TRAFFIC IMPACT REPORT

DTS TRUCK TERMINAL
COMMERCE CITY, COLORADO

NOVEMBER 1, 2016

Prepared for:
Diversified Transfer & Storage
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I. EXECUTIVE SUMMARY

Diversified Transfer and Storage is proposing to develop the approximate 10 acre property in the southeast quadrant of I-76 and E 104th Avenue located in Commerce City, CO into a truck terminal and refrigerated storage facility.

The parcel is currently undeveloped and zoned I-1 with a Conditional Use permit required. The proposed development is currently named DTS Truck Terminal Facility ("DTS" in this report).

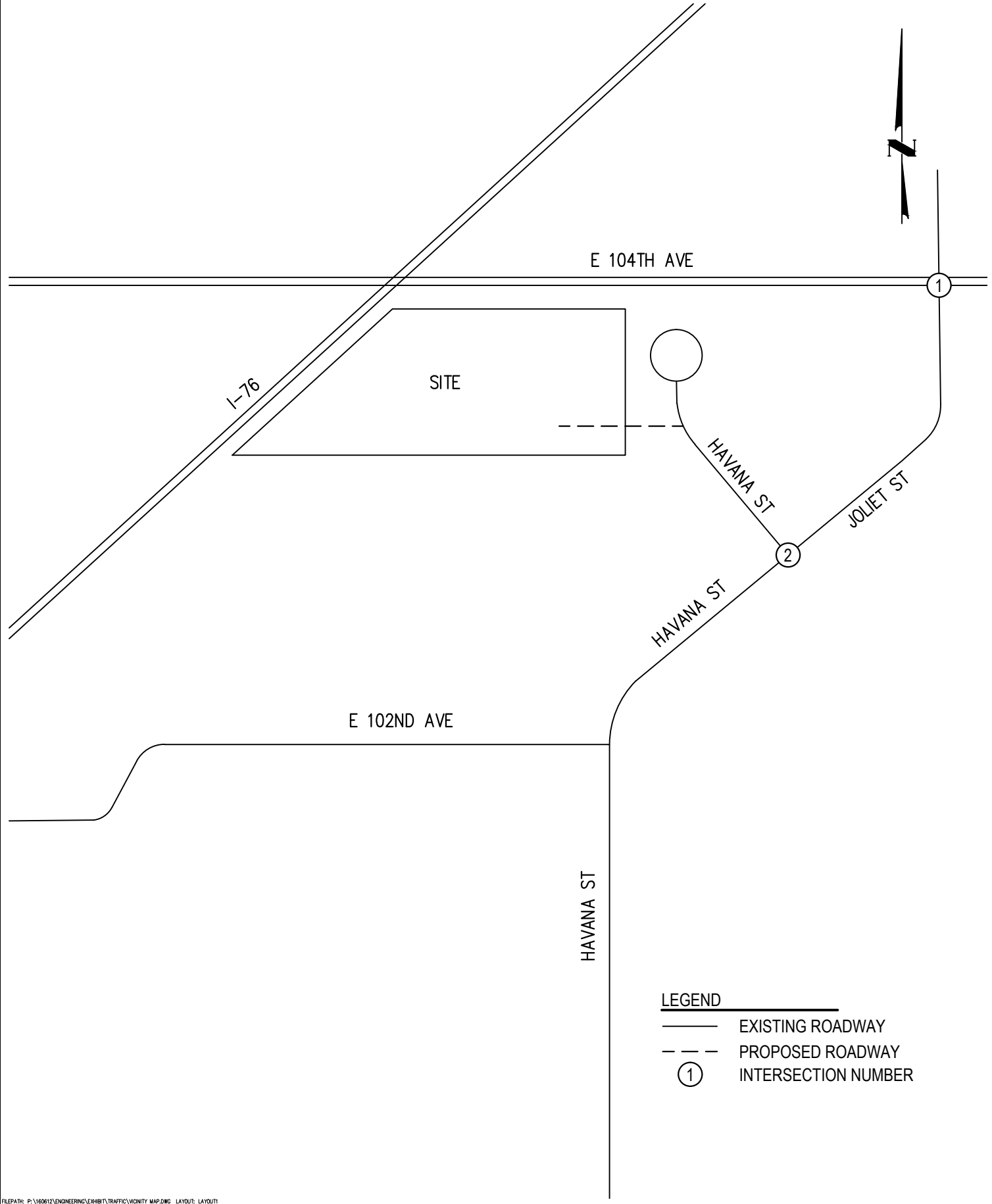
Access to the project is proposed to be gained by constructing an access point with Havana Street just north of the intersection of Havana Street and Joliet Street.

At the E 104th Avenue / Joliet Street intersection:

- Operations as a two-way stop-controlled intersection create no operational issues for eastbound or westbound left turns with acceptable operations in the 2035 Total Traffic scenario.
- As would be expected with stop-controlled movements onto busy arterial roadways, northbound left-turns are currently projected with unacceptable operations in 2016. Southbound left-turns are projected to have unacceptable operations in the 2018 Background Traffic and 2035 Background Traffic scenarios as a stop-controlled intersection.
- A traffic signal engineering study is recommended due to the intersection meeting Traffic Signal Warrant #3 in 2016. Traffic signal warrant analysis using Warrant 3 is included in this analysis as a guide for the potential signalization in the future, not as a recommendation today. As corresponding background volumes increase, analyses that evaluate all nine traffic signal warrants should be conducted.
- At the direction of City of Commerce City engineering and planning personnel, a separate Traffic Signal Needs Study for the intersection of E 104th Ave and Joliet Street has been prepared and submitted under separate cover. It indicates a traffic signal is warranted for the intersection in 2016 based solely on existing traffic in 2016. The traffic generated by DTS does not contribute to the traffic signal being warranted in 2016.
- The proposed DTS development is projected to generate 2.42% of the total traffic using the intersection in 2035 which would form the basis for a traffic signal fair-share contribution of 2.42%.
- Extensive queue storage lanes for eastbound and westbound left turns have been recently constructed.

The Havana Street / Joliet Street intersection is proposed to continue to operate with acceptable service levels in 2018 and 2035.

Based on the analyses contained in this traffic study it is concluded that the study-area roadway system can accommodate the proposed DTS Truck Terminal Facility with the recommended access improvements with negligible impact on the study-area roadway system.



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DTS TRUCK TERMINAL
VICINITY MAP

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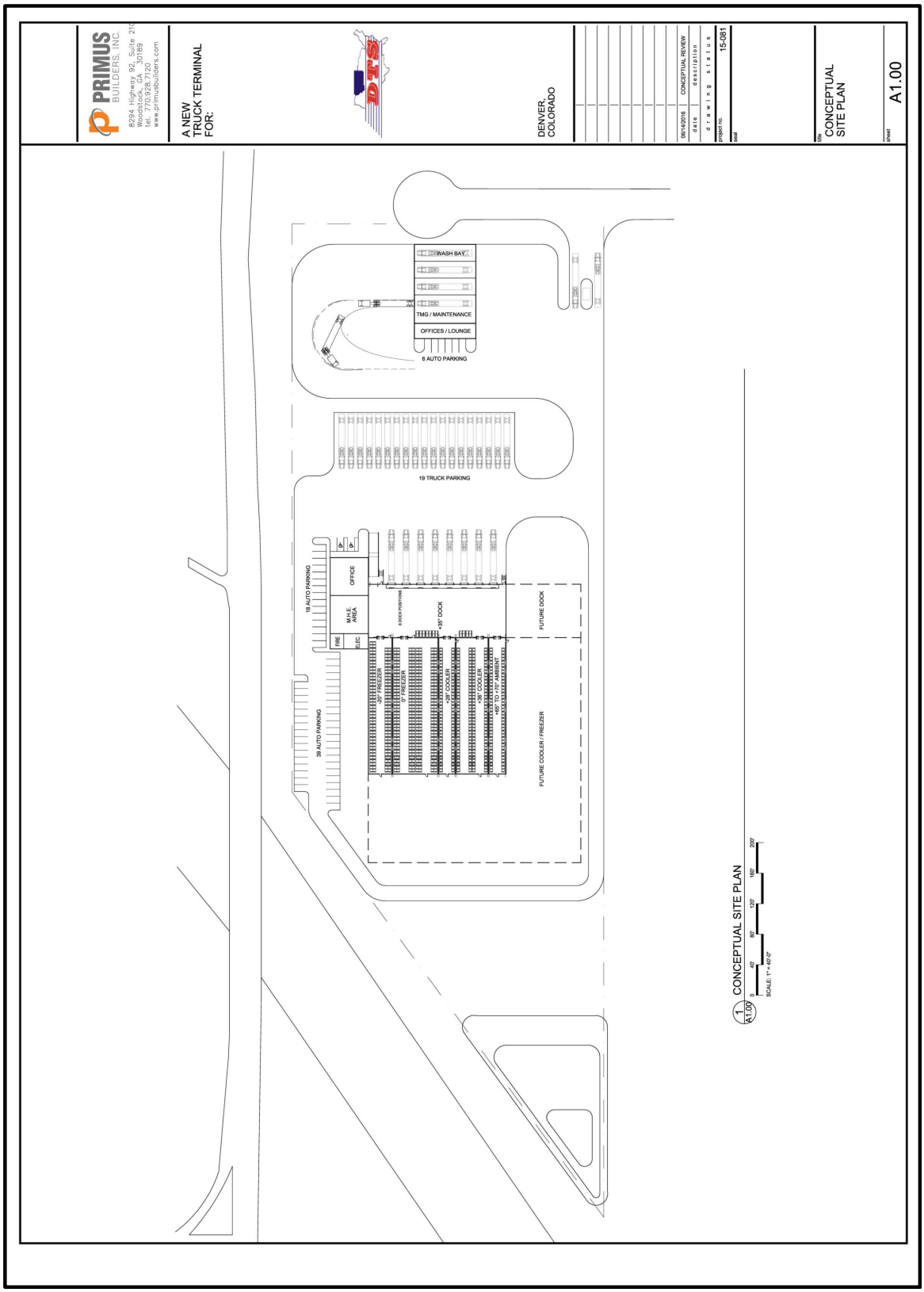

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DTS TRUCK TERMINAL
CONCEPTUAL PLAN

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II. INTRODUCTION

A. Project Overview

Diversified Transfer and Storage (DTS) is proposing to develop the approximate 10 acre property on the southeast quadrant of I-76 and E 104th Avenue located in Commerce City, CO into a truck terminal facility.

The parcel is currently undeveloped and zoned I-1. The proposed development is currently named DTS Truck Terminal Facility ("DTS" in this report) and will consist of a truck terminal and refrigerated storage facility. The subject property is bounded on the north by the E 104th Avenue, on the west by I-76, on the south by light industrial and storage, and on the east by Havana Street with a cul-de-sac on the north end of Havana Street.

Access to the project is proposed to be gained by constructing an access point with Havana Street just north of the intersection of Havana Street and Joliet Street.

See Figure A-2 for a graphical representation of the proposed access point with Havana Street.

B. Purpose of Study

The purpose of this study is to evaluate the impact of the vehicular trips projected to be generated by the proposed development on the nearby intersections and roadway system. The study includes 2016, 2018 (year of anticipated build-out), and 2035 (long-range horizon year) analysis horizons.

This traffic study was prepared in accordance with:

- Commerce City traffic study guidelines "5.02 Traffic Studies"
- As discussed with Commerce City engineering representatives

C. Study Area

The study area encompasses the existing roadway system in the vicinity of the project site. Specifically, the following existing intersections are evaluated:

- E 104th Avenue / Joliet Street
- Havana Street / Joliet Street

See Figure A-1 and A-2 for a graphical representation of the general area of the DTS project and the proposed site plan.

III. EXISTING CONDITIONS

A. Existing Traffic Volumes

Existing (2016) peak-hour intersection turning-movement traffic-volume counts were collected for this study at the following intersections in April, 2016:

- E 104th Avenue / Joliet Street
- Havana Street / Joliet Street

A summary of the existing (2016) peak-hour intersection turning-movement traffic volume counts and 24-hour directional-traffic volume counts are graphically illustrated in Figure A-3. Detailed traffic-volume-count data are provided in Appendix "B".

B. Existing Roadway System

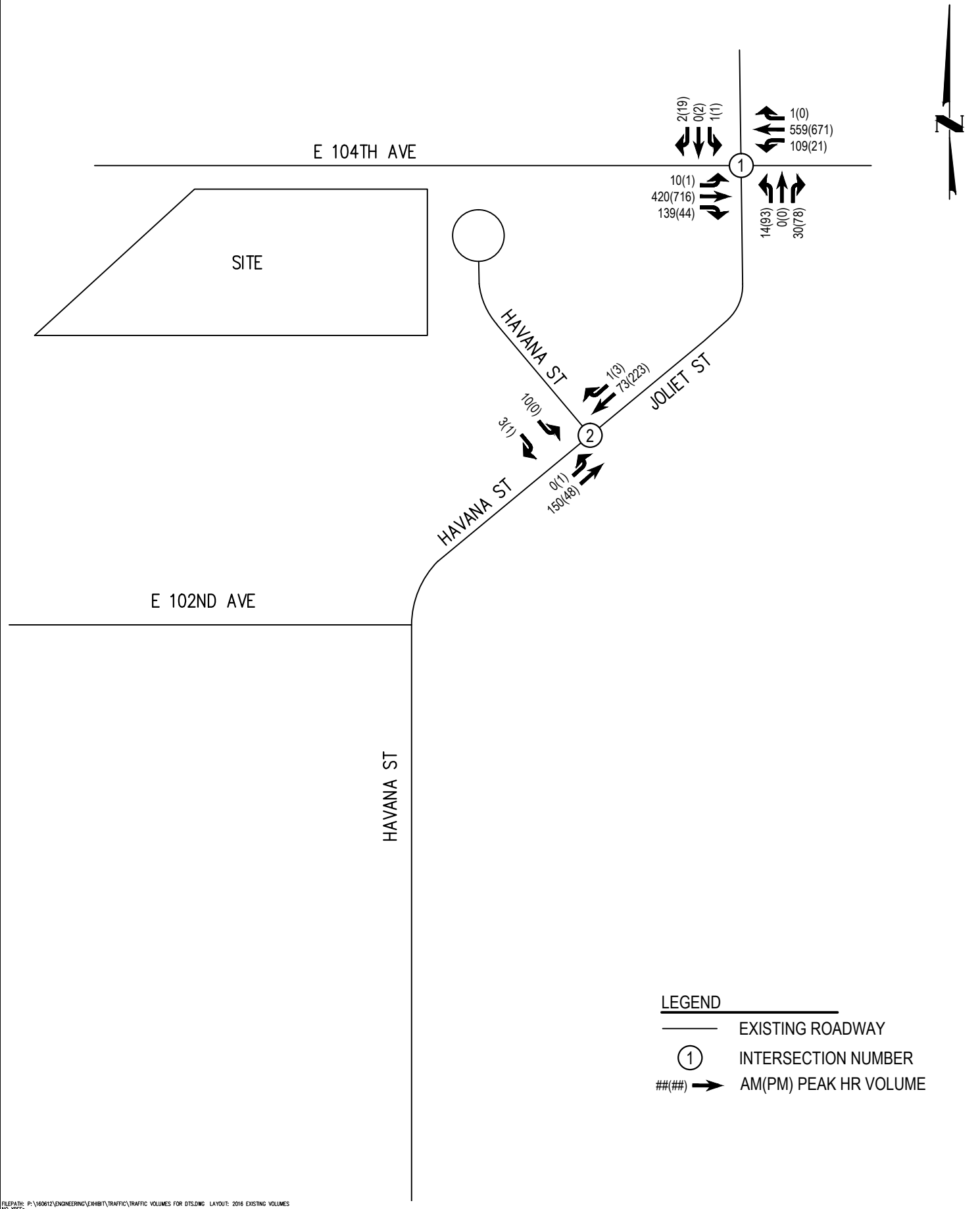
The existing transportation network in the vicinity of the subject property is graphically illustrated in Figure A-1. The following narrative provides a description of the study-area roadways and associated intersections as they exist in 2016:

Study Area Roadways:

- E 104th Avenue is also State Highway 44 and has recently been upgraded to two travel lanes in each direction with single (and future dual) turn lanes at most intersections with a raised center median. It is classified as a Principal Arterial in the Commerce City 2010 "Transportation Plan". The posted speed limit is 45 mph.
- Havana Street is classified as a Major Collector in the Commerce City 2010 "Transportation Plan". It consists of one travel lane in each direction with single turn lanes at most intersections. It has curb-and-gutter and detached sidewalk on both sides. The posted speed limit is 35 mph.
- Joliet Street is a connection between Havana Street and E 104th Ave. It has the same functional classification and physical attributes as Havana Street. The posted speed limit is 35 mph.

Study Area Intersections:

- E 104th Avenue / Joliet Street is a four-legged intersection operating under two-way stop control. The east-west movements are free movements. The east leg of the intersection has one left-turn lane, a through lane, and a through/right-turn lane on the westbound approach and two eastbound departure through lanes. The west leg of the intersection has one left-turn lane, two through lanes, and a right-turn lane on the eastbound approach and two westbound departure through lanes.. The north leg of the intersection has one left-turn and one through/right lane on the southbound approach and one northbound departure lane. The south leg of the intersection has one left-turn and one through/right-turn lane on the northbound approach and one southbound departure lane.
- Havana Street / Joliet Street is a three-legged intersection operating under two-way stop control. The north-south movements are free movements. The west leg of the intersection has one left-turn lane, and one right-turn lane on the eastbound approach and one westbound departure lane. The north leg of the intersection has one left/through lane and one right-turn lane on the southbound approach and one northbound departure lane. The south leg of the intersection has one left-turn lane



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DTS TRUCK TERMINAL
2016 EXISTING TRAFFIC VOLUMES

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and one through lane on the northbound approach and one southbound departure lane.

IV. BACKGROUND TRAFFIC

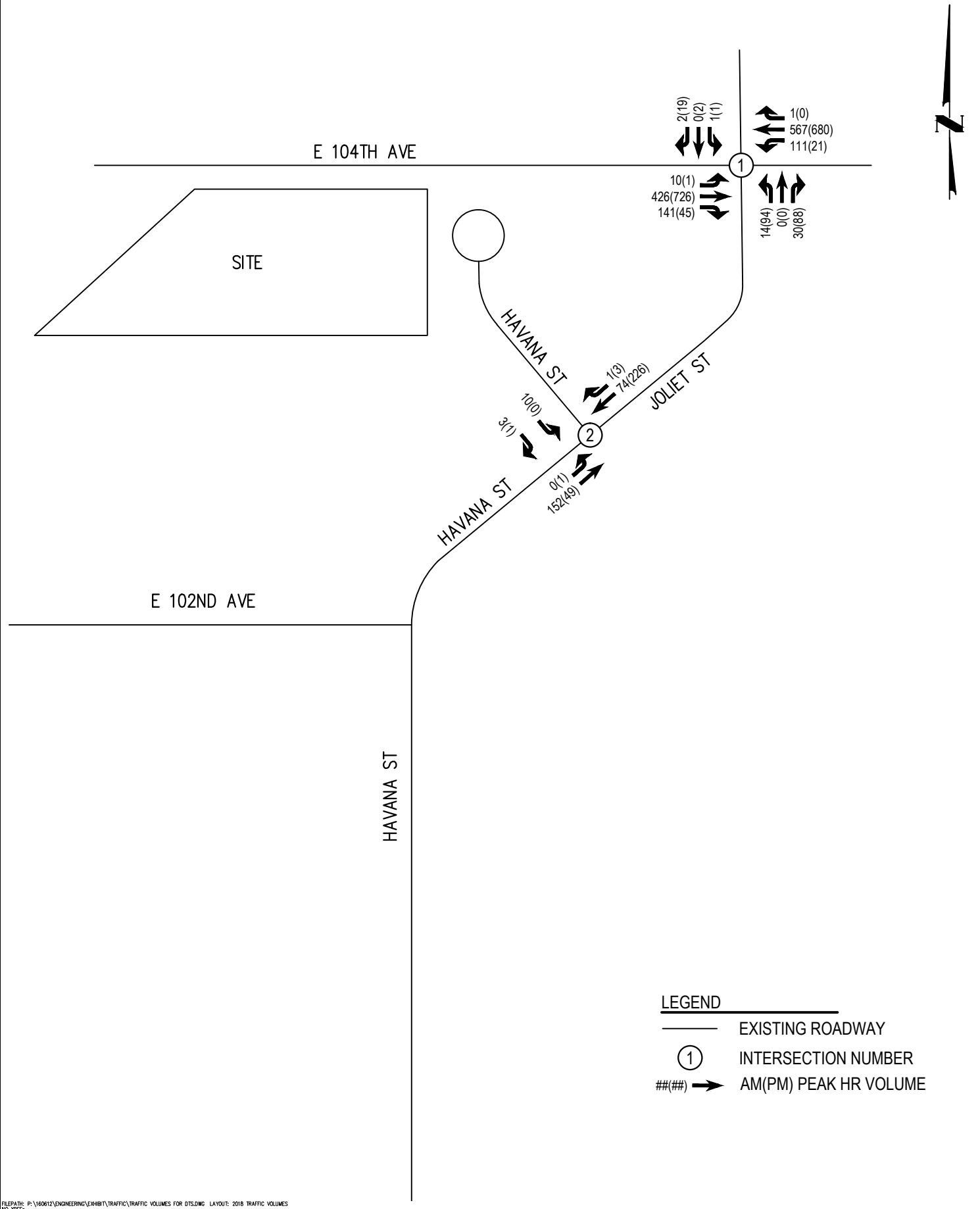
A. Background Traffic Volumes

Background traffic and forecasts for the 2018 and 2035 analysis horizons were developed for this study utilizing traffic volume counts collected in June, 2016 and the following:

- For the purposes of this study it is assumed that peak-hour distribution of background intersection approach traffic (left turn, through, right turn) will remain constant through the 2018 and 2035 analysis horizons.

- Colorado Department of Transportation On-Line Traffic Information System shows 20-year factor of 1.26 for E 104th Ave which equates to an annual rate of +1.4%. Therefore, this growth rate of +1.4% was used on streets in the vicinity of the development to estimate traffic for 2018 using 2016 counts as a starting point. The factor of 1.26 was used to estimate traffic in 2035 using 2016 counts as a starting point.

Figures A-4 and A-5 graphically illustrate the projected background-traffic volumes for the 2018 and 2035 analysis horizons, respectively.



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DTS TRUCK TERMINAL
2018 BACKGROUND TRAFFIC VOLUMES

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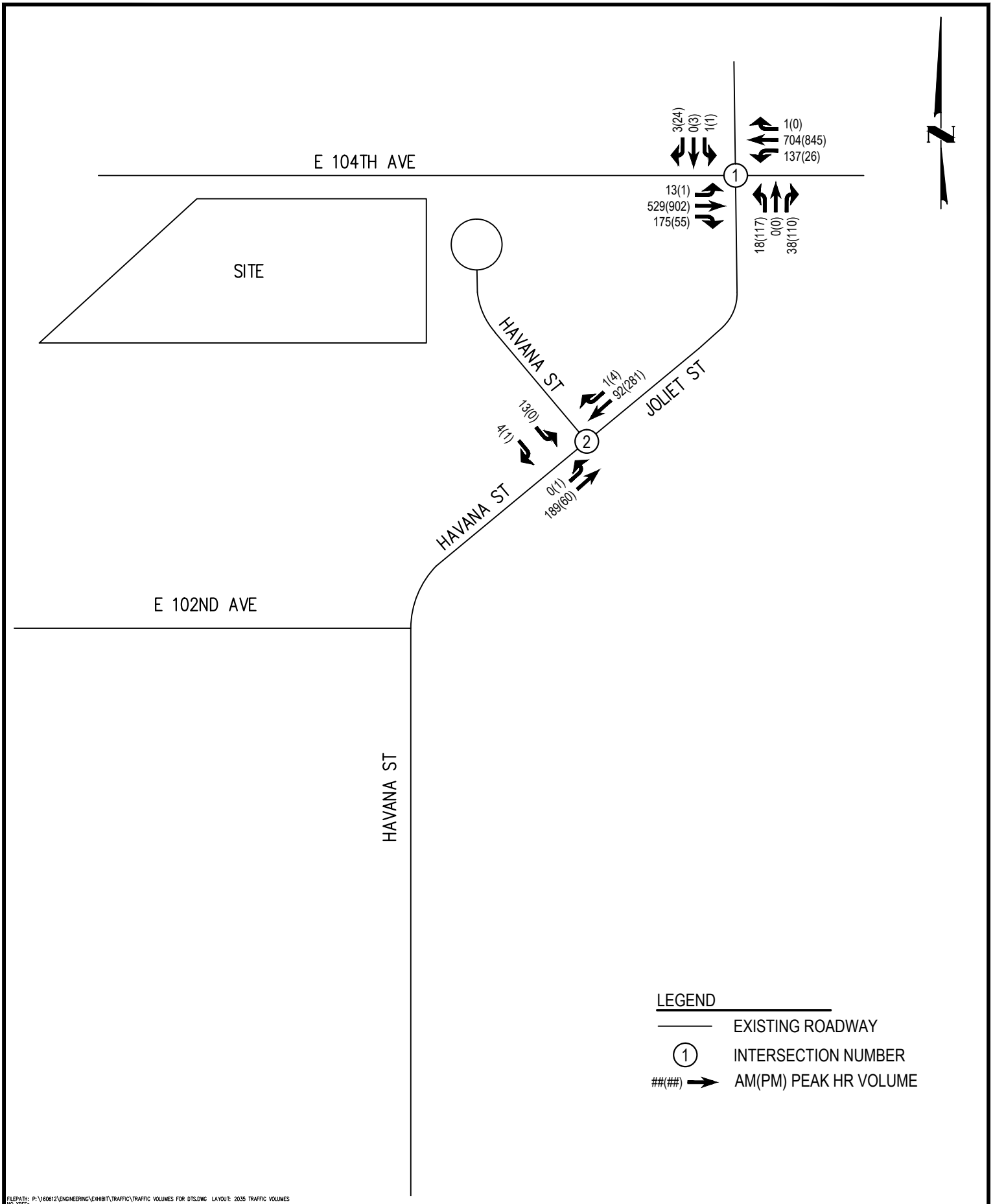

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DTS TRUCK TERMINAL
2035 BACKGROUND TRAFFIC VOLUMES

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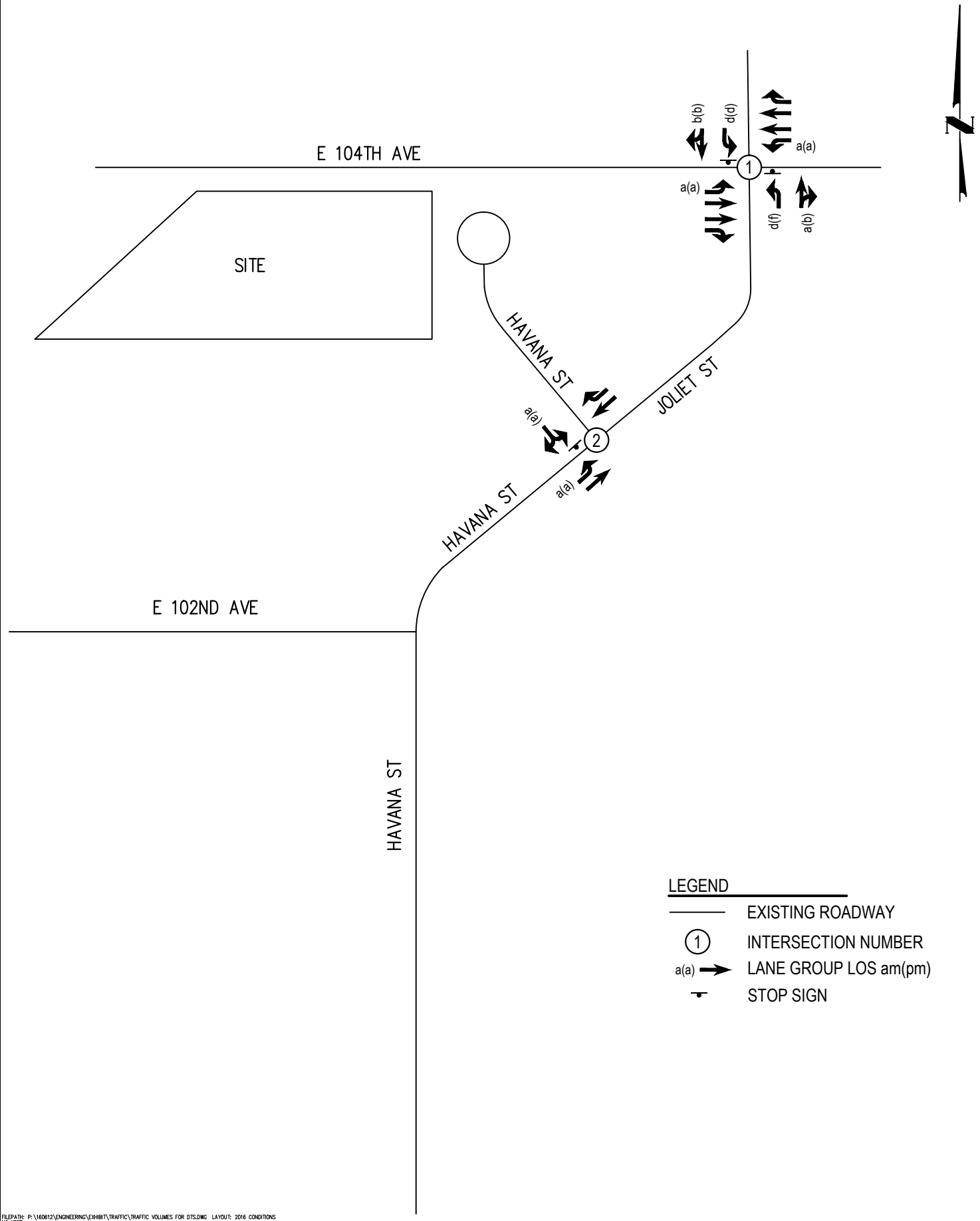
B. Background Traffic Operational Analysis

In order to establish a base condition in which to evaluate the impact of the traffic generated by the proposed development on the study-area intersections, peak-hour capacity analyses were performed for the 2016 existing, and the 2018 and 2035 background traffic conditions. These analyses utilized the methodologies contained in the *Highway Capacity Manual* 2010 (HCM) employing *Synchro 8.0* software and resulted in a qualitative measure of the operational characteristics of the intersection described by a letter designation ranging from "A" to "F" known as "Level of Service" (LOS). LOS "A" represents ideal free flow operating conditions, whereas LOS "F" represents excessive congestion and delay. Unsignalized intersection capacity analysis reports a LOS designation for each impeded intersection movement. Signalized intersection capacity analysis reports the overall LOS designation for the intersection as well as for each lane group and approach. LOS "D" is considered the minimum acceptable standard of operation.

The following study-area intersections were analyzed for 2016 existing traffic, 2018, and 2035 analysis horizon background-traffic conditions:

- E 104th Avenue / Joliet Street
- Havana Street / Joliet Street

The results of these background traffic operational analyses are summarized graphically for the 2016 existing, 2018 background and 2035 background analysis horizons in Figures A-6, A-7, and A-8, respectively. A summary of the results of the intersection capacity analyses is provided in Table 3 (located on page 10) and detailed *Synchro 8.0* software intersection capacity analysis reports in Appendix "D".



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DTS TRUCK TERMINAL
2016 EXISTING TRAFFIC OPERATIONAL CONDITIONS

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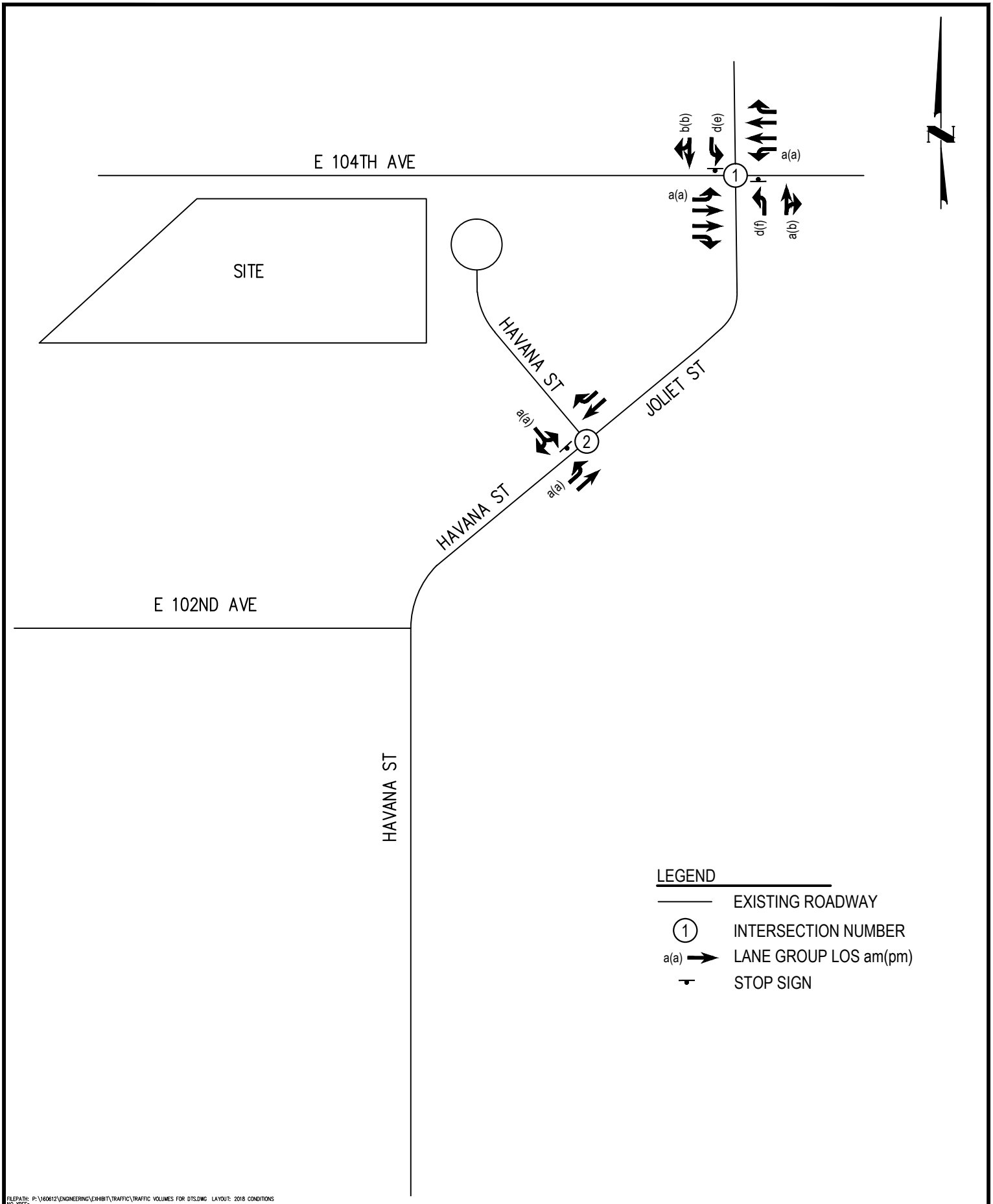

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DTS TRUCK TERMINAL
2018 BACKGROUND TRAFFIC OPERATIONAL CONDITIONS

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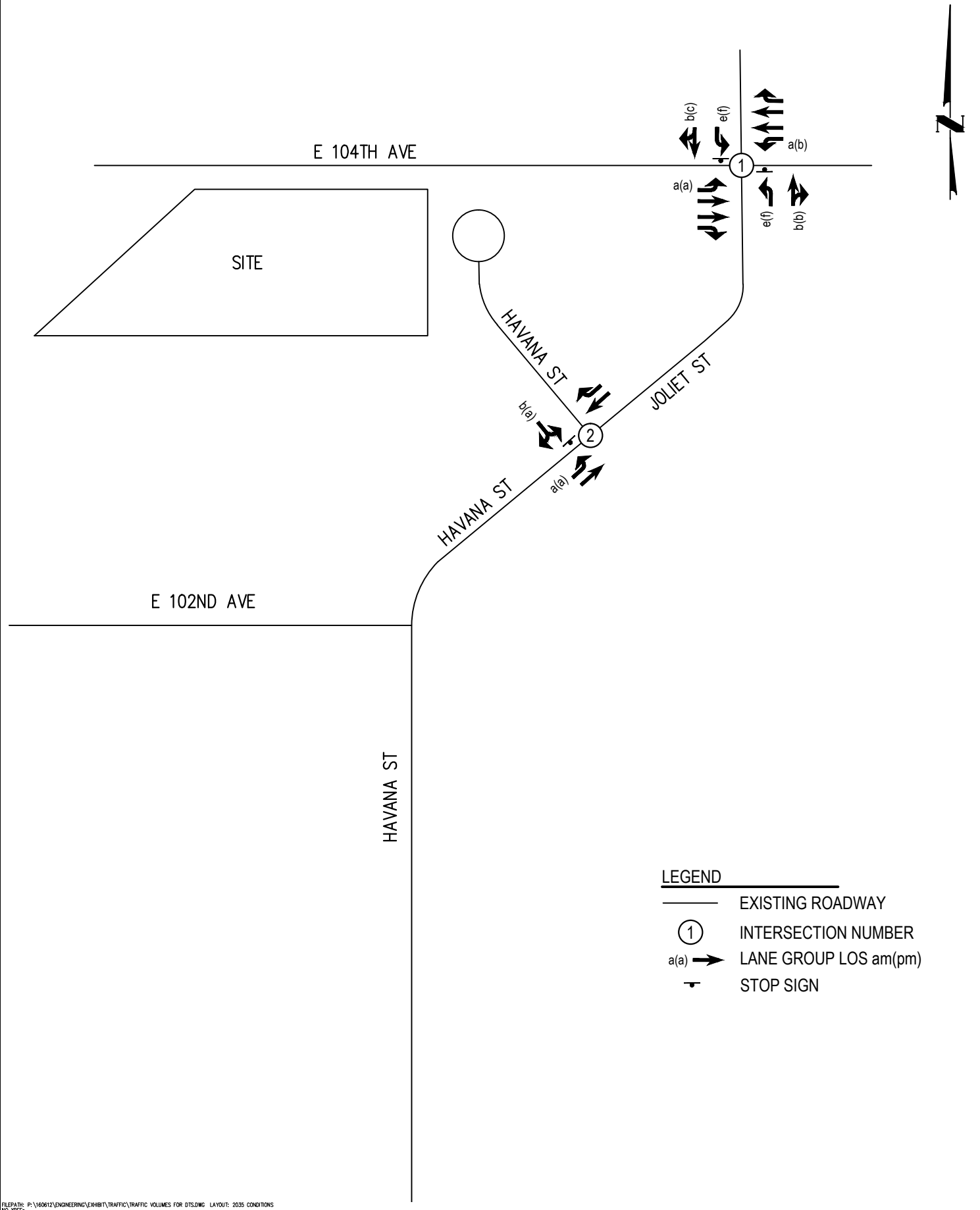

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DTS TRUCK TERMINAL
2035 BACKGROUND TRAFFIC OPERATIONAL CONDITIONS

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V. PROJECT DEVELOPMENT

A. Trip Generation

The trip-generation projection for the proposed development was estimated utilizing the publication *Trip Generation, 9th Edition*, Institute of Transportation Engineers. Estimates of total daily traffic volume and AM and PM peak-hour traffic volumes were calculated. Trip-generation reductions due to transportation demand management or transit use were not considered. See Table 1 below. Heavy vehicle percentages were increased in the operational analysis to account for the high percentage of trucks in the generated trips.

For the purposes of this study it is assumed that the subject parcel will be fully developed by 2018 with a 58,000 SF truck terminal facility. Due to there being no ITE Land Use category of "Refrigerated Storage", the projected trip generation is estimated as an average of ITE Code 150 "Warehousing" and ITE Code 110 "General Light Industrial". Based on this combination of similar trip-generation land uses, the proposed project is projected to generate 357 daily vehicle trips of which 58 will be generated during the AM peak hour and 50 will be generated during the PM peak hour.

TABLE 1
DTS TRUCK TERMINAL DEVELOPMENT

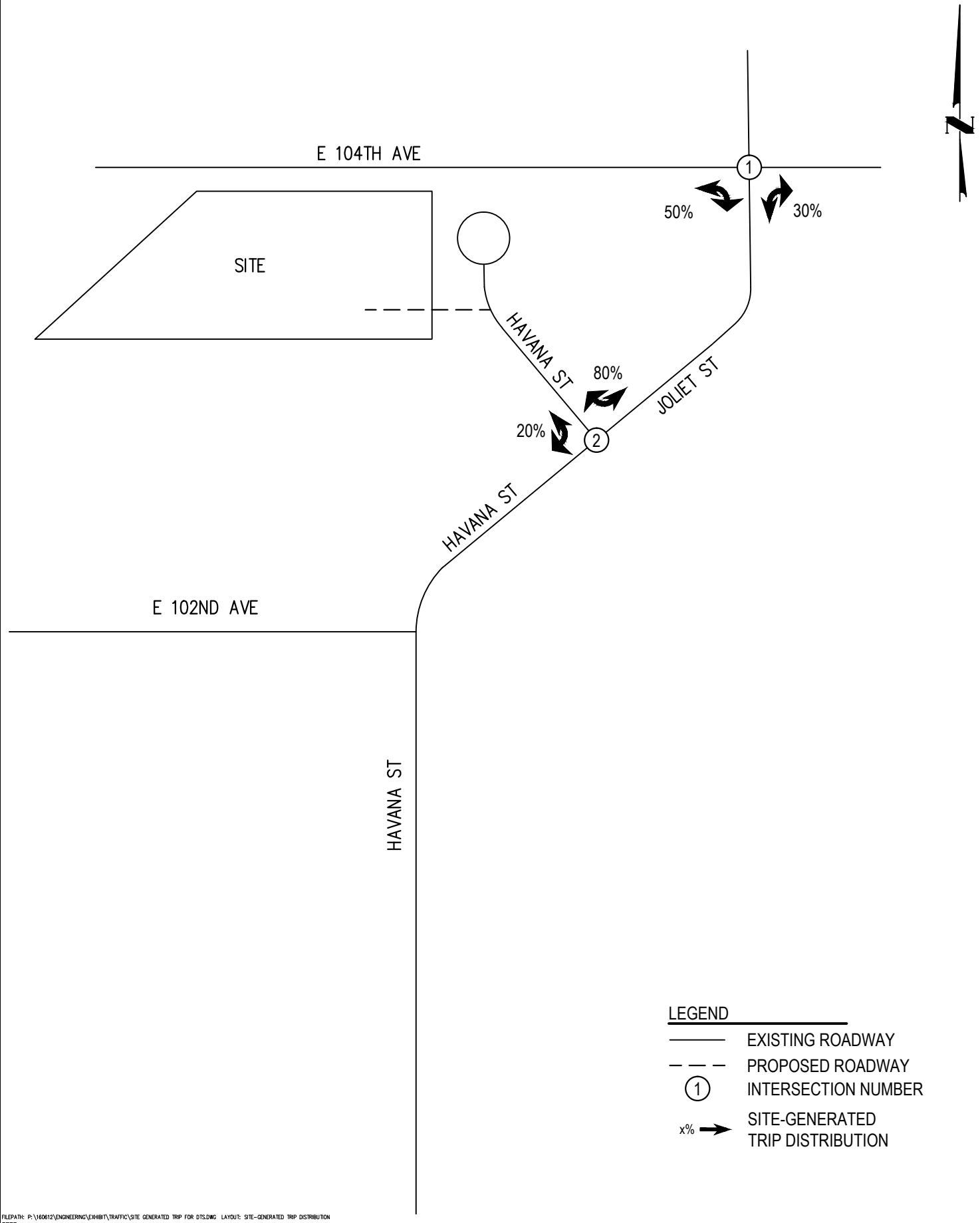
Trip Generation									
Land Use	Intensity	ITE Code	Daily (vpd)	A.M. Peak Hour (vph)			P.M. Peak Hour (vph)		
				Total	In	Out	Total	In	Out
Warehousing	58 KSF	150	309	62	49	13	43	11	32
General Light Industrial	58 KSF	110	405	54	48	6	57	7	50
Total		-	714	116	97	19	100	18	82
Average			**357**	**58**	**49**	**10**	**50**	**9**	**41**
Notes:									
1. Trip generation projections are based on ITE Trip Generation, 9th Edition									
2. Due to no ITE Land Use category of "Refrigerated Storage", trip generation is projected as an average of ITE Code 150 "Warehousing" and ITE Code 110 "General Light Ind									

B. Trip Distribution

The distribution of the estimated vehicle trips generated by the land uses for this study was established based on the current and projected future traffic patterns on the surrounding transportation system, efficiency of access to the principal transportation corridors serving the area, and the potential trip origins/destinations for the proposed land use for the subject property. Figure A-9 graphically illustrates the project-generated trip-distribution patterns for the development.

C. Trip Assignment

The vehicular traffic volumes estimated to be generated by the proposed development were assigned to the study-area roadways and intersections utilizing the trip-distribution analysis described above. Figure A-10 graphically illustrates the site-generated traffic assignment for the development.



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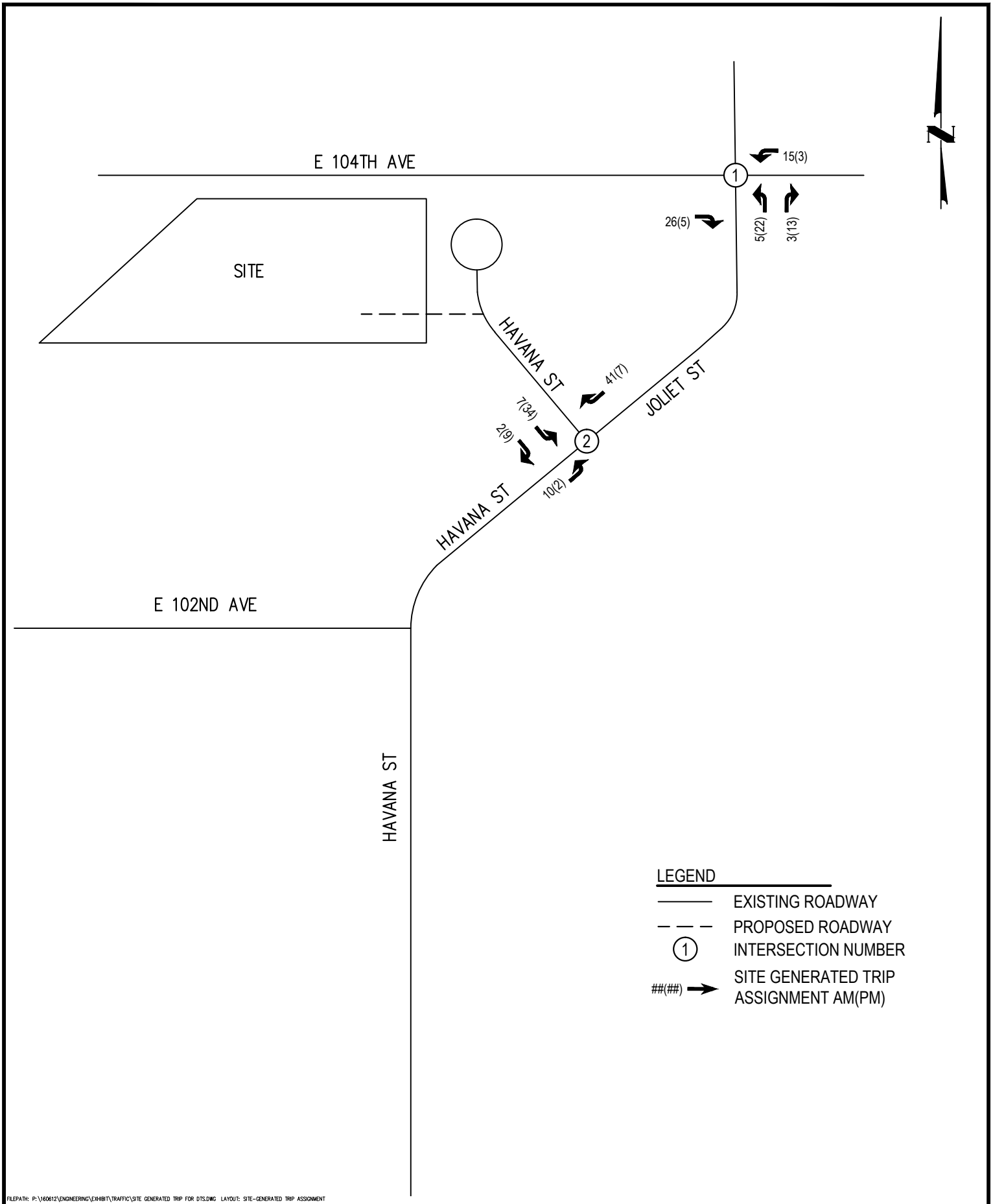

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DTS TRUCK TERMINAL SITE-GENERATED TRIP ASSIGNMENT

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VI. TOTAL TRAFFIC

Total-traffic forecast for the 2018 analysis scenario was computed by combining the 2018 background-traffic volumes with the associated projected site-generated traffic volumes. Total-traffic forecast for the 2035 analysis scenario was computed by combining the 2035 background-traffic volumes with the associated projected site-generated traffic volumes. Figures A-11 and A-12 graphically illustrate the total-traffic forecasts for the study-area intersections for the 2018 and 2035 analysis horizons, respectively.

VII. PROJECT ANALYSIS

A. Operational Analysis

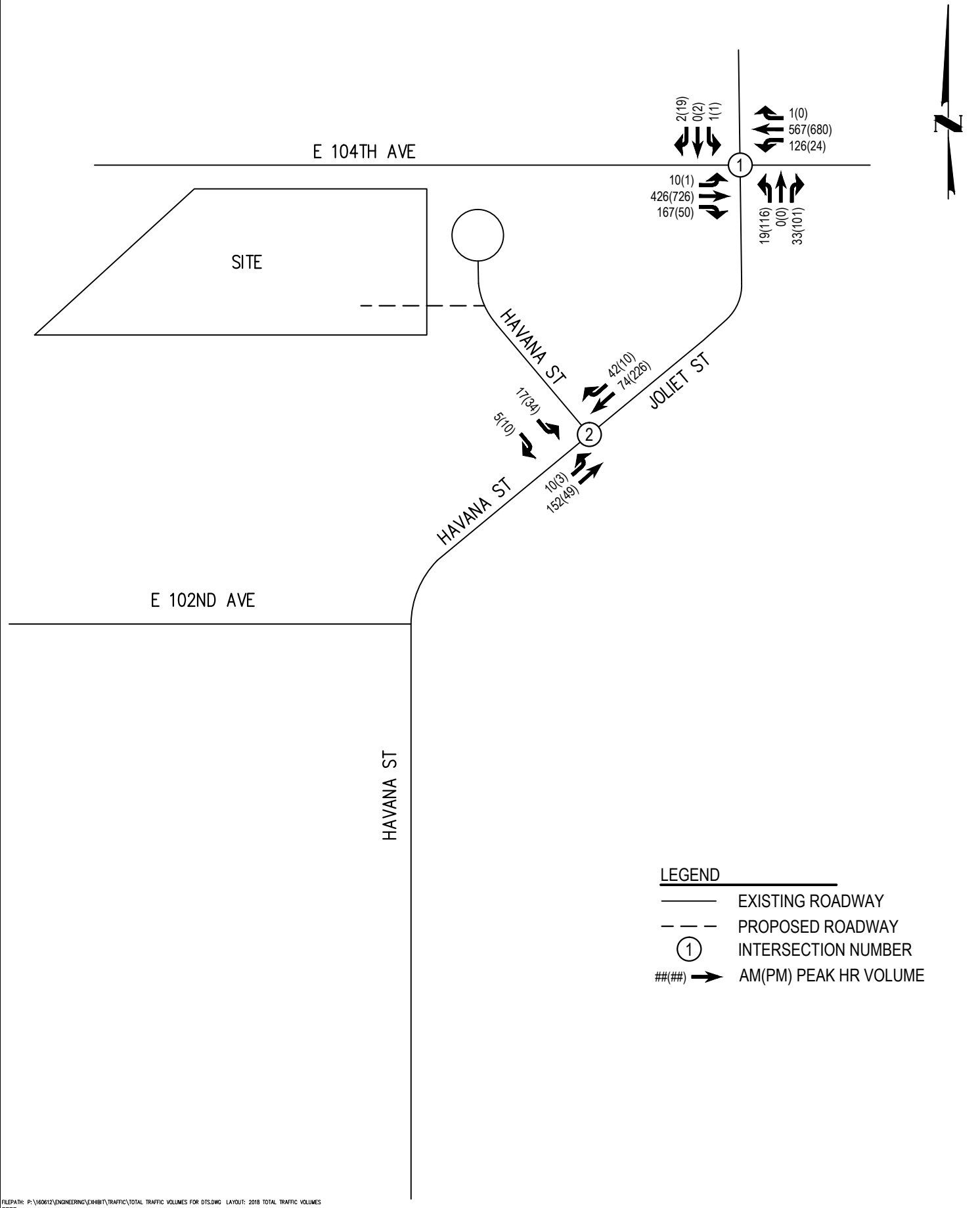
To evaluate the impact of the proposed land use for the subject property on the study-area roadway system, peak-hour intersection capacity analyses for total-traffic conditions were performed for the 2018 and 2035 analysis horizons at each of the study-area intersections listed below.

- E 104th Avenue / Joliet Street
- Havana Street / Joliet Street

A narrative of the summary of the analysis and comparison to background traffic conditions for the 2018 and 2035 analysis horizons is provided below. The results of the total-traffic operational analysis are summarized graphically for the 2018 and 2035 analysis horizons in Figure A-13 and A-14, respectively. A summary of the results of the intersection capacity analysis is provided in Table 3 (located on page 11) and detailed *Synchro 8.0* software intersection capacity analysis reports in Appendix "D".

Study-Area Intersections – Summary of Results:

- E 104th Avenue / Joliet Street
  - Extensive queue storage lanes for eastbound and westbound left turns have been recently constructed.
  - Operations as a two-way stop-controlled intersection create no operational issues for eastbound or westbound left turns with LOS of "A" and "B" in the 2035 Total Traffic scenario.
  - As would be expected with stop-controlled movements onto busy arterial roadways, northbound left-turns are currently projected to be operating at LOS "F" in 2016 in the PM peak hour.
  - Southbound left-turns are projected to operate with LOS "E" in the 2018 Background Traffic scenario and progress to LOS "F" in the 2035 Background Traffic scenario in either the AM or PM peak hours.
  - When evaluating future traffic conditions, the only Traffic Signal Warrant that can be evaluated is Warrant 3 (Peak Hour Volume) since only peak-hour volumes are projected. The MUTCD states that Warrant 3 should only be used for analyzing intersections that have unusual traffic characteristics such as when large numbers of vehicles are discharged over a short time frame. That is not the case for this project.
  - Traffic signal warrant analysis using Warrant 3 is included in this analysis as a guide for the potential signalization in the future, not as a recommendation today. As corresponding background volumes increase, analyses that evaluate all nine traffic signal warrants should be conducted.



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DTS TRUCK TERMINAL 2018 TOTAL TRAFFIC VOLUMES

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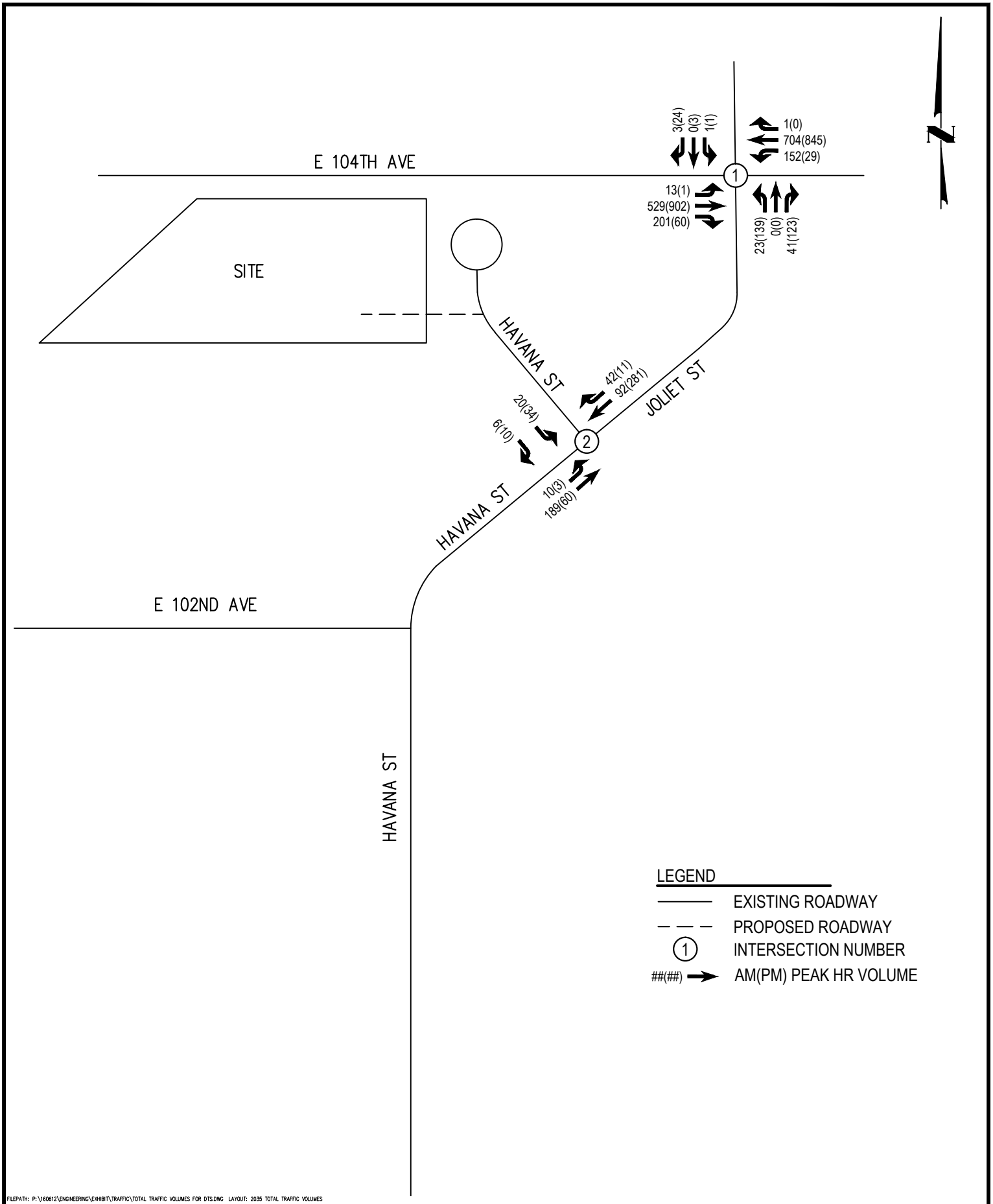

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DTS TRUCK TERMINAL 2035 TOTAL TRAFFIC VOLUMES

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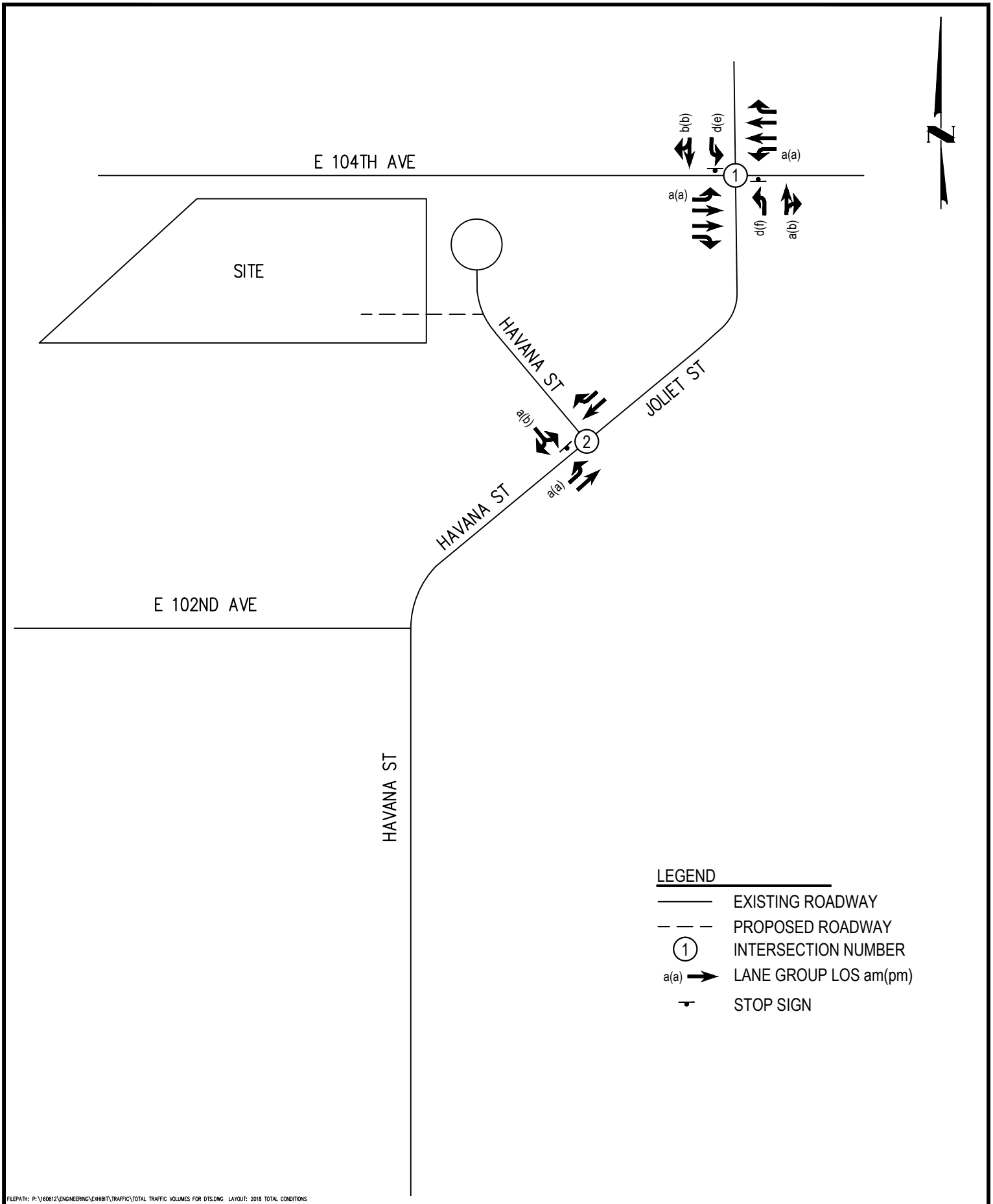
- A traffic signal engineering study is recommended due to the intersection currently meeting Traffic Signal Warrant #3 in 2016. Consequently, at the direction of City of Commerce City engineering and planning personnel, a Traffic Signal Needs Study has been completed and submitted under separate cover to the City of Commerce City. This study indicates Warrants 1 and 2 are met in 2016 solely from existing traffic.
- The proposed DTS development is projected to generate 92 vehicles in the AM and PM peak hours. The total traffic projected to pass through the intersection in 2035 is 3,795 vehicles in the AM and PM peak hours. Therefore, the percentage of projected site-generated traffic of the total traffic at the signalized intersection is 92 ÷ 3,795 = 0.0242 = 2.42% which would form the basis for a traffic signal fair share contribution of 2.42%.
- Operational analysis was performed for a future traffic signal at the intersection of E 104th Ave and Joliet Street. Assumptions were made concerning cycle length (C = 60 sec) and major-approach left-turn phasing (leading, protected/permissive were used). The results of the intersection capacity analysis are provided in Table 3 (located on page 11). The results indicate that intersection LOS for a signalized intersection in 2018 Total Traffic is "A" and 2035 Total Traffic is "B". All movements are projected to operate at LOS "B" or better in 2035 Total Traffic.

- Havana Street / Joliet Street
  - Both conflicted movements are proposed to continue to operate at acceptable levels of service (LOS "A" or "B") in 2018 and 2035 Total Traffic analysis scenarios.

Based on the analyses contained in this traffic study it is concluded that the study-area roadway system can accommodate the proposed DTS Truck Terminal facility development with the recommended access improvements with negligible impact on the study-area roadway system.

TABLE 2
Summary of Recommendations

Intersection	Recommendations	Responsible	Timing
E 104th Ave / Joliet Street	No changes recommended due to addition of DTS traffic	N.A.	N.A.
Havana Street / Joliet Street	No changes recommended due to addition of DTS traffic	N.A.	N.A.



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PLOTTED: FRI 08/19/16 10:20:40A BY: CHERYL NAKAYAMA

ISSUE DATE: 07-18-2016 | PROJECT #: 160612

DATE	REVISION COMMENTS

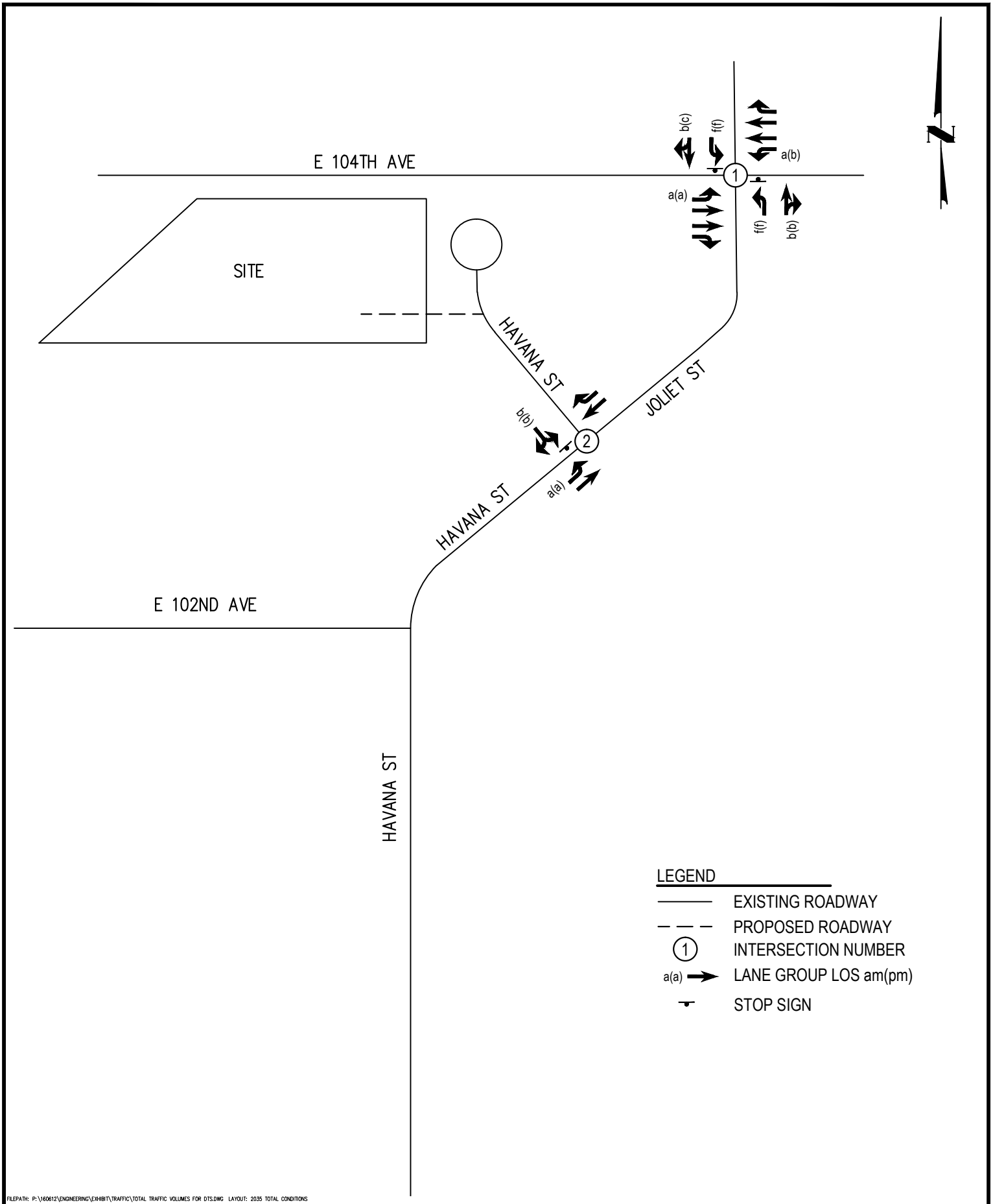
CLIENT: DTS

DTS TRUCK TERMINAL
2018 TOTAL TRAFFIC OPERATIONAL CONDITIONS

HARRIS KOCHER SMITH
1120 Lincoln Street, Suite 1000
Denver, Colorado 80203
P: 303-623-6300 F: 303-623-6311
HarrisKocherSmith.com

DSN'D BY: MB
CHK'D BY: MB
DRAWN BY: CN

SHEET NO.
A13
13 OF 14



FILEPATH: P:\160612\ENGINEERING\EXHIBIT\TRAFFIC\TOTAL TRAFFIC VOLUMES FOR DTS.DWG LAYOUT: 2035 TOTAL CONDITIONS
PLOTTED: FRI 08/19/16 10:20:45A BY: CHERYL NAKAYAMA

ISSUE DATE: 07-18-2016	PROJECT #: 160612
DATE	REVISION COMMENTS

CLIENT: DTS

DTS TRUCK TERMINAL
2035 TOTAL TRAFFIC
OPERATIONAL CONDITIONS

HARRIS KOCHER SMITH
1120 Lincoln Street, Suite 1000
Denver, Colorado 80203
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HarrisKocherSmith.com

DSN'D BY: MB
CHK'D BY: MB
DRAWN BY: CN

SHEET NO.
A14

Table 3
Summary of Results - Intersection Capacity Analysis

INTERSECTION	INTERSECTION CONTROL	2016 EXISTING TRAFFIC				2018 BACKGROUND TRAFFIC				2018 TOTAL TRAFFIC				2035 BACKGROUND TRAFFIC				2035 TOTAL TRAFFIC			
		LEVEL OF SERVICE				LEVEL OF SERVICE				LEVEL OF SERVICE				LEVEL OF SERVICE				LEVEL OF SERVICE			
		AM PEAK LOS	AM PEAK DELAY	PM PEAK LOS	PM PEAK DELAY	AM PEAK LOS	AM PEAK DELAY	PM PEAK LOS	PM PEAK DELAY	AM PEAK LOS	AM PEAK DELAY	PM PEAK LOS	PM PEAK DELAY	AM PEAK LOS	AM PEAK DELAY	PM PEAK LOS	PM PEAK DELAY	AM PEAK LOS	AM PEAK DELAY	PM PEAK LOS	PM PEAK DELAY
1. E 104TH AVENUE / JOLIET STREET	**TWSC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a EB L		A	9	A	9	A	9	A	9	A	9	A	9	A	9	A	10	A	9	A	10
b WB L		A	9	A	9	A	9	A	10	A	9	A	10	A	9	B	10	A	10	B	11
c NB L	STOP	D	28	F	88	D	29	F	96	D	31	F	144	E	47	F	>>300	F	62	F	>>300
d NB T/R	STOP	A	10	B	12	A	10	B	12	A	10	B	12	B	10	B	14	B	11	C	15
e SB L	STOP	D	30	D	35	D	30	E	36	D	33	E	37	E	47	F	60	F	52	F	65
f SB T/R	STOP	B	10	B	14	B	10	B	14	B	10	B	14	B	11	C	19	B	11	C	19
1a. E 104TH AVENUE / JOLIET STREET	**SIGNALIZED**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a EB L (prot/perm)		-	-	-	-	A	7	A	6	A	7	A	6	A	6	A	7	A	6	A	7
b EB T/R		-	-	-	-	A	8	A	8	A	8	A	8	A	8	A	9	A	8	A	10
c WB L (prot/perm)		-	-	-	-	A	6	A	6	A	6	A	6	A	6	A	7	A	6	A	7
d WB T/R		-	-	-	-	A	7	A	7	A	7	A	7	A	7	A	8	A	7	A	8
e NB L (perm)		-	-	-	-	B	13	B	16	B	14	B	16	B	15	B	19	B	15	B	18
f NB T/R		-	-	-	-	B	14	B	16	B	14	B	16	B	16	B	19	B	16	B	18
g SB L (perm)		-	-	-	-	B	14	B	16	B	14	B	16	B	16	B	19	B	16	B	18
h SB T/R		-	-	-	-	B	13	B	15	B	13	B	15	B	15	B	16	B	15	B	15
i INTERSECTION		-	-	-	-	A	7	A	8	A	7	A	9	A	7	A	9	A	8	B	10
2. HAVANA STREET / JOLIET STREET	**TWSC**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a EB L/R	STOP	A	10	A	10	A	10	A	10	A	10	B	11	B	10	A	10	B	11	B	12
b NB L		-	-	A	8	-	-	A	8	A	7	A	8	-	-	A	8	A	8	A	9

HARRIS KOCHER SMITH

APPENDIX “A”

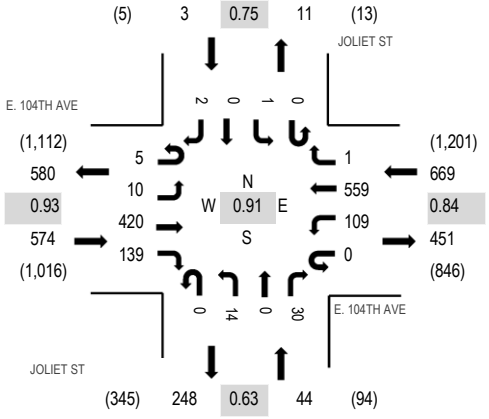
2016 EXISTING
TRAFFIC VOLUME COUNTS

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

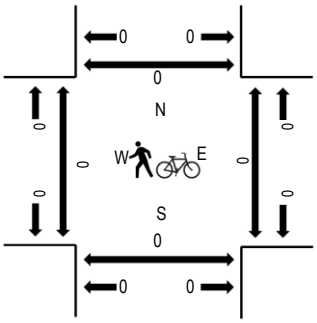
Location: 1 JOLIET ST & E. 104TH AVE AM
Date and Start Time: Tuesday, June 28, 2016
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



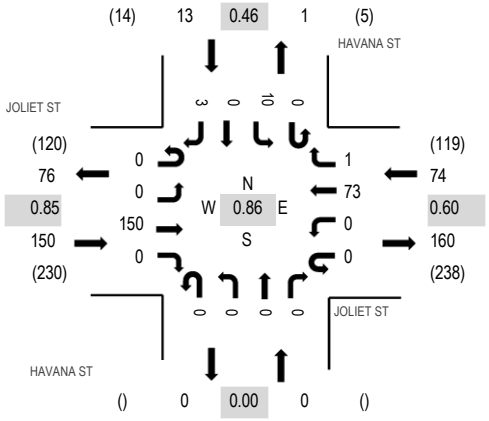
Traffic Counts

Interval Start Time	E. 104TH AVE Eastbound				E. 104TH AVE Westbound				JOLIET ST Northbound				JOLIET ST Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	2	4	108	33	0	20	123	0	0	1	0	2	0	0	0	0	293	1,290	0	0	0	0
7:15 AM	1	0	100	32	0	26	156	0	0	3	0	4	0	0	0	1	323	1,261	0	0	0	0
7:30 AM	2	5	106	41	0	29	116	0	0	5	0	15	0	0	0	1	320	1,219	0	0	0	0
7:45 AM	0	1	106	33	0	34	164	1	0	5	0	9	0	1	0	0	354	1,149	0	0	0	0
8:00 AM	3	1	86	24	0	10	132	0	0	5	0	3	0	0	0	0	264	1,026	0	0	0	0
8:15 AM	0	0	120	17	0	11	125	0	0	5	0	3	0	0	0	0	281		0	0	0	0
8:30 AM	0	0	89	11	1	5	126	0	0	9	0	8	0	1	0	0	250		0	0	0	0
8:45 AM	4	0	76	11	0	7	114	1	0	9	0	8	0	0	1	0	231		0	0	0	0
Count Total	12	11	791	202	1	142	1,056	2	0	42	0	52	0	2	1	2	2,316		0	0	0	0
Peak Hour	5	10	420	139	0	109	559	1	0	14	0	30	0	1	0	2	1,290		0	0	0	0

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

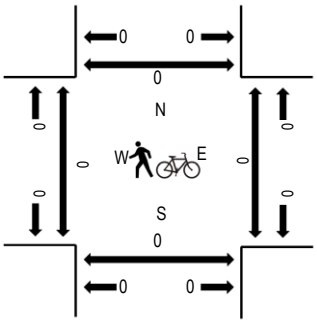
Location: 2 HAVANA ST & JOLIET ST AM
Date and Start Time: Tuesday, June 28, 2016
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



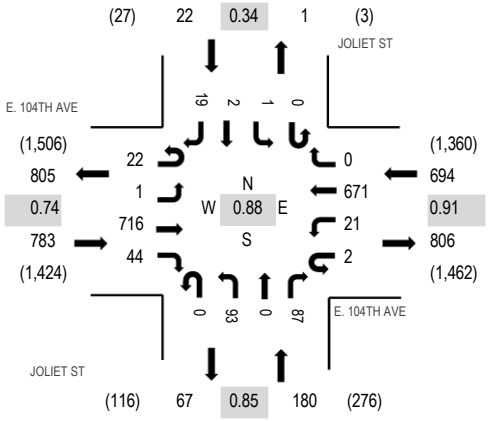
Traffic Counts

Interval Start Time	JOLIET ST Eastbound				JOLIET ST Westbound				HAVANA ST Northbound				HAVANA ST Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	2	19	0	0	0	11	1	0	0	0	0	0	0	0	1	34	205	0	0	0	0
7:15 AM	0	0	27	0	0	0	9	0	0	0	0	0	0	0	0	0	36	231	0	0	0	0
7:30 AM	0	0	34	0	0	0	31	0	0	0	0	0	0	3	0	1	69	237	0	0	0	0
7:45 AM	0	0	44	0	0	0	19	1	0	0	0	0	0	2	0	0	66	206	0	0	0	0
8:00 AM	0	0	41	0	0	0	12	0	0	0	0	0	0	5	0	2	60	158	0	0	0	0
8:15 AM	0	0	31	0	0	0	11	0	0	0	0	0	0	0	0	0	42		0	0	0	0
8:30 AM	0	0	23	0	0	0	15	0	0	0	0	0	0	0	0	0	38		0	0	0	0
8:45 AM	0	0	9	0	0	0	8	1	0	0	0	0	0	0	0	0	18		0	0	0	0
Count Total	0	2	228	0	0	0	116	3	0	0	0	0	0	10	0	4	363		0	0	0	0
Peak Hour	0	0	150	0	0	0	73	1	0	0	0	0	0	10	0	3	237		0	0	0	0

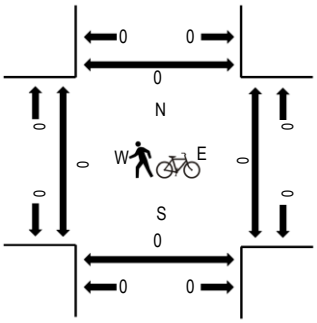
All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Location: 1 JOLIET ST & E. 104TH AVE PM
Date and Start Time: Tuesday, June 28, 2016
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

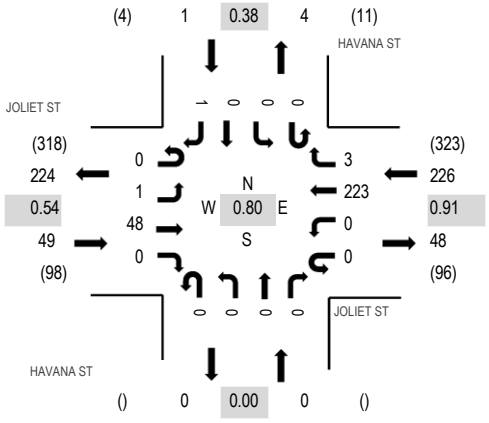
Traffic Counts

Interval Start Time	E. 104TH AVE Eastbound				E. 104TH AVE Westbound				JOLIET ST Northbound				JOLIET ST Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	3	0	163	11	0	2	139	0	0	10	0	10	0	1	1	1	341	1,490	0	0	0	0
4:15 PM	4	0	101	6	1	2	142	2	1	12	0	15	0	0	0	1	287	1,555	0	0	0	0
4:30 PM	15	0	228	21	1	5	165	0	0	20	0	20	0	0	0	4	479	1,679	0	0	0	0
4:45 PM	2	0	145	9	0	4	169	0	0	32	0	21	0	0	0	1	383	1,621	0	0	0	0
5:00 PM	4	0	155	10	1	3	167	0	0	29	0	21	0	1	2	13	406	1,597	0	0	0	0
5:15 PM	1	1	188	4	0	9	170	0	0	12	0	25	0	0	0	1	411		0	0	0	0
5:30 PM	1	0	183	8	0	7	193	0	0	9	0	19	0	0	0	1	421		0	0	0	0
5:45 PM	1	0	154	6	0	5	173	0	0	11	0	9	0	0	0	0	359		0	0	0	0
Count Total	31	1	1,317	75	3	37	1,318	2	1	135	0	140	0	2	3	22	3,087		0	0	0	0
Peak Hour	22	1	716	44	2	21	671	0	0	93	0	87	0	1	2	19	1,679		0	0	0	0

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

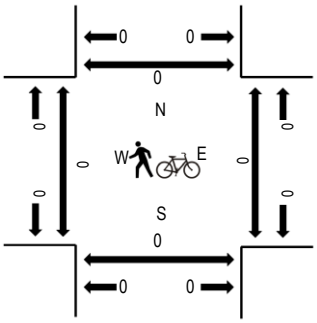
Location: 2 HAVANA ST & JOLIET ST PM
Date and Start Time: Tuesday, June 28, 2016
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	JOLIET ST Eastbound				JOLIET ST Westbound				HAVANA ST Northbound				HAVANA ST Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	5	0	0	0	47	1	0	0	0	0	0	0	0	1	54	276	0	0	0	0
4:15 PM	0	0	7	0	0	0	58	0	0	0	0	0	0	0	0	0	65	267	0	0	0	0
4:30 PM	0	0	24	0	0	0	62	0	0	0	0	0	0	0	0	0	86	238	0	0	0	0
4:45 PM	0	1	12	0	0	0	56	2	0	0	0	0	0	0	0	0	71	179	0	0	0	0
5:00 PM	0	1	6	0	0	0	34	3	0	0	0	0	0	1	0	0	45	149	0	0	0	0
5:15 PM	0	1	7	0	0	0	25	1	0	0	0	0	0	1	0	1	36		0	0	0	0
5:30 PM	0	0	16	0	0	0	11	0	0	0	0	0	0	0	0	0	27		0	0	0	0
5:45 PM	0	1	17	0	0	0	23	0	0	0	0	0	0	0	0	0	41		0	0	0	0
Count Total	0	4	94	0	0	0	316	7	0	0	0	0	0	2	0	2	425		0	0	0	0
Peak Hour	0	1	48	0	0	0	223	3	0	0	0	0	0	0	0	1	276		0	0	0	0

APPENDIX “B”

INTERSECTION CAPACITY ANALYSIS WORKSHEETS

2016 EXISTING TRAFFIC
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1583	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	420	139	109	559	1	14	0	30	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	457	151	118	608	1	15	0	33	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	609	0	0	457	0	0	1019	1324	228	1095	1323	304
Stage 1	-	-	-	-	-	-	478	478	-	845	845	-
Stage 2	-	-	-	-	-	-	541	846	-	250	478	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	966	-	-	1100	-	-	191	155	775	168	155	692
Stage 1	-	-	-	-	-	-	537	554	-	324	377	-
Stage 2	-	-	-	-	-	-	493	377	-	732	554	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	966	-	-	1100	-	-	173	137	775	146	137	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	137	-	146	137	-
Stage 1	-	-	-	-	-	-	531	548	-	320	337	-
Stage 2	-	-	-	-	-	-	439	337	-	693	548	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.4	15.5	16.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	173	775	966	-	-	1100	-	-	146	692
HCM Lane V/C Ratio	0.088	0.042	0.011	-	-	0.108	-	-	0.007	0.003
HCM Control Delay (s)	27.8	9.8	8.8	-	-	8.7	-	-	29.8	10.2
HCM Lane LOS	D	A	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.3	0.1	0	-	-	0.4	-	-	0	0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.971					0.850
Flt Protected	0.962					
Satd. Flow (prot)	1740	0	1863	1863	1863	1583
Flt Permitted	0.962					
Satd. Flow (perm)	1740	0	1863	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	0.5

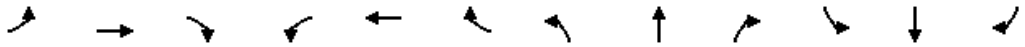
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	3	0	150	73	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	3	0	163	79	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	242	79	79	0	-	0
Stage 1	79	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	746	981	1519	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	746	981	1519	-	-	-
Mov Cap-2 Maneuver	746	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	866	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1519	-	790	-	-
HCM Lane V/C Ratio	-	-	0.018	-	-
HCM Control Delay (s)	0	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

2016 EXISTING TRAFFIC
PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1608	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1608	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	716	44	21	671	0	93	0	87	1	2	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	778	48	23	729	0	101	0	95	1	2	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	729	0	0	778	0	0	1191	1555	389	1166	1555	365
Stage 1	-	-	-	-	-	-	780	780	-	775	775	-
Stage 2	-	-	-	-	-	-	411	775	-	391	780	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	871	-	-	834	-	-	143	112	610	149	112	632
Stage 1	-	-	-	-	-	-	354	404	-	357	406	-
Stage 2	-	-	-	-	-	-	589	406	-	605	404	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	871	-	-	834	-	-	133	109	610	123	109	632
Mov Cap-2 Maneuver	-	-	-	-	-	-	133	109	-	123	109	-
Stage 1	-	-	-	-	-	-	354	404	-	357	395	-
Stage 2	-	-	-	-	-	-	551	395	-	511	404	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	51.5	14.7
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	133	610	871	-	-	834	-	-	123	434
HCM Lane V/C Ratio	0.76	0.155	0.001	-	-	0.027	-	-	0.009	0.053
HCM Control Delay (s)	88.4	12	9.1	-	-	9.4	-	-	34.5	13.8
HCM Lane LOS	F	B	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	4.5	0.5	0	-	-	0.1	-	-	0	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865					0.850
Flt Protected			0.950			
Satd. Flow (prot)	1611	0	1770	1863	1863	1583
Flt Permitted			0.950			
Satd. Flow (perm)	1611	0	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	1	1	48	223	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	52	242	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	296	242	242	0	-	0
Stage 1	242	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	695	797	1324	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	694	797	1324	-	-	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1324	-	797	-	-
HCM Lane V/C Ratio	0.001	-	0.001	-	-
HCM Control Delay (s)	7.7	-	9.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

2018 BACKGROUND TRAFFIC
AM PEAK HOUR

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.971					0.850
Flt Protected	0.962					
Satd. Flow (prot)	1740	0	1863	1863	1863	1583
Flt Permitted	0.962					
Satd. Flow (perm)	1740	0	1863	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	426	141	111	567	1	14	0	30	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	463	153	121	616	1	15	0	33	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	617	0	0	463	0	0	1034	1344	232	1111	1343	309
Stage 1	-	-	-	-	-	-	485	485	-	858	858	-
Stage 2	-	-	-	-	-	-	549	859	-	253	485	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	959	-	-	1095	-	-	186	151	770	164	151	687
Stage 1	-	-	-	-	-	-	532	550	-	318	372	-
Stage 2	-	-	-	-	-	-	488	371	-	729	550	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	959	-	-	1095	-	-	168	133	770	143	133	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	168	133	-	143	133	-
Stage 1	-	-	-	-	-	-	526	544	-	314	331	-
Stage 2	-	-	-	-	-	-	433	330	-	690	544	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.4	15.9	17
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	168	770	959	-	-	1095	-	-	143	687
HCM Lane V/C Ratio	0.091	0.042	0.011	-	-	0.11	-	-	0.008	0.003
HCM Control Delay (s)	28.6	9.9	8.8	-	-	8.7	-	-	30.4	10.3
HCM Lane LOS	D	A	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.3	0.1	0	-	-	0.4	-	-	0	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	3	0	152	74	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
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	11	3	0	165	80	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	245	80	80	0	-	0
Stage 1	80	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	743	980	1518	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	743	980	1518	-	-	-
Mov Cap-2 Maneuver	743	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	864	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1518	-	787	-	-
HCM Lane V/C Ratio	-	-	0.018	-	-
HCM Control Delay (s)	0	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	426	141	111	567	1	14	0	30	1	0	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	463	153	121	616	1	15	0	33	1	0	2
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	497	1324	592	580	1605	3	377	0	187	348	0	187
Arrive On Green	0.01	0.37	0.37	0.08	0.44	0.44	0.12	0.00	0.12	0.12	0.00	0.12
Sat Flow, veh/h	1774	3539	1583	1774	3625	6	1409	0	1583	1370	0	1583
Grp Volume(v), veh/h	11	463	153	121	301	316	15	0	33	1	0	2
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1862	1409	0	1583	1370	0	1583
Q Serve(g_s), s	0.1	3.2	2.3	1.4	3.9	3.9	0.3	0.0	0.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	3.2	2.3	1.4	3.9	3.9	0.4	0.0	0.6	0.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	497	1324	592	580	783	824	377	0	187	348	0	187
V/C Ratio(X)	0.02	0.35	0.26	0.21	0.38	0.38	0.04	0.00	0.18	0.00	0.00	0.01
Avail Cap(c_a), veh/h	816	2558	1144	1039	1540	1620	606	0	444	571	0	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.5	7.6	7.4	5.6	6.3	6.3	13.4	0.0	13.5	13.8	0.0	13.2
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.2	0.3	0.3	0.0	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	2.8	1.8	1.2	3.4	3.6	0.2	0.0	0.5	0.0	0.0	0.0
LnGrp Delay(d),s/veh	6.5	7.8	7.6	5.8	6.7	6.6	13.4	0.0	13.9	13.8	0.0	13.2
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		627			738			48			3	
Approach Delay, s/veh		7.7			6.5			13.8			13.4	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		8.5	7.2	18.2		8.5	4.9	20.5
Change Period (Y+Rc), s		4.5	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s		9.5	11.5	24.5		9.5	6.5	29.5
Max Q Clear Time (g_c+I1), s		2.6	3.4	5.2		2.7	2.1	5.9
Green Ext Time (p_c), s		0.1	0.2	7.5		0.1	0.0	8.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1583	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary	
Area Type:	Other

2018 BACKGROUND TRAFFIC
PM PEAK HOUR

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865					0.850
Flt Protected			0.950			
Satd. Flow (prot)	1611	0	1770	1863	1863	1583
Flt Permitted			0.950			
Satd. Flow (perm)	1611	0	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	1	1	49	226	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	53	246	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	301	246	246	0	-	0
Stage 1	246	-	-	-	-	-
Stage 2	55	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	691	793	1320	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	690	793	1320	-	-	-
Mov Cap-2 Maneuver	690	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	967	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1320	-	793	-	-
HCM Lane V/C Ratio	0.001	-	0.001	-	-
HCM Control Delay (s)	7.7	-	9.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	726	45	21	680	0	94	0	88	1	2	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	1	789	49	23	739	0	102	0	96	1	2	21
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	1634	731	423	1710	0	371	0	235	304	21	218
Arrive On Green	0.00	0.46	0.46	0.02	0.48	0.00	0.15	0.00	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1583	1774	3632	0	1383	0	1583	1294	140	1465
Grp Volume(v), veh/h	1	789	49	23	739	0	102	0	96	1	0	23
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	0	1383	0	1583	1294	0	1604
Q Serve(g_s), s	0.0	6.1	0.7	0.3	5.4	0.0	2.7	0.0	2.2	0.0	0.0	0.5
Cycle Q Clear(g_c), s	0.0	6.1	0.7	0.3	5.4	0.0	3.2	0.0	2.2	2.2	0.0	0.5
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.91
Lane Grp Cap(c), veh/h	435	1634	731	423	1710	0	371	0	235	304	0	239
V/C Ratio(X)	0.00	0.48	0.07	0.05	0.43	0.00	0.28	0.00	0.41	0.00	0.00	0.10
Avail Cap(c_a), veh/h	633	2285	1022	585	2285	0	708	0	621	619	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.9	7.4	5.9	5.8	6.7	0.0	15.9	0.0	15.2	16.2	0.0	14.5
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.2	0.0	0.4	0.0	1.1	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	5.4	0.5	0.2	4.7	0.0	1.9	0.0	1.8	0.0	0.0	0.4
LnGrp Delay(d),s/veh	5.9	7.6	5.9	5.9	6.8	0.0	16.3	0.0	16.4	16.2	0.0	14.7
LnGrp LOS	A	A	A	A	A		B		B	B		B
Approach Vol, veh/h		839			762			198			24	
Approach Delay, s/veh		7.5			6.8			16.3			14.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.4	5.4	23.7		10.4	4.5	24.6
Change Period (Y+Rc), s		4.5	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s		15.5	4.5	25.5		15.5	4.5	25.5
Max Q Clear Time (g_c+I1), s		5.2	2.3	8.1		4.2	2.0	7.4
Green Ext Time (p_c), s		0.7	0.0	10.1		0.7	0.0	10.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1608	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1608	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	726	45	21	680	0	94	0	88	1	2	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	789	49	23	739	0	102	0	96	1	2	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	739	0	0	789	0	0	1207	1576	395	1182	1576	370
Stage 1	-	-	-	-	-	-	791	791	-	785	785	-
Stage 2	-	-	-	-	-	-	416	785	-	397	791	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	863	-	-	827	-	-	139	109	604	145	109	627
Stage 1	-	-	-	-	-	-	349	399	-	352	402	-
Stage 2	-	-	-	-	-	-	585	402	-	600	399	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	863	-	-	827	-	-	129	106	604	119	106	627
Mov Cap-2 Maneuver	-	-	-	-	-	-	129	106	-	119	106	-
Stage 1	-	-	-	-	-	-	349	399	-	352	391	-
Stage 2	-	-	-	-	-	-	547	391	-	504	399	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	55.6	14.9
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	129	604	863	-	-	827	-	-	119	427
HCM Lane V/C Ratio	0.792	0.158	0.001	-	-	0.028	-	-	0.009	0.053
HCM Control Delay (s)	96.3	12.1	9.2	-	-	9.5	-	-	35.5	13.9
HCM Lane LOS	F	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	4.7	0.6	0	-	-	0.1	-	-	0	0.2

2018 TOTAL TRAFFIC
AM PEAK HOUR

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.971					0.850
Flt Protected	0.962		0.950			
Satd. Flow (prot)	1740	0	1770	1863	1863	1583
Flt Permitted	0.962		0.950			
Satd. Flow (perm)	1740	0	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	426	167	126	567	1	19	0	33	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	463	182	137	616	1	21	0	36	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	617	0	0	463	0	0	1067	1376	232	1144	1376	309
Stage 1	-	-	-	-	-	-	485	485	-	891	891	-
Stage 2	-	-	-	-	-	-	582	891	-	253	485	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	959	-	-	1095	-	-	176	144	770	155	144	687
Stage 1	-	-	-	-	-	-	532	550	-	304	359	-
Stage 2	-	-	-	-	-	-	466	359	-	729	550	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	959	-	-	1095	-	-	157	125	770	132	125	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	157	125	-	132	125	-
Stage 1	-	-	-	-	-	-	526	544	-	301	314	-
Stage 2	-	-	-	-	-	-	406	314	-	687	544	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.6	17.8	17.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	157	770	959	-	-	1095	-	-	132	687
HCM Lane V/C Ratio	0.132	0.047	0.011	-	-	0.125	-	-	0.008	0.003
HCM Control Delay (s)	31.4	9.9	8.8	-	-	8.8	-	-	32.5	10.3
HCM Lane LOS	D	A	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.4	0.1	0	-	-	0.4	-	-	0	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	5	10	152	74	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
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	18	5	11	165	80	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	267	80	80	0	-	0
Stage 1	80	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	722	980	1518	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	717	980	1518	-	-	-
Mov Cap-2 Maneuver	717	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	839	-	-	-	-	-

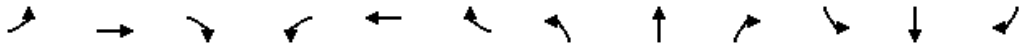
Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1518	-	764	-	-
HCM Lane V/C Ratio	0.007	-	0.031	-	-
HCM Control Delay (s)	7.4	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	426	167	126	567	1	19	0	33	1	0	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	463	182	137	616	1	21	0	36	1	0	2
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	1314	588	579	1613	3	376	0	186	344	0	186
Arrive On Green	0.01	0.37	0.37	0.09	0.44	0.44	0.12	0.00	0.12	0.12	0.00	0.12
Sat Flow, veh/h	1774	3539	1583	1774	3625	6	1409	0	1583	1367	0	1583
Grp Volume(v), veh/h	11	463	182	137	301	316	21	0	36	1	0	2
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1862	1409	0	1583	1367	0	1583
Q Serve(g_s), s	0.1	3.2	2.8	1.5	3.9	3.9	0.5	0.0	0.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	3.2	2.8	1.5	3.9	3.9	0.5	0.0	0.7	0.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	498	1314	588	579	787	828	376	0	186	344	0	186
V/C Ratio(X)	0.02	0.35	0.31	0.24	0.38	0.38	0.06	0.00	0.19	0.00	0.00	0.01
Avail Cap(c_a), veh/h	816	2444	1093	1027	1482	1559	645	0	488	605	0	488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.6	7.7	7.6	5.6	6.3	6.3	13.5	0.0	13.6	13.9	0.0	13.3
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.2	0.3	0.3	0.1	0.0	0.5	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	2.8	2.3	1.4	3.4	3.6	0.3	0.0	0.6	0.0	0.0	0.0
LnGrp Delay(d),s/veh	6.6	7.9	7.9	5.8	6.6	6.6	13.5	0.0	14.1	13.9	0.0	13.3
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		656			754			57			3	
Approach Delay, s/veh		7.9			6.5			13.9			13.5	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		8.5	7.4	18.1		8.5	4.9	20.6
Change Period (Y+Rc), s		4.5	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s		10.5	11.5	23.5		10.5	6.5	28.5
Max Q Clear Time (g_c+I1), s		2.7	3.5	5.2		2.7	2.1	5.9
Green Ext Time (p_c), s		0.1	0.2	7.4		0.1	0.0	8.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1583	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary	
Area Type:	Other

2018 TOTAL TRAFFIC
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1608	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1608	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary	
Area Type:	Other

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	726	50	24	680	0	116	0	101	1	2	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	1	789	54	26	739	0	126	0	110	1	2	21
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	427	1596	714	416	1681	0	385	0	253	305	22	234
Arrive On Green	0.00	0.45	0.45	0.03	0.48	0.00	0.16	0.00	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1583	1774	3632	0	1383	0	1583	1278	140	1465
Grp Volume(v), veh/h	1	789	54	26	739	0	126	0	110	1	0	23
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	0	1383	0	1583	1278	0	1604
Q Serve(g_s), s	0.0	6.3	0.8	0.3	5.5	0.0	3.4	0.0	2.5	0.0	0.0	0.5
Cycle Q Clear(g_c), s	0.0	6.3	0.8	0.3	5.5	0.0	3.9	0.0	2.5	2.5	0.0	0.5
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.91
Lane Grp Cap(c), veh/h	427	1596	714	416	1681	0	385	0	253	305	0	256
V/C Ratio(X)	0.00	0.49	0.08	0.06	0.44	0.00	0.33	0.00	0.44	0.00	0.00	0.09
Avail Cap(c_a), veh/h	712	2090	935	884	2535	0	529	0	418	438	0	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.2	7.7	6.2	6.1	6.9	0.0	15.9	0.0	15.1	16.2	0.0	14.3
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.2	0.0	0.5	0.0	1.2	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	5.4	0.6	0.3	4.9	0.0	2.4	0.0	2.1	0.0	0.0	0.4
LnGrp Delay(d),s/veh	6.2	8.0	6.3	6.1	7.1	0.0	16.4	0.0	16.3	16.3	0.0	14.4
LnGrp LOS	A	A	A	A	A		B		B	B		B
Approach Vol, veh/h		844			765			236			24	
Approach Delay, s/veh		7.8			7.1			16.4			14.5	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.8	5.5	23.4		10.8	4.5	24.4
Change Period (Y+Rc), s		4.5	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s		10.5	11.5	23.5		10.5	6.5	28.5
Max Q Clear Time (g_c+I1), s		5.9	2.3	8.3		4.5	2.0	7.5
Green Ext Time (p_c), s		0.5	0.0	9.3		0.6	0.0	11.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	10.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	726	50	24	680	0	116	0	101	1	2	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	789	54	26	739	0	126	0	110	1	2	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	739	0	0	789	0	0	1214	1582	395	1188	1582	370
Stage 1	-	-	-	-	-	-	791	791	-	791	791	-
Stage 2	-	-	-	-	-	-	423	791	-	397	791	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	863	-	-	827	-	-	137	108	604	144	108	627
Stage 1	-	-	-	-	-	-	349	399	-	349	399	-
Stage 2	-	-	-	-	-	-	579	399	-	600	399	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	863	-	-	827	-	-	127	104	604	115	104	627
Mov Cap-2 Maneuver	-	-	-	-	-	-	127	104	-	115	104	-
Stage 1	-	-	-	-	-	-	349	399	-	349	386	-
Stage 2	-	-	-	-	-	-	539	386	-	490	399	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	82.9	15
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	127	604	863	-	-	827	-	-	115	424
HCM Lane V/C Ratio	0.993	0.182	0.001	-	-	0.032	-	-	0.009	0.054
HCM Control Delay (s)	144.3	12.3	9.2	-	-	9.5	-	-	36.6	14
HCM Lane LOS	F	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	6.8	0.7	0	-	-	0.1	-	-	0	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.969					0.850
Flt Protected	0.963		0.950			
Satd. Flow (prot)	1738	0	1770	1863	1863	1583
Flt Permitted	0.963		0.950			
Satd. Flow (perm)	1738	0	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	34	10	3	49	226	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
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	37	11	3	53	246	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	306	246	246	0	-	0
Stage 1	246	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	686	793	1320	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	684	793	1320	-	-	-
Mov Cap-2 Maneuver	684	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	961	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1320	-	706	-	-
HCM Lane V/C Ratio	0.002	-	0.068	-	-
HCM Control Delay (s)	7.7	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

2035 BACKGROUND TRAFFIC
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1583	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	529	175	137	704	1	18	0	38	1	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	575	190	149	765	1	20	0	41	1	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	766	0	0	575	0	0	1283	1667	288	1380	1667	383
Stage 1	-	-	-	-	-	-	603	603	-	1064	1064	-
Stage 2	-	-	-	-	-	-	680	1064	-	316	603	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	843	-	-	994	-	-	122	96	709	104	96	615
Stage 1	-	-	-	-	-	-	453	487	-	238	298	-
Stage 2	-	-	-	-	-	-	407	298	-	670	487	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	843	-	-	994	-	-	106	80	709	86	80	615
Mov Cap-2 Maneuver	-	-	-	-	-	-	106	80	-	86	80	-
Stage 1	-	-	-	-	-	-	445	479	-	234	253	-
Stage 2	-	-	-	-	-	-	344	253	-	620	479	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.5	22	20
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	106	709	843	-	-	994	-	-	86	615
HCM Lane V/C Ratio	0.185	0.058	0.017	-	-	0.15	-	-	0.013	0.005
HCM Control Delay (s)	46.5	10.4	9.3	-	-	9.3	-	-	47.4	10.9
HCM Lane LOS	E	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.6	0.2	0.1	-	-	0.5	-	-	0	0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.970					0.850
Flt Protected	0.963					
Satd. Flow (prot)	1740	0	1863	1863	1863	1583
Flt Permitted	0.963					
Satd. Flow (perm)	1740	0	1863	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	13	4	0	189	92	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
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	14	4	0	205	100	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	305	100	100	0	-	0
Stage 1	100	-	-	-	-	-
Stage 2	205	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	687	956	1493	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	829	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	687	956	1493	-	-	-
Mov Cap-2 Maneuver	687	-	-	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	829	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1493	-	736	-	-
HCM Lane V/C Ratio	-	-	0.025	-	-
HCM Control Delay (s)	0	-	10	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	529	175	137	704	1	18	0	38	1	0	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1652	1652	1863	1900	1652	1652	1900	1863	1863	1900
Adj Flow Rate, veh/h	14	575	190	149	765	1	20	0	41	1	0	3
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
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
Percent Heavy Veh, %	2	2	15	15	2	2	15	2	2	2	2	2
Cap, veh/h	465	1471	584	518	1772	2	326	0	151	303	0	170
Arrive On Green	0.01	0.42	0.42	0.09	0.49	0.49	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1774	3539	1404	1573	3627	5	1249	0	1404	1360	0	1583
Grp Volume(v), veh/h	14	575	190	149	373	393	20	0	41	1	0	3
Grp Sat Flow(s),veh/h/ln	1774	1770	1404	1573	1770	1862	1249	0	1404	1360	0	1583
Q Serve(g_s), s	0.2	4.2	3.4	1.9	5.1	5.1	0.5	0.0	1.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.2	4.2	3.4	1.9	5.1	5.1	0.6	0.0	1.0	1.0	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	465	1471	584	518	864	910	326	0	151	303	0	170
V/C Ratio(X)	0.03	0.39	0.33	0.29	0.43	0.43	0.06	0.00	0.27	0.00	0.00	0.02
Avail Cap(c_a), veh/h	749	2330	924	867	1403	1476	510	0	358	504	0	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.2	7.6	7.3	5.3	6.2	6.2	15.1	0.0	15.3	15.7	0.0	14.9
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.3	0.3	0.3	0.1	0.0	1.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	3.7	2.5	1.5	4.4	4.7	0.3	0.0	0.8	0.0	0.0	0.1
LnGrp Delay(d),s/veh	6.2	7.8	7.7	5.6	6.5	6.5	15.2	0.0	16.2	15.7	0.0	14.9
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		779			915			61			4	
Approach Delay, s/veh		7.7			6.4			15.9			15.1	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		8.5	7.7	21.0		8.5	5.0	23.7
Change Period (Y+Rc), s		4.5	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s		9.5	11.5	24.5		9.5	6.5	29.5
Max Q Clear Time (g_c+I1), s		3.0	3.9	6.2		3.0	2.2	7.1
Green Ext Time (p_c), s		0.1	0.2	9.3		0.1	0.0	10.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

2035 BACKGROUND TRAFFIC
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.866	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1613	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	0	1770	1583	0	1770	1613	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary

Area Type: Other

Intersection	
Int Delay, s/veh	27.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	902	55	26	845	0	117	0	110	1	3	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	980	60	28	918	0	127	0	120	1	3	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	918	0	0	980	0	0	1500	1958	490	1467	1958	459
Stage 1	-	-	-	-	-	-	983	983	-	975	975	-
Stage 2	-	-	-	-	-	-	517	975	-	492	983	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	739	-	-	700	-	-	~ 84	63	524	89	63	549
Stage 1	-	-	-	-	-	-	267	325	-	270	328	-
Stage 2	-	-	-	-	-	-	509	328	-	527	325	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	739	-	-	700	-	-	~ 74	60	524	67	60	549
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 74	60	-	67	60	-
Stage 1	-	-	-	-	-	-	267	325	-	270	315	-
Stage 2	-	-	-	-	-	-	461	315	-	406	325	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	247.8	20.4
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	74	524	739	-	-	700	-	-	67	288
HCM Lane V/C Ratio	1.719	0.228	0.001	-	-	0.04	-	-	0.016	0.102
HCM Control Delay (s)	$ 467.8	13.9	9.9	-	-	10.4	-	-	59.6	18.9
HCM Lane LOS	F	B	A	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	11	0.9	0	-	-	0.1	-	-	0	0.3

Notes

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

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865					0.850
Flt Protected			0.950			
Satd. Flow (prot)	1611	0	1770	1863	1863	1583
Flt Permitted			0.950			
Satd. Flow (perm)	1611	0	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	1	1	60	281	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	1	65	305	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	372	305	305	0	-	0
Stage 1	305	-	-	-	-	-
Stage 2	67	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	629	735	1256	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	628	735	1256	-	-	-
Mov Cap-2 Maneuver	628	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1256	-	735	-	-
HCM Lane V/C Ratio	0.001	-	0.001	-	-
HCM Control Delay (s)	7.9	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	902	55	26	845	0	117	0	110	1	3	24
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1652	1652	1863	1900	1652	1652	1900	1863	1863	1900
Adj Flow Rate, veh/h	1	980	60	28	918	0	127	0	120	1	3	26
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
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
Percent Heavy Veh, %	2	2	15	15	2	2	15	2	2	2	2	2
Cap, veh/h	366	1717	681	336	1806	0	349	0	243	278	29	250
Arrive On Green	0.00	0.49	0.49	0.03	0.51	0.00	0.17	0.00	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1774	3539	1404	1573	3632	0	1220	0	1404	1266	166	1442
Grp Volume(v), veh/h	1	980	60	28	918	0	127	0	120	1	0	29
Grp Sat Flow(s),veh/h/ln	1774	1770	1404	1573	1770	0	1220	0	1404	1266	0	1608
Q Serve(g_s), s	0.0	9.1	1.1	0.4	7.9	0.0	4.5	0.0	3.6	0.0	0.0	0.7
Cycle Q Clear(g_c), s	0.0	9.1	1.1	0.4	7.9	0.0	5.2	0.0	3.6	3.6	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	366	1717	681	336	1806	0	349	0	243	278	0	278
V/C Ratio(X)	0.00	0.57	0.09	0.08	0.51	0.00	0.36	0.00	0.49	0.00	0.00	0.10
Avail Cap(c_a), veh/h	536	2041	810	449	2041	0	523	0	443	458	0	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.5	8.4	6.4	6.5	7.4	0.0	18.2	0.0	17.2	18.8	0.0	16.0
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.1	0.2	0.0	0.6	0.0	1.5	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	7.9	0.7	0.3	7.0	0.0	2.8	0.0	2.6	0.0	0.0	0.6
LnGrp Delay(d),s/veh	6.5	8.7	6.4	6.6	7.7	0.0	18.8	0.0	18.7	18.8	0.0	16.2
LnGrp LOS	A	A	A	A	A		B		B	B		B
Approach Vol, veh/h		1041			946			247			30	
Approach Delay, s/veh		8.6			7.6			18.8			16.2	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		12.5	5.7	27.8		12.5	4.6	28.9
Change Period (Y+Rc), s		4.5	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s		14.5	4.5	26.5		14.5	4.5	26.5
Max Q Clear Time (g_c+I1), s		7.2	2.4	11.1		5.6	2.0	9.9
Green Ext Time (p_c), s		0.8	0.0	11.2		0.9	0.0	11.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

2035 TOTAL TRAFFIC
AM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1404	1570	3539	0	1570	1404	0	1770	1583	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1404	1570	3539	0	1570	1404	0	1770	1583	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	529	201	152	704	1	23	0	41	1	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	15	15	2	2	15	2	15	2	2	2
Mvmt Flow	14	575	218	165	765	1	25	0	45	1	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	766	0	0	575	0	0	1316	1700	288	1412	1699	383
Stage 1	-	-	-	-	-	-	603	603	-	1096	1096	-
Stage 2	-	-	-	-	-	-	713	1097	-	316	603	-
Critical Hdwy	4.14	-	-	4.4	-	-	7.8	6.54	7.2	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.35	-	-	3.65	4.02	3.45	3.52	4.02	3.32
Pot Cap-1 Maneuver	843	-	-	910	-	-	103	91	671	98	91	615
Stage 1	-	-	-	-	-	-	422	487	-	228	287	-
Stage 2	-	-	-	-	-	-	360	287	-	670	487	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	843	-	-	910	-	-	87	73	671	78	73	615
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	73	-	78	73	-
Stage 1	-	-	-	-	-	-	415	479	-	224	235	-
Stage 2	-	-	-	-	-	-	293	235	-	615	479	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.7	29.2	21.1
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	87	671	843	-	-	910	-	-	78	615
HCM Lane V/C Ratio	0.287	0.066	0.017	-	-	0.182	-	-	0.014	0.005
HCM Control Delay (s)	62.3	10.7	9.3	-	-	9.8	-	-	51.8	10.9
HCM Lane LOS	F	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	1.1	0.2	0.1	-	-	0.7	-	-	0	0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.967					0.850
Flt Protected	0.963		0.950			
Satd. Flow (prot)	1180	0	1203	1863	1863	1077
Flt Permitted	0.963		0.950			
Satd. Flow (perm)	1180	0	1203	1863	1863	1077
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	20	6	10	189	92	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	2	2	50
Mvmt Flow	22	7	11	205	100	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	327	100	100	0	-	0
Stage 1	100	-	-	-	-	-
Stage 2	227	-	-	-	-	-
Critical Hdwy	6.9	6.7	4.6	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.95	3.75	2.65	-	-	-
Pot Cap-1 Maneuver	580	839	1240	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	575	839	1240	-	-	-
Mov Cap-2 Maneuver	575	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	704	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1240	-	620	-	-
HCM Lane V/C Ratio	0.009	-	0.046	-	-
HCM Control Delay (s)	7.9	-	11.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	529	201	152	704	1	23	0	41	1	0	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1652	1652	1863	1900	1652	1652	1900	1863	1863	1900
Adj Flow Rate, veh/h	14	575	218	165	765	1	25	0	45	1	0	3
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
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
Percent Heavy Veh, %	2	2	15	15	2	2	15	2	2	2	2	2
Cap, veh/h	464	1432	568	521	1766	2	327	0	151	300	0	171
Arrive On Green	0.01	0.40	0.40	0.10	0.49	0.49	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1774	3539	1404	1573	3627	5	1249	0	1404	1356	0	1583
Grp Volume(v), veh/h	14	575	218	165	373	393	25	0	45	1	0	3
Grp Sat Flow(s),veh/h/ln	1774	1770	1404	1573	1770	1862	1249	0	1404	1356	0	1583
Q Serve(g_s), s	0.2	4.3	4.1	2.1	5.1	5.1	0.7	0.0	1.1	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.2	4.3	4.1	2.1	5.1	5.1	0.7	0.0	1.1	1.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	464	1432	568	521	862	906	327	0	151	300	0	171
V/C Ratio(X)	0.03	0.40	0.38	0.32	0.43	0.43	0.08	0.00	0.30	0.00	0.00	0.02
Avail Cap(c_a), veh/h	701	2146	852	941	1455	1531	512	0	360	501	0	405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.4	7.9	7.8	5.3	6.2	6.2	15.1	0.0	15.3	15.8	0.0	14.8
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.3	0.3	0.3	0.1	0.0	1.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	3.8	2.8	1.7	4.4	4.7	0.4	0.0	0.8	0.0	0.0	0.1
LnGrp Delay(d),s/veh	6.4	8.0	8.2	5.6	6.5	6.5	15.2	0.0	16.3	15.8	0.0	14.8
LnGrp LOS	A	A	A	A	A	A	B		B	B		B
Approach Vol, veh/h		807			931			70			4	
Approach Delay, s/veh		8.1			6.4			15.9			15.1	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		8.5	8.1	20.5		8.5	5.0	23.6
Change Period (Y+Rc), s		4.5	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s		9.5	13.5	22.5		9.5	5.5	30.5
Max Q Clear Time (g_c+I1), s		3.1	4.1	6.3		3.1	2.2	7.1
Green Ext Time (p_c), s		0.1	0.3	8.7		0.1	0.0	10.7

Intersection Summary	
HCM 2010 Ctrl Delay	7.5
HCM 2010 LOS	A

2035 TOTAL TRAFFIC
PM PEAK HOUR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		250	500		0	225		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850					0.850			0.866	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1404	1570	3539	0	1570	1404	0	1770	1613	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1404	1570	3539	0	1570	1404	0	1770	1613	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		645			652			900			435	
Travel Time (s)		14.7			14.8			20.5			9.9	

Intersection Summary

Area Type: Other

Intersection	
Int Delay, s/veh	49.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	902	60	29	845	0	139	0	123	1	3	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	250	500	-	-	225	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	15	15	2	2	15	2	15	2	2	2
Mvmt Flow	1	980	65	32	918	0	151	0	134	1	3	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	918	0	0	980	0	0	1507	1965	490	1474	1965	459
Stage 1	-	-	-	-	-	-	983	983	-	982	982	-
Stage 2	-	-	-	-	-	-	524	982	-	492	983	-
Critical Hdwy	4.14	-	-	4.4	-	-	7.8	6.54	7.2	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.8	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.8	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.35	-	-	3.65	4.02	3.45	3.52	4.02	3.32
Pot Cap-1 Maneuver	739	-	-	626	-	-	~ 74	62	491	88	62	549
Stage 1	-	-	-	-	-	-	243	325	-	267	325	-
Stage 2	-	-	-	-	-	-	473	325	-	527	325	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	739	-	-	626	-	-	~ 65	59	491	61	59	549
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 65	59	-	61	59	-
Stage 1	-	-	-	-	-	-	243	325	-	267	308	-
Stage 2	-	-	-	-	-	-	423	308	-	383	325	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	$ 400.4	20.6
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	65	491	739	-	-	626	-	-	61	286
HCM Lane V/C Ratio	2.324	0.272	0.001	-	-	0.05	-	-	0.018	0.103
HCM Control Delay (s)	$ 741.4	15.1	9.9	-	-	11.1	-	-	65.1	19
HCM Lane LOS	F	C	A	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	14.6	1.1	0	-	-	0.2	-	-	0.1	0.3

Notes

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

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	165			115
Storage Lanes	1	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.969					0.850
Flt Protected	0.963		0.950			
Satd. Flow (prot)	1182	0	1203	1863	1863	1077
Flt Permitted	0.963		0.950			
Satd. Flow (perm)	1182	0	1203	1863	1863	1077
Link Speed (mph)	30			30	30	
Link Distance (ft)	635			623	900	
Travel Time (s)	14.4			14.2	20.5	

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	34	10	3	60	281	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	115
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	2	2	50
Mvmt Flow	37	11	3	65	305	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	377	305	305	0	-	0
Stage 1	305	-	-	-	-	-
Stage 2	72	-	-	-	-	-
Critical Hdwy	6.9	6.7	4.6	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.95	3.75	2.65	-	-	-
Pot Cap-1 Maneuver	540	635	1027	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	538	635	1027	-	-	-
Mov Cap-2 Maneuver	538	-	-	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	840	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1027	-	557	-	-
HCM Lane V/C Ratio	0.003	-	0.086	-	-
HCM Control Delay (s)	8.5	-	12.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	902	60	29	845	0	139	0	123	1	3	24
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1652	1652	1863	1900	1652	1652	1900	1863	1863	1900
Adj Flow Rate, veh/h	1	980	65	32	918	0	151	0	134	1	3	26
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
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
Percent Heavy Veh, %	2	2	15	15	2	2	15	2	2	2	2	2
Cap, veh/h	348	1633	648	323	1732	0	376	0	275	294	33	282
Arrive On Green	0.00	0.46	0.46	0.03	0.49	0.00	0.20	0.00	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1774	3539	1404	1573	3632	0	1220	0	1404	1250	166	1442
Grp Volume(v), veh/h	1	980	65	32	918	0	151	0	134	1	0	29
Grp Sat Flow(s),veh/h/ln	1774	1770	1404	1573	1770	0	1220	0	1404	1250	0	1608
Q Serve(g_s), s	0.0	9.5	1.2	0.5	8.3	0.0	5.3	0.0	3.9	0.0	0.0	0.7
Cycle Q Clear(g_c), s	0.0	9.5	1.2	0.5	8.3	0.0	6.0	0.0	3.9	4.0	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	348	1633	648	323	1732	0	376	0	275	294	0	315
V/C Ratio(X)	0.00	0.60	0.10	0.10	0.53	0.00	0.40	0.00	0.49	0.00	0.00	0.09
Avail Cap(c_a), veh/h	502	1877	745	417	1877	0	584	0	514	507	0	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.2	9.3	7.0	7.2	8.1	0.0	17.7	0.0	16.5	18.3	0.0	15.2
Incr Delay (d2), s/veh	0.0	0.4	0.1	0.1	0.3	0.0	0.7	0.0	1.3	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	8.3	0.9	0.4	7.2	0.0	3.4	0.0	2.9	0.0	0.0	0.6
LnGrp Delay(d),s/veh	7.2	9.7	7.1	7.3	8.4	0.0	18.4	0.0	17.9	18.3	0.0	15.4
LnGrp LOS	A	A	A	A	A		B		B	B		B
Approach Vol, veh/h		1046			950			285			30	
Approach Delay, s/veh		9.5			8.3			18.1			15.4	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		13.5	5.8	26.8		13.5	4.6	28.1
Change Period (Y+Rc), s		4.5	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s		16.9	4.1	24.5		16.9	4.1	24.5
Max Q Clear Time (g_c+I1), s		8.0	2.5	11.5		6.0	2.0	10.3
Green Ext Time (p_c), s		1.0	0.0	9.8		1.1	0.0	10.6

Intersection Summary	
HCM 2010 Ctrl Delay	10.2
HCM 2010 LOS	B

APPENDIX “C”

TRAFFIC SIGNAL WARRANT #3 WORKSHEETS

WARRANT #3
2016 TRAFFIC
PM PEAK HOUR

Warrant 3: Peak Hour

1: Joliet Street & E 104th Avenue

Intersection Information:

	Major Street	Minor Street
Street Name	E 104th Avenue	Joliet Street
Direction	EB/WB	NB/SB
Number of Lanes	2	2
Approach Speed	45	30

Warrant 3 Met? **Yes**

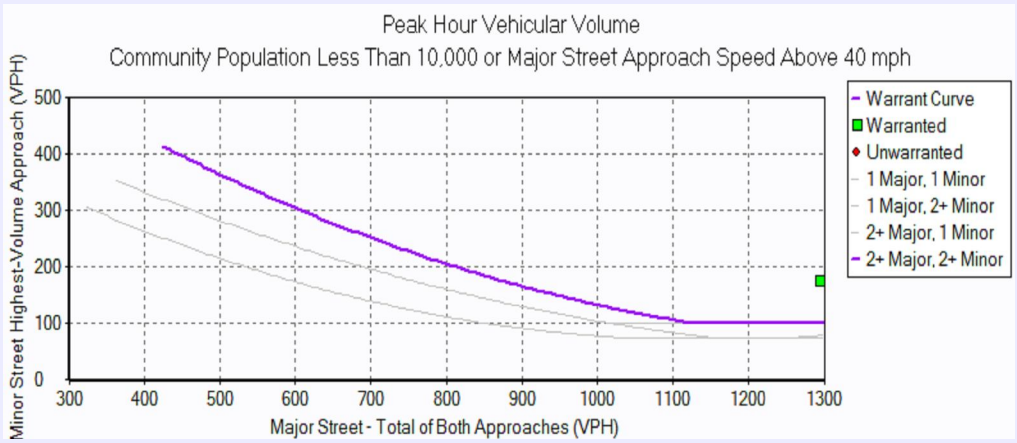
Details:

Low Population?	No
Condition A Met?	No
Notes:	0 Hours met (1 required)
Minor Approach Time Delay Condition	Not Met
Minor Approach Volume Condition	Met
Total Entering Intersection Volume Condition	Not Met
Condition B Met?	Yes
Notes:	1 Hours met (1 required)

Warrant 3: Peak Hour

1: Joliet Street & E 104th Avenue

Warrant 3



Note: Please turn over for volume information.

Warrant 3: Peak Hour

1: Joliet Street & E 104th Avenue

Warranted / Unwarranted

Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
0:00	1448	176

WARRANT #3
2018 BACKGROUND TRAFFIC
PM PEAK HOUR

Warrant 3: Peak Hour

1: Joliet Street & E 104th Avenue

Intersection Information:

	Major Street	Minor Street
Street Name	E 104th Avenue	Joliet Street
Direction	EB/WB	NB/SB
Number of Lanes	2	2
Approach Speed	45	30

Warrant 3 Met? **Yes**

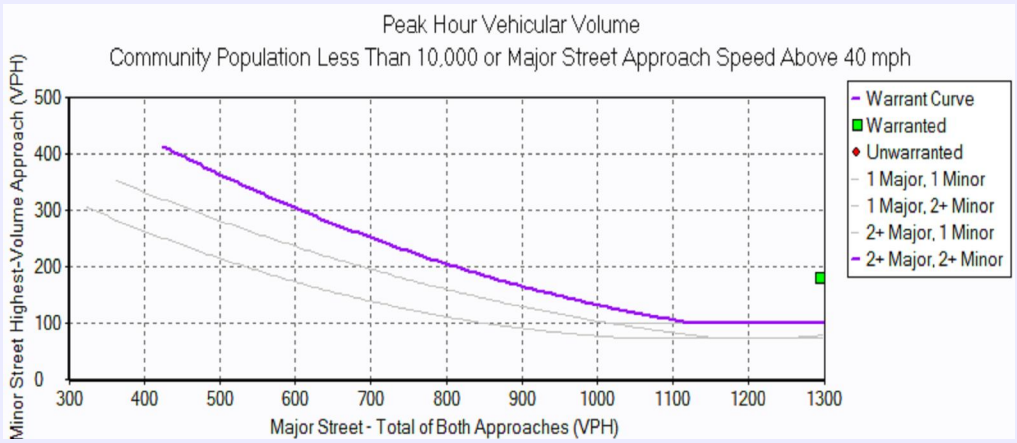
Details:

Low Population?	No
Condition A Met?	No
Notes:	0 Hours met (1 required)
Minor Approach Time Delay Condition	Not Met
Minor Approach Volume Condition	Met
Total Entering Intersection Volume Condition	Not Met
Condition B Met?	Yes
Notes:	1 Hours met (1 required)

Warrant 3: Peak Hour

1: Joliet Street & E 104th Avenue

Warrant 3



Note: Please turn over for volume information.

Warrant 3: Peak Hour

1: Joliet Street & E 104th Avenue

Warranted / Unwarranted

Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
0:00	1468	180

WARRANT #3
2018 TOTAL TRAFFIC
PM PEAK HOUR

Warrant 3: Peak Hour

1: Joliet Street & E 104th Avenue

Intersection Information:

	Major Street	Minor Street
Street Name	E 104th Avenue	Joliet Street
Direction	EB/WB	NB/SB
Number of Lanes	2	2
Approach Speed	45	30

Warrant 3 Met? **Yes**

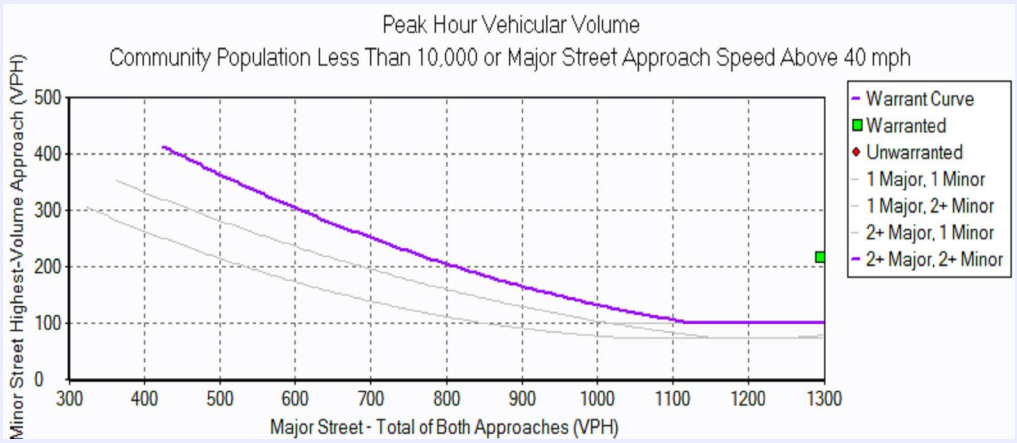
Details:

Low Population?	No
Condition A Met?	No
Notes:	0 Hours met (1 required)
Minor Approach Time Delay Condition	Not Met
Minor Approach Volume Condition	Met
Total Entering Intersection Volume Condition	Not Met
Condition B Met?	Yes
Notes:	1 Hours met (1 required)

Warrant 3: Peak Hour

1: Joliet Street & E 104th Avenue

Warrant 3



Note: Please turn over for volume information.

Warrant 3: Peak Hour

1: Joliet Street & E 104th Avenue

Warranted / Unwarranted

Hour	Major Street Total of both approaches (VPH)	Minor Street Highest volume approach (VPH)
0:00	1476	216