYSIS

To assess the potential traffic impact of the proposed development, Langan employed a five-step methodology outlined below and described in detail in subsequent sections 5.1 through 5.5:

- Step One: Determine the existing peak-hour traffic volumes and evaluate existing traffic operating conditions for the study intersections.
- Step Two: Project the existing peak-hour traffic volumes (Step One) to create 2023 Background peak-hour traffic volumes (Including approved or pending developments in the area) and evaluate traffic operating conditions for the study intersections.
- Step Three: Determine the traffic volumes to be generated by the proposed development. Distribute and assign these site traffic volumes throughout the study area roadway network.
- Step Four: Combine the Background traffic volumes (Step Two) with the assigned proposed traffic (Step Three) to establish 2023 Build traffic volumes. Determine traffic operating conditions and identify mitigation of potential impacts.
- Step Five: Investigate the safety conditions within the area roadway network.

5.1 Step One: Determine the existing peak-hour traffic volumes and evaluate traffic operating conditions for the study intersections.

Existing Peak-Hour Traffic Volumes

Video turning-movement counts (TMC's) and vehicle classification counts were conducted in June 2021 to determine the existing peak-hour traffic volumes. The TMC's and vehicle classification counts were conducted on a weekday during the morning (7:00 a.m. to 10:00 a.m.) and evening (3:30 p.m. to 6:30 p.m.) peak periods of the development. During these study periods, the peak-hours of the adjacent roadway network generally occurred from 7:45 to 8:45 a.m. and 4:30 to 5:30 p.m. We adjusted the traffic volumes to reflect peak-season conditions and adjust volumes to pre-COVID conditions as requested by the Office of the State Traffic Administration (OSTA).

2021 Existing Traffic Operating Conditions

The traffic operating conditions for the study area intersections were analyzed during the roadway peak-hour periods using the 2021 existing traffic volumes. Figure 3 illustrate the 2021 existing peak-hour traffic volumes. A summary of the traffic operating conditions is provided in Tables 2 and 3. Detailed reports can be found in Appendix B.

5.2 Step Two: Project the existing peak-hour traffic volumes (Step One) to create 2023 Background peak-hour traffic volumes (Including approved or pending developments in the area) and evaluate traffic operating conditions for the study intersections.

Background Peak-Hour Traffic Volumes

Background traffic growth was estimated based on historical data available from ConnDOT in the vicinity of the project. A review of the ConnDOT data indicates that traffic volumes in Windsor have fluctuated over the last several years, with a growth of 0.46%. In order to be conservative, a reasonable growth rate of 0.5% annually was applied to the existing traffic volumes to develop the 2023 background ambient growth peak-hour traffic volumes shown on Figure 4A.

We contacted the Town of South Windsor Planning Department and confirmed that there are no planned or approved developments in our study area. In addition, we reviewed the 2021-2025 ConnDOT Transportation Capital Infrastructure Program and found that there are no planned improvements in the study area.

2023 Background Traffic Operating Conditions

The traffic operating conditions for the study area intersections were analyzed during the peak-hour periods using the 2023 background traffic volumes illustrated in Figure 4. A summary of the traffic operating conditions is provided in Tables 2 and 3. Detailed reports can be found in Appendix C.

5.3 Step Three: Determine the traffic volumes to be generated by the proposed development. Distribute and assign these site traffic volumes throughout the study area roadway network.

The project includes the construction of a ±360,000 square-foot warehouse with approximately 269 parking spaces, 118 trailer spaces and 54 loading docks and associated site improvements (See Site Plan in Appendix A).

The site design also proposes construction of two site driveways, one connection to each Governor's Highway and Talbot Lane (See Site Plan in Appendix A). The primary driveway along Talbot Lane will be a full-access stop-controlled driveway. A secondary gated driveway on Governor's Highway requiring all vehicular traffic to utilize the Talbot Lane driveway. If this driveway is utilized it will be operate as a full-movement driveway, restricting tractor trailer truck to left turns out of the site.

Peak-Hour Trip Generation

The anticipated number of peak-hour trips generated by the proposed facility is based on rates established in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. Land Use Code 156: High-Cube Parcel Hub Warehouse was selected based on a conservative trip generation estimate and the intended building use. Overall, the number of trips the proposed development is expected to generate is 275 for the AM peak hour, and 253 for the PM peak hour. **Table 1** below identifies the anticipated peak-hour trip generation of the proposed development using ITE data.

TABLE 1 ANTICIPATED TRIP GENERATION – 25 TALBOT LANE WAREHOUSE							
USE	LAND USE CODE¹	AM PEAK HOUR			PM PEAK HOUR		
		ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
High-Cube Parcel Hub Warehouse (360,000 SF)	156	138	137	275	172	81	253

¹ Land Use Codes and Volumes based on ITE Trip Generation Manual 10th Edition. LUC 156: High-Cube Parcel Hub Warehouse

The site-generated traffic peak-hour volumes were distributed to and from the site onto the roadway network based on anticipated travel patterns of employees and journey to work data obtained for the Town of South Windsor. The anticipated percent distribution of the site generated trips is illustrated in Figure 5. Figure 6 illustrates the assignment of the peak-hour site-generated trips, indicated in Table 1, into the area roadway network.

5.4 Step Four: Combine the Background traffic volumes (Step Two) with the assigned proposed traffic (Step Three) to establish 2023 Build traffic volumes. Determine traffic operating conditions and identify mitigation of potential impacts.

Build Traffic Volumes

To evaluate the impacts of the proposed development, the proposed trip assignment volumes (Figure 6), as distributed on the roadway network, are combined with the background traffic volumes (Figure 4). Figure 7 illustrate the 2023 build traffic volumes in the roadway network during the peak-hour periods.

Build Traffic Operating Conditions

The resulting traffic volumes illustrated in Figure 7 were evaluated to determine the effective operating conditions of the study area intersections without any proposed improvements. Tables 2 and 3 compare the traffic operating conditions for the study area intersections during the peak-hour periods. Appendix D provides detailed reports for the 2023 build conditions.

Queuing Evaluation

In addition to the traffic operating conditions, we evaluated the resulting vehicular queuing for all conditions to assess the impacts at study intersections. In evaluating queuing length, the industry standard is to utilize the 50th and the 95th percentile queue lengths developed by the analysis. The 50th percentile queue represents the average or typical vehicular queue that can be expected during the peak-hour. The 95th percentile queue length represents the queuing experience during the highest 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.

Tables 4 and 5 provide the expected 50th and 95th percentile queue lengths for the analyzed periods. For most analyzed intersections, queue lengths do not increase more than four car lengths. Any increase in queuing due to the proposed development is minimal and the existing roadway network can fully accommodate the anticipated queues.

Traffic Impact Study for Proposed Warehouse Development 25 Talbot Lane, South Windsor, Connecticut																							Revised: September 2021 Langan Project No.: 140236601				
TABLE 2 CAPACITY ANALYSIS SUMMARY – WEEKDAY A.M. PEAK-HOUR																											
INTERSECTION	CONTROL TYPE	LANE USE	STORAGE LENGTH (ft)	EXISTING CONDITIONS					BACKGROUND CONDITIONS					BUILD CONDITIONS					SIGNAL TIMING OPTIMIZATION CONDITIONS								
				LOS	DELAY (sec)	V/C RATIO	QUEUES (ft)	QUEUES (ft)	LOS	DELAY (sec)	V/C RATIO	QUEUES (ft)	QUEUES (ft)	LOS	DELAY (sec)	V/C RATIO	QUEUES (ft)	QUEUES (ft)	LOS	DELAY (sec)	V/C RATIO	QUEUES (ft)	QUEUES (ft)				
							50th%	95th%				50th%	95th%				50th%	95th%				50th%	95th%				
John Fitch Blvd./ Us-5 & Governor's Hwy.	ACTUATED-COORDINATED	Overall		C	33.3	0.92			C	34	0.93			D	37.7	0.99			C	33.2	0.91						
		EB-LTR	>1000'	B	18.1	0.1	10'	33'	B	18.1	0.1	10'	33'	B	17.7	0.08	10'	33'	B	15.6	0.08	9'	31'				
		WB-LTR	>1000'	D	49.4	0.82	149'	#236'	D	49.6	0.82	150'	#242'	E	74.3	0.99	225'	#418'	D	54.7	0.91	209'	#377'				
		NB-L	260'	A	7.7	0.1	8'	21'	A	7.8	0.1	8'	21'	A	8.4	0.12	9'	21'	B	10.5	0.14	10'	24'				
		NB-TT	>1000'	C	22.7	0.52	161'	214'	C	22.8	0.53	163'	217'	C	22.8	0.53	163'	217'	C	22	0.51	159'	213'				
		NB-R	280'	A	4.5	0.14	0'	30'	A	4.6	0.14	0'	30'	A	3.9	0.24	0'	38'	A	3.8	0.23	0'	38'				
		SB-L	260'	D	35	0.2	32'	72'	D	35.1	0.2	33'	73'	D	40.9	0.43	57'	109'	D	52.5	0.56	61'	#140'				
SB-TTR	>1000'	D	38.9	0.92	352'	#495'	D	40.2	0.93	357'	#503'	D	40.2	0.93	357'	#503'	D	36.2	0.91	350'	#490'						
Podunk Cir. / Governors Hwy. & Elington Road	ACTUATED-UNCOORDINATED	Overall		A	8.9	0.48			A	9	0.48			A	9.8	0.5											
		EB-LTR	>1000'	A	7.2	0.25	40'	112'	A	7.2	0.25	41'	113'	A	7.9	0.29	46'	124'									
		WB-LT	>1000'	A	9.4	0.48	95'	250'	A	9.4	0.48	96'	254'	A	10	0.5	100'	254'									
		WB-R	240'	A	1.8	0.21	0'	28'	A	1.8	0.21	0'	29'	A	1.8	0.23	0'	29'									
		SEB-LTR	>1000'	C	28.4	0.4	29'	84'	C	28.6	0.4	30'	85'	C	28.1	0.49	33'	#113'									
		NWB-LTR	>1000'	C	26.5	0.01	1'	7'	C	26.5	0.01	1'	7'	C	26	0.01	1'	7'									
Talbot Ln. & Governor's Hwy.	UNSIGNALIZED	EB	-	A	0	0		0'	A	0	0		0'	A	0	0		0'									
		WB	-	A	7.6	0.038		3'	A	7.6	0.038		3'	A	8	0.068		5'									
		NB	-	B	11.4	0.088		8'	B	11.5	0.089		8'	C	18.4	0.433		55'									

Traffic Impact Study for Proposed Warehouse Development 25 Talbot Lane, South Windsor, Connecticut																								Revised: September 2021 Langan Project No.: 140236601			
TABLE 3 CAPACITY ANALYSIS SUMMARY – WEEKDAY P.M. PEAK-HOUR																											
INTERSECTION	CONTROL TYPE	LANE USE	STORAGE LENGTH (ft)	EXISTING CONDITIONS					BACKGROUND CONDITIONS					BUILD CONDITIONS					SIGNAL TIMING OPTIMIZATION CONDITIONS								
				LOS	DELAY (sec)	V/C RATIO	QUEUES (ft)	QUEUES (ft)	LOS	DELAY (sec)	V/C RATIO	QUEUES (ft)	QUEUES (ft)	LOS	DELAY (sec)	V/C RATIO	QUEUES (ft)	QUEUES (ft)	LOS	DELAY (sec)	V/C RATIO	QUEUES (ft)	QUEUES (ft)				
							50th%	95th%				50th%	95th%				50th%	95th%				50th%	95th%				
John Fitch Blvd./ Us-5 & Governor's Hwy.	ACTUATED-COORDINATED	Overall		C	29.7	0.86			C	30	0.86			C	31.3	0.95			C	28.8	0.89						
		EB-LTR	>1000'	C	30.9	0.52	81'	143'	C	31	0.53	83'	146'	C	28.4	0.47	81'	146'	C	25.6	0.45	76'	135'				
		WB-LTR	>1000'	E	57.4	0.86	121'	#231'	E	58.6	0.86	122'	#235'	E	70.5	0.95	164'	#327'	E	56.9	0.89	154'	#293'				
		NB-L	260'	A	7.4	0.03	2'	9'	A	7.5	0.03	2'	9'	A	7.6	0.03	2'	9'	A	9.7	0.04	3'	10'				
		NB-TT	>1000'	C	26.5	0.7	238'	310'	C	26.7	0.71	242'	314'	C	26.7	0.71	242'	314'	C	28.0	0.73	246'	321'				
		NB-R	280'	A	4.5	0.14	0'	30'	A	4.5	0.14	0'	30'	A	3.8	0.26	0'	40'	A	4.0	0.26	0'	41'				
		SB-L	260'	D	35.5	0.22	37'	79'	D	35.7	0.23	38'	81'	D	41.7	0.47	67'	123'	D	44.4	0.48	69'	#144'				
		SB-TTR	>1000'	C	28.1	0.76	262'	340'	C	28.4	0.77	266'	346'	C	28.4	0.77	266'	346'	C	24.4	0.71	250'	324'				
Podunk Cir. / Governors Hwy. & Elington Road	ACTUATED-UNCOORDINATED	Overall		B	19.5	0.86			B	19.8	0.87			B	14.8	0.76											
		EB-LTR	>1000'	B	15.7	0.74	139'	339'	B	15.9	0.75	141'	344'	B	16.5	0.76	152'	376'									
		WB-LT	>1000'	A	8.9	0.36	52'	131'	A	8.9	0.37	53'	132'	A	8.5	0.35	53'	132'									
		WB-R	240'	A	2.1	0.18	0'	23'	A	2	0.18	0'	24'	A	2	0.19	0'	25'									
		SEB-LTR	>1000'	D	54.3	0.86	74'	#271'	E	55.9	0.87	75'	#275'	C	26.2	0.73	40'	#183'									
		NWB-LTR	>1000'	A	0	0.01	0'	0'	A	0	0.01	0'	0'	A	0	0.01	0'	0'									
Talbot Ln. & Governor's Hwy.	UNSIGNALIZED	EB	-	A	0	0		0'	A	0	0		0'	A	0	0		0'									
		WB	-	A	7.8	0.008		0'	A	7.8	0.008		0'	A	8.3	0.046		3'									
		NB	-	B	11.7	0.208		20'	B	11.8	0.213		20'	C	16.6	0.431		53'									

Analysis Results

The analysis of the study intersections reveals that most of the signalized intersections analyzed will maintain overall acceptable or background operating conditions for the 2023 build scenario; therefore no mitigation measures at the three study intersections are proposed for the 2023 build scenarios. Individual movements and lane groups may change slightly in level of service, delay, and queue length; however, overall levels of service at these signalized intersections analyzed remain unchanged or acceptable, with nominal impacts to intersection delays.

At the intersection of US Route 5 and Governors Highway during the morning and evening peak-hours the delay of the westbound left-turn lane increases by 10-15 seconds and changes from LOS C to LOS D in the morning peak hour from background to build conditions. Minor signal timing optimization at this intersection can mitigate these impacts and improve the expected overall delays at the intersection. At this time, no signal timing optimization is proposed as part of this application, however should conditions change in the future, the traffic signal timings can be adjusted.

5.5 Step Five: Investigate the safety conditions within the area roadway network.

Intersection Sight Distance

Langan evaluated the intersection sight distances (ISD) at the proposed site driveways on Governor's Highway and Talbot Road to confirm that they will meet the Town of South Windsor requirements for entering and exiting vehicles based on standards from ConnDOT Highway Design Manual Section 11-2. Sight distances requirements for the Town of South Windsor are based on minimum requirements established by the Connecticut Highway Design Manual and the American Association of State Highway and Transportation Officials (AASHTO) as outlined in *A Policy on Geometric Design of Highways and Streets*, 6th Edition (also known as the AASHTO Green Book). As shown in **Table 4**, the proposed intersection sight distances (ISDs) provided at the site driveways meet AASHTO's minimum requirements.

TABLE 4					
INTERSECTION SIGHT DISTANCE SUMMARY					
LOCATION	Design Speed	Intersection Sight Distance			
		Passenger Car		Combination Truck	
		Required	Provided	Required	Provided
Talbot Lane & Governors Highway					
Left (Governors Highway eastbound)	35 mph ¹	±390 ft	>390 ft	±595 ft	>595 ft
Right (Governors Highway westbound)	35 mph ¹	±390 ft	>390 ft	±595 ft	>595 ft
Site Driveway & Governors Highway					
Left (Governors Highway eastbound)	35 mph ¹	±390 ft	>390 ft	±595 ft	>595 ft
Right (Governors Highway westbound)	35 mph ¹	±390 ft	>390 ft	±595 ft	>595 ft

¹ Design speed of 35 MPH based on an assumed 85th percentile speed (the posted speed limit of 30 MPH plus 5 MPH)

Accidents

The most recent three years of accident data were requested via the online UConn Crash Data Repository website in order to conduct an accident analysis in the project vicinity. From January 2018 to December 2020, only one accident occurred in the vicinity of the site and the surrounding study intersection locations. The accident was an angle collision, with dry weather during night with a possible injury. Table 5 provides a summary of the accident history.

TABLE 5									
ACCIDENT DATA SUMMARY (2018 - 2020)									
INTERSECTION	NUMBER OF ACCIDENTS		SEVERITY			CONDITIONS			
	Total	Average Per Year	Property Damage Only	Personal Injury	Fatality	Clear (Dry)	Rain/ Snow	Day	Night
John Fitch Boulevard & Governor's Highway	1	0.0833	0 (0%)	1 (100%)	0 (0%)	1 (100%)	0 (00%)	0 (0%)	1 (100%)
Talbot Lane & Governor's Highway	0	0.00	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Ellington Road & Governor's Highway	0	0.00	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
TOTAL	1	0.0833	0 (0%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)	1 (100%)

Source: UConn Crash Data Repository (2018 – 2020)

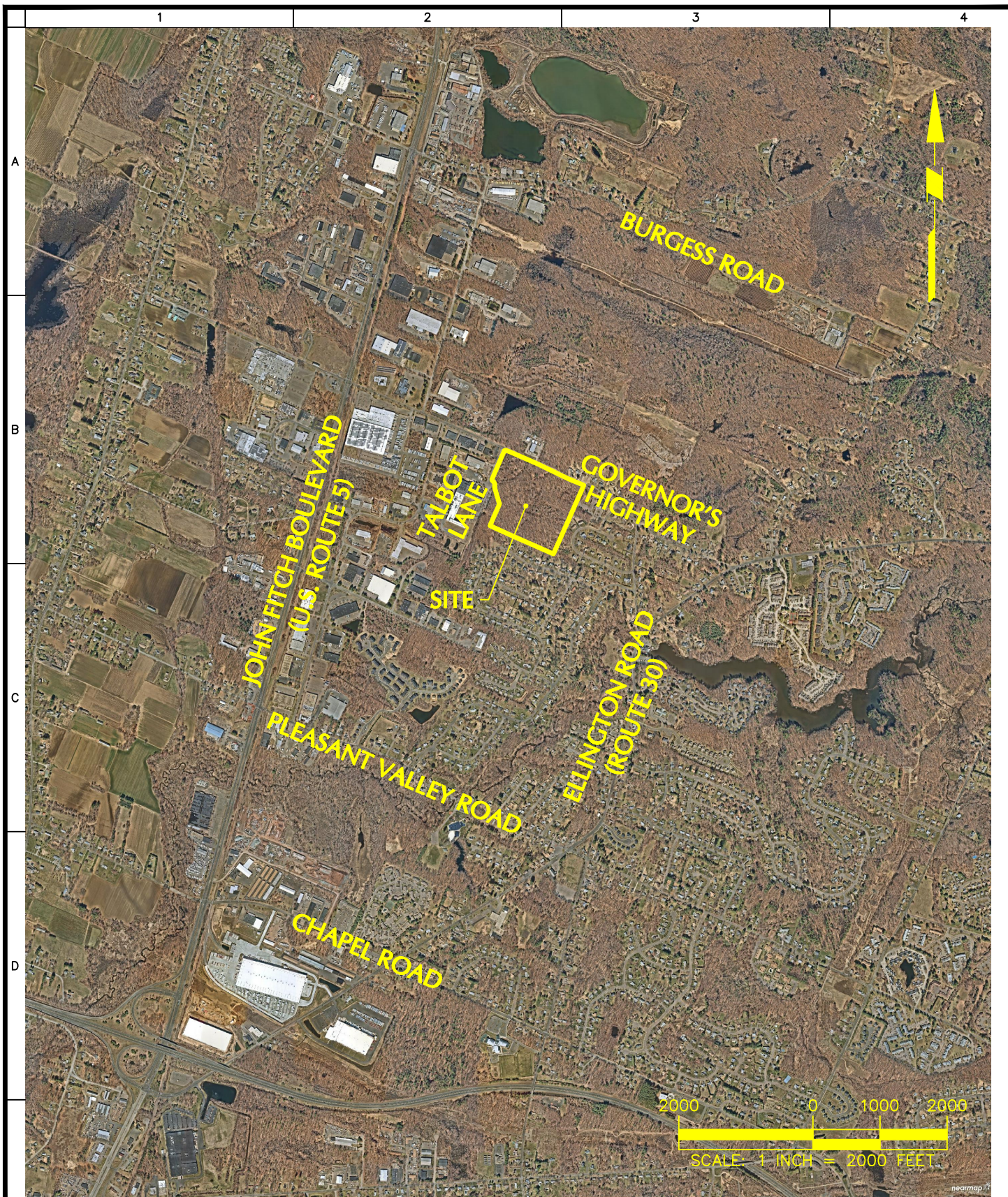
6.0 SUMMARY AND CONCLUSIONS

This evaluation identifies the potential traffic impacts generated by the proposed development on the surrounding area road network. We performed a capacity analysis for the existing, background, and build scenarios for three intersections. Our evaluation indicates that, the existing roadway infrastructure is adequate to support the nominal increase in traffic volume generated by the proposed warehouse development. No improvements are required or recommended at this time; signal timing optimization at the intersection of Route 5 and Governors Highway can improve signal operations in the future as needed.

\\Langan.com\data\NH\data6\140236601\Project_Data\Discipline\Traffic\Reports\Traffic Impact Study\140236601 - 25 Talbot Lane - Traffic Impact Study - September 2021.docx

Figures

Figure 1	Location Map
Figure 2	Study Intersections Map
Figure 3	2021 Existing Peak-Hour Traffic Volumes
Figure 4	2023 Background Peak-Hour Traffic Volumes
Figure 5	Trip Distribution
Figure 6	Trip Assignment
Figure 7	2023 Build Peak-Hour Traffic Volumes



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Project

**475 GOVERNOR'S
HIGHWAY**

SOUTH WINDSOR

CONNECTICUT

Drawing Title

LOCATION MAP

Project No.

140236601

Date

09/07/2021

Drawn By

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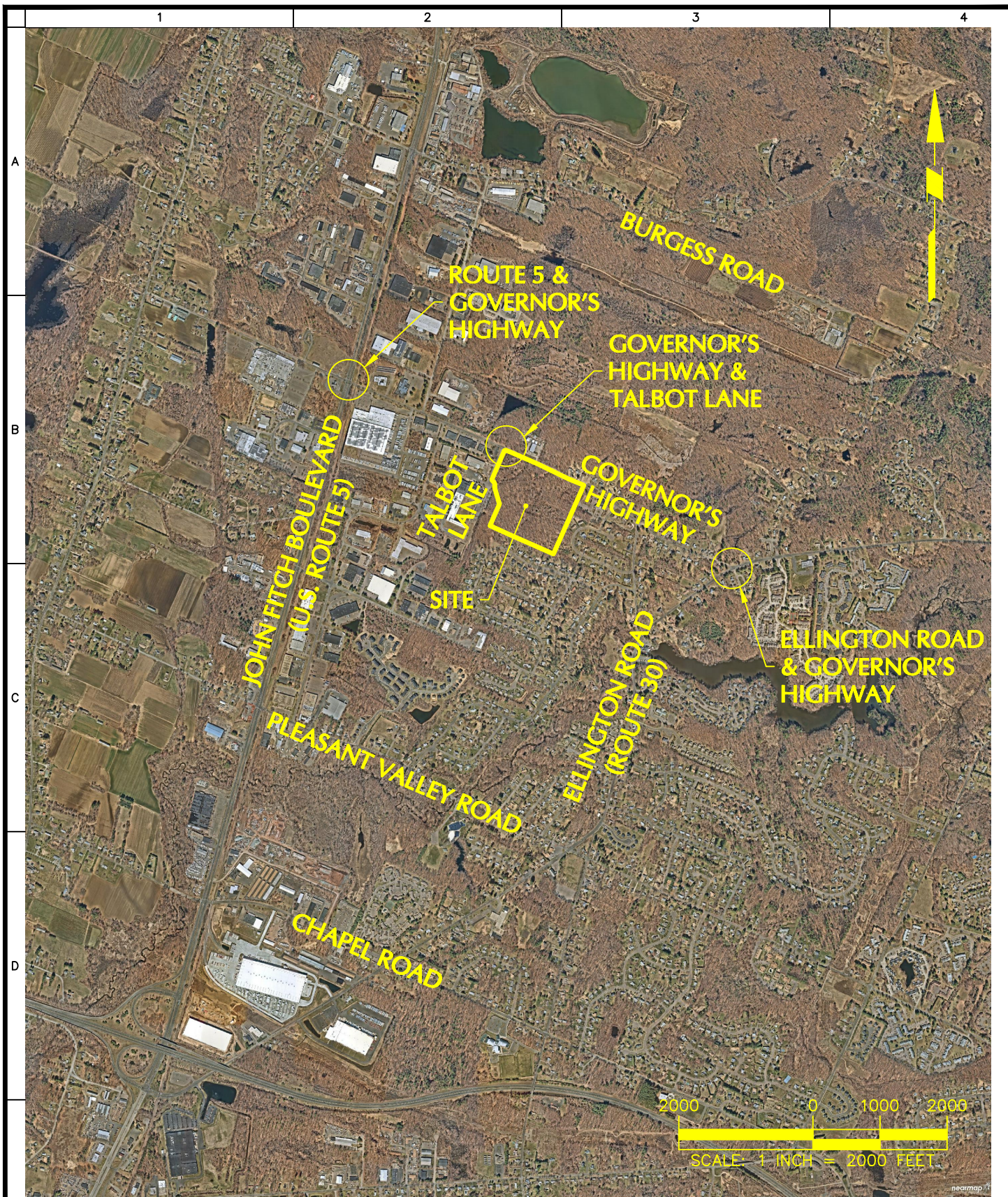
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FIG. 1

Sheet 1 of 7

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**475 GOVERNOR'S
HIGHWAY**

SOUTH WINDSOR

CONNECTICUT

Drawing Title

**STUDY
INTERSECTION
MAP**

Project No.

140236601

Date

09/07/2021

Drawn By

MS

Checked By

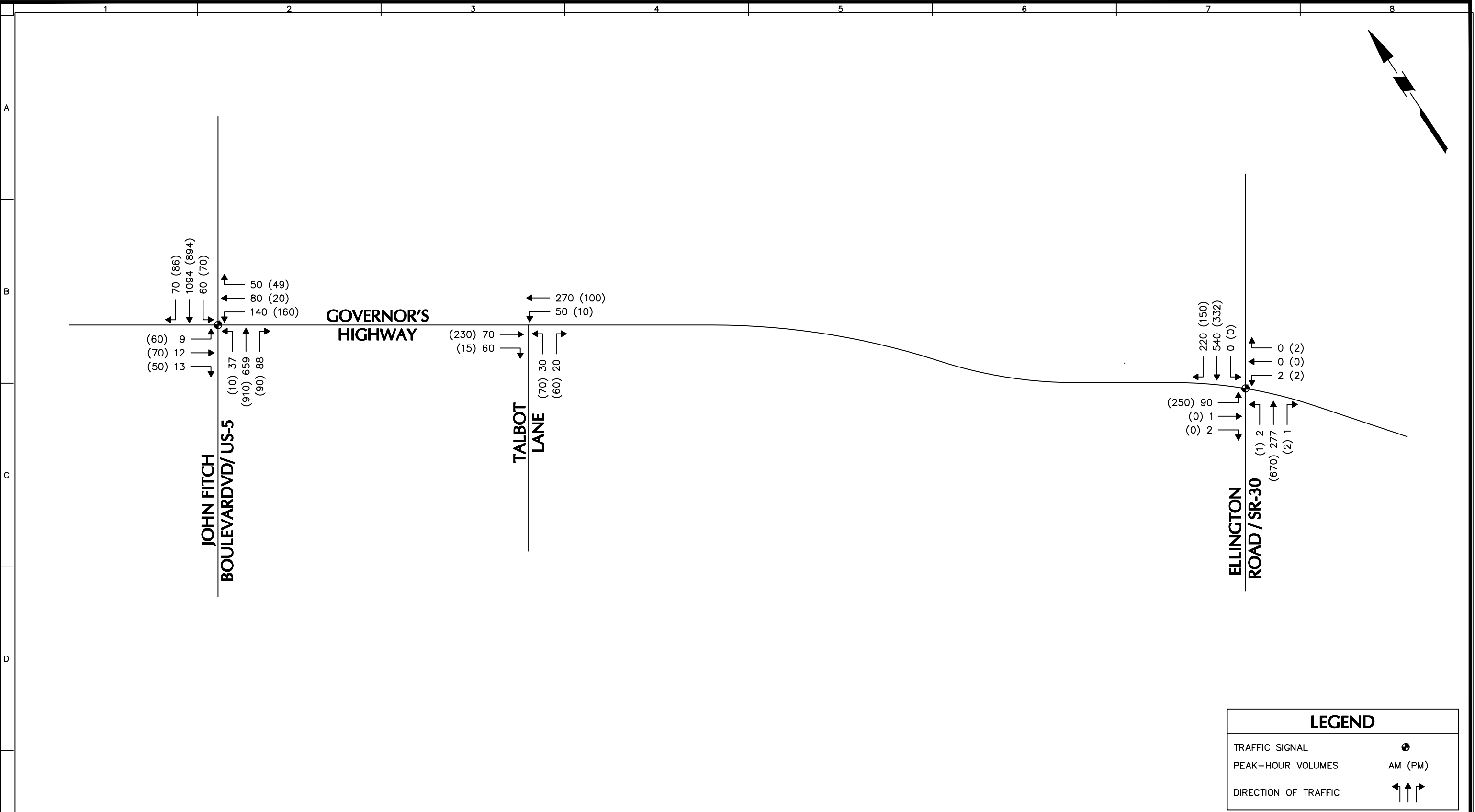
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Drawing No.

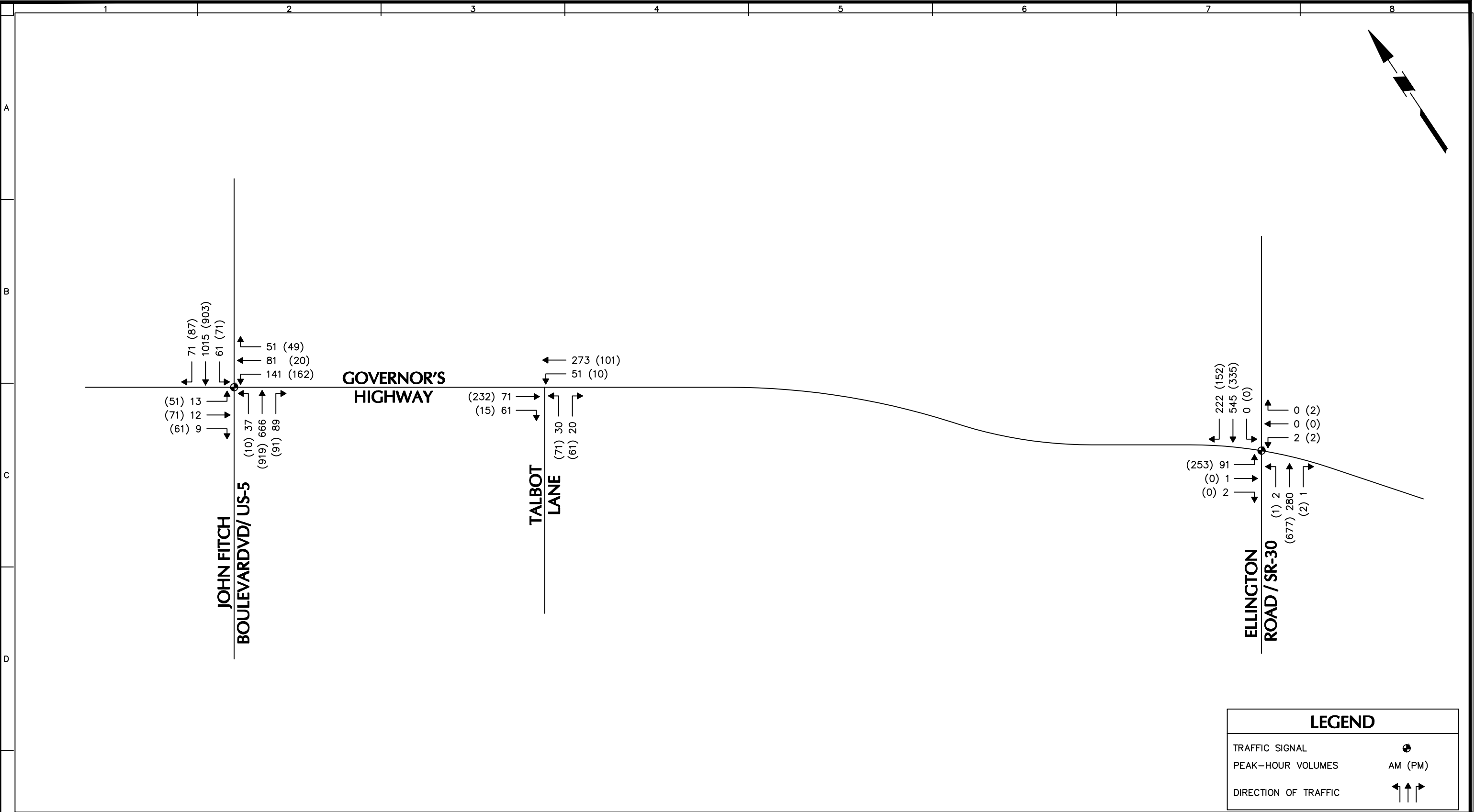
FIG. 2

Sheet 2 of 7

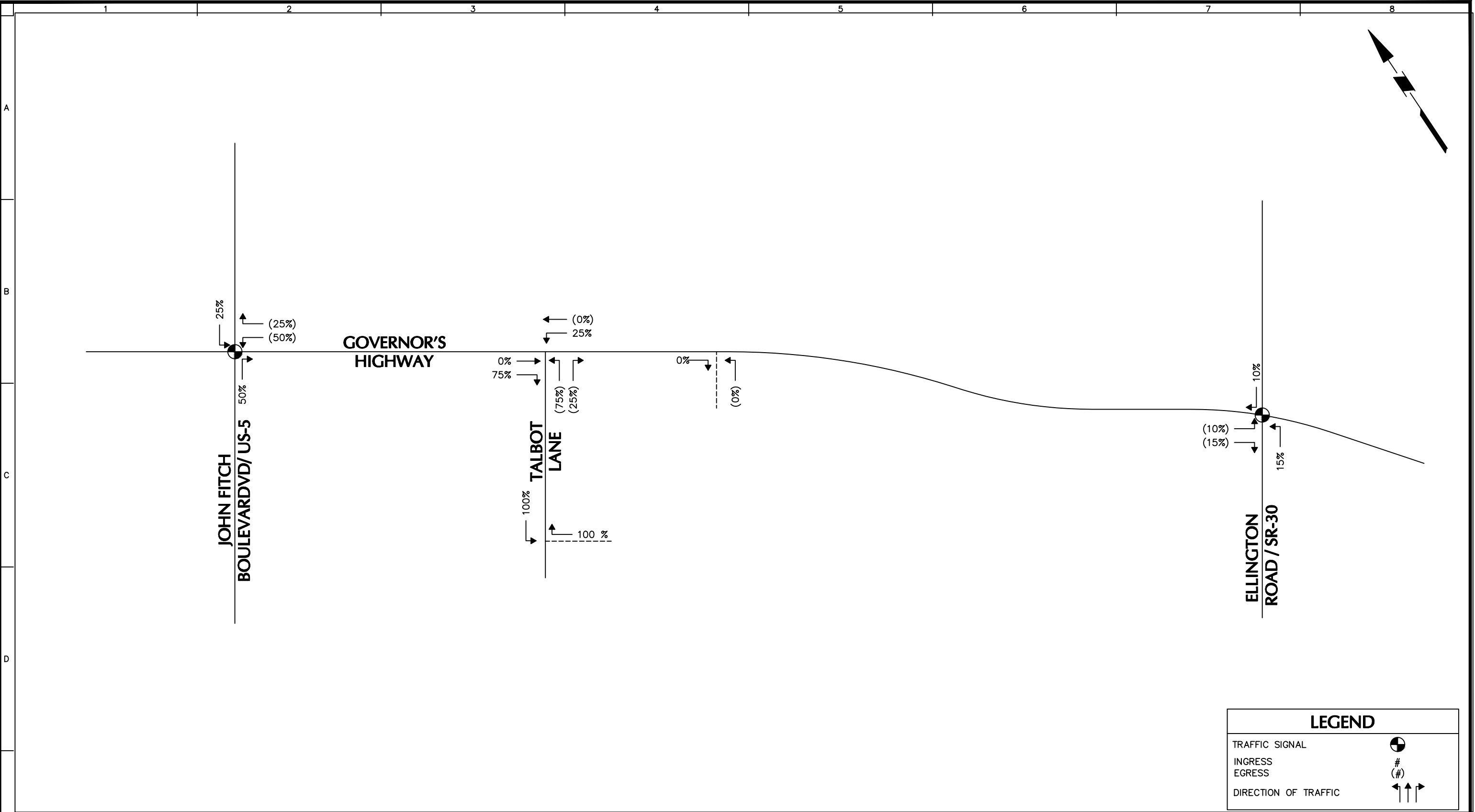
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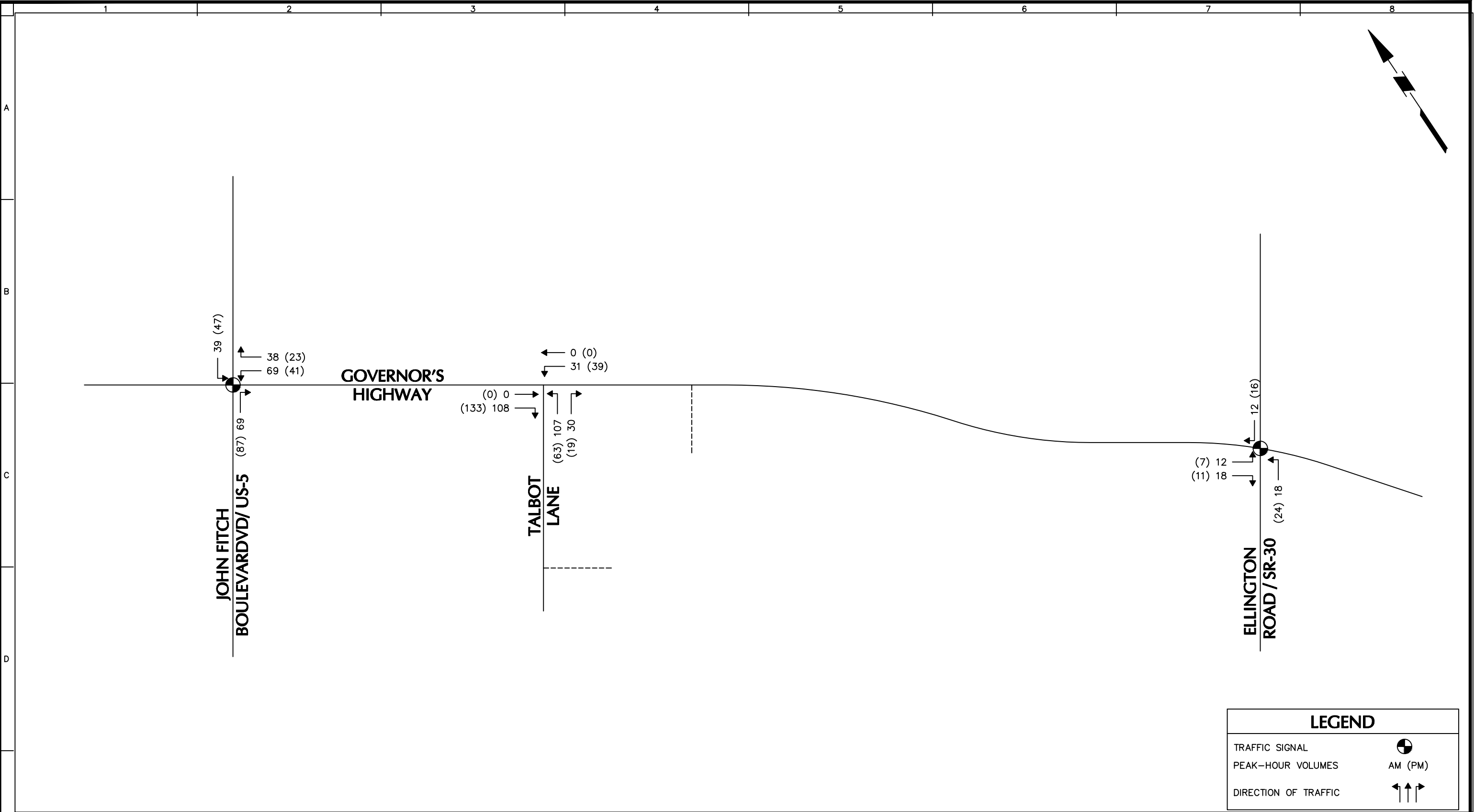
LANGAN Langan CT, Inc. 555 Long Wharf Drive New Haven, CT 06511 T: 203.562.5771 F: 203.789.6142 www.langan.com	Project 475 GOVERNOR'S HWY SOUTH WINDSOR CONNECTICUT	Drawing Title 2021 EXISTING TRAFFIC VOLUMES	Project No. 140236601	Drawing No. FIG. 3 Sheet 3 of 7
			Date 09/07/2021	
			Drawn By MS	
			Checked By CJM	



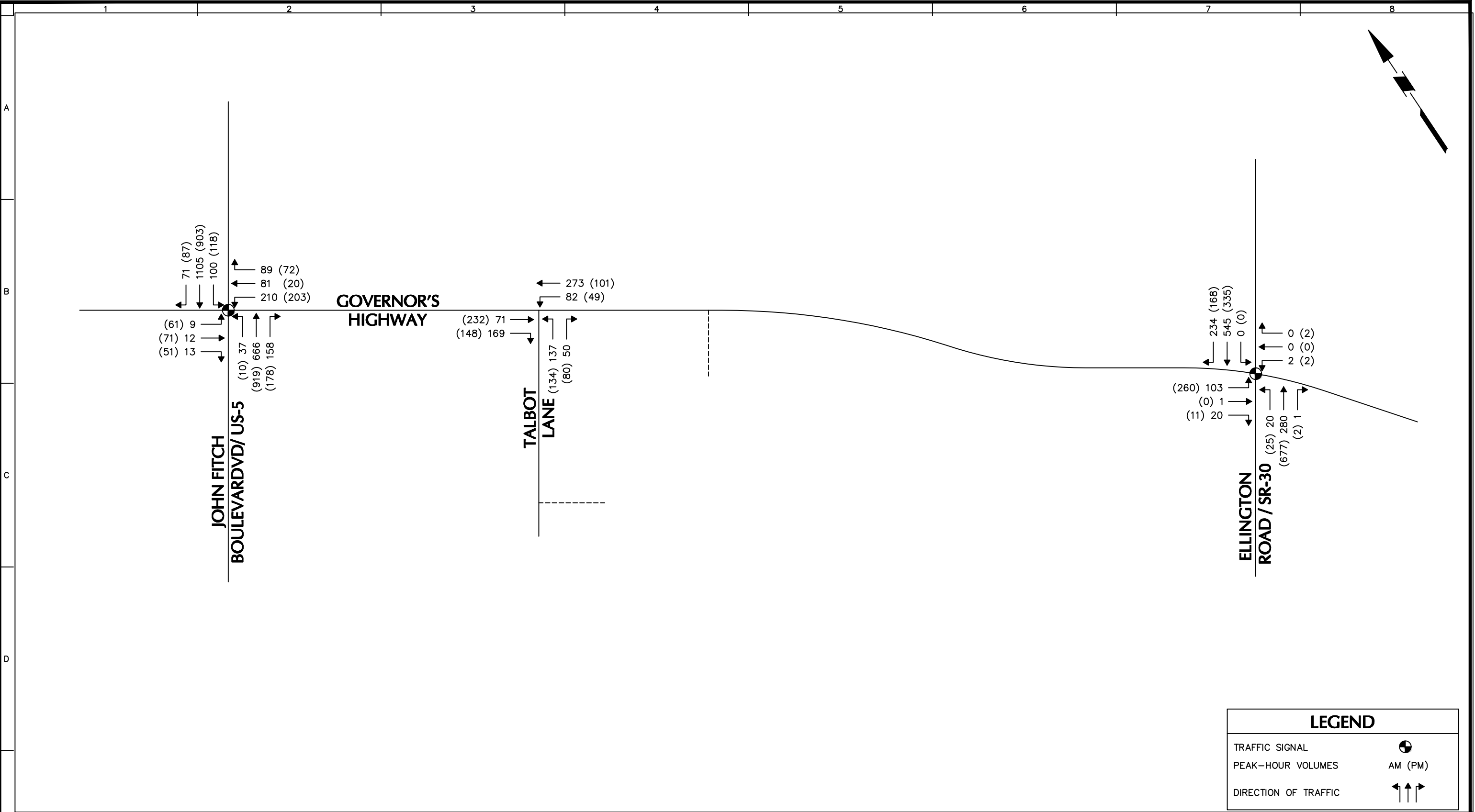
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			Date 09/07/2021	
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	475 GOVERNOR'S HWY	TRIP DISTRIBUTION	140236601	FIG. 5
			Date	
			09/07/2021	
			Drawn By	
			MS	
			Checked By	
			CJM	
				Sheet 5 of 7



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			Date 09/07/2021	
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Sheet 6 of 7				



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			Date 09/07/2021	
			Drawn By MS	
			Checked By CJM	

Appendix A
Overall Site Plan

Appendix B

Capacity Analysis – 2021 Existing Traffic Conditions

2021 Existing Weekday A.M.

1: John Fitch Blvd./US-5 & Governor's Hwy.
Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	12	13	140	80	50	37	659	88	60	1094	70
Future Volume (vph)	9	12	13	140	80	50	37	659	88	60	1094	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	260		280	260		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	50			50			50			50		
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		0.949			0.975				0.850		0.991	
Flt Protected		0.987			0.975		0.950			0.950		
Satd. Flow (prot)	0	1745	0	0	1771	0	1770	3539	1583	1770	3507	0
Flt Permitted		0.907			0.817		0.114			0.950		
Satd. Flow (perm)	0	1603	0	0	1484	0	212	3539	1583	1770	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			13				96		8	
Link Speed (mph)		30			30			50			30	
Link Distance (ft)		1034			2473			2927			1619	
Travel Time (s)		23.5			56.2			39.9			36.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	13	14	152	87	54	40	716	96	65	1189	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	0	0	293	0	40	716	96	65	1265	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			0			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		pm+pt	NA	Prot	Prot	NA	
Protected Phases		4			8		5	2	2	1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		18.0	24.0	24.0	18.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		18.0	41.0	41.0	18.0	41.0	
Total Split (%)	34.4%	34.4%		34.4%	34.4%		20.0%	45.6%	45.6%	20.0%	45.6%	
Maximum Green (s)	25.1	25.1		25.1	25.1		13.0	35.0	35.0	13.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.9			5.9		5.0	6.0	6.0	5.0	6.0	
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		2.0	3.0	3.0	2.0	3.0	
Recall Mode	None	None		None	None		C-Max	Max	Max	C-Max	Max	
Walk Time (s)												7.0

1: John Fitch Blvd./US-5 & Governor's Hwy.
Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)												14.0
Pedestrian Calls (#/hr)												0
Act Effct Green (s)		21.1			21.1		53.0	35.0	35.0	17.0	35.0	
Actuated g/C Ratio		0.23			0.23		0.59	0.39	0.39	0.19	0.39	
v/c Ratio		0.10			0.82		0.10	0.52	0.14	0.20	0.92	
Control Delay		18.1			49.4		7.7	22.7	4.5	35.0	38.9	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		18.1			49.4		7.7	22.7	4.5	35.0	38.9	
LOS		B			D		A	C	A	D	D	
Approach Delay		18.1			49.4			20.0			38.7	
Approach LOS		B			D			B			D	
Queue Length 50th (ft)		10			149		8	161	0	32	352	
Queue Length 95th (ft)		33			#236		21	214	30	72	#495	
Internal Link Dist (ft)		954			2393			2847			1539	
Turn Bay Length (ft)							260		280	260		
Base Capacity (vph)		457			423		418	1376	674	333	1368	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.08			0.69		0.10	0.52	0.14	0.20	0.92	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 16 (18%), Referenced to phase 1:SBL and 5:NBL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.3

Intersection LOS: C

Intersection Capacity Utilization 73.2%

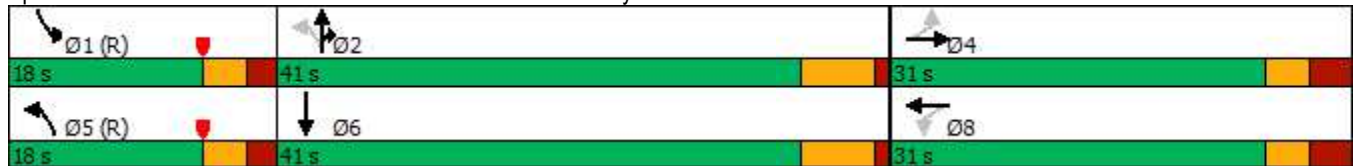
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: John Fitch Blvd./US-5 & Governor's Hwy.



2: Talbot Ln. & Governor's Hwy. /Governors Hwy. Lanes, Volumes, Timings

AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↘↙	
Traffic Volume (vph)	70	60	50	270	30	20
Future Volume (vph)	70	60	50	270	30	20
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	0.938				0.946	
Flt Protected				0.992	0.971	
Satd. Flow (prot)	1747	0	0	1848	1711	0
Flt Permitted				0.992	0.971	
Satd. Flow (perm)	1747	0	0	1848	1711	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2473			3853	751	
Travel Time (s)	56.2			87.6	17.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	65	54	293	33	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	0	0	347	55	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			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)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 37.7%				ICU Level of Service A		
Analysis Period (min) 15						

2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
HCM 6th TWSC

AM Peak Hour

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	60	50	270	30	20
Future Vol, veh/h	70	60	50	270	30	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	65	54	293	33	22
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	141	0	510	109
Stage 1	-	-	-	-	109	-
Stage 2	-	-	-	-	401	-
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	-	-	1442	-	523	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1442	-	499	945
Mov Cap-2 Maneuver	-	-	-	-	499	-
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	676	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	1.2		11.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	615	-	-	1442	-	
HCM Lane V/C Ratio	0.088	-	-	0.038	-	
HCM Control Delay (s)	11.4	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	2	277	1	0	540	220	90	1	2	2	0	0
Future Volume (vph)	2	277	1	0	540	220	90	1	2	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		240	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	50			50			50			50		
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						0.850		0.997				
Flt Protected								0.954			0.950	
Satd. Flow (prot)	0	1863	0	0	1863	1583	0	1772	0	0	1770	0
Flt Permitted		0.997						0.954				
Satd. Flow (perm)	0	1857	0	0	1863	1583	0	1772	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						239		1				
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1820			1725			3853			188	
Travel Time (s)		31.0			29.4			105.1			5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	301	1	0	587	239	98	1	2	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	304	0	0	587	239	0	101	0	0	2	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			0			0			0	
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			NA	Perm	Split	NA		Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6		6				8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	29.0	29.0		26.2	26.2	26.2	15.0	15.0		10.0	10.0	
Total Split (s)	45.0	45.0		45.0	45.0	45.0	15.0	15.0		10.0	10.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	21.4%	21.4%		14.3%	14.3%	
Maximum Green (s)	36.8	36.8		36.8	36.8	36.8	8.9	8.9		6.0	6.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	3.7	3.7		3.0	3.0	
All-Red Time (s)	4.0	4.0		4.0	4.0	4.0	2.4	2.4		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		8.2			8.2	8.2		6.1			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)							1.0	1.0				

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Flash Dont Walk (s)							10.0	10.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		34.4			34.4	34.4		7.4			5.3	
Actuated g/C Ratio		0.66			0.66	0.66		0.14			0.10	
v/c Ratio		0.25			0.48	0.21		0.40			0.01	
Control Delay		7.2			9.4	1.8		28.4			26.5	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		7.2			9.4	1.8		28.4			26.5	
LOS		A			A	A		C			C	
Approach Delay		7.2			7.2			28.4			26.5	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)		40			95	0		29			1	
Queue Length 95th (ft)		112			250	28		84			7	
Internal Link Dist (ft)		1740			1645			3773			108	
Turn Bay Length (ft)						240						
Base Capacity (vph)		1343			1347	1210		319			225	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.23			0.44	0.20		0.32			0.01	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 52.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 8.9

Intersection LOS: A

Intersection Capacity Utilization 49.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Podunk Cir. /Governors Hwy. & Elington Road

 Ø2	 Ø4	 Ø8
45 s	15 s	10 s
 Ø6		
45 s		

2021 Existing Weekday P.M.

1: John Fitch Blvd./US-5 & Governor's Hwy.
Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	70	50	160	20	49	10	910	90	70	894	86
Future Volume (vph)	60	70	50	160	20	49	10	910	90	70	894	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	260		280	260		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	50			50			50			50		
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		0.963			0.971				0.850		0.987	
Flt Protected		0.984			0.966		0.950			0.950		
Satd. Flow (prot)	0	1765	0	0	1747	0	1770	3539	1583	1770	3493	0
Flt Permitted		0.833			0.640		0.133			0.950		
Satd. Flow (perm)	0	1494	0	0	1158	0	248	3539	1583	1770	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			15				96		13	
Link Speed (mph)		30			30			50			30	
Link Distance (ft)		1034			2473			2927			1619	
Travel Time (s)		23.5			56.2			39.9			36.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	64	74	53	170	21	52	11	968	96	74	951	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	191	0	0	243	0	11	968	96	74	1042	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			0			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		pm+pt	NA	Prot	Prot	NA	
Protected Phases		4			8		5	2	2	1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		18.0	24.0	24.0	18.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		18.0	41.0	41.0	18.0	41.0	
Total Split (%)	34.4%	34.4%		34.4%	34.4%		20.0%	45.6%	45.6%	20.0%	45.6%	
Maximum Green (s)	25.1	25.1		25.1	25.1		13.0	35.0	35.0	13.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.9			5.9		5.0	6.0	6.0	5.0	6.0	
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		2.0	3.0	3.0	2.0	3.0	
Recall Mode	None	None		None	None		C-Max	Max	Max	C-Max	Max	
Walk Time (s)												7.0

1: John Fitch Blvd./US-5 & Governor's Hwy.

Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)												14.0
Pedestrian Calls (#/hr)												0
Act Effect Green (s)		21.3			21.3		52.8	35.0	35.0	16.8	35.0	
Actuated g/C Ratio		0.24			0.24		0.59	0.39	0.39	0.19	0.39	
v/c Ratio		0.52			0.86		0.03	0.70	0.14	0.22	0.76	
Control Delay		30.9			57.4		7.4	26.5	4.5	35.5	28.1	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		30.9			57.4		7.4	26.5	4.5	35.5	28.1	
LOS		C			E		A	C	A	D	C	
Approach Delay		30.9			57.4			24.4			28.6	
Approach LOS		C			E			C			C	
Queue Length 50th (ft)		81			121		2	238	0	37	262	
Queue Length 95th (ft)		143			#231		9	310	30	79	340	
Internal Link Dist (ft)		954			2393			2847			1539	
Turn Bay Length (ft)							260		280	260		
Base Capacity (vph)		431			333		430	1376	674	331	1366	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.44			0.73		0.03	0.70	0.14	0.22	0.76	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 16 (18%), Referenced to phase 1:SBL and 5:NBL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 29.7

Intersection LOS: C

Intersection Capacity Utilization 66.1%

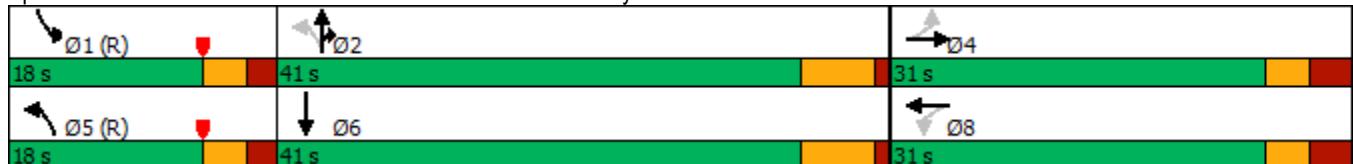
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: John Fitch Blvd./US-5 & Governor's Hwy.



2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
Lanes, Volumes, Timings

PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	230	15	10	100	70	60
Future Volume (vph)	230	15	10	100	70	60
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	0.992				0.938	
Flt Protected				0.995	0.974	
Satd. Flow (prot)	1848	0	0	1853	1702	0
Flt Permitted				0.995	0.974	
Satd. Flow (perm)	1848	0	0	1853	1702	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2473			3853	751	
Travel Time (s)	56.2			87.6	17.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	16	11	109	76	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	266	0	0	120	141	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			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)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.8%			ICU Level of Service A		
Analysis Period (min)	15					

2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
HCM 6th TWSC

PM Peak Hour

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	230	15	10	100	70	60
Future Vol, veh/h	230	15	10	100	70	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	250	16	11	109	76	65
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	266	0	389	258
Stage 1	-	-	-	-	258	-
Stage 2	-	-	-	-	131	-
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	-	-	1298	-	615	781
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	895	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1298	-	609	781
Mov Cap-2 Maneuver	-	-	-	-	609	-
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	895	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.7		11.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	678	-	-	1298	-	
HCM Lane V/C Ratio	0.208	-	-	0.008	-	
HCM Control Delay (s)	11.7	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.8	-	-	0	-	

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	1	670	2	0	332	150	250	0	0	2	0	2
Future Volume (vph)	1	670	2	0	332	150	250	0	0	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		240	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	50			50			50			50		
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						0.850						0.932
Flt Protected								0.950				0.976
Satd. Flow (prot)	0	1863	0	0	1863	1583	0	1770	0	0	1694	0
Flt Permitted								0.950				
Satd. Flow (perm)	0	1863	0	0	1863	1583	0	1770	0	0	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						160						176
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1820			1725			3853			188	
Travel Time (s)		31.0			29.4			105.1			5.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	713	2	0	353	160	266	0	0	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	716	0	0	353	160	0	266	0	0	4	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			0			0			0	
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			NA	Perm	Split	NA		Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6		6				8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	29.0	29.0		26.2	26.2	26.2	15.0	15.0		10.0	10.0	
Total Split (s)	45.0	45.0		45.0	45.0	45.0	15.0	15.0		10.0	10.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	21.4%	21.4%		14.3%	14.3%	
Maximum Green (s)	36.8	36.8		36.8	36.8	36.8	8.9	8.9		6.0	6.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	3.7	3.7		3.0	3.0	
All-Red Time (s)	4.0	4.0		4.0	4.0	4.0	2.4	2.4		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		8.2			8.2	8.2		6.1			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)							1.0	1.0				

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Flash Dont Walk (s)							10.0	10.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		27.2			27.2	27.2		9.1			5.1	
Actuated g/C Ratio		0.52			0.52	0.52		0.17			0.10	
v/c Ratio		0.74			0.36	0.18		0.86			0.01	
Control Delay		15.7			8.9	2.1		54.3			0.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		15.7			8.9	2.1		54.3			0.0	
LOS		B			A	A		D			A	
Approach Delay		15.7			6.8			54.3				
Approach LOS		B			A			D				
Queue Length 50th (ft)		139			52	0		74			0	
Queue Length 95th (ft)		339			131	23		#271			0	
Internal Link Dist (ft)		1740			1645			3773			108	
Turn Bay Length (ft)						240						
Base Capacity (vph)		1342			1342	1185		308			359	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.53			0.26	0.14		0.86			0.01	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 52.3

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 68.6%

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: Podunk Cir. /Governors Hwy. & Elington Road

 Ø2	 Ø4	 Ø8
45 s	15 s	10 s
 Ø6		
45 s		

Appendix C

Capacity Analysis – 2023 Background Traffic Conditions

2023 Background Weekday A.M.

1: John Fitch Blvd./US-5 & Governor's Hwy.
Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	12	13	141	81	51	37	666	89	61	1105	71
Future Volume (vph)	9	12	13	141	81	51	37	666	89	61	1105	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	260		280	260		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	50			50			50			50		
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		0.949			0.975				0.850		0.991	
Flt Protected		0.987			0.975		0.950			0.950		
Satd. Flow (prot)	0	1745	0	0	1771	0	1770	3539	1583	1770	3507	0
Flt Permitted		0.907			0.818		0.114			0.950		
Satd. Flow (perm)	0	1603	0	0	1486	0	212	3539	1583	1770	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			13				97		8	
Link Speed (mph)		30			30			50			30	
Link Distance (ft)		1034			2473			2927			1619	
Travel Time (s)		23.5			56.2			39.9			36.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	13	14	153	88	55	40	724	97	66	1201	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	0	0	296	0	40	724	97	66	1278	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			0			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		pm+pt	NA	Prot	Prot	NA	
Protected Phases		4			8		5	2	2	1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		18.0	24.0	24.0	18.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		18.0	41.0	41.0	18.0	41.0	
Total Split (%)	34.4%	34.4%		34.4%	34.4%		20.0%	45.6%	45.6%	20.0%	45.6%	
Maximum Green (s)	25.1	25.1		25.1	25.1		13.0	35.0	35.0	13.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.9			5.9		5.0	6.0	6.0	5.0	6.0	
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		2.0	3.0	3.0	2.0	3.0	
Recall Mode	None	None		None	None		C-Max	Max	Max	C-Max	Max	
Walk Time (s)												7.0

1: John Fitch Blvd./US-5 & Governor's Hwy.

Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)												14.0
Pedestrian Calls (#/hr)												0
Act Effect Green (s)		21.2			21.2		52.9	35.0	35.0	16.9	35.0	
Actuated g/C Ratio		0.24			0.24		0.59	0.39	0.39	0.19	0.39	
v/c Ratio		0.10			0.82		0.10	0.53	0.14	0.20	0.93	
Control Delay		18.1			49.6		7.8	22.8	4.6	35.1	40.2	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		18.1			49.6		7.8	22.8	4.6	35.1	40.2	
LOS		B			D		A	C	A	D	D	
Approach Delay		18.1			49.6			20.1			39.9	
Approach LOS		B			D			C			D	
Queue Length 50th (ft)		10			150		8	163	0	33	357	
Queue Length 95th (ft)		33			#242		21	217	30	73	#503	
Internal Link Dist (ft)		954			2393			2847			1539	
Turn Bay Length (ft)							260		280	260		
Base Capacity (vph)		457			423		416	1376	674	331	1368	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.08			0.70		0.10	0.53	0.14	0.20	0.93	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 16 (18%), Referenced to phase 1:SBL and 5:NBL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 34.0

Intersection LOS: C

Intersection Capacity Utilization 73.7%

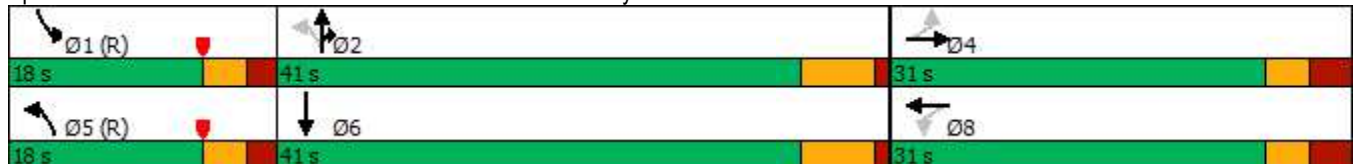
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: John Fitch Blvd./US-5 & Governor's Hwy.



2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
Lanes, Volumes, Timings

AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↗	↘
Traffic Volume (vph)	71	61	51	273	30	20
Future Volume (vph)	71	61	51	273	30	20
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	0.938				0.946	
Flt Protected				0.992	0.971	
Satd. Flow (prot)	1747	0	0	1848	1711	0
Flt Permitted				0.992	0.971	
Satd. Flow (perm)	1747	0	0	1848	1711	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2473			3853	751	
Travel Time (s)	56.2			87.6	17.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	66	55	297	33	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	0	0	352	55	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			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)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 38.0%				ICU Level of Service A		
Analysis Period (min) 15						

2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
HCM 6th TWSC

AM Peak Hour

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	61	51	273	30	20
Future Vol, veh/h	71	61	51	273	30	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	66	55	297	33	22
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	143	0	517	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	407	-
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	-	-	1440	-	518	943
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	672	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1440	-	494	943
Mov Cap-2 Maneuver	-	-	-	-	494	-
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	672	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.2		11.5	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1		EBT	EBR	WBL	WBT
Capacity (veh/h)	610		-	-	1440	-
HCM Lane V/C Ratio	0.089		-	-	0.038	-
HCM Control Delay (s)	11.5		-	-	7.6	0
HCM Lane LOS	B		-	-	A	A
HCM 95th %tile Q(veh)	0.3		-	-	0.1	-

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	2	280	1	0	545	222	91	1	2	2	0	0
Future Volume (vph)	2	280	1	0	545	222	91	1	2	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		240	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	50			50			50			50		
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						0.850		0.997				
Flt Protected								0.954			0.950	
Satd. Flow (prot)	0	1863	0	0	1863	1583	0	1772	0	0	1770	0
Flt Permitted		0.997						0.954				
Satd. Flow (perm)	0	1857	0	0	1863	1583	0	1772	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						241		1				
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1820			1725			3853			188	
Travel Time (s)		31.0			29.4			105.1			5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	304	1	0	592	241	99	1	2	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	307	0	0	592	241	0	102	0	0	2	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			0			0			0	
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			NA	Perm	Split	NA		Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6		6				8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	29.0	29.0		26.2	26.2	26.2	15.0	15.0		10.0	10.0	
Total Split (s)	45.0	45.0		45.0	45.0	45.0	15.0	15.0		10.0	10.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	21.4%	21.4%		14.3%	14.3%	
Maximum Green (s)	36.8	36.8		36.8	36.8	36.8	8.9	8.9		6.0	6.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	3.7	3.7		3.0	3.0	
All-Red Time (s)	4.0	4.0		4.0	4.0	4.0	2.4	2.4		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		8.2			8.2	8.2		6.1			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)							1.0	1.0				

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Flash Dont Walk (s)							10.0	10.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		34.6			34.6	34.6		7.4			5.3	
Actuated g/C Ratio		0.66			0.66	0.66		0.14			0.10	
v/c Ratio		0.25			0.48	0.21		0.40			0.01	
Control Delay		7.2			9.4	1.8		28.6			26.5	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		7.2			9.4	1.8		28.6			26.5	
LOS		A			A	A		C			C	
Approach Delay		7.2			7.2			28.6			26.5	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)		41			96	0		30			1	
Queue Length 95th (ft)		113			254	29		85			7	
Internal Link Dist (ft)		1740			1645			3773			108	
Turn Bay Length (ft)						240						
Base Capacity (vph)		1337			1342	1207		317			224	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.23			0.44	0.20		0.32			0.01	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 52.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 9.0

Intersection LOS: A

Intersection Capacity Utilization 49.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Podunk Cir. /Governors Hwy. & Elington Road

 Ø2	 Ø4	 Ø8
45 s	15 s	10 s
 Ø6		
45 s		

2023 Background Weekday P.M.

1: John Fitch Blvd./US-5 & Governor's Hwy.
Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	71	51	162	20	49	10	919	91	71	903	87
Future Volume (vph)	61	71	51	162	20	49	10	919	91	71	903	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	260		280	260		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	50			50			50			50		
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		0.963			0.971				0.850		0.987	
Flt Protected		0.984			0.966		0.950			0.950		
Satd. Flow (prot)	0	1765	0	0	1747	0	1770	3539	1583	1770	3493	0
Flt Permitted		0.833			0.634		0.128			0.950		
Satd. Flow (perm)	0	1494	0	0	1147	0	238	3539	1583	1770	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			15				97		13	
Link Speed (mph)		30			30			50			30	
Link Distance (ft)		1034			2473			2927			1619	
Travel Time (s)		23.5			56.2			39.9			36.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	65	76	54	172	21	52	11	978	97	76	961	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	0	0	245	0	11	978	97	76	1054	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			0			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		pm+pt	NA	Prot	Prot	NA	
Protected Phases		4			8		5	2	2	1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		18.0	24.0	24.0	18.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		18.0	41.0	41.0	18.0	41.0	
Total Split (%)	34.4%	34.4%		34.4%	34.4%		20.0%	45.6%	45.6%	20.0%	45.6%	
Maximum Green (s)	25.1	25.1		25.1	25.1		13.0	35.0	35.0	13.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.9			5.9		5.0	6.0	6.0	5.0	6.0	
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		2.0	3.0	3.0	2.0	3.0	
Recall Mode	None	None		None	None		C-Max	Max	Max	C-Max	Max	
Walk Time (s)												7.0

1: John Fitch Blvd./US-5 & Governor's Hwy.

Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)												14.0
Pedestrian Calls (#/hr)												0
Act Effect Green (s)		21.4			21.4		52.7	35.0	35.0	16.7	35.0	
Actuated g/C Ratio		0.24			0.24		0.59	0.39	0.39	0.19	0.39	
v/c Ratio		0.53			0.86		0.03	0.71	0.14	0.23	0.77	
Control Delay		31.0			58.6		7.5	26.7	4.5	35.7	28.4	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		31.0			58.6		7.5	26.7	4.5	35.7	28.4	
LOS		C			E		A	C	A	D	C	
Approach Delay		31.0			58.6			24.6			28.9	
Approach LOS		C			E			C			C	
Queue Length 50th (ft)		83			122		2	242	0	38	266	
Queue Length 95th (ft)		146			#235		9	314	30	81	346	
Internal Link Dist (ft)		954			2393			2847			1539	
Turn Bay Length (ft)							260		280	260		
Base Capacity (vph)		431			330		422	1376	674	327	1366	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.45			0.74		0.03	0.71	0.14	0.23	0.77	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 16 (18%), Referenced to phase 1:SBL and 5:NBL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 30.0

Intersection LOS: C

Intersection Capacity Utilization 72.1%

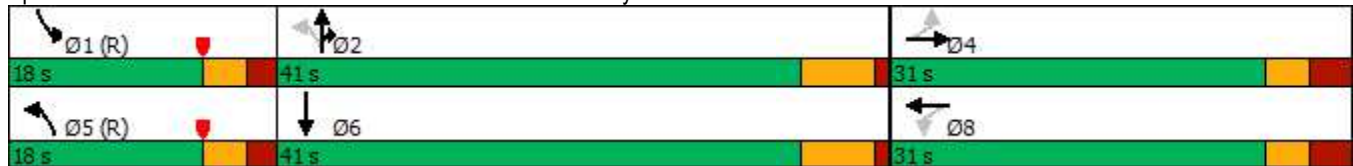
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: John Fitch Blvd./US-5 & Governor's Hwy.



2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
Lanes, Volumes, Timings

PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↱	
Traffic Volume (vph)	232	15	10	101	71	61
Future Volume (vph)	232	15	10	101	71	61
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	0.992				0.938	
Flt Protected				0.995	0.974	
Satd. Flow (prot)	1848	0	0	1853	1702	0
Flt Permitted				0.995	0.974	
Satd. Flow (perm)	1848	0	0	1853	1702	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2473			3853	751	
Travel Time (s)	56.2			87.6	17.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	252	16	11	110	77	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	268	0	0	121	143	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			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)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.0%			ICU Level of Service A		
Analysis Period (min)	15					

2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
HCM 6th TWSC

PM Peak Hour

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	232	15	10	101	71	61
Future Vol, veh/h	232	15	10	101	71	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	16	11	110	77	66
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	268	0	392	260
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	132	-
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	-	-	1296	-	612	779
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	894	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1296	-	606	779
Mov Cap-2 Maneuver	-	-	-	-	606	-
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	894	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.7		11.8	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	675	-	-	1296	-	
HCM Lane V/C Ratio	0.213	-	-	0.008	-	
HCM Control Delay (s)	11.8	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.8	-	-	0	-	

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	1	677	2	0	335	152	253	0	0	2	0	2
Future Volume (vph)	1	677	2	0	335	152	253	0	0	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		240	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	50			50			50			50		
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						0.850					0.932	
Flt Protected								0.950			0.976	
Satd. Flow (prot)	0	1863	0	0	1863	1583	0	1770	0	0	1694	0
Flt Permitted								0.950				
Satd. Flow (perm)	0	1863	0	0	1863	1583	0	1770	0	0	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						162					176	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1820			1725			3853			188	
Travel Time (s)		31.0			29.4			105.1			5.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	720	2	0	356	162	269	0	0	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	723	0	0	356	162	0	269	0	0	4	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			0			0			0	
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			NA	Perm	Split	NA		Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6		6				8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	29.0	29.0		26.2	26.2	26.2	15.0	15.0		10.0	10.0	
Total Split (s)	45.0	45.0		45.0	45.0	45.0	15.0	15.0		10.0	10.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	21.4%	21.4%		14.3%	14.3%	
Maximum Green (s)	36.8	36.8		36.8	36.8	36.8	8.9	8.9		6.0	6.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	3.7	3.7		3.0	3.0	
All-Red Time (s)	4.0	4.0		4.0	4.0	4.0	2.4	2.4		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		8.2			8.2	8.2		6.1			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)							1.0	1.0				

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Flash Dont Walk (s)							10.0	10.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		27.3			27.3	27.3		9.1			5.1	
Actuated g/C Ratio		0.52			0.52	0.52		0.17			0.10	
v/c Ratio		0.75			0.37	0.18		0.87			0.01	
Control Delay		15.9			8.9	2.0		55.9			0.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		15.9			8.9	2.0		55.9			0.0	
LOS		B			A	A		E			A	
Approach Delay		15.9			6.8			55.9				
Approach LOS		B			A			E				
Queue Length 50th (ft)		141			53	0		75			0	
Queue Length 95th (ft)		344			132	24		#275			0	
Internal Link Dist (ft)		1740			1645			3773			108	
Turn Bay Length (ft)						240						
Base Capacity (vph)		1339			1339	1183		308			358	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.54			0.27	0.14		0.87			0.01	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 52.4

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 69.1%

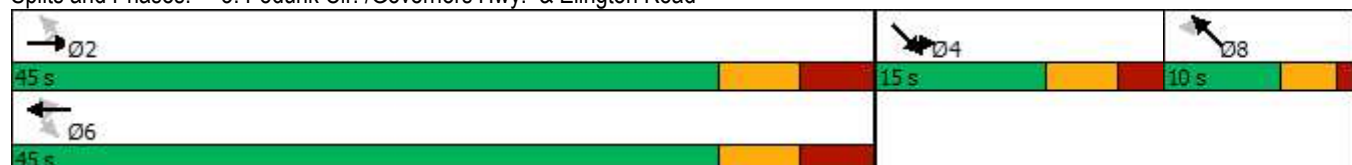
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Podunk Cir. /Governors Hwy. & Elington Road



Appendix D

Capacity Analysis – 2023 Build Traffic Conditions

2023 Build Weekday A.M.

1: John Fitch Blvd./US-5 & Governor's Hwy.
Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	12	13	210	81	89	37	666	158	100	1105	71
Future Volume (vph)	9	12	13	210	81	89	37	666	158	100	1105	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	260		280	260		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	50			50			50			50		
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		0.949			0.968				0.850		0.991	
Flt Protected		0.987			0.973		0.950			0.950		
Satd. Flow (prot)	0	1745	0	0	1754	0	1770	3539	1583	1770	3507	0
Flt Permitted		0.896			0.808		0.114			0.950		
Satd. Flow (perm)	0	1584	0	0	1457	0	212	3539	1583	1770	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			17				172		8	
Link Speed (mph)		30			30			50			30	
Link Distance (ft)		1034			2473			2927			1619	
Travel Time (s)		23.5			56.2			39.9			36.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	13	14	228	88	97	40	724	172	109	1201	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	0	0	413	0	40	724	172	109	1278	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			0			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		pm+pt	NA	Prot	Prot	NA	
Protected Phases		4			8		5	2	2	1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		18.0	24.0	24.0	18.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		18.0	41.0	41.0	18.0	41.0	
Total Split (%)	34.4%	34.4%		34.4%	34.4%		20.0%	45.6%	45.6%	20.0%	45.6%	
Maximum Green (s)	25.1	25.1		25.1	25.1		13.0	35.0	35.0	13.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.9			5.9		5.0	6.0	6.0	5.0	6.0	
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		2.0	3.0	3.0	2.0	3.0	
Recall Mode	None	None		None	None		C-Max	Max	Max	C-Max	Max	
Walk Time (s)												7.0

1: John Fitch Blvd./US-5 & Governor's Hwy.
Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)												14.0
Pedestrian Calls (#/hr)												0
Act Effct Green (s)		25.1			25.1		49.0	35.0	35.0	13.0	35.0	
Actuated g/C Ratio		0.28			0.28		0.54	0.39	0.39	0.14	0.39	
v/c Ratio		0.08			0.99		0.12	0.53	0.24	0.43	0.93	
Control Delay		17.7			74.3		8.4	22.8	3.9	40.9	40.2	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		17.7			74.3		8.4	22.8	3.9	40.9	40.2	
LOS		B			E		A	C	A	D	D	
Approach Delay		17.7			74.3			18.8			40.2	
Approach LOS		B			E			B			D	
Queue Length 50th (ft)		10			225		9	163	0	57	357	
Queue Length 95th (ft)		33			#418		21	217	38	109	#503	
Internal Link Dist (ft)		954			2393			2847			1539	
Turn Bay Length (ft)							260		280	260		
Base Capacity (vph)		451			418		340	1376	720	255	1368	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.08			0.99		0.12	0.53	0.24	0.43	0.93	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 16 (18%), Referenced to phase 1:SBL and 5:NBL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 37.7

Intersection LOS: D

Intersection Capacity Utilization 79.9%

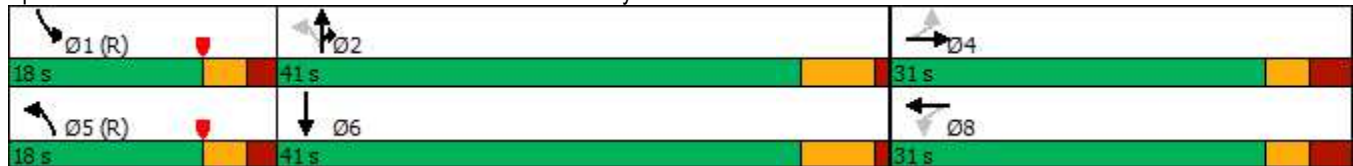
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: John Fitch Blvd./US-5 & Governor's Hwy.



2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
Lanes, Volumes, Timings

AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↗	↘
Traffic Volume (vph)	71	169	82	273	137	50
Future Volume (vph)	71	169	82	273	137	50
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	0.905				0.964	
Flt Protected				0.989	0.965	
Satd. Flow (prot)	1686	0	0	1842	1733	0
Flt Permitted				0.989	0.965	
Satd. Flow (perm)	1686	0	0	1842	1733	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2473			3853	751	
Travel Time (s)	56.2			87.6	17.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	184	89	297	149	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	261	0	0	386	203	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			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)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	53.7%			ICU Level of Service A		
Analysis Period (min)	15					

2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
HCM 6th TWSC

AM Peak Hour

Intersection						
Int Delay, s/veh	5.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	169	82	273	137	50
Future Vol, veh/h	71	169	82	273	137	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	184	89	297	149	54
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	261	0	644	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	475	-
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	-	-	1303	-	437	875
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	626	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1303	-	401	875
Mov Cap-2 Maneuver	-	-	-	-	401	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	626	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.8		18.4	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	469	-	-	1303	-	
HCM Lane V/C Ratio	0.433	-	-	0.068	-	
HCM Control Delay (s)	18.4	-	-	8	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	2.2	-	-	0.2	-	

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	20	280	1	0	545	234	103	1	20	2	0	0
Future Volume (vph)	20	280	1	0	545	234	103	1	20	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		240	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	50			50			50			50		
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						0.850		0.978				
Flt Protected		0.997						0.960			0.950	
Satd. Flow (prot)	0	1857	0	0	1863	1583	0	1749	0	0	1770	0
Flt Permitted		0.942						0.960				
Satd. Flow (perm)	0	1755	0	0	1863	1583	0	1749	0	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						254		11				
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1820			1725			3853			188	
Travel Time (s)		31.0			29.4			105.1			5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	304	1	0	592	254	112	1	22	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	327	0	0	592	254	0	135	0	0	2	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			0			0			0	
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			NA	Perm	Split	NA		Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6		6				8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	29.0	29.0		26.2	26.2	26.2	15.0	15.0		10.0	10.0	
Total Split (s)	45.0	45.0		45.0	45.0	45.0	15.0	15.0		10.0	10.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	21.4%	21.4%		14.3%	14.3%	
Maximum Green (s)	36.8	36.8		36.8	36.8	36.8	8.9	8.9		6.0	6.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	3.7	3.7		3.0	3.0	
All-Red Time (s)	4.0	4.0		4.0	4.0	4.0	2.4	2.4		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		8.2			8.2	8.2		6.1			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)							1.0	1.0				

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Flash Dont Walk (s)							10.0	10.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		32.5			32.5	32.5		7.7			5.3	
Actuated g/C Ratio		0.64			0.64	0.64		0.15			0.10	
v/c Ratio		0.29			0.50	0.23		0.49			0.01	
Control Delay		7.9			10.0	1.8		28.1			26.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		7.9			10.0	1.8		28.1			26.0	
LOS		A			A	A		C			C	
Approach Delay		7.9			7.5			28.1			26.0	
Approach LOS		A			A			C			C	
Queue Length 50th (ft)		46			100	0		33			1	
Queue Length 95th (ft)		124			254	29		#113			7	
Internal Link Dist (ft)		1740			1645			3773			108	
Turn Bay Length (ft)						240						
Base Capacity (vph)		1306			1387	1243		332			232	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.25			0.43	0.20		0.41			0.01	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 50.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 9.8

Intersection LOS: A

Intersection Capacity Utilization 51.6%

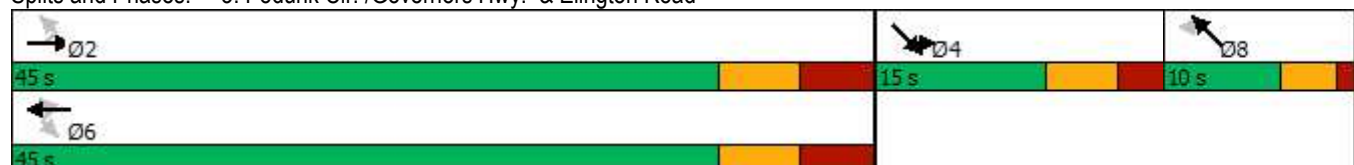
ICU Level of Service A

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Podunk Cir. /Governors Hwy. & Elington Road



2023 Build Weekday P.M.

1: John Fitch Blvd./US-5 & Governor's Hwy.
Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	71	51	203	20	72	10	919	178	118	903	87
Future Volume (vph)	61	71	51	203	20	72	10	919	178	118	903	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	260		280	260		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	50			50			50			50		
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		0.963			0.967				0.850		0.987	
Flt Protected		0.984			0.967		0.950			0.950		
Satd. Flow (prot)	0	1765	0	0	1742	0	1770	3539	1583	1770	3493	0
Flt Permitted		0.823			0.652		0.128			0.950		
Satd. Flow (perm)	0	1476	0	0	1174	0	238	3539	1583	1770	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			18				189		13	
Link Speed (mph)		30			30			50			30	
Link Distance (ft)		1034			2473			2927			1619	
Travel Time (s)		23.5			56.2			39.9			36.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	65	76	54	216	21	77	11	978	189	126	961	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	0	0	314	0	11	978	189	126	1054	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			0			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		pm+pt	NA	Prot	Prot	NA	
Protected Phases		4			8		5	2	2	1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		18.0	24.0	24.0	18.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		18.0	41.0	41.0	18.0	41.0	
Total Split (%)	34.4%	34.4%		34.4%	34.4%		20.0%	45.6%	45.6%	20.0%	45.6%	
Maximum Green (s)	25.1	25.1		25.1	25.1		13.0	35.0	35.0	13.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.9			5.9		5.0	6.0	6.0	5.0	6.0	
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		2.0	3.0	3.0	2.0	3.0	
Recall Mode	None	None		None	None		C-Max	Max	Max	C-Max	Max	
Walk Time (s)												7.0

1: John Fitch Blvd./US-5 & Governor's Hwy.

Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)												14.0
Pedestrian Calls (#/hr)												0
Act Effect Green (s)		24.4			24.4		49.7	35.0	35.0	13.7	35.0	
Actuated g/C Ratio		0.27			0.27		0.55	0.39	0.39	0.15	0.39	
v/c Ratio		0.47			0.95		0.03	0.71	0.26	0.47	0.77	
Control Delay		28.4			70.5		7.6	26.7	3.8	41.7	28.4	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		28.4			70.5		7.6	26.7	3.8	41.7	28.4	
LOS		C			E		A	C	A	D	C	
Approach Delay		28.4			70.5			22.9			29.8	
Approach LOS		C			E			C			C	
Queue Length 50th (ft)		81			164		2	242	0	67	266	
Queue Length 95th (ft)		146			#327		9	314	40	123	346	
Internal Link Dist (ft)		954			2393			2847			1539	
Turn Bay Length (ft)							260		280	260		
Base Capacity (vph)		426			340		364	1376	731	269	1366	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.46			0.92		0.03	0.71	0.26	0.47	0.77	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 16 (18%), Referenced to phase 1:SBL and 5:NBL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 31.3

Intersection LOS: C

Intersection Capacity Utilization 78.6%

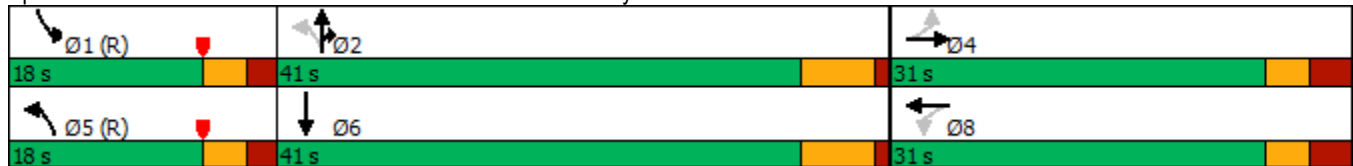
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: John Fitch Blvd./US-5 & Governor's Hwy.



2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
Lanes, Volumes, Timings

PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	232	148	49	101	134	80
Future Volume (vph)	232	148	49	101	134	80
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	0.947				0.950	
Flt Protected				0.984	0.970	
Satd. Flow (prot)	1764	0	0	1833	1717	0
Flt Permitted				0.984	0.970	
Satd. Flow (perm)	1764	0	0	1833	1717	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	2473			3853	751	
Travel Time (s)	56.2			87.6	17.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	252	161	53	110	146	87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	413	0	0	163	233	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			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)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	51.6%			ICU Level of Service A		
Analysis Period (min)	15					

2: Talbot Ln. & Governor's Hwy. /Governors Hwy.
HCM 6th TWSC

PM Peak Hour

Intersection						
Int Delay, s/veh	5.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	232	148	49	101	134	80
Future Vol, veh/h	232	148	49	101	134	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	161	53	110	146	87
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	413	0	549	333
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	216	-
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	-	-	1146	-	497	709
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	820	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1146	-	473	709
Mov Cap-2 Maneuver	-	-	-	-	473	-
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	820	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.7		16.6	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1		EBT	EBR	WBL	WBT
Capacity (veh/h)	540		-	-	1146	-
HCM Lane V/C Ratio	0.431		-	-	0.046	-
HCM Control Delay (s)	16.6		-	-	8.3	0
HCM Lane LOS	C		-	-	A	A
HCM 95th %tile Q(veh)	2.1		-	-	0.1	-

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	25	677	2	0	335	168	260	0	11	2	0	2
Future Volume (vph)	25	677	2	0	335	168	260	0	11	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		240	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	50			50			50			50		
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						0.850		0.994			0.932	
Flt Protected		0.998						0.954			0.976	
Satd. Flow (prot)	0	1859	0	0	1863	1583	0	1766	0	0	1694	0
Flt Permitted		0.977						0.954				
Satd. Flow (perm)	0	1820	0	0	1863	1583	0	1766	0	0	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						179		143			176	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1820			1725			3853			188	
Travel Time (s)		31.0			29.4			105.1			5.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	27	720	2	0	356	179	277	0	12	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	749	0	0	356	179	0	289	0	0	4	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			0			0			0	
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			NA	Perm	Split	NA		Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6		6				8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	29.0	29.0		26.2	26.2	26.2	15.0	15.0		10.0	10.0	
Total Split (s)	45.0	45.0		45.0	45.0	45.0	15.0	15.0		10.0	10.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	21.4%	21.4%		14.3%	14.3%	
Maximum Green (s)	36.8	36.8		36.8	36.8	36.8	8.9	8.9		6.0	6.0	
Yellow Time (s)	4.2	4.2		4.2	4.2	4.2	3.7	3.7		3.0	3.0	
All-Red Time (s)	4.0	4.0		4.0	4.0	4.0	2.4	2.4		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		8.2			8.2	8.2		6.1			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)							1.0	1.0				

3: Podunk Cir. /Governors Hwy. & Elington Road Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Flash Dont Walk (s)							10.0	10.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		28.6			28.6	28.6		8.3			5.2	
Actuated g/C Ratio		0.54			0.54	0.54		0.16			0.10	
v/c Ratio		0.76			0.35	0.19		0.73			0.01	
Control Delay		16.5			8.5	2.0		26.2			0.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		16.5			8.5	2.0		26.2			0.0	
LOS		B			A	A		C			A	
Approach Delay		16.5			6.3			26.2				
Approach LOS		B			A			C				
Queue Length 50th (ft)		152			53	0		40			0	
Queue Length 95th (ft)		376			132	25		#183			0	
Internal Link Dist (ft)		1740			1645			3773			108	
Turn Bay Length (ft)						240						
Base Capacity (vph)		1302			1333	1183		424			358	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.58			0.27	0.15		0.68			0.01	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 53

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 14.8

Intersection LOS: B

Intersection Capacity Utilization 89.6%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Podunk Cir. /Governors Hwy. & Elington Road

 Ø2	 Ø4	 Ø8
45 s	15 s	10 s
 Ø6		
45 s		

Appendix E

Capacity Analysis – 2023 Build with Improvements Traffic Conditions

2023 Build with Improvements Weekday A.M.

1: John Fitch Blvd./US-5 & Governor's Hwy.
Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	12	13	210	81	89	37	666	158	100	1105	71
Future Volume (vph)	9	12	13	210	81	89	37	666	158	100	1105	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	260		280	260		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	50			50			50			50		
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		0.949			0.968				0.850		0.991	
Flt Protected		0.987			0.973		0.950			0.950		
Satd. Flow (prot)	0	1745	0	0	1754	0	1770	3539	1583	1770	3507	0
Flt Permitted		0.893			0.808		0.111			0.950		
Satd. Flow (perm)	0	1579	0	0	1457	0	207	3539	1583	1770	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			18				172		9	
Link Speed (mph)		30			30			50			30	
Link Distance (ft)		1034			2473			2927			1619	
Travel Time (s)		23.5			56.2			39.9			36.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	13	14	228	88	97	40	724	172	109	1201	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	0	0	413	0	40	724	172	109	1278	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			0			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		pm+pt	NA	Prot	Prot	NA	
Protected Phases		4			8		5	2	2	1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		18.0	24.0	24.0	18.0	41.0	
Total Split (s)	35.0	35.0		35.0	35.0		13.0	42.0	42.0	13.0	42.0	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		14.4%	46.7%	46.7%	14.4%	46.7%	
Maximum Green (s)	29.1	29.1		29.1	29.1		8.0	36.0	36.0	8.0	36.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.9			5.9		5.0	6.0	6.0	5.0	6.0	
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		2.0	3.0	3.0	2.0	3.0	
Recall Mode	None	None		None	None		C-Max	Max	Max	C-Max	Max	
Walk Time (s)												7.0

1: John Fitch Blvd./US-5 & Governor's Hwy.

Lanes, Volumes, Timings

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)												14.0
Pedestrian Calls (#/hr)												0
Act Effect Green (s)		27.3			27.3		46.8	36.0	36.0	9.8	36.0	
Actuated g/C Ratio		0.30			0.30		0.52	0.40	0.40	0.11	0.40	
v/c Ratio		0.08			0.91		0.14	0.51	0.23	0.56	0.91	
Control Delay		15.6			54.7		10.5	22.0	3.8	52.5	36.2	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		15.6			54.7		10.5	22.0	3.8	52.5	36.2	
LOS		B			D		B	C	A	D	D	
Approach Delay		15.6			54.7			18.1			37.5	
Approach LOS		B			D			B			D	
Queue Length 50th (ft)		9			209		10	159	0	61	350	
Queue Length 95th (ft)		31			#377		24	213	38	#140	#490	
Internal Link Dist (ft)		954			2393			2847			1539	
Turn Bay Length (ft)							260		280	260		
Base Capacity (vph)		520			483		278	1415	736	193	1408	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.07			0.86		0.14	0.51	0.23	0.56	0.91	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 16 (18%), Referenced to phase 1:SBL and 5:NBL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 33.2

Intersection LOS: C

Intersection Capacity Utilization 79.9%

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.

Splits and Phases: 1: John Fitch Blvd./US-5 & Governor's Hwy.

		
Ø1 (R)	Ø2	Ø4
13 s	42 s	35 s
		
Ø5 (R)	Ø6	Ø8
13 s	42 s	35 s

2023 Build with Improvements Weekday P.M.

1: John Fitch Blvd./US-5 & Governor's Hwy.

Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	71	51	203	20	72	10	919	178	118	903	87
Future Volume (vph)	61	71	51	203	20	72	10	919	178	118	903	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	260		280	260		0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (ft)	50			50			50			50		
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		0.963			0.967				0.850		0.987	
Flt Protected		0.984			0.967		0.950			0.950		
Satd. Flow (prot)	0	1765	0	0	1742	0	1770	3539	1583	1770	3493	0
Flt Permitted		0.821			0.657		0.166			0.950		
Satd. Flow (perm)	0	1473	0	0	1183	0	309	3539	1583	1770	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			19				189		14	
Link Speed (mph)		30			30			50			30	
Link Distance (ft)		1034			2473			2927			1619	
Travel Time (s)		23.5			56.2			39.9			36.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	65	76	54	216	21	77	11	978	189	126	961	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	0	0	314	0	11	978	189	126	1054	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			0			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		pm+pt	NA	Prot	Prot	NA	
Protected Phases		4			8		5	2	2	1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		6.0	15.0	15.0	6.0	15.0	
Minimum Split (s)	23.9	23.9		23.9	23.9		18.0	24.0	24.0	18.0	41.0	
Total Split (s)	35.0	35.0		35.0	35.0		11.0	40.0	40.0	15.0	44.0	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		12.2%	44.4%	44.4%	16.7%	48.9%	
Maximum Green (s)	29.1	29.1		29.1	29.1		6.0	34.0	34.0	10.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.0	1.0	1.0	2.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.9			5.9		5.0	6.0	6.0	5.0	6.0	
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		2.0	3.0	3.0	2.0	3.0	
Recall Mode	None	None		None	None		C-Max	Max	Max	C-Max	Max	
Walk Time (s)												7.0

1: John Fitch Blvd./US-5 & Governor's Hwy.

Lanes, Volumes, Timings

PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)												14.0
Pedestrian Calls (#/hr)												0
Act Effct Green (s)		25.7			25.7		44.4	34.0	34.0	13.4	38.0	
Actuated g/C Ratio		0.29			0.29		0.49	0.38	0.38	0.15	0.42	
v/c Ratio		0.45			0.89		0.04	0.73	0.26	0.48	0.71	
Control Delay		25.6			56.9		9.7	28.0	4.0	44.4	24.4	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		25.6			56.9		9.7	28.0	4.0	44.4	24.4	
LOS		C			E		A	C	A	D	C	
Approach Delay		25.6			56.9			24.0			26.6	
Approach LOS		C			E			C			C	
Queue Length 50th (ft)		76			154		3	246	0	69	250	
Queue Length 95th (ft)		135			#293		10	321	41	#144	324	
Internal Link Dist (ft)		954			2393			2847			1539	
Turn Bay Length (ft)							260		280	260		
Base Capacity (vph)		491			395		304	1336	715	263	1482	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.40			0.79		0.04	0.73	0.26	0.48	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 16 (18%), Referenced to phase 1:SBL and 5:NBL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 28.8

Intersection LOS: C

Intersection Capacity Utilization 78.6%

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.

Splits and Phases: 1: John Fitch Blvd./US-5 & Governor's Hwy.

