RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

RAMEY KEMP & ASSOCIATES, INC.
4343 Cox Road
Glen Allen, VA 23060
Phone: 804-217-8560 Fax: 804-217-8563
www.rameykemp.com

July 5, 2019

Mr. Michael Zuraf, AICP
Stafford County
1300 Courthouse Road
Stafford, Virginia 22554
Phone: (540) 658-8668

Reference: Wawa – Cranes Corner Road – Traffic Impact Analysis (TIA)
Stafford County, Virginia

Dear Mr. Zuraf,

Ramey Kemp & Associates, Inc. (RKA) has performed a TIA to support the proposed convenience store in the northeast quadrant of the intersection of U.S. 1 at Enon Road / Cranes Corner Road. The preliminary site plan includes a 6,050 square foot (s.f.) convenience store with 20 fueling positions (f.p.). The access plan includes one full-movement driveway on Cranes Corner Road approximately 285 feet east of U.S. 1, and one right-in / right-out driveway on U.S. 1 approximately 430 feet north of Enon Road / Cranes Corner Road.

If approved, the proposed convenience store is expected to be built by 2022. Figure 1 shows the site location and study intersections, and Figure 2 shows the preliminary site plan.

The purpose of this letter report is to provide the following:

- Trip generation calculations
- Evaluation of turn lane warrants for both proposed site driveways
- Capacity analysis of study intersections

Existing Roadway Conditions

U.S. 1 is a six-lane divided Principal Arterial with an average daily traffic (ADT) volume of approximately 21,000 vehicles per day (vpd) and a posted speed limit of 45 mph along the property frontage. U.S. 1 south of the proposed site is a four-lane divided roadway with an ADT volume of approximately 26,000 vpd.

Centreport Parkway is a two-lane Major Collector with an ADT volume of approximately 14,000 vpd, and a posted speed limit of 45 mph.

Enon Road (Route 627) is a two-lane Major Collector with an ADT volume of approximately 6,200 vpd, and a posted speed limit of 40 mph.

Cranes Corner Road (Route 676) is a two-lane roadway with an ADT volume of approximately 470 vpd, and a posted speed limit of 30 mph.

The existing lane configuration is shown in Figure 3.

Existing Traffic Volumes
The AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) turning movement counts were conducted by Technical Traffic Services at the following intersections during the week of June 3, 2019:

- U.S. 1 at Enon Road / Cranes Corner Road
- U.S. 1 at Centreport Parkway

The traffic data is enclosed, and the existing 2019 volumes are shown in Figure 4.

At the request of VDOT, the peak hour factors (PHF) for individual movements to and from Stafford High School were applied.

Background Traffic Growth
Based on discussion with the County and VDOT, the existing 2019 volumes were grown by an annual rate of 2% for three years to estimate the 2022 no-build volumes.

Approved Development Traffic
Based on discussion with the County and VDOT, two approved developments near the site are included in this TIA. Potomac Creek Commercial is a 38,421 s.f. office building located on the west side of U.S. 1 approximately 3,000 feet north of Enon Road. The trip generation potential of Potomac Creek Commercial during a typical weekday, AM peak hour and PM peak hour was estimated using the methodologies published by the Institute of Transportation Engineers (ITE) *Trip Generation Manual – 10th Edition*.

Table 1
ITE Trip Generation – Potomac Creek Commercial – Weekday – 10th Edition

Land Use (ITE Land Use Code)	Size	Weekday Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
General Office (710)	38,500 s.f.	210	210	54	9	7	39

Figures 5 and 6 show the trip distribution and assignment for Potomac Creek Commercial.

Sheetz is proposing a new C-store with 12 fueling positions in the southwest quadrant of the intersection of U.S. 1 at Enon Road / Cranes Corner Road. RKA performed the TIA for the proposed Sheetz, which is dated August 6, 2018. The ITE trip generation potential of Sheetz is shown in Table 2.

Table 2
ITE Trip Generation – Sheetz – Weekday – 10th Edition

Land Use (ITE Land Use Code)	Size	Weekday Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
Super Convenience Market / Gas Station (960)	12 f.p. / 7,000 s.f.	1,383	1,383	264*	264*	207*	207*
ITE Pass-by Trips: 63% AM / 66% PM		-892	-892	-166	-166	-137	-137
New Primary Trips		**491**	**491**	**98**	**98**	**70**	**70**

*Value was determined using the multi-variable regression formula published by ITE.

Figures 7 and 8 show the primary and pass-by trip distributions for Sheetz. The primary, pass-by, and total site trip assignments for Sheetz are shown in Figures 9, 10, and 11, respectively. Based on discussion with the County and VDOT, the no-build and build scenarios are shown with and without the inclusion of the Sheetz site trips. Figure 12 shows the 2022 no-build traffic volumes, accounting for background growth only. Figure 13 combines the background growth and trips from Potomac Creek Commercial. The 2022 no-build volumes, including background growth and trips from both approved developments, are shown in Figure 14.

Trip Generation

Based on discussion with VDOT, the trip generation potential of the proposed C-store was estimated by using the multi-variable regression formula published by ITE. Table 3 shows the ITE trip generation potential of the proposed 6,050 s.f. convenience store with 20 fueling positions.

Table 3
ITE Trip Generation – Weekday – 10th Edition

Land Use (ITE Land Use Code)	Size	Weekday Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
Super Convenience Market / Gas Station (960)	20 f.p. / 6,050 s.f.	2,305	2,305	328*	328*	253*	253*
ITE Pass-by Trips: 63% AM / 66% PM		-1,487	-1,487	-207	-207	-167	-167
New Primary Trips		**818**	**818**	**121**	**121**	**86**	**86**

*Value was determined using the multi-variable regression formula published by ITE.

Convenience stores attract pass-by trips, which are made by drivers who are already driving by the site today and will visit the C-store in the future because it is convenient. The ITE pass-by rates are shown in Table 3.

Site Traffic Distribution
The following primary site traffic distribution was applied based on a review of the existing traffic volumes, the adjacent roadway network, and engineering judgement:

- 40% to / from the south on U.S. 1
- 20% to / from the north on U.S. 1
- 20% to / from the west on Centreport Parkway
- 20% to / from the west on Enon Road

It was assumed that all pass-by trips will originate from U.S. 1. The following directional distributions were applied to U.S. 1:

- AM Peak – 70% northbound / 30% southbound
- PM Peak – 30% northbound / 70% southbound

Figures 15 and 16 show the primary and pass-by site trip distributions, respectively. Figures 17, 18, and 19 show the primary, pass-by, and total site trip assignments. The build 2022 peak hour traffic volumes are shown in Figure 20, excluding trips generated by Sheetz, and Figure 21, which includes the Sheetz trips.

VDOT Turn Lane Warrant Analysis
The projected build-out AM and PM peak hour traffic volumes at the proposed driveways were compared to the turn lane warrants in the VDOT *Access Management Design Standards for Entrances and Intersections*:

<u>Cranes Corner Road at Full-Movement Driveway:</u>

- An eastbound left-turn lane on Cranes Corner Road is not warranted
- A westbound right-turn lane or taper is not warranted

<u>U.S. 1 at Right-in / Right-out Driveway:</u>

- A northbound right-turn lane on U.S. 1 is warranted

The turn lane warrant diagrams are enclosed for reference, and Figure 22 shows the recommended lanes.

Intersection Spacing Standards
VDOT requires at least 305 feet of separation between traffic signals and partial access driveways on Principal Arterial roadways posted 45 mph. The proposed right-in / right-out driveway on U.S. 1 is approximately 430 feet north of Cranes Corner Road, which exceeds VDOT minimum spacing standards.

VDOT requires at least 225 feet of separation between full-movement access driveways and other intersections on Collector roads posted 30 mph. The proposed full-movement driveway on Cranes Corner Road is approximately 285 feet east of U.S. 1, which exceeds VDOT minimum spacing standards.

Traffic Capacity Analysis
Traffic capacity analysis for the study intersections was performed using Synchro 10, which is a comprehensive software package that allows the user to model signalized and unsignalized intersections to determine levels-of-service based on the thresholds specified in the Highway Capacity Manual (HCM) – 6th Edition. Note that the

reported queues were determined using SimTraffic. The SimTraffic maximum queues shown are the average of ten simulation runs.

Table 4 summarizes the capacity analysis results for the signalized intersection of U.S. 1 at Centreport Parkway, and all of the Synchro and SimTraffic outputs are enclosed for reference.

Table 4
Level-of-Service Summary for U.S. 1 at Centreport Parkway

CONDITION	LANE GROUP	AM PEAK HOUR				PM PEAK HOUR			
		Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)	Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)
Existing 2019 Traffic Conditions	WBL	D	48.4	337	B (15.2 sec)	F	80.6	630	D (36.2 sec)
	WBR	B	19.1	159		B	19.1	73	
	NBT	B	15.7	223		C	28.6	175	
	NBR	A	4.5	62		A	9.5	222	
	SBL	A	9.4	34		C	21.8	125	
	SBT	A	8.2	63		C	29.6	479	
No-Build 2022 Traffic Conditions (Without Sheetz Trips)	WBL	D	52.9	368	B (16.7 sec)	D	54.9	619	D (40.0 sec)
	WBR	C	26.4	229		B	10.4	54	
	NBT	B	16.0	238		D	40.6	257	
	NBR	A	4.8	62		B	13.8	242	
	SBL	A	10.0	37		C	33.5	206	
	SBT	A	8.4	65		D	43.1	726	
Build 2022 Traffic Conditions (Without Sheetz Trips)	WBL	E	63.9	392	B (19.5 sec)	E	55.9	625	D (40.5 sec)
	WBR	C	28.9	229		B	10.5	55	
	NBT	B	11.6	312		D	44.2	206	
	NBR	B	13.9	245		A	7.0	103	
	SBL	B	10.7	39		C	34.4	206	
	SBT	A	9.0	73		D	44.6	738	
No-Build 2022 Traffic Conditions (With Sheetz Trips)	WBL	D	45.1	287	B (16.0 sec)	E	56.0	623	D (40.3 sec)
	WBR	B	13.2	116		B	10.6	55	
	NBT	B	15.3	613		D	44.0	204	
	NBR	B	11.1	250		A	7.0	102	
	SBL	A	8.6	26		C	34.2	206	
	SBT	A	7.2	46		D	44.2	735	
Build 2022 Traffic Conditions (With Sheetz Trips)	WBL	E	64.8	418	B (19.6 sec)	E	78.1	635	C (34.6 sec)
	WBR	C	28.3	231		A	4.3	27	
	NBT	B	17.4	260		B	16.7	74	
	NBR	A	6.4	167		B	12.8	281	
	SBL	B	11.2	39		C	23.8	111	
	SBT	A	9.4	76		C	30.6	664	

Capacity analysis indicates that this intersection currently operates at LOS B during the AM peak hour and at LOS D during the PM peak hour. Under no-build conditions, capacity analysis indicates that this intersection is expected to continue to operate at LOS B during the AM peak hour and at LOS D during the PM peak hour.

Under build conditions without the construction of Sheetz, the intersection is expected to continue to operate at LOS B during the AM peak hour and LOS D during the PM peak hour. Under build conditions with Sheetz, the intersection is expected to operate at LOS B during the AM peak hour and LOS C during the PM peak hour. In both cases, all movements will operate at LOS E or better – if coordination is activated between this intersection and the Enon Road / Cranes Corner Road signal. No geometric improvements are warranted or recommended at this intersection.

Table 5 summarizes the capacity analysis results for the signalized intersection of U.S. 1 at Enon Road / Cranes Corner Road. All of the Synchro and SimTraffic outputs are enclosed for reference.

Table 5
Level-of-Service Summary for U.S. 1 at Enon Road / Cranes Corner Road

CONDITION	LANE GROUP	AM PEAK HOUR				PM PEAK HOUR			
		Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)	Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)
Existing 2019 Traffic Conditions	EBL/T	F	137.9	537	E (58.3 sec)	F	136.3	504	D (49.3 sec)
	EBR	B	12.0	3		B	14.9	104	
	WBL/T/R	F	179.7	76		E	60.4	37	
	NBL	E	69.0	412		F	274.8	541	
	NBT/R	C	21.4	407		A	9.0	141	
	SBL	E	62.1	29		F	84.7	68	
	SBT	F	97.2	235		D	36.6	614	
	SBR	E	75.1	236		A	3.7	180	
No-Build 2022 Traffic Conditions (Without Sheetz Trips)	EBL/T	F	134.2	555	E (71.1 sec)	F	106.8	421	E (68.0 sec)
	EBR	B	12.8	11		B	15.4	118	
	WBL/T/R	F	189.6	69		E	65.6	25	
	NBL	F	111.8	470		F	162.5	522	
	NBT/R	C	25.5	478		B	10.1	156	
	SBL	E	62.3	30		E	77.8	202	
	SBT	F	118.3	386		F	97.0	1081	
	SBR	F	82.3	274		A	5.1	65	
Build 2022 Traffic Conditions (Without Sheetz Trips)	EBL	F	129.7	350	E (60.0 sec)	F	162.7	430	E (70.7 sec)
	EBT/R	C	22.6	564		E	72.5	567	
	WBL	E	72.7	135		F	156.1	315	
	WBT/R	F	155.8	204		F	99.1	48	
	NBL	F	87.8	451		F	183.1	539	
	NBT/R	C	34.6	519		B	19.2	220	
	SBL	F	106.1	222		F	80.3	245	
	SBT	E	60.6	248		E	70.0	411	
	SBR	C	22.9	160		B	11.0	276	
No-Build 2022 Traffic Conditions (With Sheetz Trips)	EBL	F	150.6	394	E (79.0 sec)	F	158.6	415	E (71.8 sec)
	EBT/R	B	12.0	8		B	18.1	72	
	WBL/T/R	F	262.4	78		E	64.8	25	
	NBL	F	133.7	671		F	151.8	655	
	NBT/R	B	17.1	388		A	6.9	131	
	SBL	E	78.0	142		E	76.1	35	
	SBT	F	111.8	436		F	92.9	1070	
	SBR	C	28.3	185		A	7.9	171	
Build 2022 Traffic Conditions (With Sheetz Trips)	EBL	F	111.6	450	E (75.4 sec)	F	80.3	450	E (71.9 sec)
	EBT/R	D	47.3	577		E	64.8	594	
	WBL	F	107.6	169		F	179.7	312	
	WBT/R	F	171.2	176		F	99.1	48	
	NBL	F	122.5	676		F	267.8	1002	
	NBT/R	C	28.2	482		B	18.5	207	
	SBL	F	97.0	206		E	65.2	300	
	SBT	F	81.2	313		E	60.7	399	
	SBR	F	86.9	280		B	11.4	262	

Capacity analysis indicates that this intersection currently operates at LOS E during the AM peak hour and LOS D during the PM peak hour. Under no-build conditions, the intersection is expected to operate at LOS E during the AM and PM peak hours.

Under build conditions, the intersection is expected to continue to operate at LOS E during the AM and PM peak hours with the following improvements to be made by Wawa:

- Widen Cranes Corner Road between U.S. 1 and Full-Movement Site Driveway to provide a westbound left-turn lane and a through-right-turn lane
- Activate coordination between the existing signals on U.S. 1 at Enon Road / Cranes Corner Road and Centreport Parkway during both peak hours
- Modify the existing signal to change the eastbound and westbound approaches from split phasing to protected phasing, and provide a southbound right-turn overlap on U.S. 1
- If Sheetz is not constructed, restripe eastbound Enon Road to include one left-turn lane and one through-right-turn lane

If the Sheetz is constructed, the following improvements will be made by Sheetz:

- Restripe the existing northbound left-turn lane on U.S. 1 to extend the existing storage as far as possible
- Construct one eastbound shared through-right-turn lane on Enon Road
- Restripe eastbound Enon Road to provide dual left-turn lanes with 325 feet of storage

Table 6 summarizes the capacity analysis results for the proposed unsignalized intersection of U.S. 1 at Right-in / Right-out Driveway, and all of the Synchro and SimTraffic outputs are enclosed for reference.

Table 6
Level-of-Service Summary for U.S. 1 at Right-in / Right-out Driveway

CONDITION	LANE GROUP	AM PEAK HOUR				PM PEAK HOUR			
		Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)	Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)
Build 2022 Traffic Conditions (Without Sheetz Trips)	WBR[1]	F	89.0	200	N/A[2]	C	15.3	20	N/A[2]
	NBT	-	-	-		-	-	-	
	NBR	-	-	-		-	-	-	
	SBT	-	-	-		-	-	-	
Build 2022 Traffic Conditions (With Sheetz Trips)	WBR[1]	F	97.9	210	N/A[2]	C	15.6	20	N/A[2]
	NBT	-	-	-		-	-	-	
	NBR	-	-	-		-	-	-	
	SBT	-	-	-		-	-	-	

1. Level of service for minor approach
2. HCM methodology does not provide lane group or overall LOS, delay, and queue lengths for major street through movements or right turns at unsignalized intersections.

Capacity analysis indicates that the westbound right-turn movement out of the site is projected to operate with long delays (greater than 50 seconds) during the AM peak hour and with short delays (less than 25 seconds) during the PM peak hour at build-out, and the queue lengths are expected to be nine vehicles or less.

Table 7 summarizes the capacity analysis results for the proposed unsignalized intersection of Cranes Corner Road at Full-Movement Driveway. All of the Synchro and SimTraffic outputs are enclosed for reference.

Table 7
Level-of-Service Summary for Cranes Corner Road at Full-Movement Driveway

CONDITION	LANE GROUP	AM PEAK HOUR				PM PEAK HOUR			
		Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)	Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)
Build 2022 Traffic Conditions (Without Sheetz Trips)	EBL/T[2] WBT/R SBL/R[1]	A - A	7.7 - 9.2	13 - 13	N/A[3]	A - A	7.6 - 9.1	13 - 15	N/A[3]
Build 2022 Traffic Conditions (With Sheetz Trips)	EBL/T[2] WBT/R SBL/R[1]	A - A	7.7 - 9.2	13 - 13	N/A[3]	A - A	7.6 - 9.1	13 - 15	N/A[3]

1. Level of service for minor approach
2. Level of service for major street left-turn movement
3. HCM methodology does not provide lane group or overall LOS, delay, and queue lengths for major street through movements or right turns at unsignalized intersections.

Capacity analysis indicates that the minor street left-turn movement out of the site is projected to operate with short delays (less than 25 seconds) during the both peak hours, and the queue lengths are expected to be one vehicle or less. No improvements are warranted or recommended at the build-out of the site.

Recommendations
Based on the trip generation potential of the proposed convenience store, the following off-site roadway improvements are recommended:

U.S. 1 at Enon Road / Cranes Corner Road

- Widen Cranes Corner Road between U.S. 1 and Full-Movement Site Driveway to provide a westbound left-turn lane and a through-right-turn lane
- Activate coordination between the existing signals on U.S. 1 at Enon Road / Cranes Corner Road and Centreport Parkway during both peak hours
- Modify the existing signal to change the eastbound and westbound approaches from split phasing to protected phasing, and provide a southbound right-turn overlap on U.S. 1
- If Sheetz is not constructed, restripe eastbound Enon Road to include one left-turn lane and one through-right-turn lane

Cranes Corner Road at Full-Movement Driveway

- Construct site driveway with one ingress lane and one egress lane

U.S. 1 at Right-in / Right-out Driveway

- Construct one northbound right-turn lane on U.S. 1 with 200 feet of storage
- Construct site driveway with one ingress lane and one egress lane

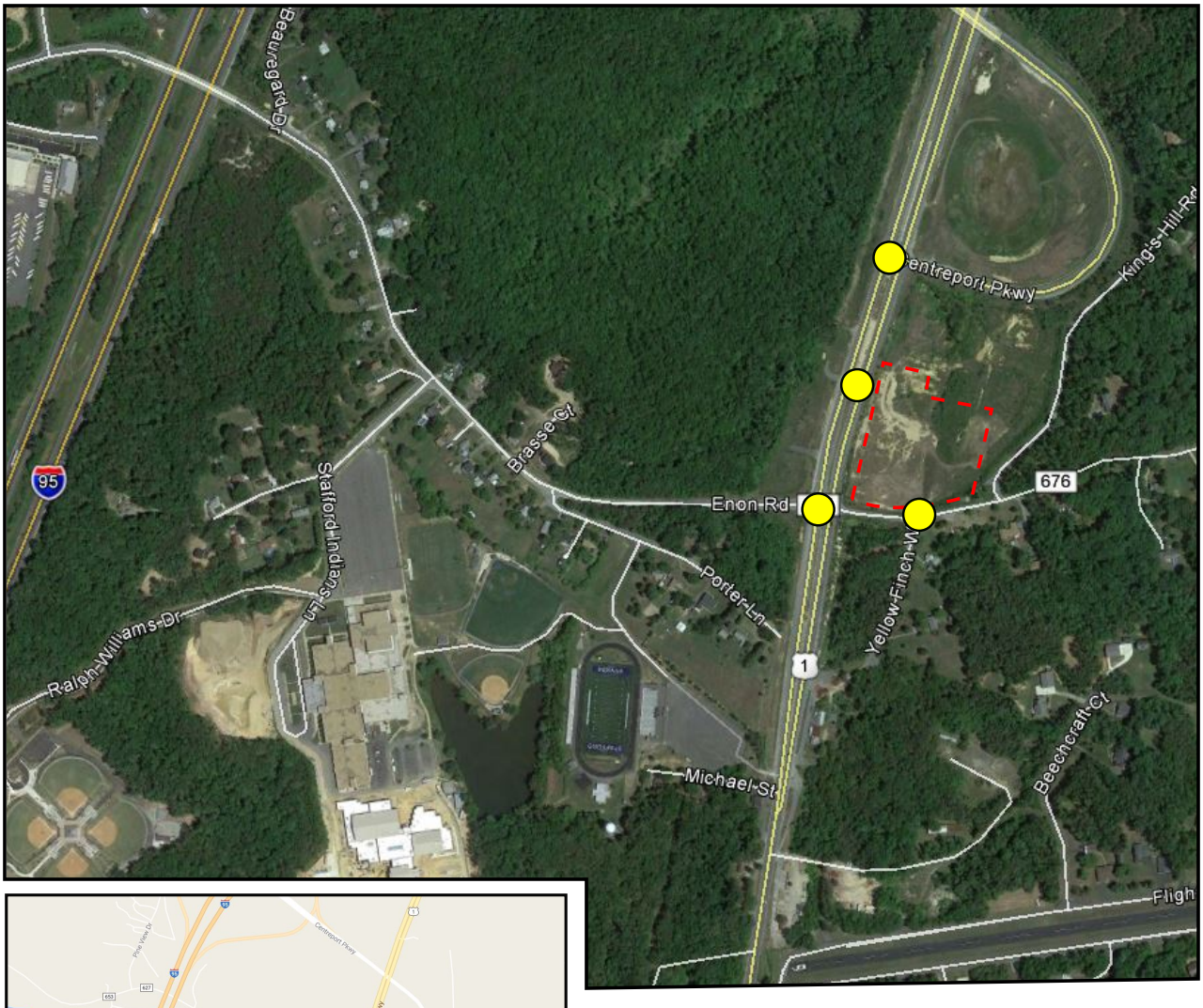
We appreciate your attention to this matter. Please contact me at (804) 217-8560 if you have any questions about this report.

Sincerely yours,
Ramey Kemp & Associates, Inc.

Michael D. Bailey, P.E., PTOE
Project Manager

Enclosures: Figures, Traffic count data, Synchro and SimTraffic output, VDOT turn lane warrant diagrams

Copy to: Mr. David Beale, P.E., VDOT
Mr. Peter Hedrich, P.E., PTOE, VDOT
Ms. Margaret Niemann, VDOT
Mr. Grey Hanna, 6S Development
Mr. John Wright, P.E., Bohler Engineering



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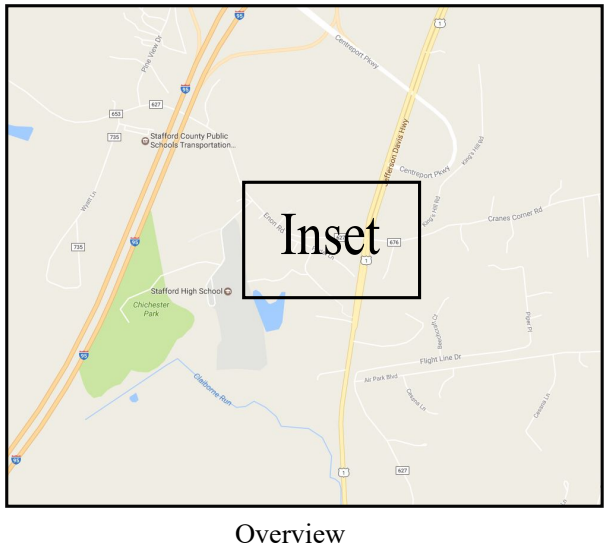

Overview

LEGEND

N

Study Intersection

Site Boundary

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Site Location and Study Intersections

Scale: Not to Scale

Figure 1

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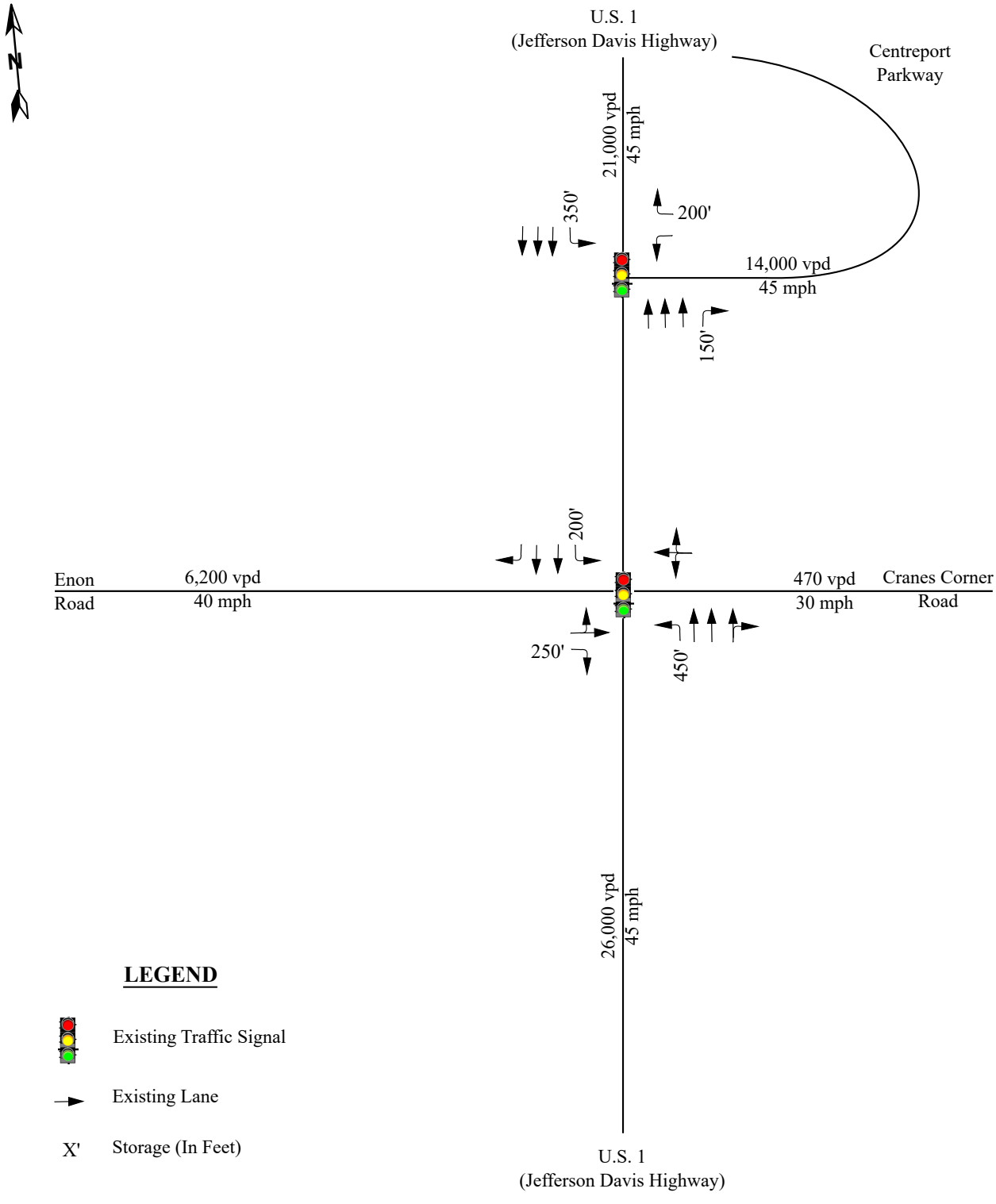
Wawa - Cranes Corner
Stafford County, Virginia

Preliminary Site Plan

Scale: Not to Scale

Figure 2



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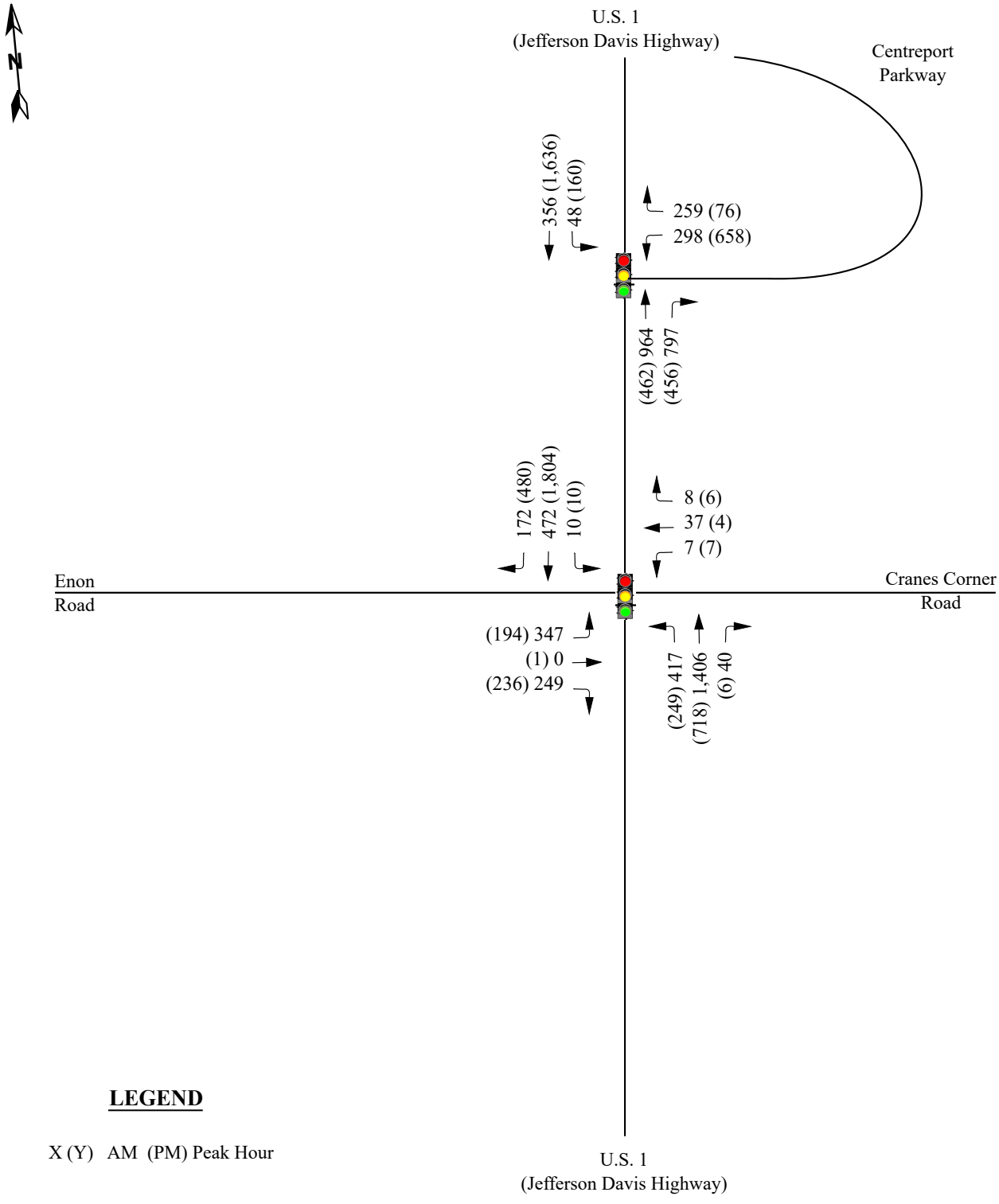
Wawa - Cranes Corner
Stafford County, Virginia

Existing Lane Configuration

Scale: Not to Scale

Figure 3



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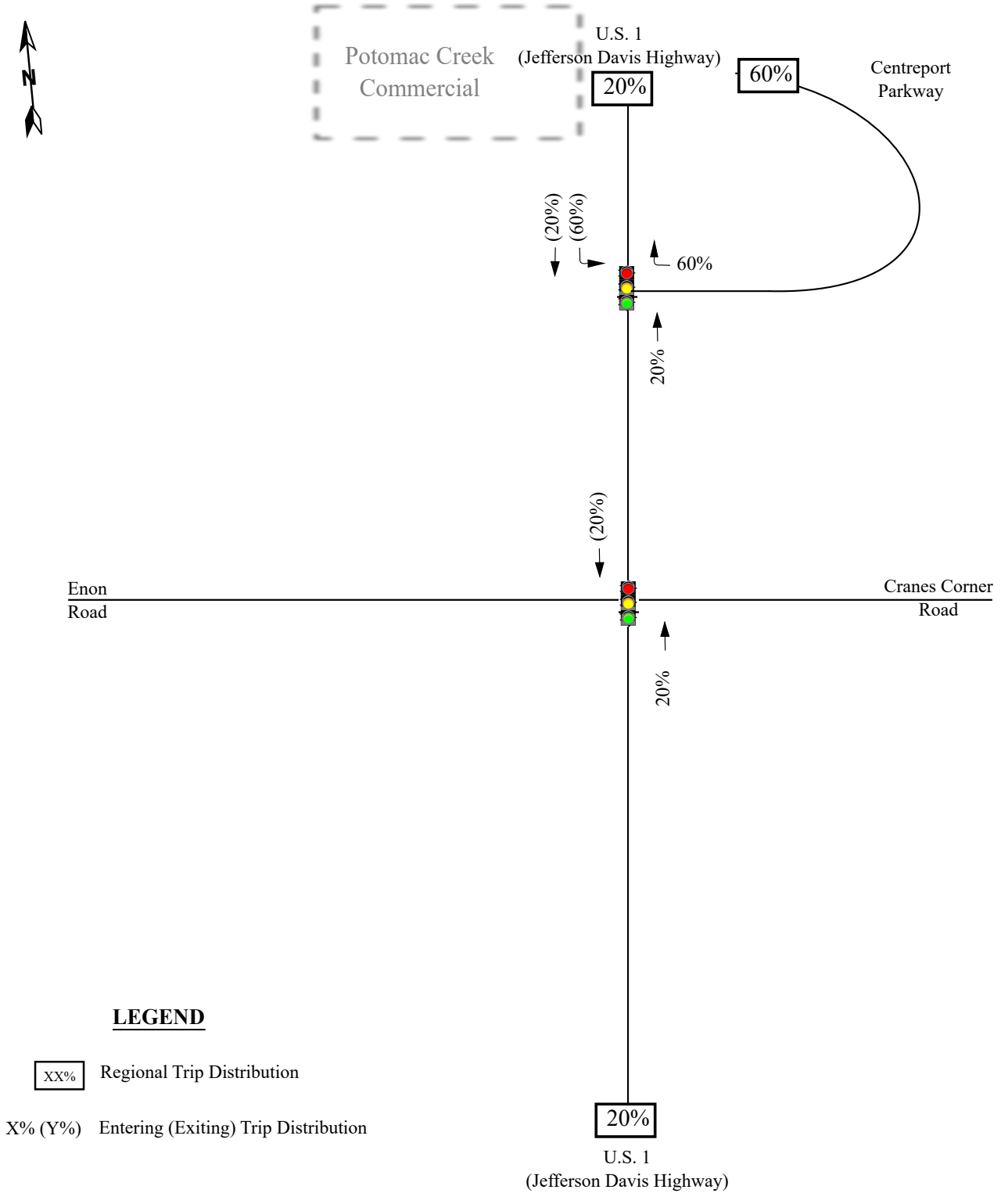
Wawa - Cranes Corner
Stafford County, Virginia

Existing (2019) Peak Hour
Traffic Volumes

Scale: Not to Scale

Figure 4



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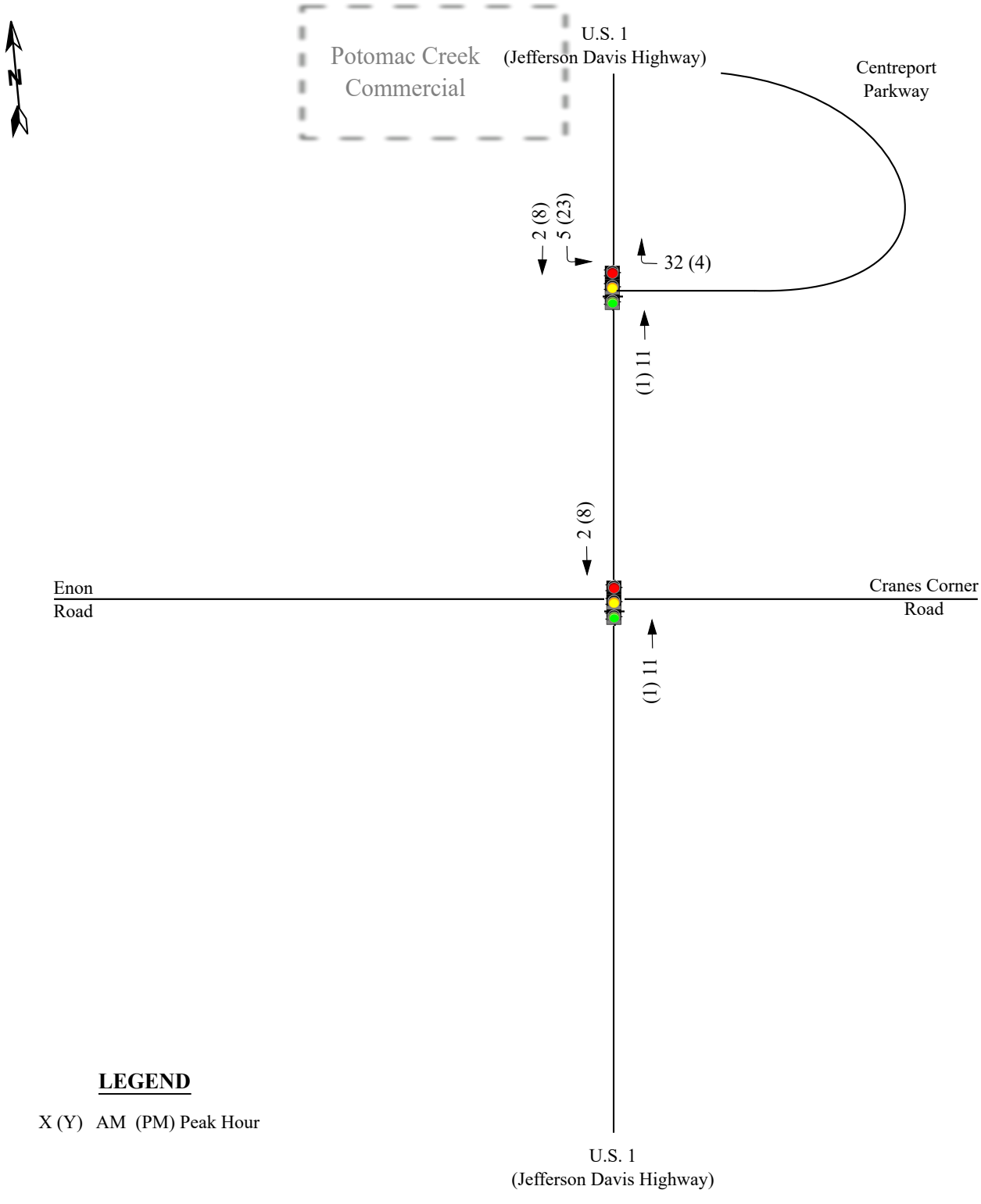
Wawa - Cranes Corner
Stafford County, Virginia

Potomac Creek Commerical Distribution

Scale: Not to Scale | Figure 5



LEGEND

X (Y) AM (PM) Peak Hour

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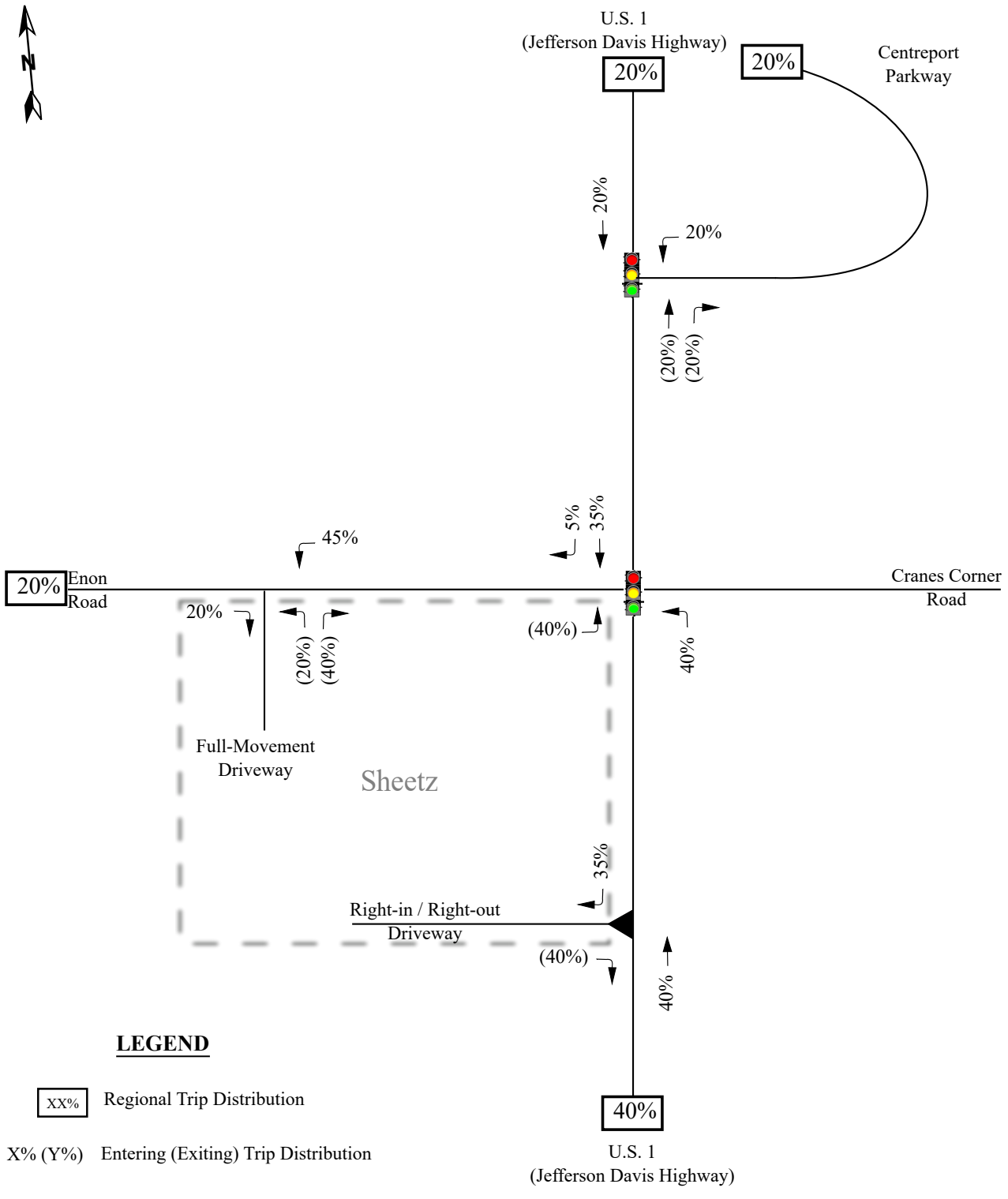
Wawa - Cranes Corner
Stafford County, Virginia

Potomac Creek Commerical Assignment

Scale: Not to Scale | Figure 6



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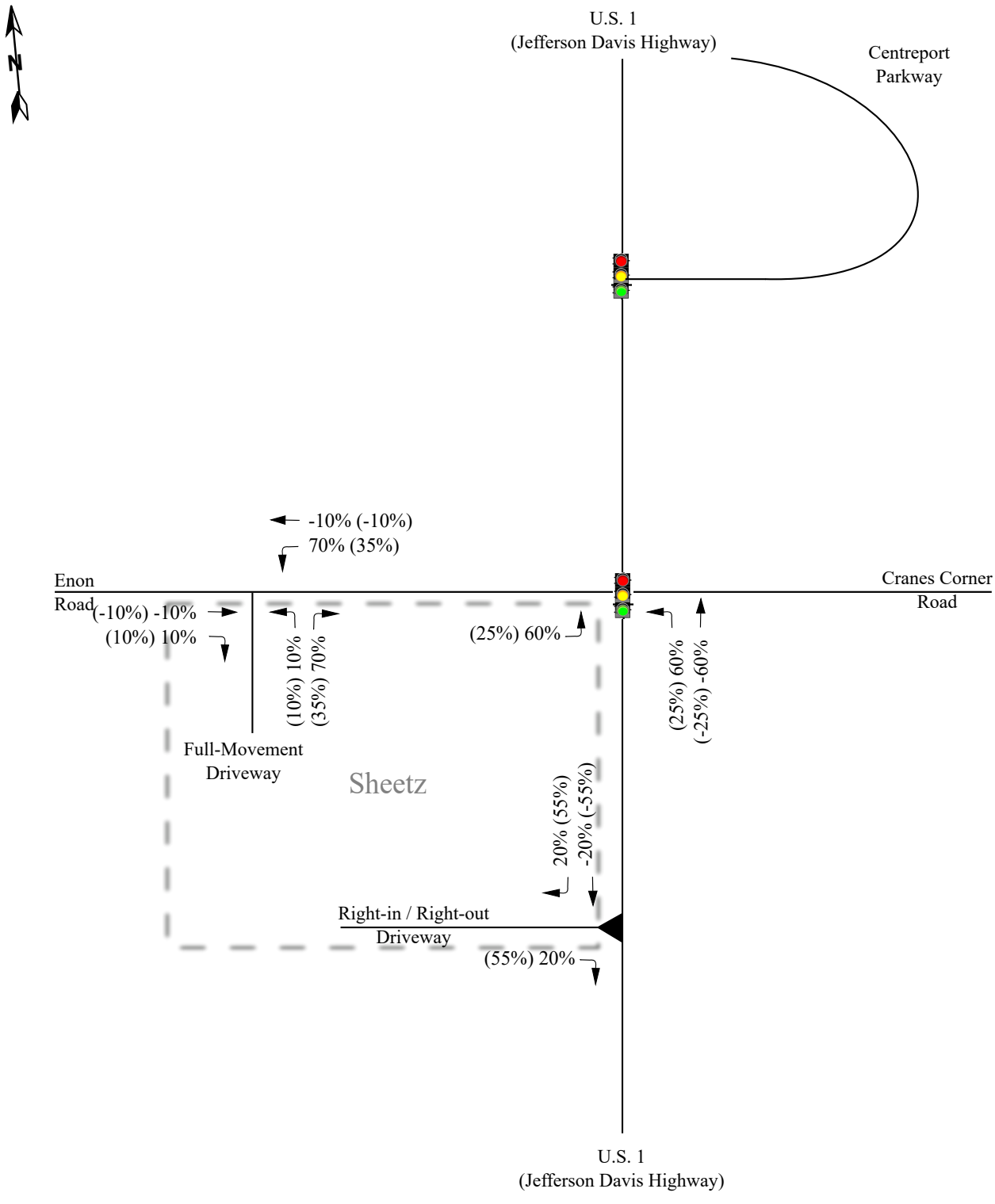
Wawa - Cranes Corner
Stafford County, Virginia

Sheetz Primary
Site Trip Distribution

Scale: Not to Scale

Figure 7



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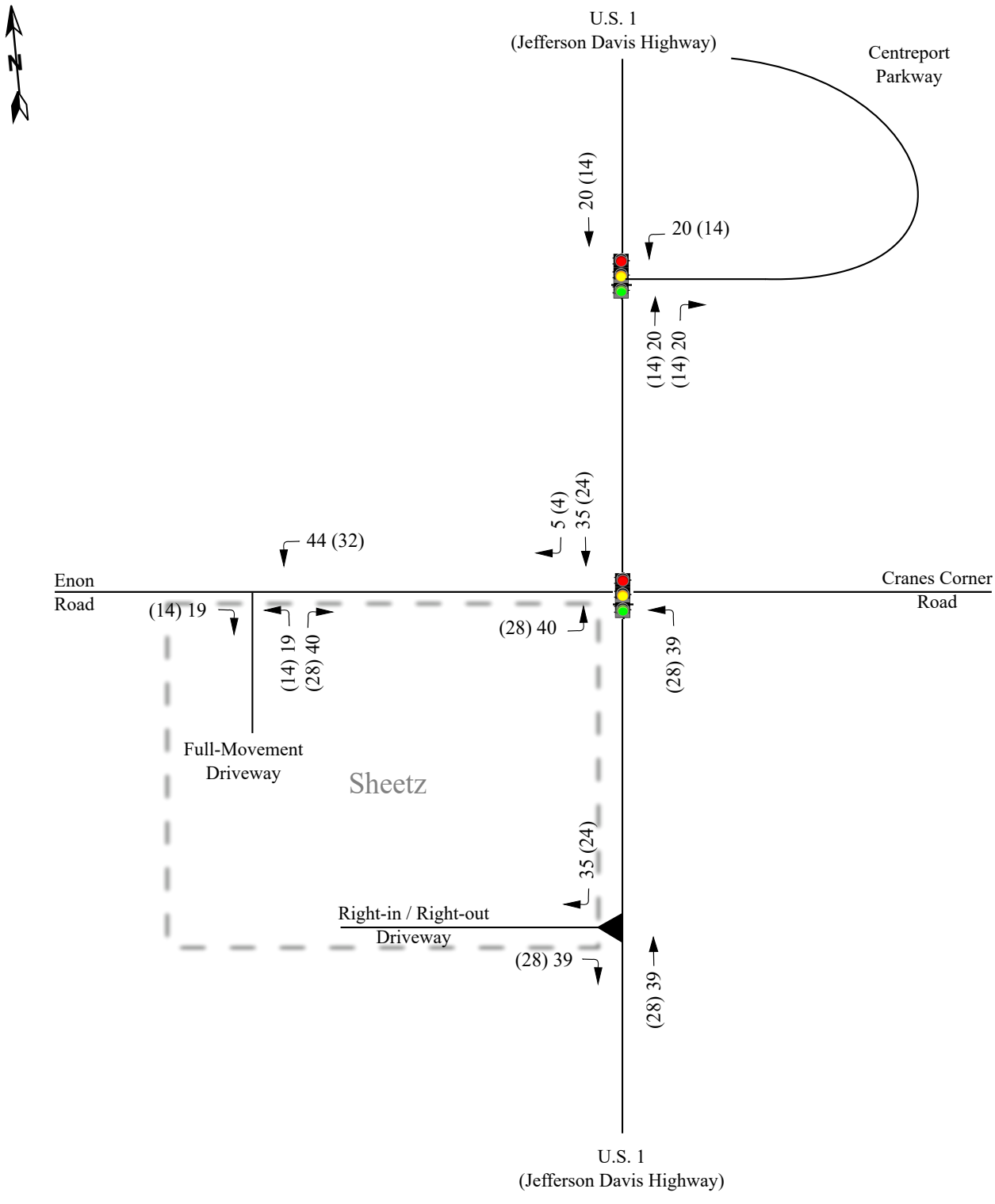
Wawa - Cranes Corner
Stafford County, Virginia

Sheetz Pass-By
Site Trip Distribution

Scale: Not to Scale

Figure 8



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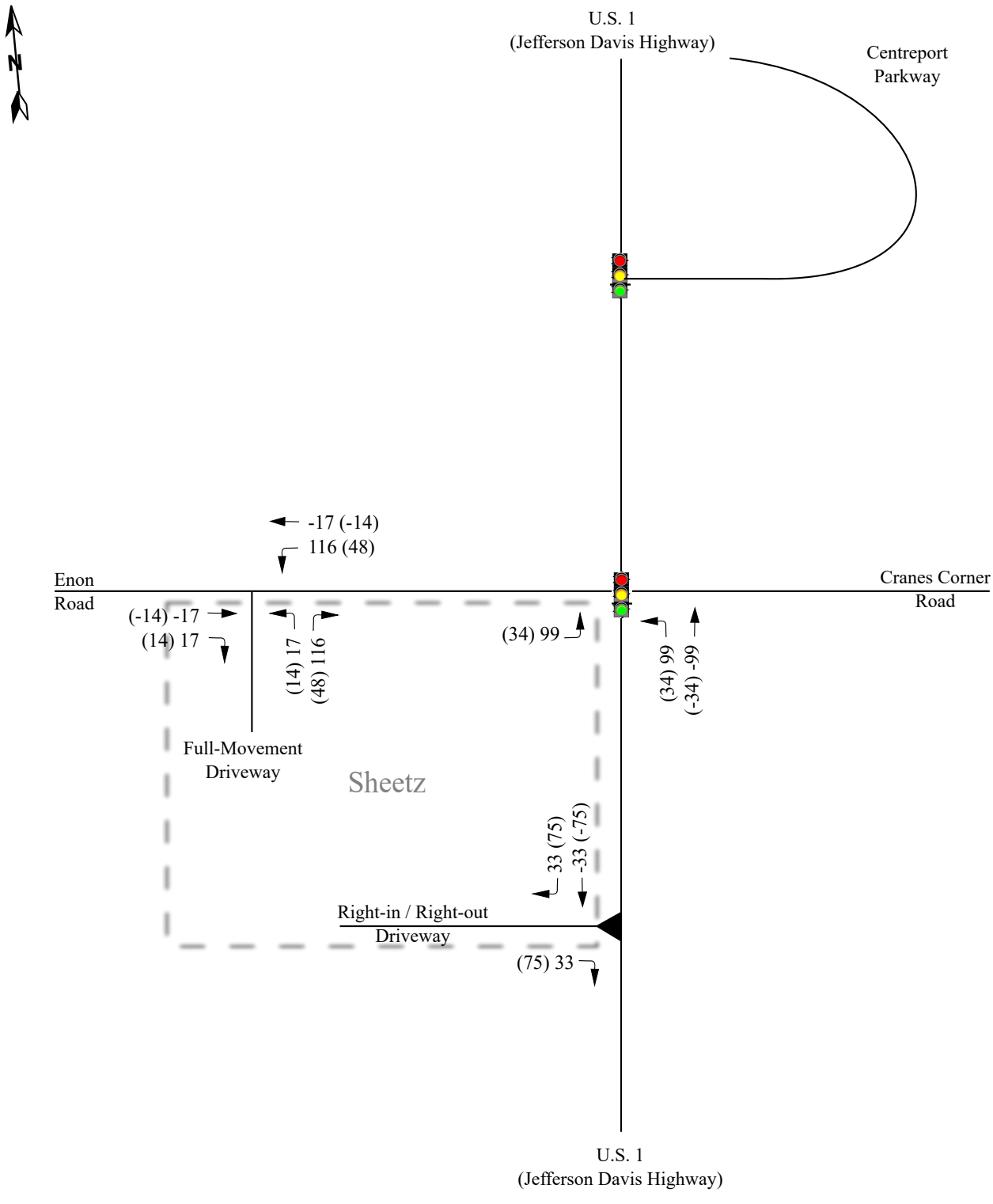
Wawa - Cranes Corner
Stafford County, Virginia

Sheetz Primary
Site Trip Assignment

Scale: Not to Scale

Figure 9



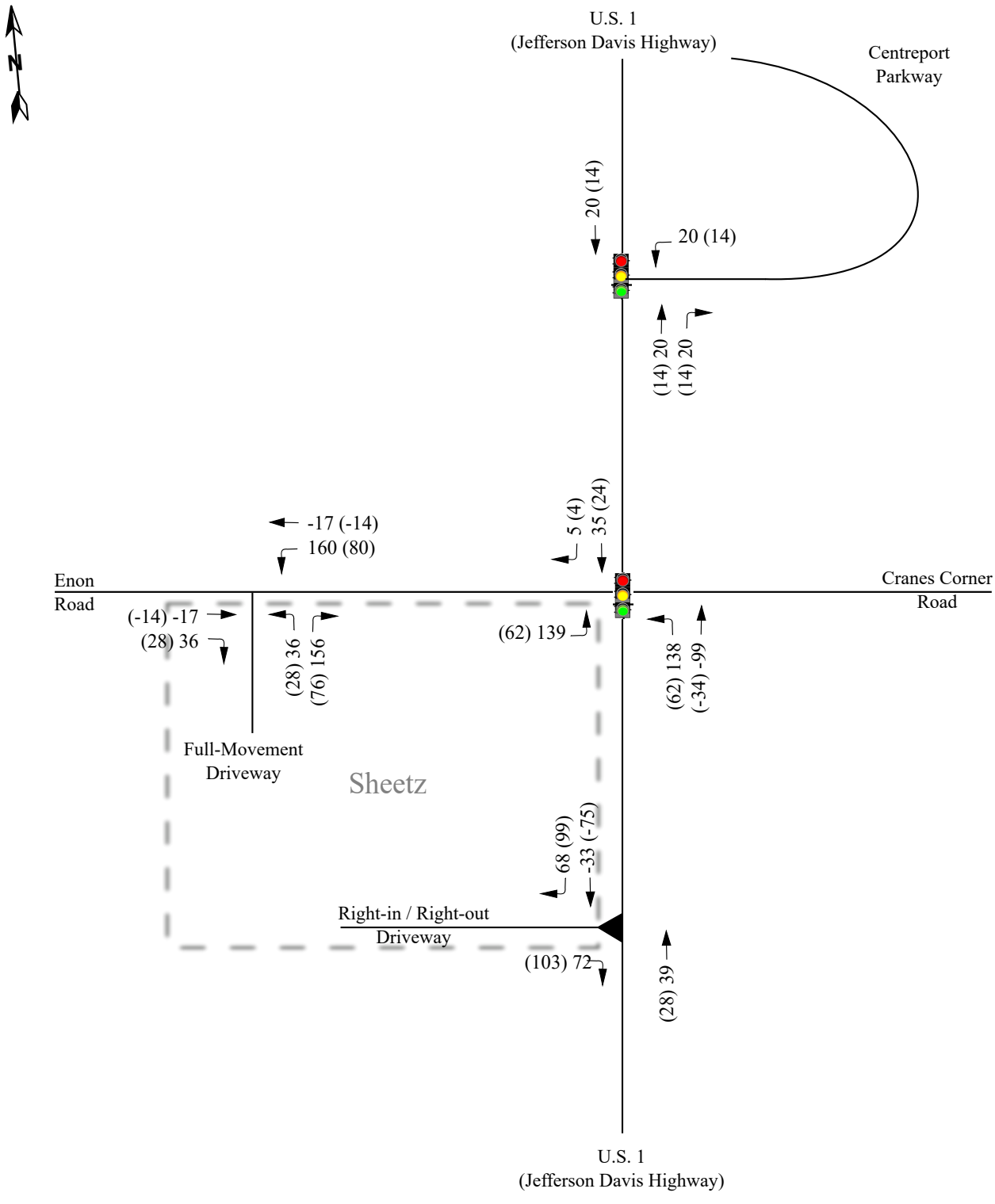
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Sheetz Pass-By
Site Trip Assignment

Scale: Not to Scale

Figure 10



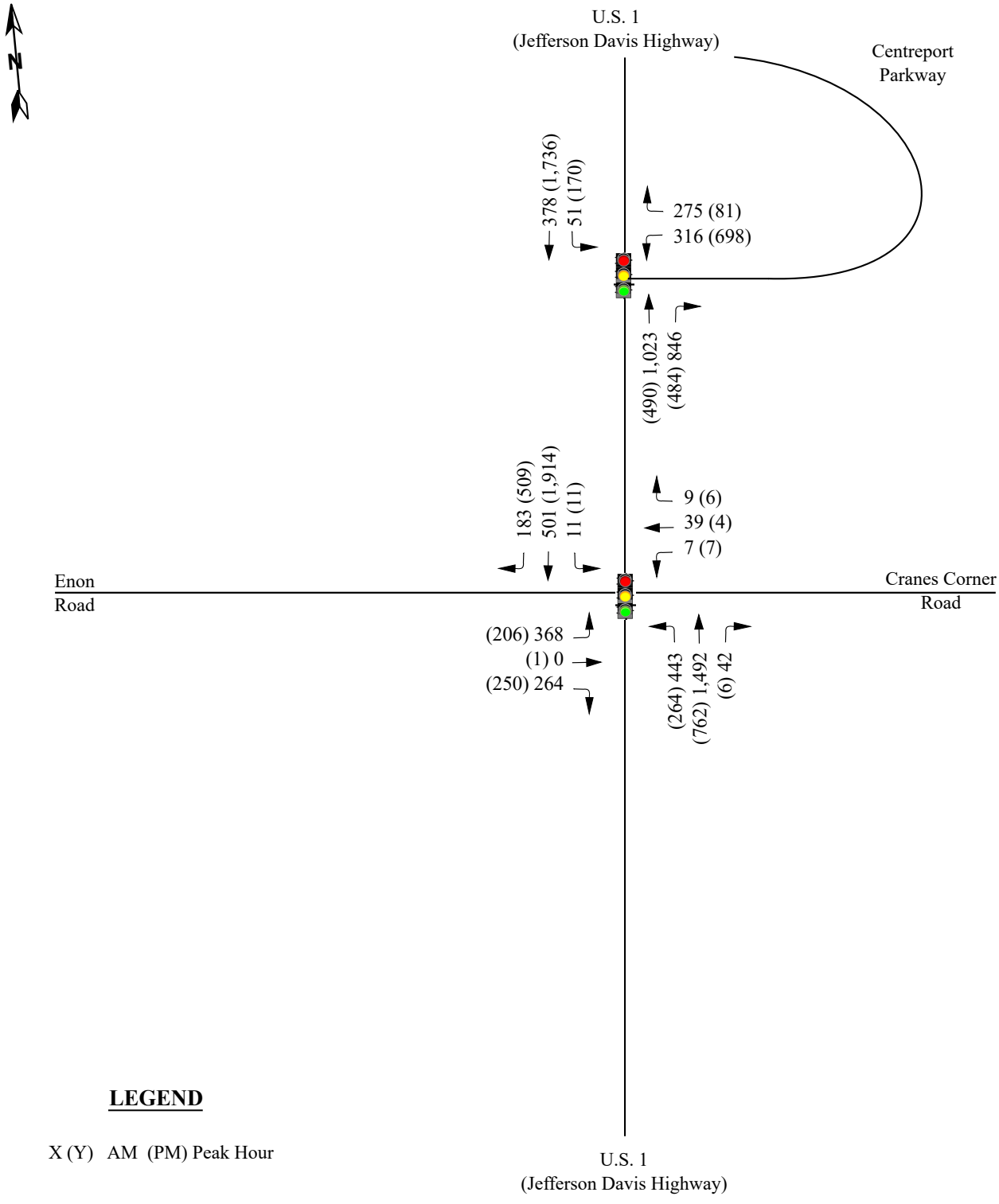
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Sheetz Total
Site Trip Assignment

Scale: Not to Scale

Figure 11



LEGEND

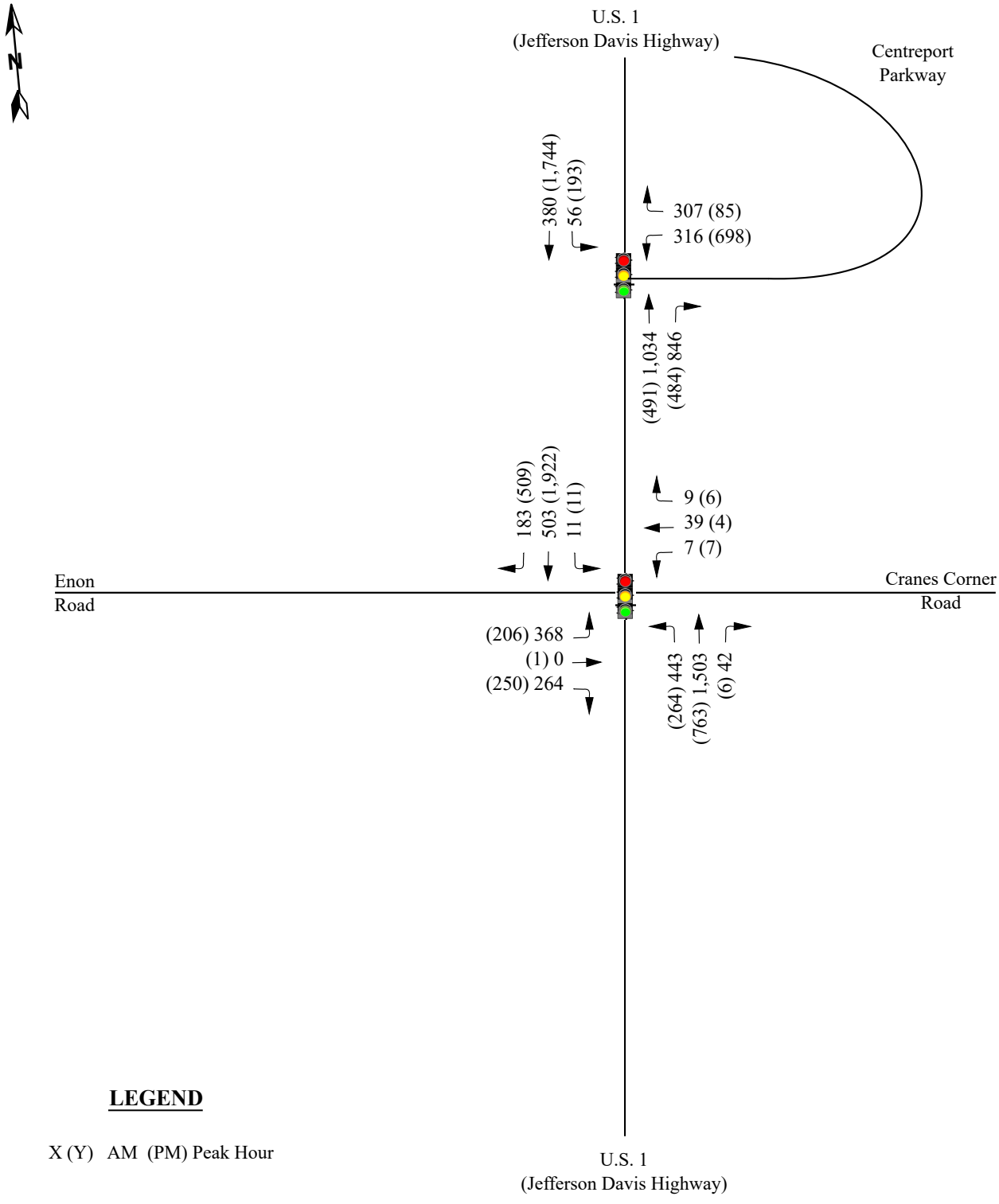
X (Y) AM (PM) Peak Hour

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

No-Build (2022) Peak Hour
Traffic Volumes
(Growth Only)

Scale: Not to Scale | Figure 12



LEGEND

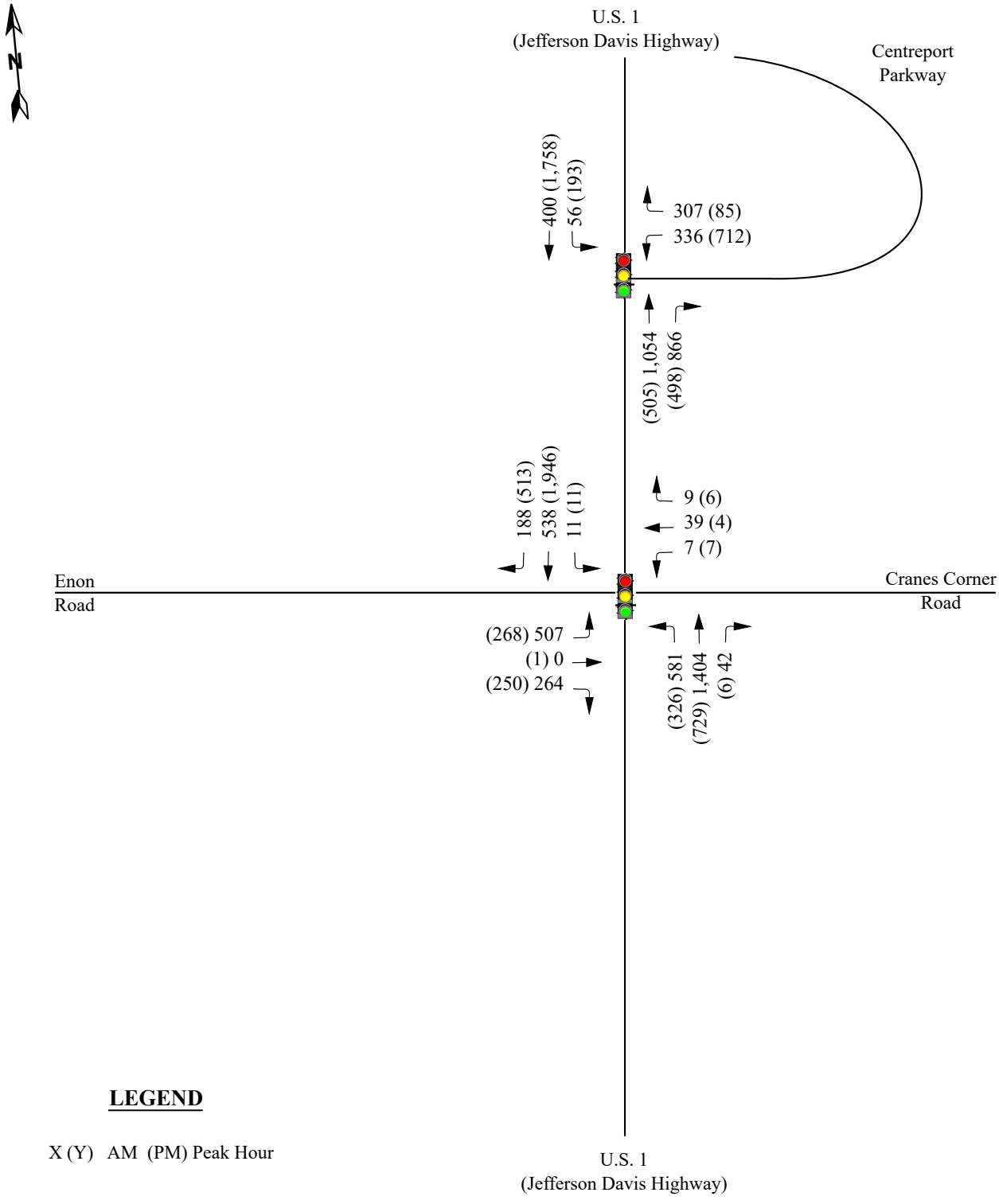
X (Y) AM (PM) Peak Hour

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

No-Build (2022) Peak Hour
Traffic Volumes
(Without Sheetz Trips)

Scale: Not to Scale | Figure 13



LEGEND

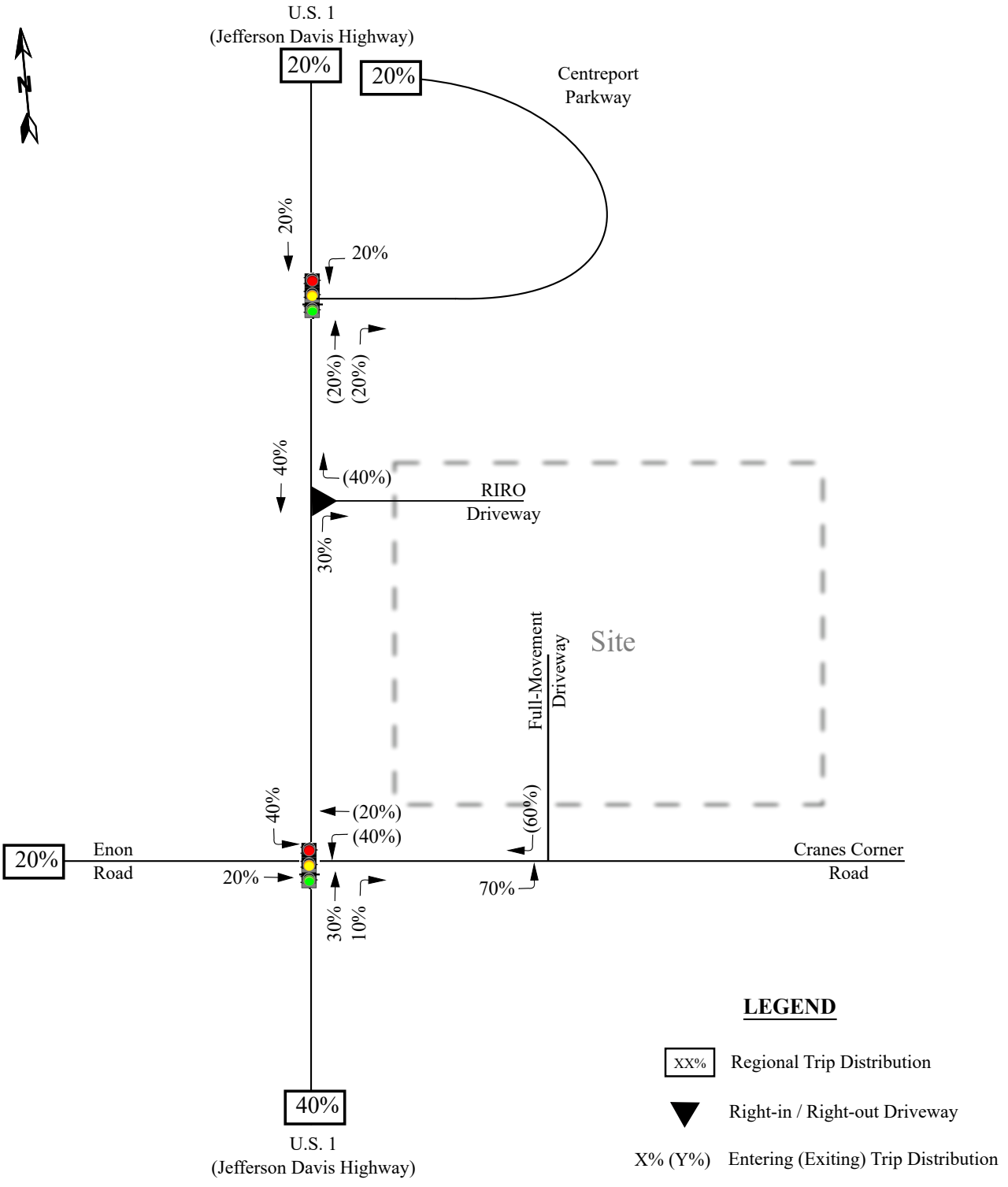
X (Y) AM (PM) Peak Hour

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

No-Build (2022) Peak Hour
Traffic Volumes
(With Sheetz Trips)

Scale: Not to Scale | Figure 14



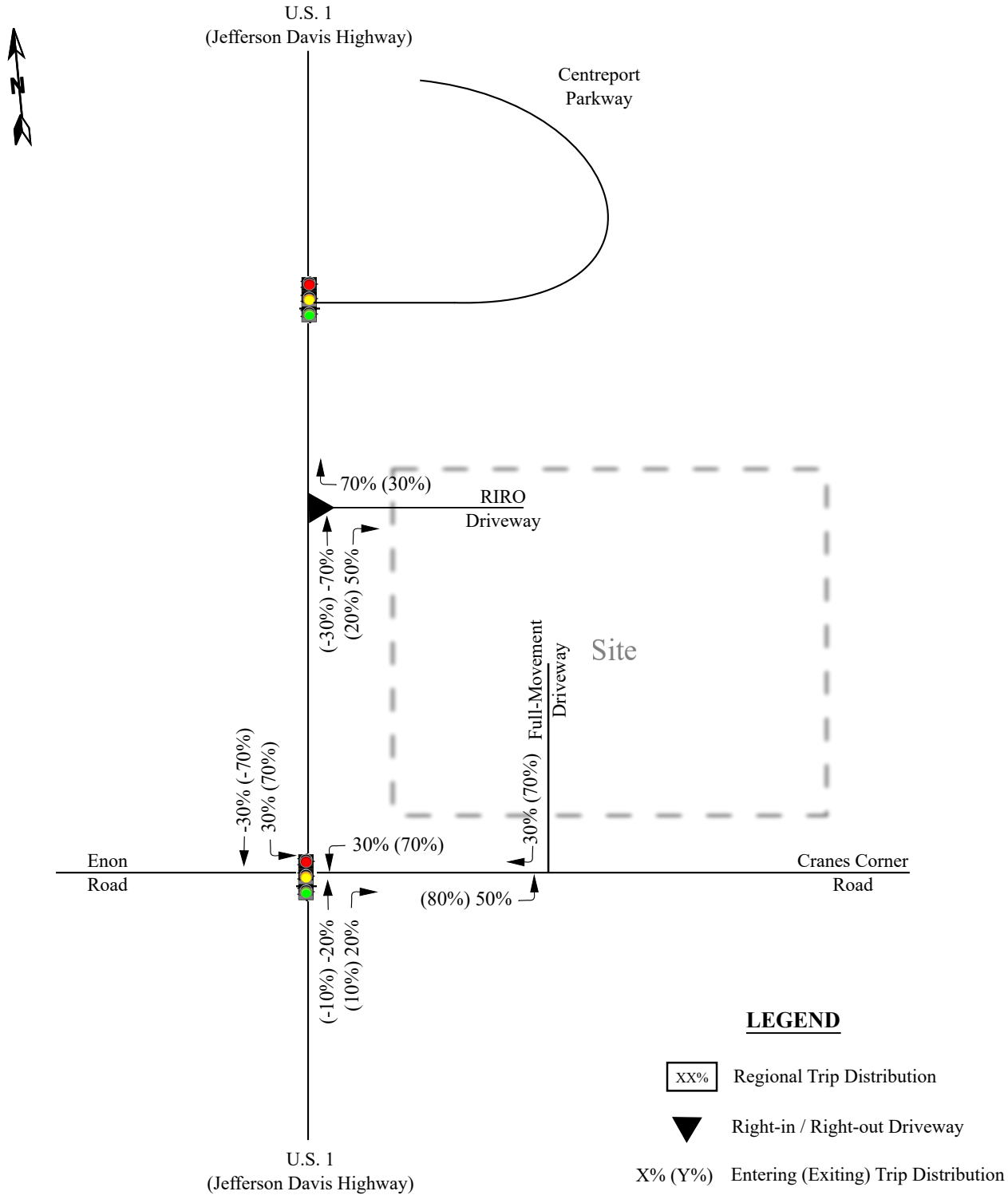
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Primary Site
Trip Distribution

Scale: Not to Scale

Figure 15

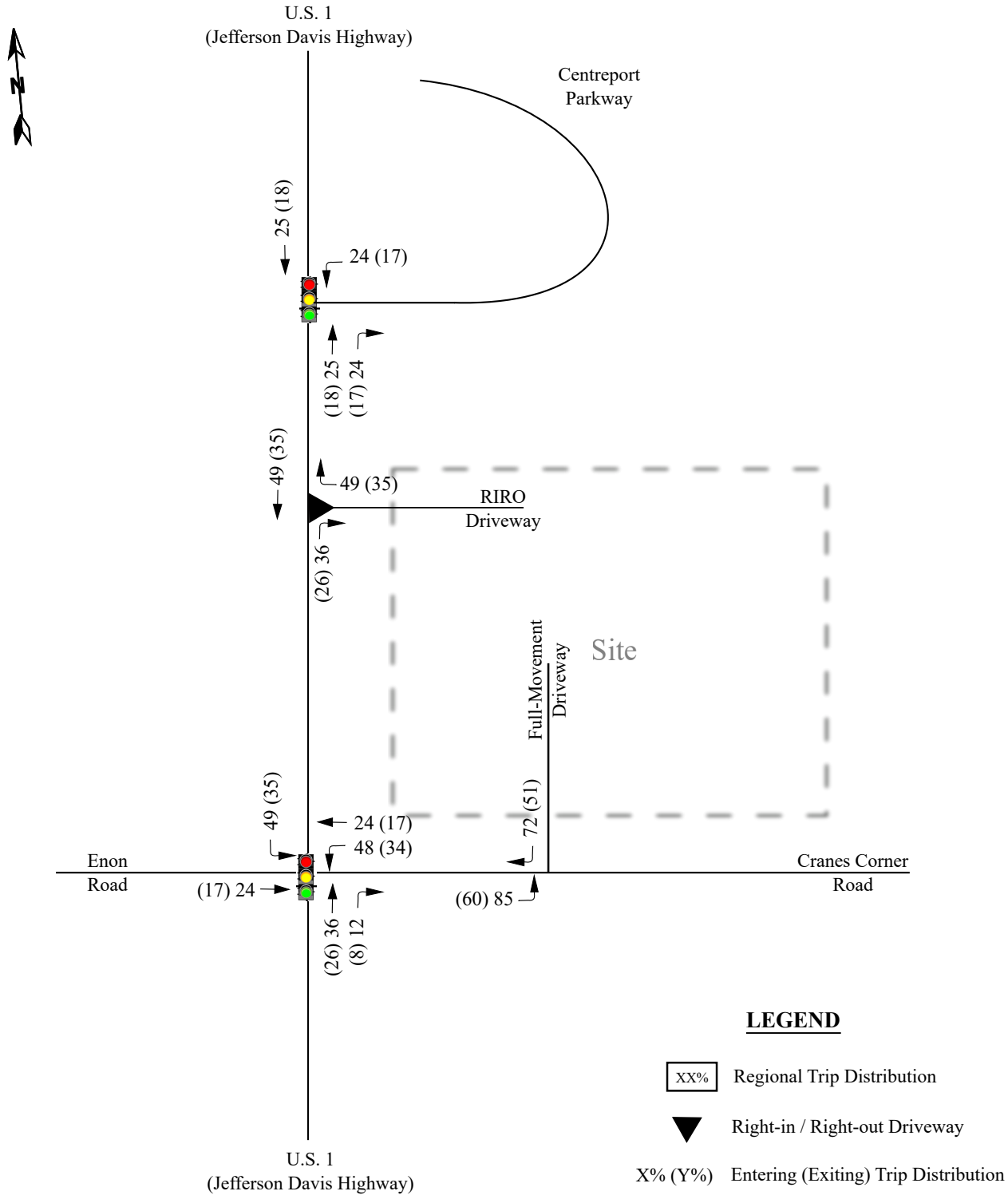


RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Pass-By Site
Trip Distribution

Scale: Not to Scale | Figure 16



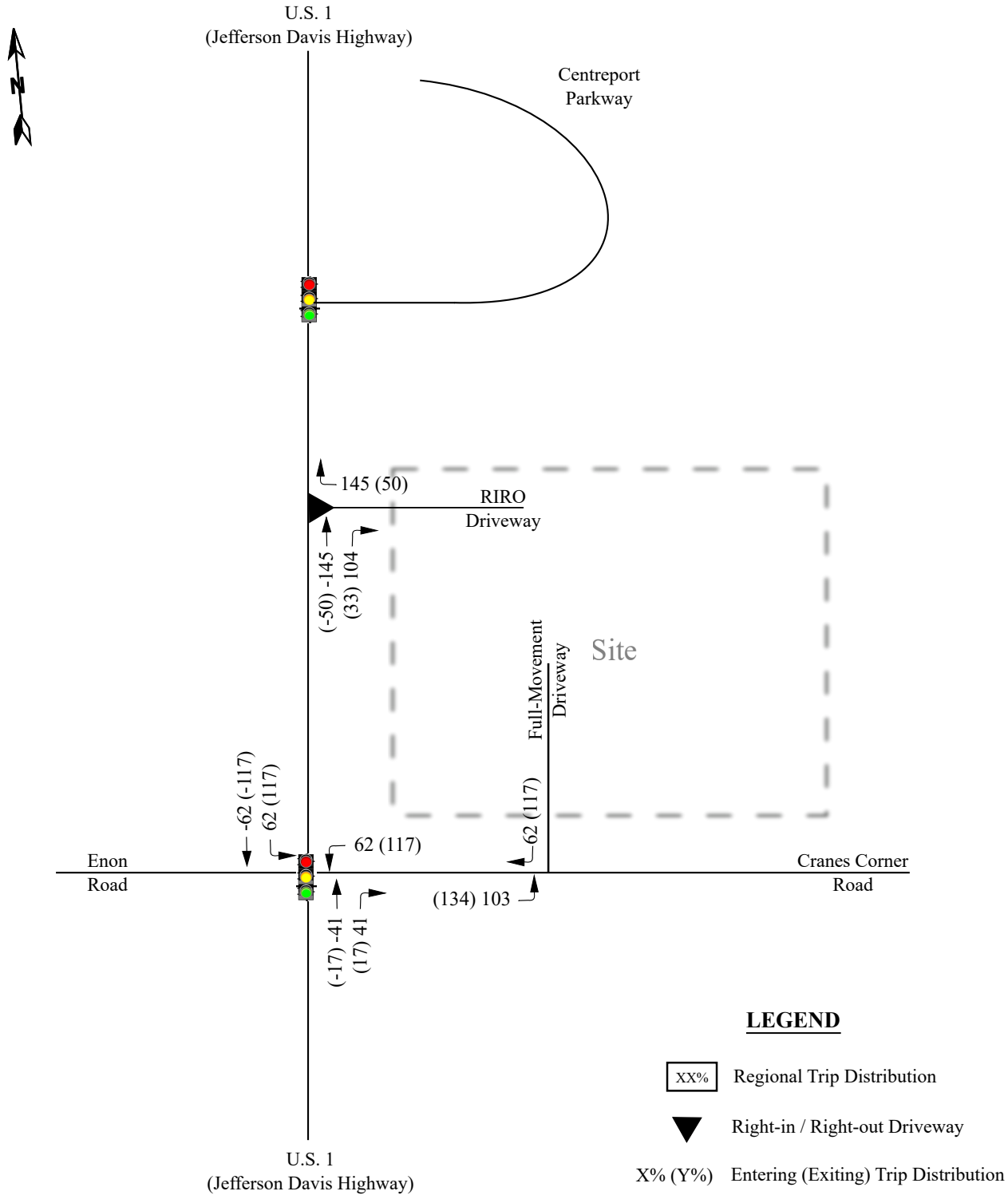
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Primary Site
Trip Assignment

Scale: Not to Scale

Figure 17

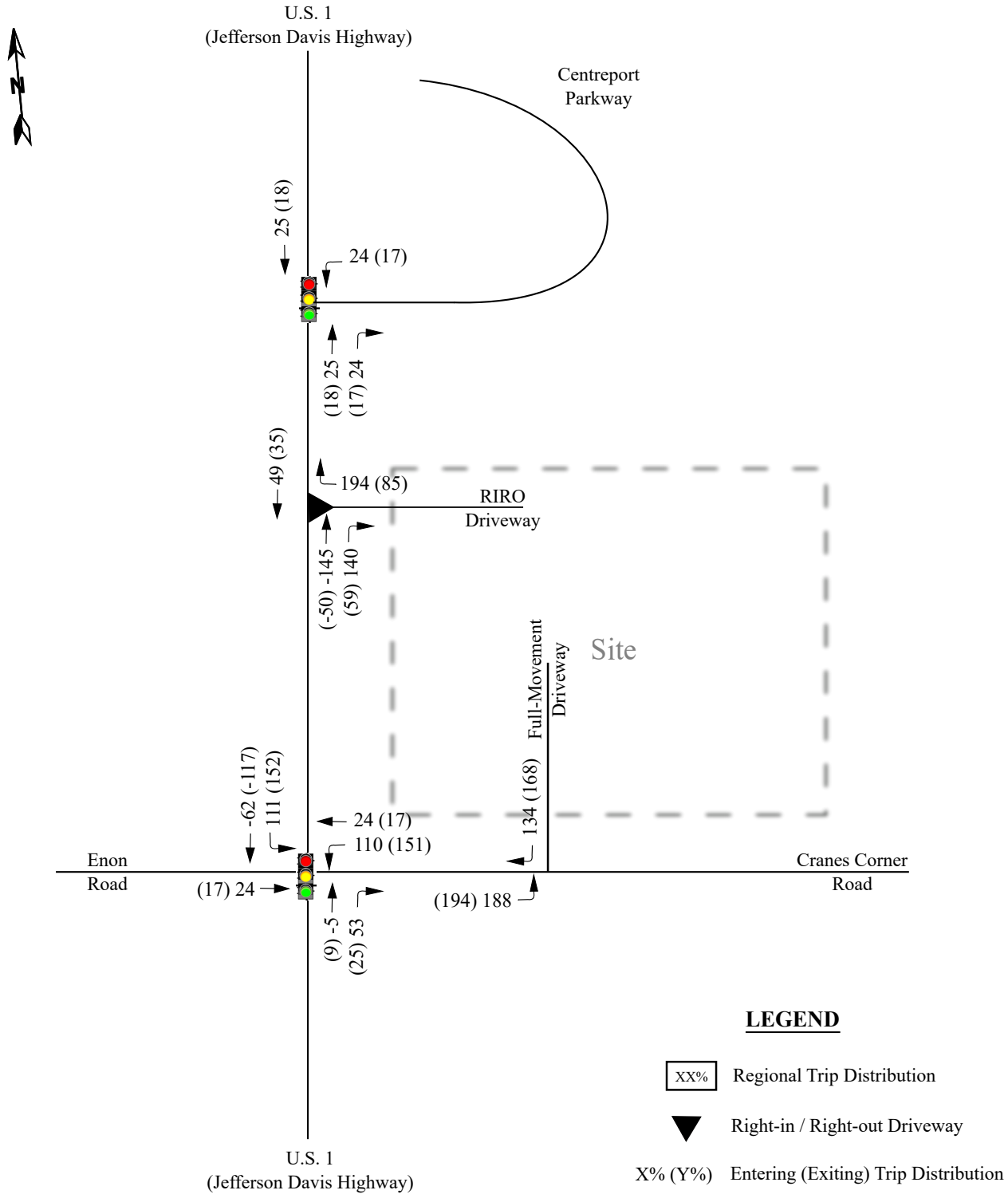


RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Pass-By Site
Trip Assignment

Scale: Not to Scale | Figure 18

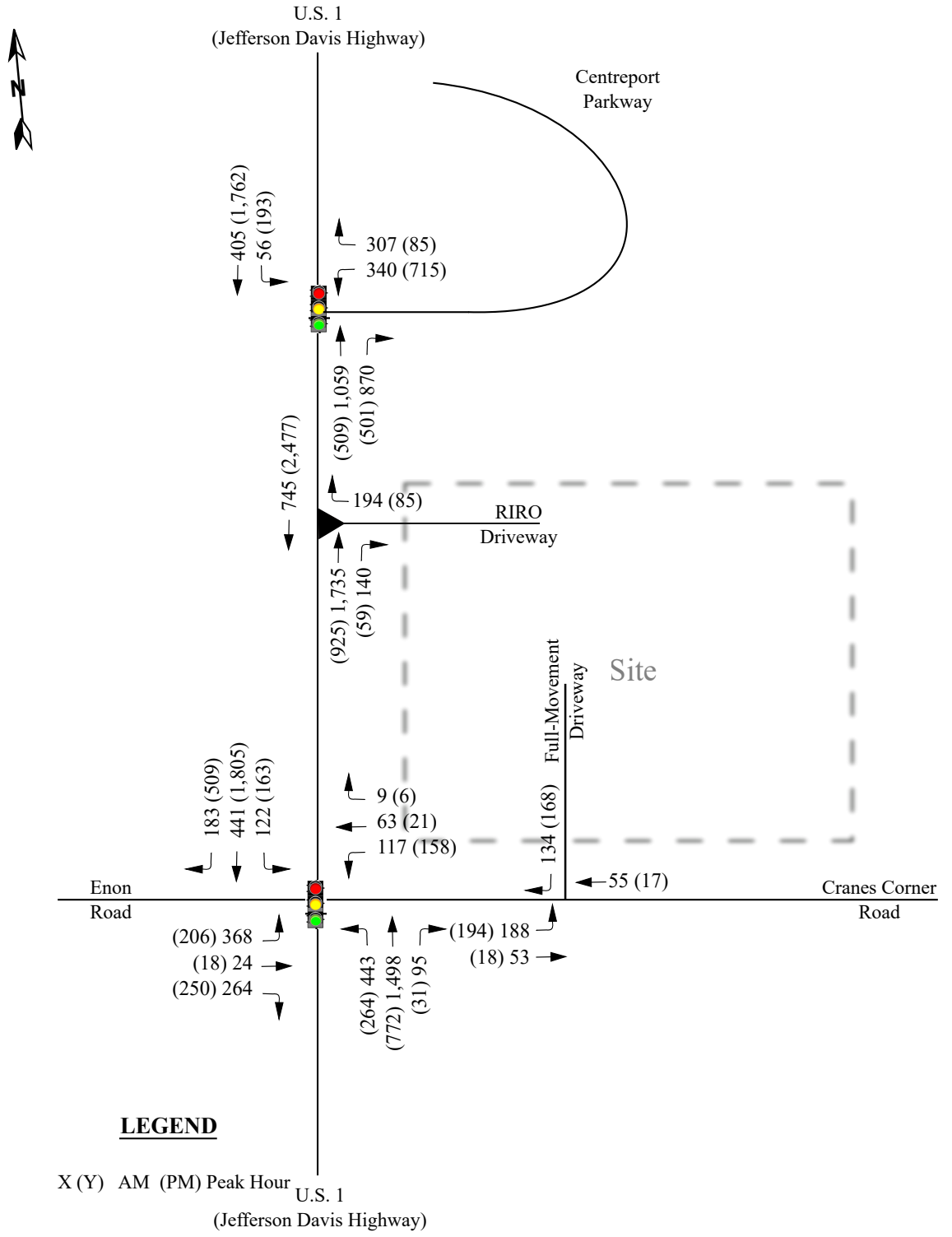


RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Total Site
Trip Assignment

Scale: Not to Scale | Figure 19

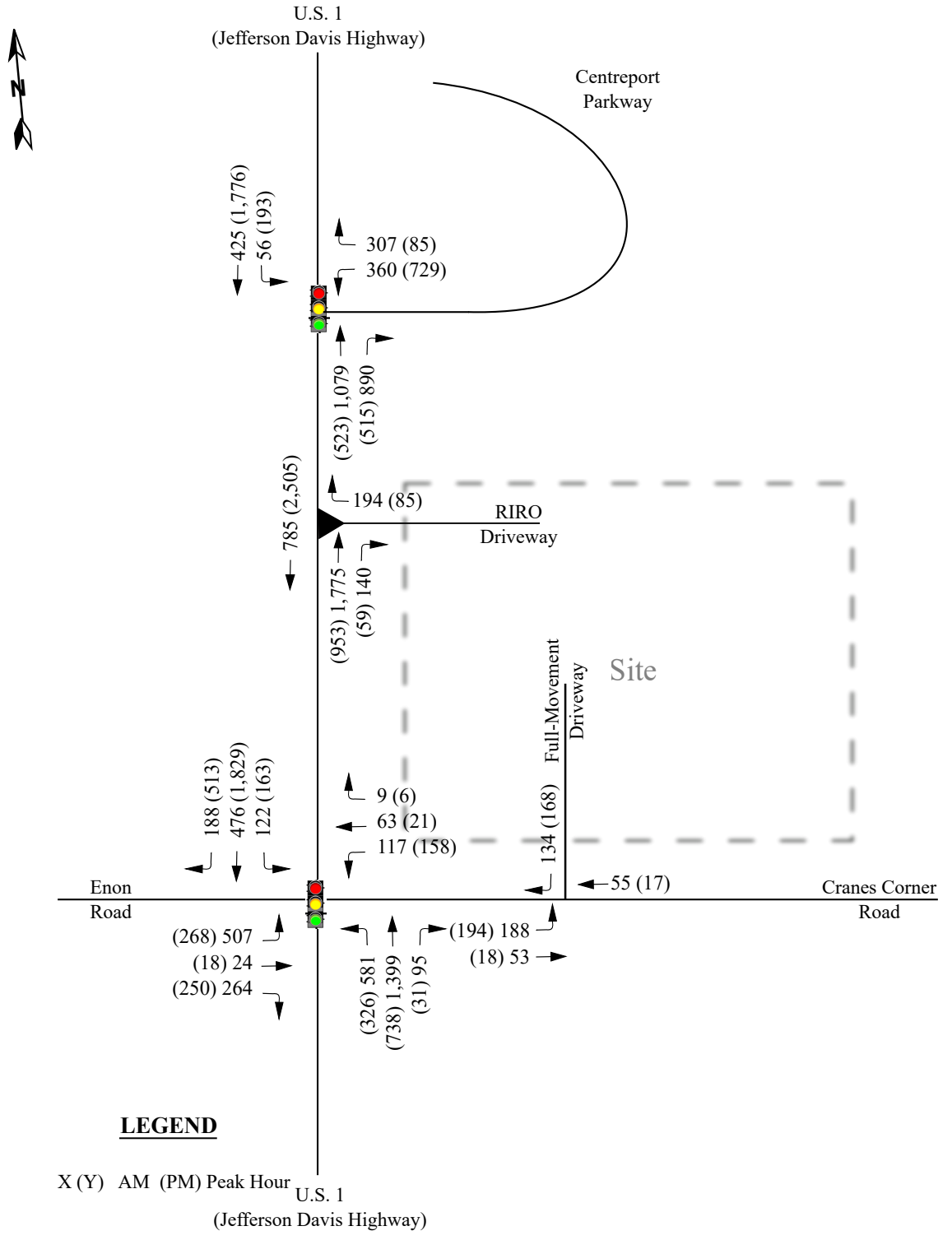


RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Build (2022) Peak Hour
Traffic Volumes
(Without Sheetz Trips)

Scale: Not to Scale | Figure 20

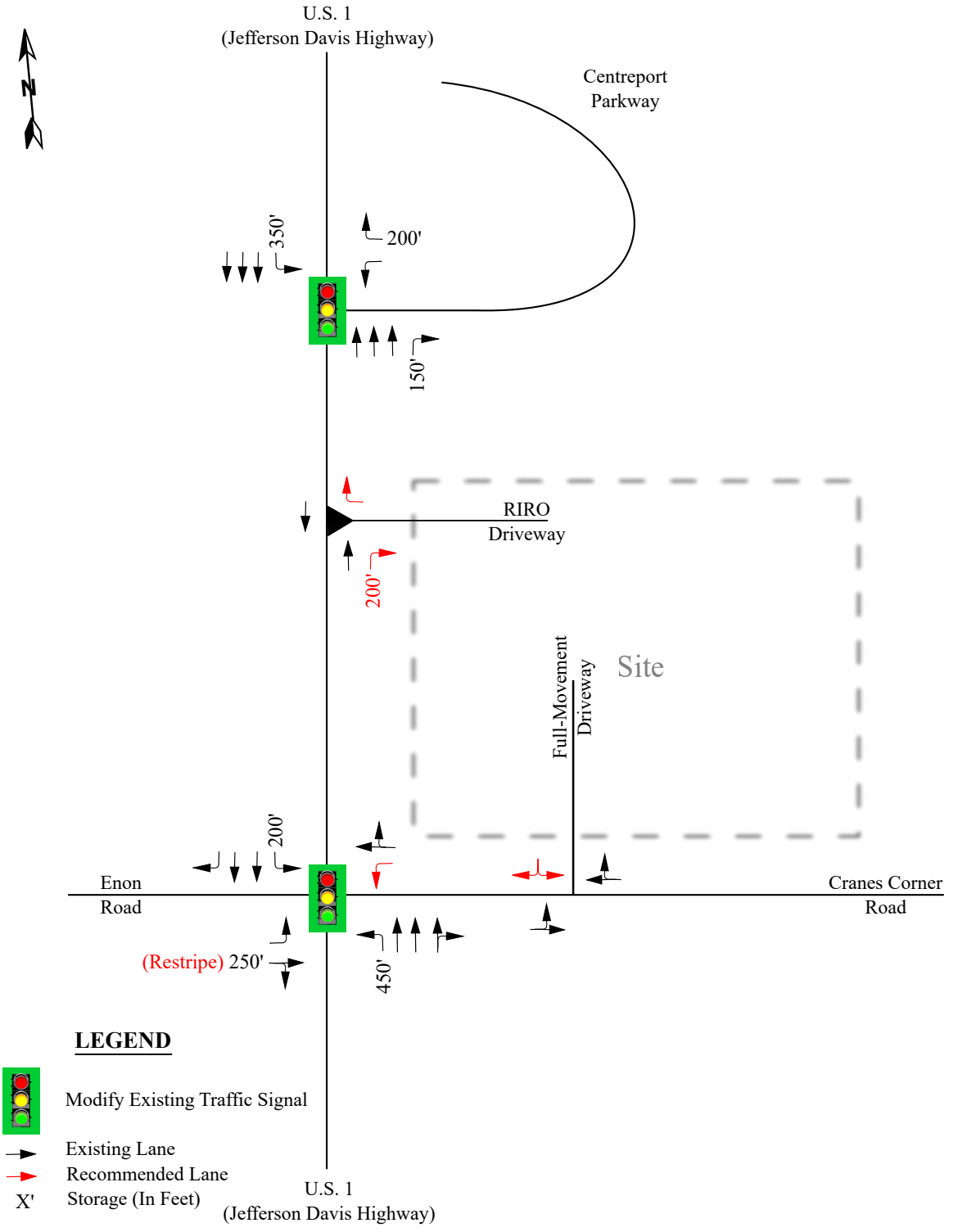


RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Build (2022) Peak Hour
Traffic Volumes
(With Sheetz Trips)

Scale: Not to Scale | Figure 21



RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Recommended Lane Configuration

Scale: Not to Scale

Figure 22

AM Peak Hour

Location: US Route 1 and Centreport Parkway | **County/Area:** Stafford

Date Surveyed: June 5, 2019 | **Weather:** Clear/Sunny

	US 1 From North			US 1 From South			Centreport Parkway From East			NA From West			
End Time	**Left**	**Thru**	**Right**	**U-Turn**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Int. Total**
7:15	10	59		1	244	223	65		62				664
7:30	16	87		0	246	195	69		63				676
7:45	13	92		0	248	206	76		70				705
8:00	9	103		0	226	173	88		64				663
Total	48	341		1	964	797	298		259				2708
% Appr Total	12.3%	87.7%		0.1%	54.7%	45.2%	53.5%		46.5%				
PHF	0.75	0.83		0.25	0.97	0.89	0.85		0.93				0.96
PHF (Approach)		0.87			0.94			0.92					

PM Peak Hour

Location: US Route 1 and Centreport Parkway | **County/Area:** Stafford

Date Surveyed: June 4, 2019 | **Weather:** Clear/Sunny

	US 1 From North			US 1 From South			Centreport Parkway From East			NA From West			
End Time	**Left**	**Thru**	**Right**	**U Turn**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Int. Total**
16:45	44	389		0	102	109	160		21				825
17:00	33	400		0	119	120	185		20				877
17:15	48	440		0	121	103	153		11				876
17:30	35	389		0	120	124	160		24				852
Total	160	1618		0	462	456	658		76				3430
% Appr Total	9.0%	91.0%			50.3%	49.7%	89.6%		10.4%				
PHF	0.83	0.92			0.95	0.92	0.89		0.79				0.98
PHF (Approach)		0.91			0.94			0.90					

AM Peak Hour

Location: US 1-Enon Rd. (SR 653) and Cranes Corner Rd.							**County/Area:** Stafford						
Date Surveyed: June 5, 2019							**Weather:** Clear/Sunny						
	US 1			**US 1**			**Cranes Corner Rd.**			**Enon Rd.**			
	From North			**From South**			**From East**			**From West**			
End Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Int. Total**
7:15	1	91	50	168	334	12	3	6	4	84	0	53	806
7:30	4	94	51	160	356	25	0	28	1	106	0	81	906
7:45	4	128	27	60	325	1	2	2	0	106	0	97	752
8:00	1	159	44	29	349	2	2	1	3	51	0	18	659
Total	10	472	172	417	1364	40	7	37	8	347	0	249	3123
% Appr Total	1.5%	72.2%	26.3%	22.9%	74.9%	2.2%	13.5%	71.2%	15.4%	58.2%		41.8%	
PHF	0.63	0.74	0.84	0.62	0.96	0.40	0.58	0.33	0.50	0.82		0.64	0.86
PHF (Approach)	0.80			0.84			0.45			0.73			

PM Peak Hour

Location: US 1-Enon Rd. (SR 653) and Cranes Corner Rd.							**County/Area:** Stafford						
Date Surveyed: June 4, 2019							**Weather:** Clear/Sunny						
	US 1			**US 1**			**Cranes Corner Rd.**			**Enon Rd.**			
	From North			**From South**			**From East**			**From West**			
End Time	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Int. Total**
17:00	3	446	124	79	183	0	3	2	0	62	0	65	967
17:15	2	502	125	49	164	3	2	2	2	35	0	56	942
17:30	2	415	107	50	183	0	0	0	3	50	0	59	869
17:45	3	441	124	71	147	3	2	0	1	47	1	56	896
Total	10	1804	480	249	677	6	7	4	6	194	1	236	3674
% Appr Total	0.4%	78.6%	20.9%	26.7%	72.6%	0.6%	41.2%	23.5%	35.3%	45.0%	0.2%	54.8%	
PHF	0.83	0.90	0.96	0.79	0.92	0.50	0.58	0.50	0.50	0.78	0.25	0.91	0.95
PHF (Approach)	0.91			0.89			0.71			0.85			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	298	259	964	797	48	356
Future Volume (vph)	298	259	964	797	48	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.206	
Satd. Flow (perm)	1770	1583	5085	1583	384	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		169		857		
Link Speed (mph)	45		45			45
Link Distance (ft)	647		1129			818
Travel Time (s)	9.8		17.1			12.4
Peak Hour Factor	0.92	0.92	0.93	0.93	0.87	0.87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	324	282	1037	857	55	409
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6	2	
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	45.0	45.0	72.0	72.0	13.0	85.0
Total Split (%)	34.6%	34.6%	55.4%	55.4%	10.0%	65.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Min	Min	None	Min
Act Effct Green (s)	24.4	24.4	51.7	51.7	61.2	61.2
Actuated g/C Ratio	0.25	0.25	0.52	0.52	0.62	0.62
v/c Ratio	0.74	0.55	0.39	0.69	0.16	0.13
Control Delay	48.4	19.1	15.7	4.5	9.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	19.1	15.7	4.5	9.4	8.2
LOS	D	B	B	A	A	A
Approach Delay	34.8		10.6			8.3
Approach LOS	C		B			A
Queue Length 50th (ft)	202	62	144	0	12	34
Queue Length 95th (ft)	337	159	223	62	34	63
Internal Link Dist (ft)	567		1049			738
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	775	788	3506	1357	346	3997
Starvation Cap Reductn	0	0	0	0	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.36	0.30	0.63	0.16	0.10

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 98.9
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 15.2 Intersection LOS: B
Intersection Capacity Utilization 63.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: US 1 & Centreport Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	1	249	7	37	8	417	1406	40	10	472	172
Future Volume (vph)	347	1	249	7	37	8	417	1406	40	10	472	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	450		0	200		0
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1773	1583	0	1811	0	1770	5065	0	1770	3539	1583
Flt Permitted		0.952			0.993		0.950			0.950		
Satd. Flow (perm)	0	1773	1583	0	1811	0	1770	5065	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			353		5			4				
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		578			688			983			1129	
Travel Time (s)		9.9			15.6			14.9			17.1	
Peak Hour Factor	0.82	0.73	0.64	0.45	0.45	0.45	0.62	0.84	0.84	0.80	0.80	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	424	389	0	116	0	673	1722	0	13	590	205
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4									2
Detector Phase	4	4	4	3	3		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	16.0	13.0	13.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	33.0	33.0	33.0	13.0	13.0		57.0	68.0		16.0	27.0	27.0
Total Split (%)	25.4%	25.4%	25.4%	10.0%	10.0%		43.8%	52.3%		12.3%	20.8%	20.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		27.0	27.0		7.0		50.2	71.8		6.6	21.0	21.0
Actuated g/C Ratio		0.21	0.21		0.05		0.39	0.56		0.05	0.16	0.16
v/c Ratio		1.15	0.64		1.13		0.98	0.61		0.15	1.03	0.80
Control Delay		137.9	12.0		179.7		69.0	21.4		62.1	97.2	75.1
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		137.9	12.0		179.7		69.0	21.4		62.1	97.2	75.1
LOS		F	B		F		E	C		E	F	E
Approach Delay		77.6			179.7			34.8			91.0	
Approach LOS		E			F			C			F	
Queue Length 50th (ft)		~420	25		~110		551	305		11	~280	169
Queue Length 95th (ft)		#446	3		76		412	407		29	#326	#259
Internal Link Dist (ft)		498			608			903			1049	
Turn Bay Length (ft)			250				450			200		
Base Capacity (vph)		370	610		103		699	2815		137	575	257
Starvation Cap Reductn		0	0		0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		1.15	0.64		1.13		0.96	0.61		0.09	1.03	0.80

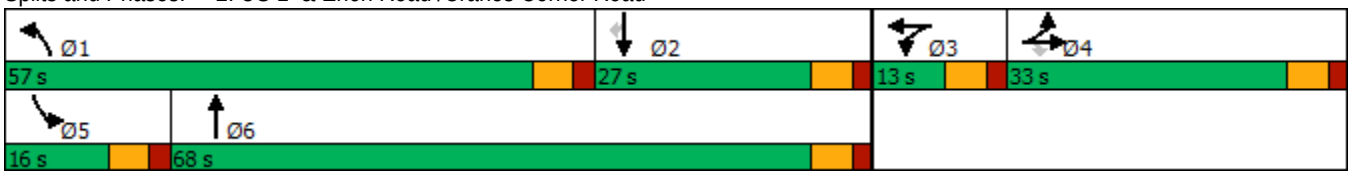
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 129.2
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 58.3 Intersection LOS: E
Intersection Capacity Utilization 77.1% ICU Level of Service D
Analysis Period (min) 15

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

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

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	658	76	462	456	160	1636
Future Volume (vph)	658	76	462	456	160	1636
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.385	
Satd. Flow (perm)	1770	1583	5085	1583	717	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		37		490		
Link Speed (mph)	45		45			45
Link Distance (ft)	658		1118			723
Travel Time (s)	10.0		16.9			11.0
Peak Hour Factor	0.90	0.90	0.93	0.93	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	731	84	497	490	176	1798
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	3		6		5	2
Permitted Phases		3		6	2	
Detector Phase	3	3	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	61.0	61.0	60.0	60.0	34.0	94.0
Total Split (%)	39.4%	39.4%	38.7%	38.7%	21.9%	60.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	63.5	63.5	59.9	59.9	79.5	79.5
Actuated g/C Ratio	0.41	0.41	0.39	0.39	0.51	0.51
v/c Ratio	1.01	0.13	0.25	0.54	0.38	0.69
Control Delay	80.6	19.1	28.6	9.5	21.8	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	80.6	19.1	28.6	9.5	21.8	29.7
LOS	F	B	C	A	C	C
Approach Delay	74.2		19.1			29.0
Approach LOS	E		B			C
Queue Length 50th (ft)	~796	29	141	70	92	478
Queue Length 95th (ft)	#1127	73	m160	m237	125	479
Internal Link Dist (ft)	578		1038			643
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	725	670	1997	919	558	2886
Starvation Cap Reductn	0	0	0	0	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	247
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.13	0.25	0.53	0.32	0.68

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 80 (52%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 36.2 Intersection LOS: D
Intersection Capacity Utilization 78.1% ICU Level of Service D
Analysis Period (min) 15

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

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

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

Splits and Phases: 1: US 1 & Centreport Parkway

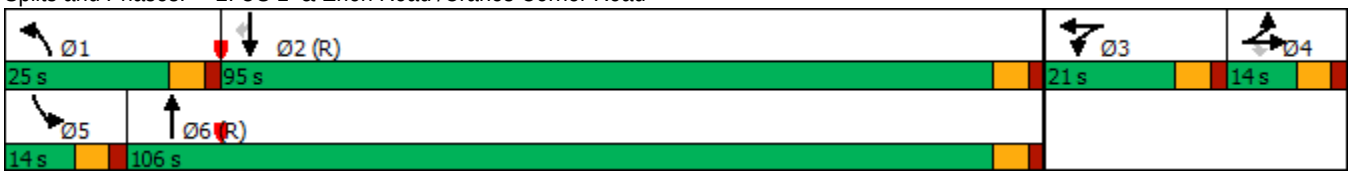
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	1	236	7	4	6	249	718	6	10	1804	480
Future Volume (vph)	194	1	236	7	4	6	249	718	6	10	1804	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	450		0	200		0
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1775	1583	0	1743	0	1770	5080	0	1770	3539	1583
Flt Permitted		0.953			0.980		0.950			0.950		
Satd. Flow (perm)	0	1775	1583	0	1743	0	1770	5080	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			251		8			2				333
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		580			688			1006			1118	
Travel Time (s)		9.9			15.6			15.2			16.9	
Peak Hour Factor	0.78	0.85	0.91	0.71	0.71	0.71	0.79	0.89	0.89	0.91	0.91	0.83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	250	259	0	24	0	315	814	0	11	1982	578
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4									2
Detector Phase	4	4	4	3	3		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	14.0	14.0	14.0	13.0	13.0		13.0	16.0		13.0	16.0	16.0
Total Split (s)	14.0	14.0	14.0	21.0	21.0		25.0	106.0		14.0	95.0	95.0
Total Split (%)	9.0%	9.0%	9.0%	13.5%	13.5%		16.1%	68.4%		9.0%	61.3%	61.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	C-Min
Act Effct Green (s)		20.5	20.5		7.1		19.0	108.6		6.5	89.0	89.0
Actuated g/C Ratio		0.13	0.13		0.05		0.12	0.70		0.04	0.57	0.57
v/c Ratio		1.06	0.61		0.28		1.46	0.23		0.15	0.98	0.55
Control Delay		136.3	14.9		60.4		274.8	9.0		84.7	36.6	3.7
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		136.3	14.9		60.4		274.8	9.0		84.7	36.6	3.7
LOS		F	B		E		F	A		F	D	A
Approach Delay		74.5			60.4			83.2			29.4	
Approach LOS		E			E			F			C	
Queue Length 50th (ft)		~331	7		16		~433	86		11	1053	34
Queue Length 95th (ft)		#507	104		37		#528	141		m16	m#1166	m61
Internal Link Dist (ft)		500			608			926			1038	
Turn Bay Length (ft)			250				450			200		
Base Capacity (vph)		235	427		175		216	3559		91	2032	1050
Starvation Cap Reductn		0	0		0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		1.06	0.61		0.14		1.46	0.23		0.12	0.98	0.55

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 53 (34%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.46
Intersection Signal Delay: 49.3 Intersection LOS: D
Intersection Capacity Utilization 96.1% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	316	307	1034	846	56	380
Future Volume (vph)	316	307	1034	846	56	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.188	
Satd. Flow (perm)	1770	1583	5085	1583	350	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		159		909		
Link Speed (mph)	45		45			45
Link Distance (ft)	647		1129			818
Travel Time (s)	9.8		17.1			12.4
Peak Hour Factor	0.92	0.92	0.93	0.93	0.87	0.87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	343	334	1112	910	64	437
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6	2	
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	43.0	43.0	74.0	74.0	13.0	87.0
Total Split (%)	33.1%	33.1%	56.9%	56.9%	10.0%	66.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Min	Min	None	Min
Act Effct Green (s)	26.4	26.4	57.1	57.1	66.6	66.6
Actuated g/C Ratio	0.25	0.25	0.54	0.54	0.63	0.63
v/c Ratio	0.78	0.65	0.41	0.72	0.20	0.14
Control Delay	52.9	26.4	16.0	4.8	10.0	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	26.4	16.0	4.8	10.0	8.4
LOS	D	C	B	A	A	A
Approach Delay	39.8		11.0			8.6
Approach LOS	D		B			A
Queue Length 50th (ft)	250	122	175	0	16	42
Queue Length 95th (ft)	368	229	238	62	37	65
Internal Link Dist (ft)	567		1049			738
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	676	703	3387	1357	322	3840
Starvation Cap Reductn	0	0	0	0	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.48	0.33	0.67	0.20	0.11

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 106.1
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 16.7 Intersection LOS: B
Intersection Capacity Utilization 66.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: US 1 & Centreport Parkway

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	1	264	7	39	9	443	1503	42	11	503	183
Future Volume (vph)	368	1	264	7	39	9	443	1503	42	11	503	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	450		0	200		0
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1773	1583	0	1820	0	1770	5065	0	1770	3539	1583
Flt Permitted		0.952			0.995		0.950			0.950		
Satd. Flow (perm)	0	1773	1583	0	1820	0	1770	5065	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			360		4			4				
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		578			688			983			1129	
Travel Time (s)		9.9			15.6			14.9			17.1	
Peak Hour Factor	0.82	0.73	0.64	0.45	0.33	0.45	0.62	0.84	0.84	0.80	0.80	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	450	413	0	154	0	715	1839	0	14	629	218
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4									2
Detector Phase	4	4	4	3	3		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	16.0	13.0	13.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	35.0	35.0	35.0	15.0	15.0		53.0	64.0		16.0	27.0	27.0
Total Split (%)	26.9%	26.9%	26.9%	11.5%	11.5%		40.8%	49.2%		12.3%	20.8%	20.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Min		None	Min	Min
Act Effct Green (s)		29.0	29.0		9.0		47.0	68.5		6.6	21.0	21.0
Actuated g/C Ratio		0.22	0.22		0.07		0.36	0.53		0.05	0.16	0.16
v/c Ratio		1.14	0.65		1.19		1.12	0.69		0.16	1.10	0.85
Control Delay		134.2	12.8		189.6		111.8	25.5		62.3	118.3	82.3
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		134.2	12.8		189.6		111.8	25.5		62.3	118.3	82.3
LOS		F	B		F		F	C		E	F	F
Approach Delay		76.1			189.6			49.7			108.3	
Approach LOS		E			F			D			F	
Queue Length 50th (ft)		~442	36		~153		~692	366		12	~316	181
Queue Length 95th (ft)		#464	11		69		470	478		30	#360	#286
Internal Link Dist (ft)		498			608			903			1049	
Turn Bay Length (ft)			250				450			200		
Base Capacity (vph)		395	632		129		639	2670		136	571	255
Starvation Cap Reductn		0	0		0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		1.14	0.65		1.19		1.12	0.69		0.10	1.10	0.85

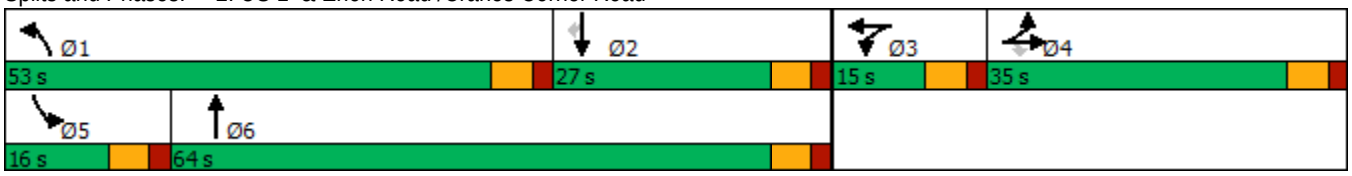
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 71.1 Intersection LOS: E
Intersection Capacity Utilization 80.6% ICU Level of Service D
Analysis Period (min) 15

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

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

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



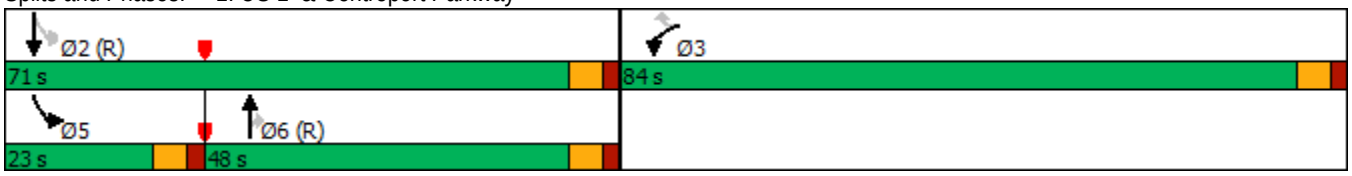
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	698	85	491	484	193	1744
Future Volume (vph)	698	85	491	484	193	1744
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.339	
Satd. Flow (perm)	1770	1583	5085	1583	631	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		51		520		
Link Speed (mph)	45		45			45
Link Distance (ft)	658		1118			723
Travel Time (s)	10.0		16.9			11.0
Peak Hour Factor	0.90	0.90	0.93	0.93	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	776	94	528	520	212	1916
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	3		6		5	2
Permitted Phases		3		6	2	
Detector Phase	3	3	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	84.0	84.0	48.0	48.0	23.0	71.0
Total Split (%)	54.2%	54.2%	31.0%	31.0%	14.8%	45.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	73.7	73.7	47.8	47.8	69.3	69.3
Actuated g/C Ratio	0.48	0.48	0.31	0.31	0.45	0.45
v/c Ratio	0.92	0.12	0.34	0.61	0.54	0.84
Control Delay	54.9	10.4	40.6	13.8	33.5	43.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	10.4	40.6	13.8	33.5	43.1
LOS	D	B	D	B	C	D
Approach Delay	50.1		27.3			42.1
Approach LOS	D		C			D
Queue Length 50th (ft)	697	22	171	184	138	644
Queue Length 95th (ft)	#911	54	m205	m250	206	726
Internal Link Dist (ft)	578		1038			643
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	890	821	1568	848	407	2272
Starvation Cap Reductn	0	0	0	0	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.11	0.34	0.61	0.52	0.84

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 80 (52%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 40.0 Intersection LOS: D
Intersection Capacity Utilization 82.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 1 & Centreport Parkway



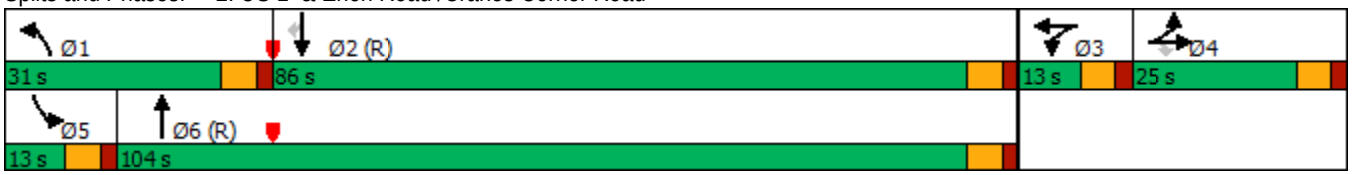
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	1	250	7	4	6	264	763	6	11	1922	509
Future Volume (vph)	206	1	250	7	4	6	264	763	6	11	1922	509
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	450		0	200		0
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1775	1583	0	1751	0	1770	5080	0	1770	3539	1583
Flt Permitted		0.953			0.981		0.950			0.950		
Satd. Flow (perm)	0	1775	1583	0	1751	0	1770	5080	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			253		8			1				291
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		580			688			1006			1118	
Travel Time (s)		9.9			15.6			15.2			16.9	
Peak Hour Factor	0.78	0.85	0.91	0.71	0.50	0.71	0.79	0.89	0.89	0.91	0.91	0.83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	265	275	0	26	0	334	864	0	12	2112	613
Turn Type	Split	NA	Perm	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4									2
Detector Phase	4	4	4	3	3		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	14.0	14.0	14.0	13.0	13.0		13.0	16.0		13.0	16.0	16.0
Total Split (s)	25.0	25.0	25.0	13.0	13.0		31.0	104.0		13.0	86.0	86.0
Total Split (%)	16.1%	16.1%	16.1%	8.4%	8.4%		20.0%	67.1%		8.4%	55.5%	55.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Min		None	C-Min	C-Min
Act Effct Green (s)		24.2	24.2		6.5		25.0	105.8		6.3	80.0	80.0
Actuated g/C Ratio		0.16	0.16		0.04		0.16	0.68		0.04	0.52	0.52
v/c Ratio		0.96	0.60		0.33		1.17	0.25		0.17	1.16	0.64
Control Delay		106.8	15.4		65.6		162.5	10.1		77.8	97.0	5.1
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		106.8	15.4		65.6		162.5	10.1		77.8	97.0	5.1
LOS		F	B		E		F	B		E	F	A
Approach Delay		60.3			65.6			52.6			76.3	
Approach LOS		E			E			D			E	
Queue Length 50th (ft)		~328	20		18		~401	100		12	~1336	48
Queue Length 95th (ft)		#475	118		25		#494	156		m15	#1437	65
Internal Link Dist (ft)		500			608			926			1038	
Turn Bay Length (ft)			250				450			200		
Base Capacity (vph)		277	460		86		285	3468		79	1826	957
Starvation Cap Reductn		0	0		0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.96	0.60		0.30		1.17	0.25		0.15	1.16	0.64

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 53 (34%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 68.0 Intersection LOS: E
Intersection Capacity Utilization 100.9% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	340	307	1059	870	56	405
Future Volume (vph)	340	307	1059	870	56	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.187	
Satd. Flow (perm)	1770	1583	5085	1583	348	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		153		883		
Link Speed (mph)	45		45			45
Link Distance (ft)	647		707			818
Travel Time (s)	9.8		10.7			12.4
Peak Hour Factor	0.92	0.92	0.93	0.93	0.87	0.88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	370	334	1139	935	64	460
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6	2	
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	45.0	45.0	72.0	72.0	13.0	85.0
Total Split (%)	34.6%	34.6%	55.4%	55.4%	10.0%	65.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	32.2	32.2	75.4	75.4	85.8	85.8
Actuated g/C Ratio	0.25	0.25	0.58	0.58	0.66	0.66
v/c Ratio	0.84	0.66	0.39	0.73	0.21	0.14
Control Delay	63.9	28.9	11.6	13.7	10.7	9.0
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	63.9	28.9	11.6	13.9	10.7	9.0
LOS	E	C	B	B	B	A
Approach Delay	47.3		12.7			9.2
Approach LOS	D		B			A
Queue Length 50th (ft)	295	137	252	475	18	50
Queue Length 95th (ft)	392	229	m291	m664	39	73
Internal Link Dist (ft)	567		627			738
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	531	582	2947	1289	308	3357
Starvation Cap Reductn	0	0	0	45	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.57	0.39	0.75	0.21	0.14

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 19.5 Intersection LOS: B
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 1 & Centreport Parkway

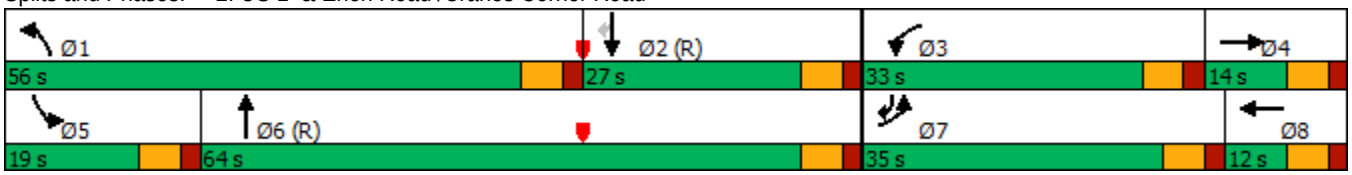
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	24	264	117	63	9	443	1498	95	122	441	183
Future Volume (vph)	368	24	264	117	63	9	443	1498	95	122	441	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	200		0	450		0	200		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	1600	0	1770	1801	0	1770	5040	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1600	0	1770	1801	0	1770	5040	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		413			8			10				
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		578			400			983			422	
Travel Time (s)		9.9			9.1			14.9			6.4	
Peak Hour Factor	0.82	0.88	0.64	0.45	0.88	0.45	0.62	0.88	0.84	0.80	0.88	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	449	440	0	260	92	0	715	1815	0	153	501	218
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		1	6		5	2	7
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	16.0	16.0		13.0	13.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	35.0	14.0		33.0	12.0		56.0	64.0		19.0	27.0	35.0
Total Split (%)	26.9%	10.8%		25.4%	9.2%		43.1%	49.2%		14.6%	20.8%	26.9%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	29.3	12.2		23.1	6.0		50.0	57.8		12.8	20.7	56.0
Actuated g/C Ratio	0.23	0.09		0.18	0.05		0.38	0.44		0.10	0.16	0.43
v/c Ratio	1.13	0.84		0.83	1.02		1.05	0.81		0.87	0.89	0.32
Control Delay	129.7	22.6		72.7	155.8		87.8	34.6		106.1	60.6	22.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	129.7	22.6		72.7	155.8		87.8	34.6		106.1	60.6	22.9
LOS	F	C		E	F		F	C		F	E	C
Approach Delay		76.7			94.4			49.6			59.2	
Approach LOS		E			F			D			E	
Queue Length 50th (ft)	~440	22		211	~73		~656	473		134	185	121
Queue Length 95th (ft)	#561	#184		135	#185		451	519		#214	#272	160
Internal Link Dist (ft)		498			320			903			342	
Turn Bay Length (ft)	250			200			450			200		
Base Capacity (vph)	399	524		367	90		680	2254		177	571	681
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.13	0.84		0.71	1.02		1.05	0.81		0.86	0.88	0.32

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 60.0 Intersection LOS: E
Intersection Capacity Utilization 82.4% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



Intersection	
Int Delay, s/veh	6.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	194	1735	140	0	745
Future Vol, veh/h	0	194	1735	140	0	745
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	-	200	-	-
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	211	1886	152	0	810

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	943	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	226	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	226	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	89	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	226	-
HCM Lane V/C Ratio	-	-	0.933	-
HCM Control Delay (s)	-	-	89	-
HCM Lane LOS	-	-	F	-
HCM 95th %tile Q(veh)	-	-	8	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	188	53	55	1	1	134
Future Vol, veh/h	188	53	55	1	1	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	204	58	60	1	1	146

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	61	0	-	0	527	61
Stage 1	-	-	-	-	61	-
Stage 2	-	-	-	-	466	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1542	-	-	-	512	1004
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1542	-	-	-	442	1004
Mov Cap-2 Maneuver	-	-	-	-	442	-
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	632	-

Approach	EB	WB	SB
HCM Control Delay, s	6	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1542	-	-	-	995
HCM Lane V/C Ratio	0.133	-	-	-	0.147
HCM Control Delay (s)	7.7	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.5	-	-	-	0.5

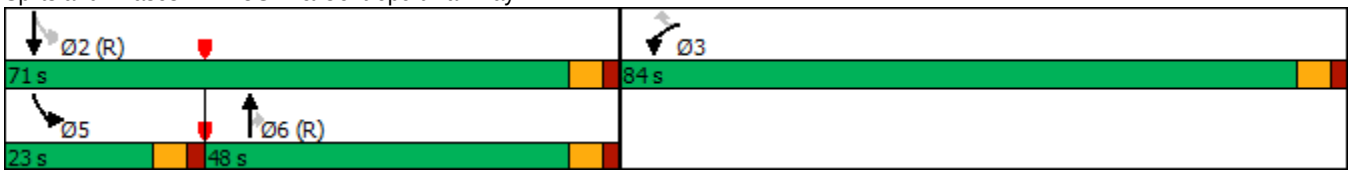
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	715	85	509	501	193	1762
Future Volume (vph)	715	85	509	501	193	1762
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.325	
Satd. Flow (perm)	1770	1583	5085	1583	605	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		50		539		
Link Speed (mph)	45		45			45
Link Distance (ft)	658		687			723
Travel Time (s)	10.0		10.4			11.0
Peak Hour Factor	0.90	0.90	0.93	0.93	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	794	94	547	539	212	1936
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	3		6		5	2
Permitted Phases		3		6	2	
Detector Phase	3	3	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	84.0	84.0	48.0	48.0	23.0	71.0
Total Split (%)	54.2%	54.2%	31.0%	31.0%	14.8%	45.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	74.6	74.6	46.8	46.8	68.4	68.4
Actuated g/C Ratio	0.48	0.48	0.30	0.30	0.44	0.44
v/c Ratio	0.93	0.12	0.36	0.63	0.55	0.86
Control Delay	55.9	10.5	44.2	7.0	34.4	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	10.5	44.2	7.0	34.4	44.6
LOS	E	B	D	A	C	D
Approach Delay	51.1		25.7			43.6
Approach LOS	D		C			D
Queue Length 50th (ft)	717	23	166	0	139	662
Queue Length 95th (ft)	#985	55	206	103	206	738
Internal Link Dist (ft)	578		607			643
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	890	821	1536	854	395	2243
Starvation Cap Reductn	0	0	0	0	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.11	0.36	0.63	0.54	0.86

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 80 (52%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 40.5 Intersection LOS: D
Intersection Capacity Utilization 83.7% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 1 & Centreport Parkway



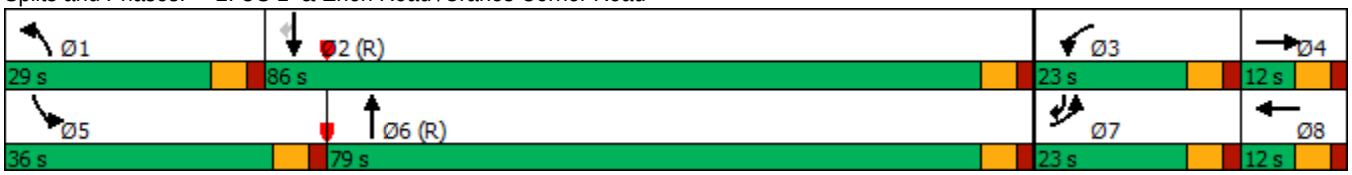
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	18	250	158	21	6	264	772	31	163	1805	509
Future Volume (vph)	206	18	250	158	21	6	264	772	31	163	1805	509
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		0	450		0	200		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	1602	0	1770	1818	0	1770	5055	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1602	0	1770	1818	0	1770	5055	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		236			5			6				104
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		580			420			1006			432	
Travel Time (s)		9.9			9.5			15.2			6.5	
Peak Hour Factor	0.78	0.88	0.91	0.71	0.50	0.71	0.79	0.89	0.89	0.91	0.91	0.83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	264	295	0	223	50	0	334	902	0	179	1984	613
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		1	6		5	2	7
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	14.0	14.0		13.0	13.0		13.0	16.0		13.0	16.0	14.0
Total Split (s)	23.0	12.0		23.0	12.0		29.0	79.0		36.0	86.0	23.0
Total Split (%)	15.3%	8.0%		15.3%	8.0%		19.3%	52.7%		24.0%	57.3%	15.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	19.4	6.0		17.0	6.0		23.0	82.6		20.4	80.0	105.4
Actuated g/C Ratio	0.13	0.04		0.11	0.04		0.15	0.55		0.14	0.53	0.70
v/c Ratio	1.16	1.02		1.11	0.65		1.23	0.32		0.75	1.05	0.54
Control Delay	162.7	72.5		156.1	99.1		183.1	19.2		80.3	70.0	11.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	162.7	72.5		156.1	99.1		183.1	19.2		80.3	70.0	11.0
LOS	F	E		F	F		F	B		F	E	B
Approach Delay		115.1			145.6			63.5			57.6	
Approach LOS		F			F			E			E	
Queue Length 50th (ft)	~332	~68		~249	44		~402	170		171	~1110	229
Queue Length 95th (ft)	#421	#245		#292	48		#496	220		245	#1244	276
Internal Link Dist (ft)		500			340			926			352	
Turn Bay Length (ft)							450			200		
Base Capacity (vph)	228	290		200	77		271	2785		354	1887	1143
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.16	1.02		1.11	0.65		1.23	0.32		0.51	1.05	0.54

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 70.7 Intersection LOS: E
Intersection Capacity Utilization 109.7% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	85	925	59	0	2477
Future Vol, veh/h	0	85	925	59	0	2477
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	-	200	-	-
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	92	1005	64	0	2692

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	503	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	440	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	440	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	440	-
HCM Lane V/C Ratio	-	-	0.21	-
HCM Control Delay (s)	-	-	15.3	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.8	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	194	18	17	1	1	168
Future Vol, veh/h	194	18	17	1	1	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	211	20	18	1	1	183

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	19	0	-	0	461	19
Stage 1	-	-	-	-	19	-
Stage 2	-	-	-	-	442	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1597	-	-	-	559	1059
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1597	-	-	-	484	1059
Mov Cap-2 Maneuver	-	-	-	-	484	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	648	-

Approach	EB	WB	SB
HCM Control Delay, s	7	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1597	-	-	-	1052
HCM Lane V/C Ratio	0.132	-	-	-	0.175
HCM Control Delay (s)	7.6	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.5	-	-	-	0.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	336	307	1054	866	56	400
Future Volume (vph)	336	307	1054	866	56	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.167	
Satd. Flow (perm)	1770	1583	5085	1583	311	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		225		931		
Link Speed (mph)	45		45			45
Link Distance (ft)	647		1129			818
Travel Time (s)	9.8		17.1			12.4
Peak Hour Factor	0.92	0.92	0.93	0.93	0.87	0.87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	365	334	1133	931	64	460
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6	2	
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	26.0	26.0	36.0	36.0	13.0	49.0
Total Split (%)	34.7%	34.7%	48.0%	48.0%	17.3%	65.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	Min
Act Effct Green (s)	18.5	18.5	36.8	36.8	44.5	44.5
Actuated g/C Ratio	0.25	0.25	0.49	0.49	0.59	0.59
v/c Ratio	0.84	0.60	0.45	0.74	0.21	0.15
Control Delay	45.1	13.2	15.3	11.1	8.6	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	13.2	15.3	11.1	8.6	7.2
LOS	D	B	B	B	A	A
Approach Delay	29.8		13.4			7.4
Approach LOS	C		B			A
Queue Length 50th (ft)	157	40	256	345	12	33
Queue Length 95th (ft)	#285	116	m175	m505	26	46
Internal Link Dist (ft)	567		1049			738
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	472	587	2495	1250	320	3019
Starvation Cap Reductn	0	0	0	0	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.57	0.45	0.74	0.20	0.15

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 6:NBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 67.8% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 1 & Centreport Parkway

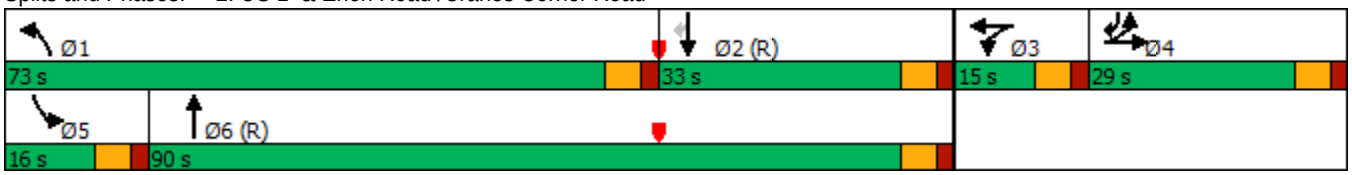
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	507	1	264	7	39	9	581	1404	42	11	538	188
Future Volume (vph)	507	1	264	7	39	9	581	1404	42	11	538	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		0	0		0	650		0	200		0
Storage Lanes	2		0	0		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1583	0	0	1820	0	1770	5065	0	1770	3539	1583
Flt Permitted	0.950				0.995		0.950			0.950		
Satd. Flow (perm)	3433	1583	0	0	1820	0	1770	5065	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		413			4			5				
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		578			688			983			1129	
Travel Time (s)		9.9			15.6			14.9			17.1	
Peak Hour Factor	0.82	0.73	0.64	0.45	0.33	0.45	0.62	0.84	0.84	0.80	0.80	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	618	414	0	0	154	0	937	1721	0	14	673	224
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		1	6		5	2	4
Permitted Phases												2
Detector Phase	4	4		3	3		1	6		5	2	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	16.0	16.0		13.0	13.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	29.0	29.0		15.0	15.0		73.0	90.0		16.0	33.0	29.0
Total Split (%)	19.3%	19.3%		10.0%	10.0%		48.7%	60.0%		10.7%	22.0%	19.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	23.0	23.0			9.0		67.0	94.4		6.8	27.0	50.0
Actuated g/C Ratio	0.15	0.15			0.06		0.45	0.63		0.05	0.18	0.33
v/c Ratio	1.17	0.70			1.38		1.19	0.54		0.18	1.06	0.43
Control Delay	150.6	12.0			262.4		133.7	17.1		78.0	111.8	28.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	150.6	12.0			262.4		133.7	17.1		78.0	111.8	28.3
LOS	F	B			F		F	B		E	F	C
Approach Delay		95.0			262.4			58.2			90.7	
Approach LOS		F			F			E			F	
Queue Length 50th (ft)	~371	1			~195		~1099	291		14	~370	126
Queue Length 95th (ft)	#426	8			78		671	388		m28	#408	m167
Internal Link Dist (ft)		498			608			903			1049	
Turn Bay Length (ft)	350						650			200		
Base Capacity (vph)	526	592			112		790	3190		118	637	527
Starvation Cap Reductn	0	0			0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	1.17	0.70			1.38		1.19	0.54		0.12	1.06	0.43

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 106 (71%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.38
Intersection Signal Delay: 79.0 Intersection LOS: E
Intersection Capacity Utilization 83.2% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



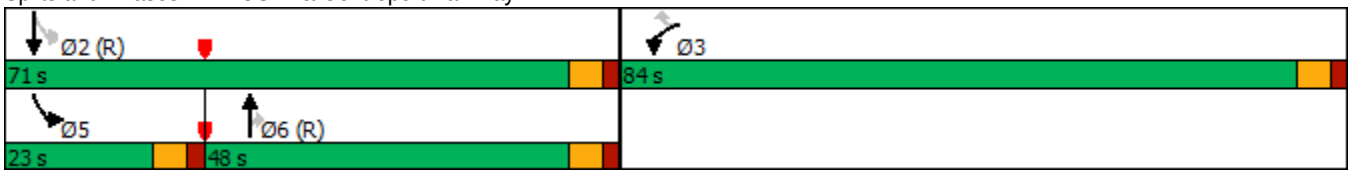
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	712	85	505	498	193	1758
Future Volume (vph)	712	85	505	498	193	1758
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.328	
Satd. Flow (perm)	1770	1583	5085	1583	611	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		50		535		
Link Speed (mph)	45		45			45
Link Distance (ft)	658		1118			723
Travel Time (s)	10.0		16.9			11.0
Peak Hour Factor	0.90	0.90	0.93	0.93	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	791	94	543	535	212	1932
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	3		6		5	2
Permitted Phases		3		6	2	
Detector Phase	3	3	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	84.0	84.0	48.0	48.0	23.0	71.0
Total Split (%)	54.2%	54.2%	31.0%	31.0%	14.8%	45.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	74.4	74.4	47.1	47.1	68.6	68.6
Actuated g/C Ratio	0.48	0.48	0.30	0.30	0.44	0.44
v/c Ratio	0.93	0.12	0.35	0.63	0.55	0.86
Control Delay	56.0	10.6	44.0	7.0	34.2	44.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	10.6	44.0	7.0	34.2	44.2
LOS	E	B	D	A	C	D
Approach Delay	51.2		25.6			43.2
Approach LOS	D		C			D
Queue Length 50th (ft)	714	23	164	0	139	658
Queue Length 95th (ft)	#981	55	204	102	206	735
Internal Link Dist (ft)	578		1038			643
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	890	821	1545	853	398	2251
Starvation Cap Reductn	0	0	0	0	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.11	0.35	0.63	0.53	0.86

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 80 (52%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 40.3 Intersection LOS: D
Intersection Capacity Utilization 83.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 1 & Centreport Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	268	1	250	7	4	6	326	729	6	11	1946	513
Future Volume (vph)	268	1	250	7	4	6	326	729	6	11	1946	513
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		0	0		0	650		0	200		0
Storage Lanes	2		0	0		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1585	0	0	1751	0	1770	5080	0	1770	3539	1583
Flt Permitted	0.950				0.981		0.950			0.950		
Satd. Flow (perm)	3433	1585	0	0	1751	0	1770	5080	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		275			8			2				245
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		580			688			1006			1118	
Travel Time (s)		9.9			15.6			15.2			16.9	
Peak Hour Factor	0.78	0.85	0.91	0.71	0.50	0.71	0.79	0.89	0.89	0.91	0.91	0.83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	344	276	0	0	26	0	413	826	0	12	2138	618
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		1	6		5	2	4
Permitted Phases												2
Detector Phase	4	4		3	3		1	6		5	2	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	14.0	14.0		13.0	13.0		13.0	16.0		13.0	16.0	14.0
Total Split (s)	19.0	19.0		13.0	13.0		36.0	110.0		13.0	87.0	19.0
Total Split (%)	12.3%	12.3%		8.4%	8.4%		23.2%	71.0%		8.4%	56.1%	12.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Min		None	Min	None
Act Effct Green (s)	13.0	13.0			6.4		30.1	112.2		6.3	81.1	96.7
Actuated g/C Ratio	0.09	0.09			0.04		0.20	0.75		0.04	0.54	0.65
v/c Ratio	1.15	0.71			0.32		1.17	0.22		0.16	1.12	0.56
Control Delay	158.6	18.1			64.8		151.8	6.9		76.1	92.9	7.9
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	158.6	18.1			64.8		151.8	6.9		76.1	92.9	7.9
LOS	F	B			E		F	A		E	F	A
Approach Delay		96.0			64.8			55.2			73.8	
Approach LOS		F			E			E			E	
Queue Length 50th (ft)	~216	1			18		~507	80		12	~1339	137
Queue Length 95th (ft)	#258	72			25		#591	131		35	#1468	171
Internal Link Dist (ft)		500			608			926			1038	
Turn Bay Length (ft)	350						650			200		
Base Capacity (vph)	298	388			89		354	3805		82	1917	1108
Starvation Cap Reductn	0	0			0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.71			0.29		1.17	0.22		0.15	1.12	0.56

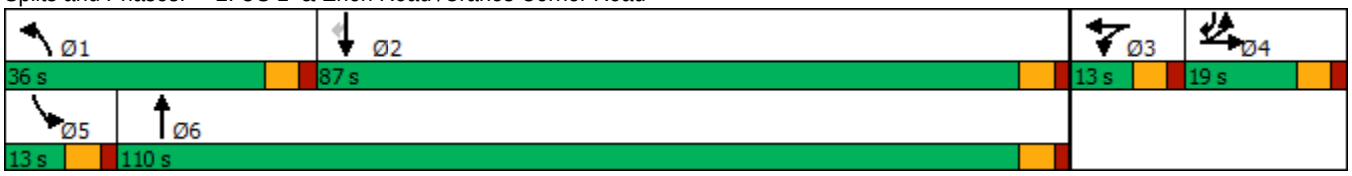
Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 149.8
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 71.8 Intersection LOS: E
Intersection Capacity Utilization 102.4% ICU Level of Service G
Analysis Period (min) 15

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

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

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	307	1079	890	56	425
Future Volume (vph)	360	307	1079	890	56	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.180	
Satd. Flow (perm)	1770	1583	5085	1583	335	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		151		887		
Link Speed (mph)	45		45			45
Link Distance (ft)	647		707			818
Travel Time (s)	9.8		10.7			12.4
Peak Hour Factor	0.92	0.92	0.93	0.93	0.87	0.88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	391	334	1160	957	64	483
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6	2	
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	45.0	45.0	72.0	72.0	13.0	85.0
Total Split (%)	34.6%	34.6%	55.4%	55.4%	10.0%	65.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	33.3	33.3	74.2	74.2	84.7	84.7
Actuated g/C Ratio	0.26	0.26	0.57	0.57	0.65	0.65
v/c Ratio	0.86	0.65	0.40	0.75	0.22	0.15
Control Delay	64.8	28.3	17.4	6.4	11.2	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.8	28.3	17.4	6.4	11.2	9.4
LOS	E	C	B	A	B	A
Approach Delay	48.0		12.4			9.6
Approach LOS	D		B			A
Queue Length 50th (ft)	311	136	206	27	19	55
Queue Length 95th (ft)	418	231	260	167	39	76
Internal Link Dist (ft)	567		627			738
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	531	580	2903	1284	297	3313
Starvation Cap Reductn	0	0	0	0	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.58	0.40	0.75	0.22	0.15

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 100 (77%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 19.6 Intersection LOS: B
Intersection Capacity Utilization 69.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: US 1 & Centreport Parkway

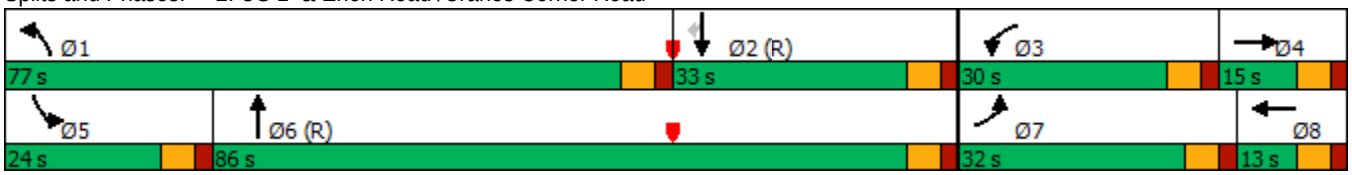
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	507	24	264	117	63	9	581	1399	95	122	476	188
Future Volume (vph)	507	24	264	117	63	9	581	1399	95	122	476	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		0	0		0	650		0	200		0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1600	0	1770	1801	0	1770	5034	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1600	0	1770	1801	0	1770	5034	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		377			7			11				
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		578			400			983			422	
Travel Time (s)		9.9			9.1			14.9			6.4	
Peak Hour Factor	0.82	0.88	0.64	0.45	0.88	0.45	0.62	0.88	0.84	0.80	0.88	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	618	440	0	260	92	0	937	1703	0	153	541	224
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	13.0	16.0		13.0	24.0		16.0	16.0		16.0	16.0	16.0
Total Split (s)	32.0	15.0		30.0	13.0		77.0	86.0		24.0	33.0	33.0
Total Split (%)	20.6%	9.7%		19.4%	8.4%		49.7%	55.5%		15.5%	21.3%	21.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	C-Min
Act Effct Green (s)	26.6	9.7		23.9	7.0		71.0	80.8		16.6	26.4	26.4
Actuated g/C Ratio	0.17	0.06		0.15	0.05		0.46	0.52		0.11	0.17	0.17
v/c Ratio	1.05	0.97		0.95	1.05		1.16	0.65		0.81	0.90	0.83
Control Delay	111.6	47.3		107.6	171.2		122.5	28.2		97.0	81.2	86.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	111.6	47.3		107.6	171.2		122.5	28.2		97.0	81.2	86.9
LOS	F	D		F	F		F	C		F	F	F
Approach Delay		84.8			124.3			61.6			85.3	
Approach LOS		F			F			E			F	
Queue Length 50th (ft)	~357	64		265	~94		~1115	448		152	284	221
Queue Length 95th (ft)	#410	#268		169	#213		676	482		206	#364	#315
Internal Link Dist (ft)		498			320			903			342	
Turn Bay Length (ft)	350						650			200		
Base Capacity (vph)	587	453		274	88		810	2630		205	616	275
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.97		0.95	1.05		1.16	0.65		0.75	0.88	0.81

Intersection Summary

Area Type: Other
Cycle Length: 155
Actuated Cycle Length: 155
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 75.4 Intersection LOS: E
Intersection Capacity Utilization 89.4% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



Intersection	
Int Delay, s/veh	6.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	194	1775	140	0	785
Future Vol, veh/h	0	194	1775	140	0	785
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	-	200	-	-
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	211	1929	152	0	853

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	965	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	219	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	219	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	97.9	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	219	-
HCM Lane V/C Ratio	-	-	0.963	-
HCM Control Delay (s)	-	-	97.9	-
HCM Lane LOS	-	-	F	-
HCM 95th %tile Q(veh)	-	-	8.4	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	188	53	55	1	1	134
Future Vol, veh/h	188	53	55	1	1	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	204	58	60	1	1	146

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	61	0	-	0	527	61
Stage 1	-	-	-	-	61	-
Stage 2	-	-	-	-	466	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1542	-	-	-	512	1004
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1542	-	-	-	442	1004
Mov Cap-2 Maneuver	-	-	-	-	442	-
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	632	-

Approach	EB	WB	SB
HCM Control Delay, s	6	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1542	-	-	-	995
HCM Lane V/C Ratio	0.133	-	-	-	0.147
HCM Control Delay (s)	7.7	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.5	-	-	-	0.5

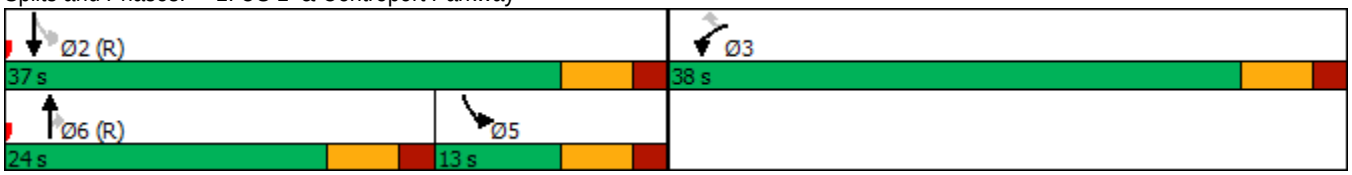
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	729	85	523	515	193	1776
Future Volume (vph)	729	85	523	515	193	1776
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200		150	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	1583	5085	1583	1770	5085
Flt Permitted	0.950				0.402	
Satd. Flow (perm)	1770	1583	5085	1583	749	5085
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		87		554		
Link Speed (mph)	45		45			45
Link Distance (ft)	658		687			723
Travel Time (s)	10.0		10.4			11.0
Peak Hour Factor	0.90	0.90	0.93	0.93	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	810	94	562	554	212	1952
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	3		6		5	2
Permitted Phases		3		6	2	
Detector Phase	3	3	6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	13.0	24.0
Total Split (s)	38.0	38.0	24.0	24.0	13.0	37.0
Total Split (%)	50.7%	50.7%	32.0%	32.0%	17.3%	49.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	32.0	32.0	16.8	16.8	31.0	31.0
Actuated g/C Ratio	0.43	0.43	0.22	0.22	0.41	0.41
v/c Ratio	1.07	0.13	0.49	0.71	0.50	0.93
Control Delay	78.1	4.3	16.7	12.8	23.8	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	4.3	16.7	12.8	23.8	30.6
LOS	E	A	B	B	C	C
Approach Delay	70.4		14.7			30.0
Approach LOS	E		B			C
Queue Length 50th (ft)	~427	2	84	178	64	306
Queue Length 95th (ft)	#635	27	74	281	111	#419
Internal Link Dist (ft)	578		607			643
Turn Bay Length (ft)		200		150	350	
Base Capacity (vph)	755	725	1220	800	421	2101
Starvation Cap Reductn	0	0	0	0	0	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.13	0.46	0.69	0.50	0.93

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 25 (33%), Referenced to phase 2:SBTL and 6:NBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 34.6 Intersection LOS: C
Intersection Capacity Utilization 84.7% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 1 & Centreport Parkway



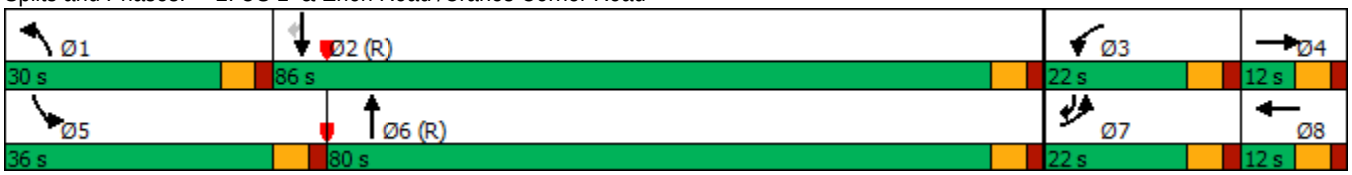
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	268	18	250	158	21	6	326	738	31	163	1829	513
Future Volume (vph)	268	18	250	158	21	6	326	738	31	163	1829	513
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350		0	0		0	650		0	200		0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1602	0	1770	1818	0	1770	5055	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1602	0	1770	1818	0	1770	5055	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		243			5			6				82
Link Speed (mph)		40			30			45			45	
Link Distance (ft)		580			420			1006			432	
Travel Time (s)		9.9			9.5			15.2			6.5	
Peak Hour Factor	0.78	0.88	0.91	0.71	0.50	0.71	0.79	0.89	0.89	0.91	0.91	0.83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	344	295	0	223	50	0	413	864	0	179	2010	618
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		1	6		5	2	7
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	14.0	14.0		13.0	13.0		13.0	16.0		13.0	16.0	14.0
Total Split (s)	22.0	12.0		22.0	12.0		30.0	80.0		36.0	86.0	22.0
Total Split (%)	14.7%	8.0%		14.7%	8.0%		20.0%	53.3%		24.0%	57.3%	14.7%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	None
Act Effct Green (s)	18.4	6.0		16.0	6.0		24.0	83.6		20.4	80.0	104.4
Actuated g/C Ratio	0.12	0.04		0.11	0.04		0.16	0.56		0.14	0.53	0.70
v/c Ratio	0.82	0.99		1.19	0.65		1.46	0.31		0.75	1.07	0.55
Control Delay	80.3	64.8		179.7	99.1		267.8	18.5		65.2	60.7	11.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	80.3	64.8		179.7	99.1		267.8	18.5		65.2	60.7	11.4
LOS	F	E		F	F		F	B		E	E	B
Approach Delay		73.1			164.9			99.1			50.2	
Approach LOS		E			F			F			D	
Queue Length 50th (ft)	175	52		~261	44		~551	158		155	~1154	269
Queue Length 95th (ft)	#211	#231		#303	48		#638	207		m148	m#1189	m284
Internal Link Dist (ft)		500			340			926			352	
Turn Bay Length (ft)	350						650			200		
Base Capacity (vph)	421	297		188	77		283	2819		354	1887	1126
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.82	0.99		1.19	0.65		1.46	0.31		0.51	1.07	0.55

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.46
Intersection Signal Delay: 71.9 Intersection LOS: E
Intersection Capacity Utilization 113.8% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 1 & Enon Road /Cranes Corner Road



Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	85	953	59	0	2505
Future Vol, veh/h	0	85	953	59	0	2505
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	-	200	-	-
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	92	1036	64	0	2723

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	518	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	430	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	430	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	430	-
HCM Lane V/C Ratio	-	-	0.215	-
HCM Control Delay (s)	-	-	15.6	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.8	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	194	18	17	1	1	168
Future Vol, veh/h	194	18	17	1	1	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	211	20	18	1	1	183

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	19	0	-	0	461	19
Stage 1	-	-	-	-	19	-
Stage 2	-	-	-	-	442	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1597	-	-	-	559	1059
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1597	-	-	-	484	1059
Mov Cap-2 Maneuver	-	-	-	-	484	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	648	-

Approach	EB	WB	SB
HCM Control Delay, s	7	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1597	-	-	-	1052
HCM Lane V/C Ratio	0.132	-	-	-	0.175
HCM Control Delay (s)	7.6	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.5	-	-	-	0.6

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	317	200	214	227	339	249	76	122	77	64
Average Queue (ft)	165	56	91	92	85	137	31	47	16	22
95th Queue (ft)	271	133	178	181	230	249	66	94	52	55
Link Distance (ft)	576		1060	1060	1060			782	782	782
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	5				0	8				
Queuing Penalty (veh)	14				3	26				

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	B8	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	T	LTR	L	T	T	TR	L	T	T	R
Maximum Queue (ft)	537	333	262	320	532	733	671	500	40	325	313	236
Average Queue (ft)	278	132	40	88	265	183	159	233	7	141	137	95
95th Queue (ft)	533	350	225	266	516	569	463	421	27	274	267	203
Link Distance (ft)	487		449	621		936	936	936		1060	1060	1060
Upstream Blk Time (%)	8		2			1	0	0				
Queuing Penalty (veh)	0		0			0	0	0				
Storage Bay Dist (ft)		250			450				200			
Storage Blk Time (%)	19	0			8					7		
Queuing Penalty (veh)	59	0			40					1		

Network Summary

Network wide Queuing Penalty: 144

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	630	300	165	168	175	222	398	507	474	365
Average Queue (ft)	557	101	88	91	74	88	107	300	264	200
95th Queue (ft)	729	314	151	157	145	168	242	440	403	324
Link Distance (ft)	588		1049	1049	1049			686	686	686
Upstream Blk Time (%)	42								0	
Queuing Penalty (veh)	0								0	
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	55				0	2	0	5		
Queuing Penalty (veh)	41				1	2	0	7		

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	B8	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	T	LTR	L	T	T	TR	L	T	T	R
Maximum Queue (ft)	504	339	135	58	541	875	787	211	68	587	614	180
Average Queue (ft)	219	167	19	16	415	451	357	65	10	255	279	66
95th Queue (ft)	445	312	155	47	669	1158	1022	158	46	437	463	136
Link Distance (ft)	490		449	621		960	960	960		1049	1049	1049
Upstream Blk Time (%)	4		1			16	0				0	
Queuing Penalty (veh)	0		0			0	0				0	
Storage Bay Dist (ft)		250			450				200			
Storage Blk Time (%)	13	2			46	0				14		
Queuing Penalty (veh)	32	4			111	0				1		

Network Summary

Network wide Queuing Penalty: 201

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	362	283	244	278	461	250	94	122	75	73
Average Queue (ft)	185	80	111	114	140	165	37	53	18	23
95th Queue (ft)	306	191	215	218	346	287	77	101	53	59
Link Distance (ft)	576		1060	1060	1060			782	782	782
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	8	0			1	13				
Queuing Penalty (veh)	25	0			11	45				

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	B8	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	T	LTR	L	T	T	TR	L	T	T	R
Maximum Queue (ft)	555	350	330	223	550	938	869	781	116	386	363	274
Average Queue (ft)	331	169	79	60	315	310	276	313	12	169	166	111
95th Queue (ft)	611	405	339	179	588	868	766	616	64	323	319	223
Link Distance (ft)	487		449	621		936	936	936		1060	1060	1060
Upstream Blk Time (%)	14		6			7	0	0				
Queuing Penalty (veh)	0		0			0	0	0				
Storage Bay Dist (ft)		250			450				200			
Storage Blk Time (%)	28	0			17	0				12		
Queuing Penalty (veh)	83	0			90	0				1		

Network Summary

Network wide Queuing Penalty: 255

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	619	300	223	211	257	242	449	706	695	690
Average Queue (ft)	467	93	123	123	100	125	309	571	538	493
95th Queue (ft)	671	299	195	196	194	225	574	832	825	822
Link Distance (ft)	588		1049	1049	1049			686	686	686
Upstream Blk Time (%)	8							25	22	17
Queuing Penalty (veh)	0							0	0	0
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	36				1	5	0	45		
Queuing Penalty (veh)	31				4	8	0	88		

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	B8	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	T	LTR	L	T	T	TR	L	T	T	R
Maximum Queue (ft)	421	320	24	69	522	609	517	207	202	1081	1076	1061
Average Queue (ft)	198	165	1	18	316	157	96	78	20	835	853	578
95th Queue (ft)	350	293	18	51	549	566	437	164	111	1317	1323	1312
Link Distance (ft)	490		449	621		960	960	960		1049	1049	1049
Upstream Blk Time (%)	0					0				2	4	1
Queuing Penalty (veh)	0					0				20	30	9
Storage Bay Dist (ft)		250			450				200			
Storage Blk Time (%)	7	2			15	0				43		
Queuing Penalty (veh)	17	5			38	0				5		

Network Summary

Network wide Queuing Penalty: 255

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	502	300	235	242	312	245	108	137	112	98
Average Queue (ft)	252	116	116	122	114	104	44	60	21	27
95th Queue (ft)	435	282	225	225	244	205	86	118	67	73
Link Distance (ft)	576		642	642	642			782	782	782
Upstream Blk Time (%)	1									
Queuing Penalty (veh)	0									
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	18	0			1	2				
Queuing Penalty (veh)	54	2			12	8				

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	B8	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	T	L	TR	L	T	T	TR	L	T	T
Maximum Queue (ft)	350	564	386	247	204	544	953	966	983	222	248	244
Average Queue (ft)	293	324	115	84	81	329	524	732	813	105	112	104
95th Queue (ft)	409	671	418	191	180	555	1078	1237	1167	198	205	202
Link Distance (ft)		489	449		308		939	939	939		363	363
Upstream Blk Time (%)		18	8	0	1		4	15	44		0	
Queuing Penalty (veh)		0	0	0	1		0	0	0		0	
Storage Bay Dist (ft)	250			200		450				200		
Storage Blk Time (%)	33	11		2	2	8	0			3	2	
Queuing Penalty (veh)	97	46		2	2	45	1			7	2	

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	167
Average Queue (ft)	47
95th Queue (ft)	116
Link Distance (ft)	363
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: US 1 & RIRO Driveway

Movement	WB	SB
Directions Served	R	T
Maximum Queue (ft)	217	3
Average Queue (ft)	96	0
95th Queue (ft)	181	3
Link Distance (ft)	297	642
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Cranes Corner Road & Full Movement Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	74	7	74
Average Queue (ft)	12	1	37
95th Queue (ft)	47	10	63
Link Distance (ft)	308	319	192
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 280

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	625	300	199	202	282	242	450	709	685	658
Average Queue (ft)	495	102	108	114	104	120	262	510	456	375
95th Queue (ft)	701	314	183	185	207	220	524	763	708	642
Link Distance (ft)	588		622	622	622			686	686	686
Upstream Blk Time (%)	12							9	4	2
Queuing Penalty (veh)	0							0	0	0
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	39				2	6	0	27		
Queuing Penalty (veh)	33				9	11	1	53		

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	B8	B8	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	TR	T	T	L	TR	L	T	T	TR	L	T
Maximum Queue (ft)	430	567	245	311	315	107	539	866	778	385	300	406
Average Queue (ft)	220	405	64	108	166	27	429	471	367	151	207	376
95th Queue (ft)	419	694	297	368	305	74	665	1151	1003	321	355	422
Link Distance (ft)	491	491	449	449	323	323		960	960	960		374
Upstream Blk Time (%)	3	43	3	5	3			20	0	0		20
Queuing Penalty (veh)	0	0	0	0	3			0	0	0		166
Storage Bay Dist (ft)							450				200	
Storage Blk Time (%)							47	0			5	38
Queuing Penalty (veh)							120	0			43	63

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	411	262
Average Queue (ft)	378	84
95th Queue (ft)	419	191
Link Distance (ft)	374	374
Upstream Blk Time (%)	22	0
Queuing Penalty (veh)	183	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US 1 & RIRO Driveway

Movement	WB	SB	SB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	71	644	644	603
Average Queue (ft)	30	354	372	146
95th Queue (ft)	57	710	721	522
Link Distance (ft)	284	622	622	622
Upstream Blk Time (%)		1	1	0
Queuing Penalty (veh)		5	6	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Cranes Corner Road & Full Movement Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	80	12	102
Average Queue (ft)	6	1	43
95th Queue (ft)	36	10	74
Link Distance (ft)	323	307	177
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 696

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	287	187	212	355	613	250	81	109	72	70
Average Queue (ft)	151	66	101	119	194	185	34	48	18	22
95th Queue (ft)	244	136	178	269	529	291	69	93	55	58
Link Distance (ft)	576		1048	1048	1048			782	782	782
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	4	0			0	20				
Queuing Penalty (veh)	11	0			3	68				

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	EB	B8	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	T	LTR	L	T	T	TR	L	T	T
Maximum Queue (ft)	394	443	537	317	253	750	971	941	742	142	436	411
Average Queue (ft)	272	335	210	65	74	503	393	320	295	14	230	226
95th Queue (ft)	438	487	567	312	209	860	1054	858	560	73	385	374
Link Distance (ft)			491	449	620		936	936	936		1048	1048
Upstream Blk Time (%)			8	3			16	0	0			
Queuing Penalty (veh)			0	0			0	0	0			
Storage Bay Dist (ft)	350	350				650				200		
Storage Blk Time (%)	3	20	1			20	0				21	
Queuing Penalty (veh)	9	59	3			101	1				2	

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	185
Average Queue (ft)	69
95th Queue (ft)	148
Link Distance (ft)	1048
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 259

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	623	300	205	206	250	246	450	695	683	658
Average Queue (ft)	507	105	127	125	101	128	268	518	478	412
95th Queue (ft)	704	320	194	192	204	228	542	766	726	687
Link Distance (ft)	588		1037	1037	1037			686	686	686
Upstream Blk Time (%)	17							10	8	5
Queuing Penalty (veh)	0							0	0	0
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	42				1	6	0	31		
Queuing Penalty (veh)	36				6	10	1	59		

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	EB	B8	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	TR	T	LTR	L	T	T	TR	L	T	T
Maximum Queue (ft)	366	415	456	65	56	655	626	476	173	209	1061	1070
Average Queue (ft)	203	262	204	12	15	411	161	105	60	18	777	799
95th Queue (ft)	369	419	414	121	46	724	675	525	134	98	1230	1243
Link Distance (ft)			493	449	619		960	960	960		1037	1037
Upstream Blk Time (%)			3	1			6	0			2	3
Queuing Penalty (veh)			0	0			0	0			16	26
Storage Bay Dist (ft)	350	350				650				200		
Storage Blk Time (%)	0	11	2			11	0				38	
Queuing Penalty (veh)	0	28	5			27	1				4	

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	SB
Directions Served	R
Maximum Queue (ft)	1021
Average Queue (ft)	439
95th Queue (ft)	1071
Link Distance (ft)	1037
Upstream Blk Time (%)	1
Queuing Penalty (veh)	5
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 225

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	578	300	280	300	454	250	91	150	96	85
Average Queue (ft)	281	133	137	148	165	170	36	65	20	25
95th Queue (ft)	497	308	243	254	366	286	78	124	63	64
Link Distance (ft)	576		642	642	642			782	782	782
Upstream Blk Time (%)	1									
Queuing Penalty (veh)	0									
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	23	0			3	13				
Queuing Penalty (veh)	70	1			30	46				

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	EB	B8	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	T	L	TR	L	T	T	TR	L	T
Maximum Queue (ft)	400	450	577	476	268	176	746	938	898	866	237	311
Average Queue (ft)	315	386	356	166	106	72	468	384	397	471	111	167
95th Queue (ft)	467	513	713	503	234	154	821	983	906	834	203	276
Link Distance (ft)			491	449	308	308		933	933	933		357
Upstream Blk Time (%)			21	11	0			11	1	4		0
Queuing Penalty (veh)			0	0	0			0	0	0		1
Storage Bay Dist (ft)	350	350					650				200	
Storage Blk Time (%)	1	32	12				15	0			2	7
Queuing Penalty (veh)	4	94	68				74	0			4	10

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	313	280
Average Queue (ft)	165	136
95th Queue (ft)	282	260
Link Distance (ft)	357	357
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	1	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US 1 & RIRO Driveway

Movement	WB	NB	SB	SB	SB
Directions Served	R	T	T	T	T
Maximum Queue (ft)	221	6	21	25	19
Average Queue (ft)	103	0	1	1	0
95th Queue (ft)	193	5	17	15	8
Link Distance (ft)	297	357	642	642	642
Upstream Blk Time (%)	1				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Cranes Corner Road & Full Movement Driveway

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	72	71
Average Queue (ft)	11	37
95th Queue (ft)	46	58
Link Distance (ft)	308	191
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 402

Intersection: 1: US 1 & Centreport Parkway

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	635	300	130	158	226	238	423	664	608	518
Average Queue (ft)	470	151	60	74	66	128	207	404	361	287
95th Queue (ft)	732	378	114	128	148	218	467	696	645	573
Link Distance (ft)	588		622	622	622			686	686	686
Upstream Blk Time (%)	28							7	5	3
Queuing Penalty (veh)	0							0	0	0
Storage Bay Dist (ft)		200				150	350			
Storage Blk Time (%)	45				0	7	0	23		
Queuing Penalty (veh)	39				1	12	0	45		

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	EB	EB	EB	B8	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	T	L	TR	L	T	T	TR	L	T
Maximum Queue (ft)	297	450	594	486	312	97	750	1002	962	407	300	399
Average Queue (ft)	110	360	467	259	182	25	645	688	464	97	201	368
95th Queue (ft)	242	577	726	624	318	69	936	1367	1177	281	352	426
Link Distance (ft)			493	449	322	322		954	954	954		368
Upstream Blk Time (%)			49	36	3			57	0	0		23
Queuing Penalty (veh)			0	0	3			0	0	0		194
Storage Bay Dist (ft)	350	350					650				200	
Storage Blk Time (%)	0	1	71				65	0			5	38
Queuing Penalty (veh)	0	3	189				161	0			50	61

Intersection: 2: US 1 & Enon Road /Cranes Corner Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	399	262
Average Queue (ft)	368	120
95th Queue (ft)	422	229
Link Distance (ft)	368	368
Upstream Blk Time (%)	24	
Queuing Penalty (veh)	205	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: US 1 & RIRO Driveway

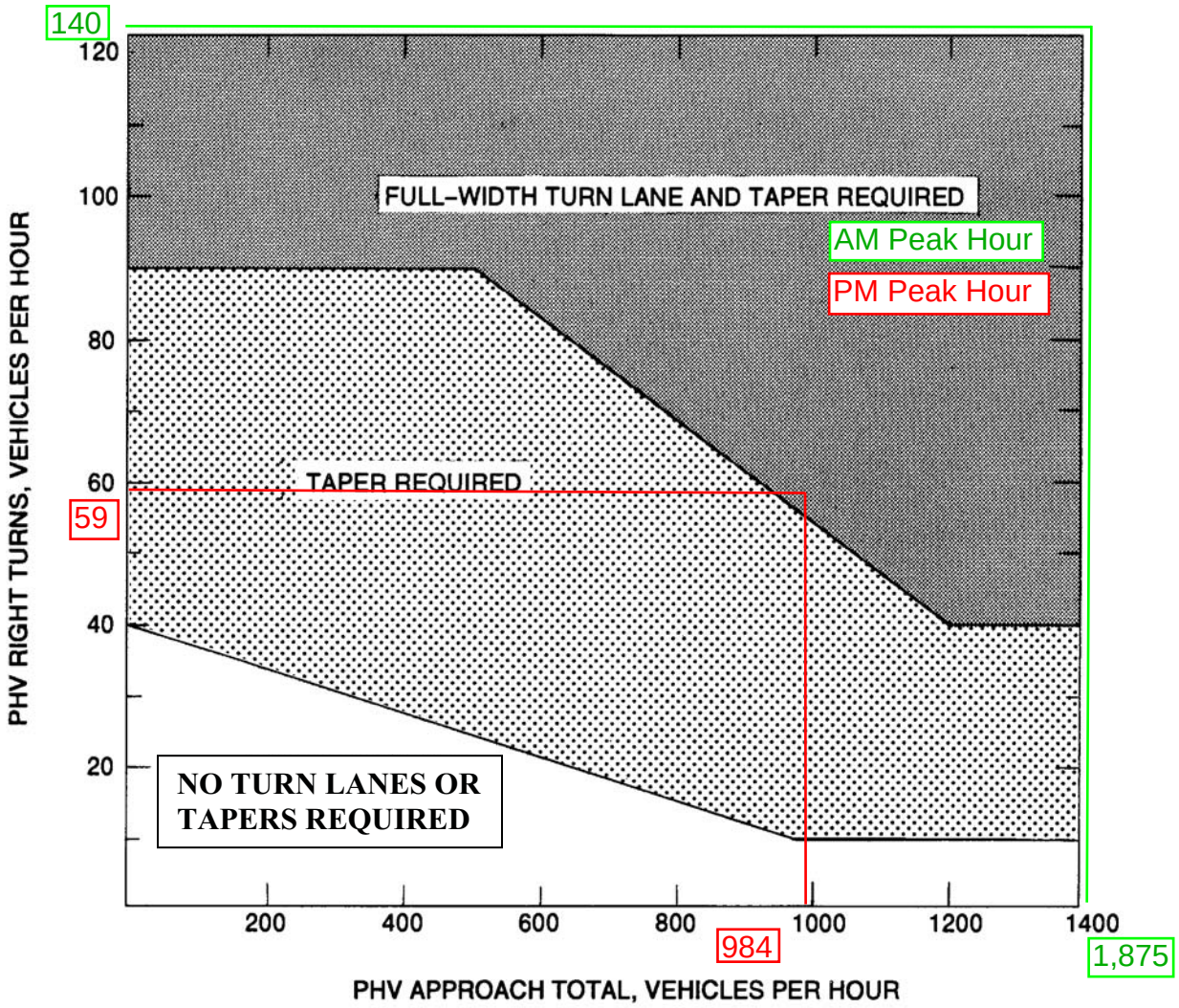
Movement	WB	SB	SB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	74	649	650	622
Average Queue (ft)	30	405	411	248
95th Queue (ft)	56	751	759	660
Link Distance (ft)	284	622	622	622
Upstream Blk Time (%)		1	1	0
Queuing Penalty (veh)		8	12	2
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Cranes Corner Road & Full Movement Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	71	10	93
Average Queue (ft)	6	0	46
95th Queue (ft)	38	7	81
Link Distance (ft)	322	307	177
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 984



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV- - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour
D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.*

FIGURE 3-27 WARRANTS FOR RIGHT TURN TREATMENT (4-LANE HIGHWAY)

* Rev. 1/15

WARRANT FOR LEFT-TURN STORAGE LANES ON TWO-LANE HIGHWAY

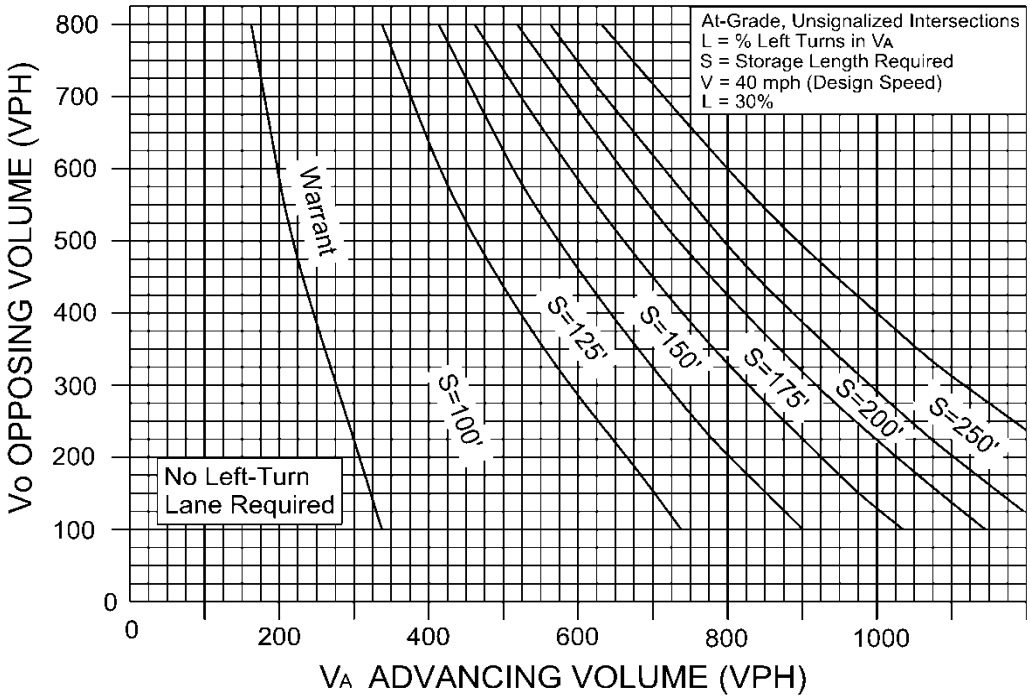


FIGURE 3-9

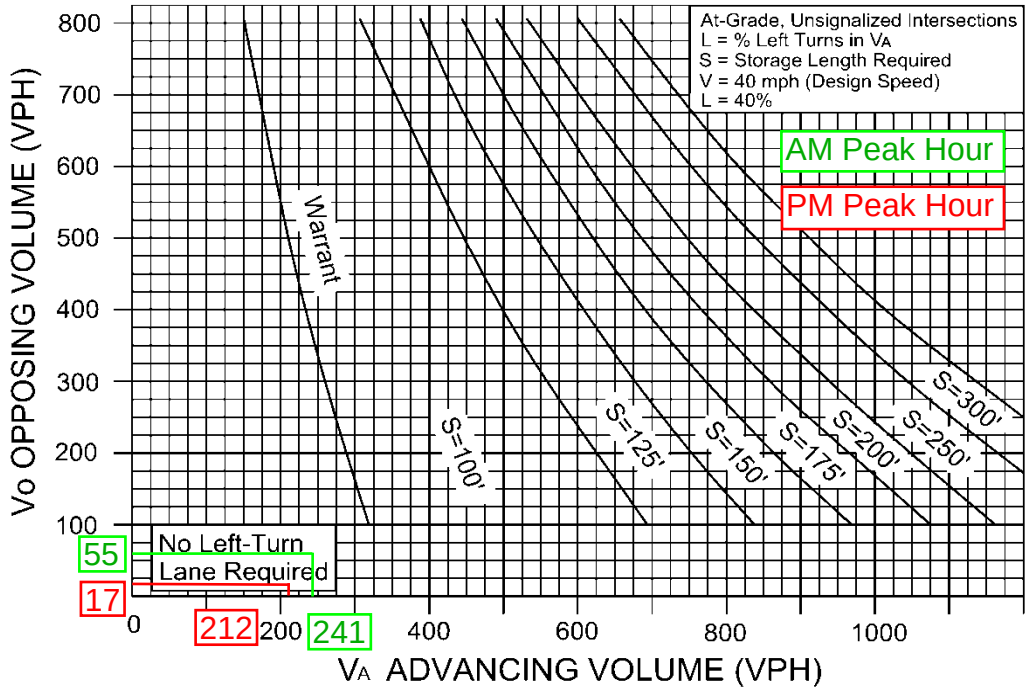


FIGURE 3-10

PRE-SCOPE OF WORK MEETING FORM

Information on the Project
Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information				
Consultant Name: Tele: E-mail:	Ramey Kemp & Associates, Inc. / Michael Bailey, P.E., PTOE (804) 217-8560 mbailey@rameykemp.com			
Developer/Owner Name: Tele: E-mail:	Bohler Engineering / John Wright, PE (540) 349-4500 jwright@bohlereng.com			
Project Information				
Project Name:	Wawa - Cranes Corner Rd		Locality/County:	Stafford County
Project Location: (Attach regional and site specific location map)	Refer to Figure 1			
Submission Type	Comp Plan ☐	Rezoning ☐	Site Plan ☒	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	The property is located in the northeast quadrant of the U.S. 1 at Enon Road / Cranes Corner Road intersection. The conceptual plan includes a 6,050 s.f. convenience market with 20 fueling positions. The proposed access plan includes one full movement driveway on Cranes Corner Road, and one right-in / right-out driveway on U.S. 1.			
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial ☒	Mixed Use ☐	Other ☐
	Residential Uses(s) Number of Units: _____ ITE LU Code(s): _____ _____ _____ **Commercial Use(s)** ITE LU Code(s): 960 - 20 f.p. _____ _____ Square Ft or Other Variable:		**Other Use(s)** ITE LU Code(s): _____ _____ _____ Independent Variable(s): _____ _____ _____	
Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☒	500 – 999 ☐	1,000 or more ☐

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Traffic Impact Analysis Assumptions				
Study Period	Existing Year: 2019	Build-out Year: 2022	Design Year: 2022	
Study Area Boundaries (Attach map)	North: See Figure 1	South:		
	East:	West:		
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	Potomac Creek Commercial Development (See Trip Generation and Figure 2) Sheetz - Enon Road (See Trip Generation and Figure 3)			
Consistency With Comprehensive Plan (Land use, transportation plan)	Current Zoning - B2 Proposed Zoning - B2			
Available Traffic Data (Historical, forecasts)	U.S. 1 (Jefferson Davis Highway) - 20,000 vpd in 2010 / 21,000 vpd in 2018 Cranes Corner Road - 270 vpd in 2010 / 470 vpd in 2018			
Trip Distribution (Attach sketch)	Road Name: See Figure 4	Road Name:		
	Road Name:	Road Name:		
Annual Vehicle Trip Growth Rate:	2.0%	Peak Period for Study (check all that apply)	☒ AM ☒ PM ☐ SAT	
		Peak Hour of the Generator		
Study Intersections and/or Road Segments (Attach additional sheets as necessary)	1.U.S. 1 at Enon Road / Cranes Corner Road	6.		
	2.U.S. 1 at Centreport Parkway	7.		
	3.Cranes Corner Road at Proposed full-movement driveway	8.		
	4.U.S. 1 at Proposed right-in / right-out driveway	9.		
	5.	10.		
Trip Adjustment Factors	Internal allowance: ☐ Yes ☒ No Reduction: _____% trips	Pass-by allowance: ☒ Yes ☐ No Reduction: ITE% trips		
Software Methodology	☒ Synchro ☐ HCS (v.2000/+) ☐ aaSIDRA ☐ CORSIM ☒ Other SimTraffic			
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	Synchro / SimTraffic 10 will be used to analyze LOS, delay, and queueing at the study intersections.			

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Improvement(s) Assumed or to be Considered	The need for turn lanes and other off-site improvements will be determined based on the results of the TIA.
Background Traffic Studies Considered	None
Plan Submission	☐ Master Development Plan (MDP) ☒ Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)
Additional Issues to be Addressed	☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☒ Bike/Ped Accommodations ☒ Intersection(s) ☐ TDM Measures ☐ Other ____

NOTES on ASSUMPTIONS:

The TIA will include five analysis scenarios:

- Existing (2019) Traffic Conditions
- No-Build (2022) Traffic Conditions without Sheetz
- No-Build (2022) Traffic Conditions with Sheetz
- Build (2022) Traffic Conditions without Sheetz
- Build (2022) Traffic Conditions with Sheetz

SIGNED: _____ DATE: 9/9/19
Applicant or Consultant

PRINT NAME: Michael Bailey
Applicant or Consultant

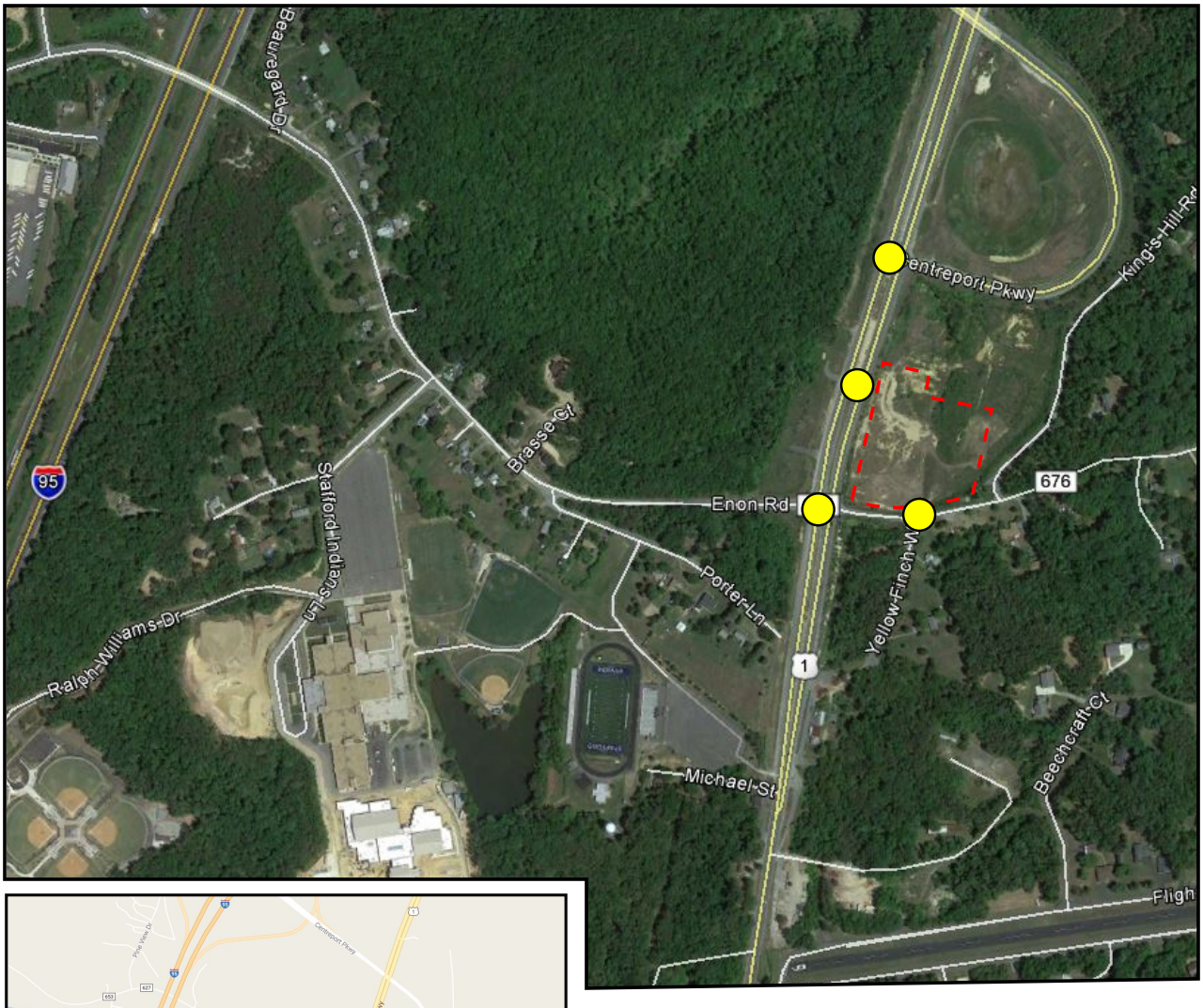
It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

RAMEY KEMP & ASSOCIATES, INC.
4343 Cox Road
Glen Allen, VA 23060
Phone: 804-217-8560 Fax: 804-217-8563
www.rameykemp.com

Wawa – Cranes Corner Road
Stafford County, VA
ITE Trip Generation – Weekday – 10th Edition

Land Use (ITE Land Use Code)	Size	Weekday Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
Super Convenience Market / Gas Station (960)	20 f.p. / 6,050 s.f.	2,305	2,305	328*	328*	253*	253*
ITE Pass-by Trips: 63% AM / 66% PM		-1,487	-1,487	-207	-207	-167	-167
New Primary Trips		**818**	**818**	**121**	**121**	**86**	**86**

*Value was determined using the multi-variable regression formula published by ITE.



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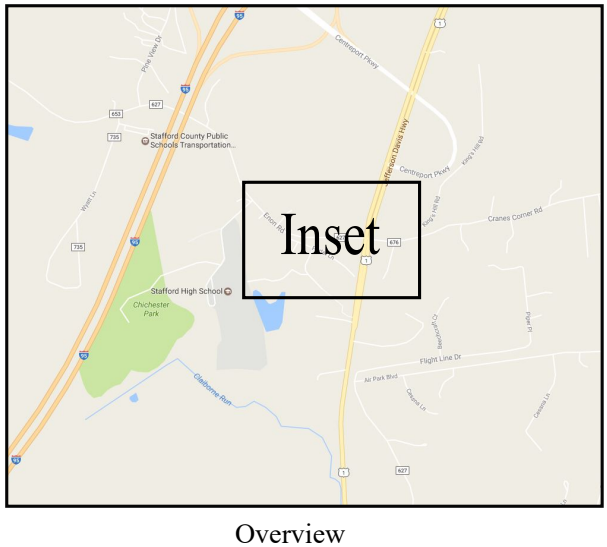


Overview

LEGEND

N

Study Intersection

Site Boundary

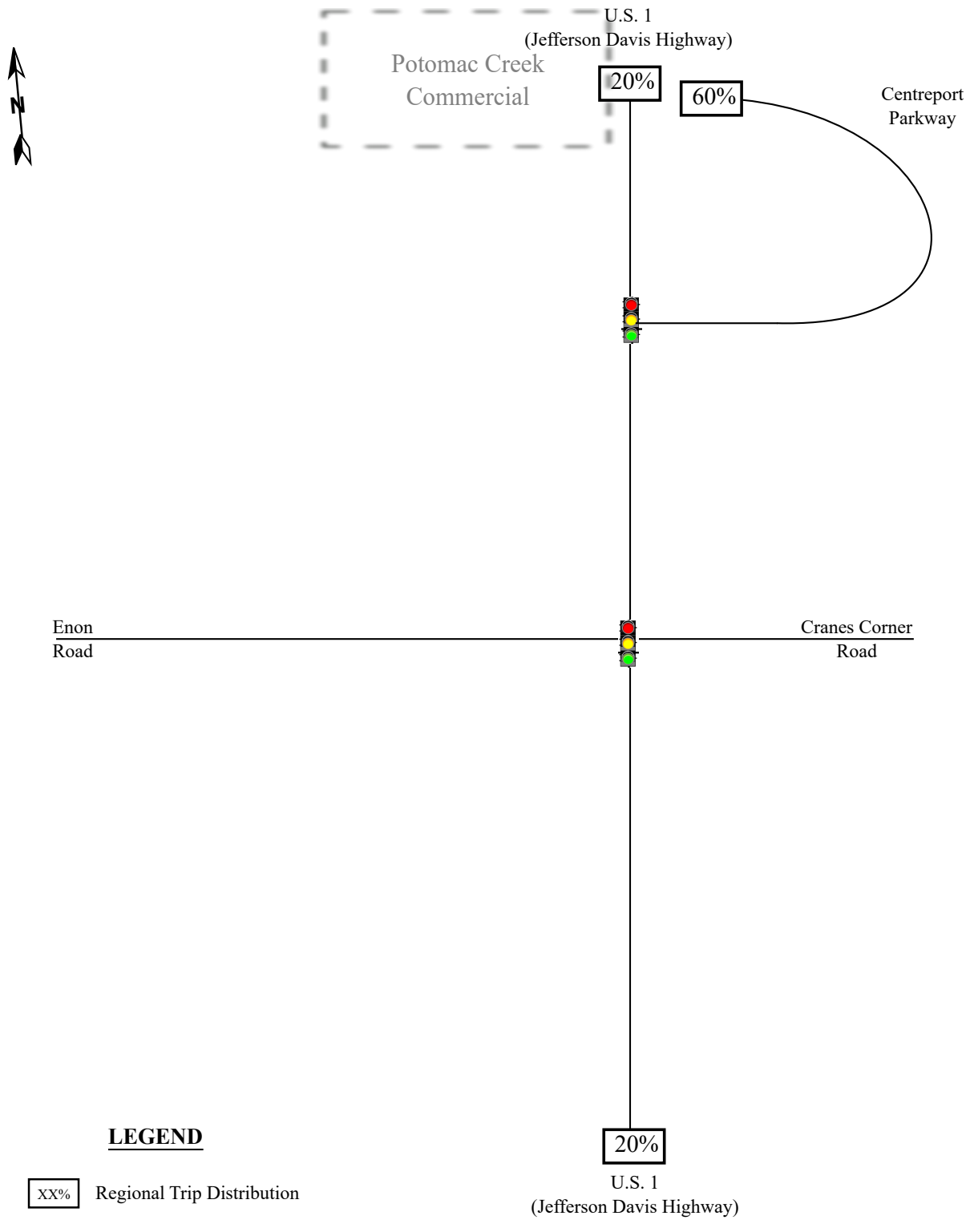
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Site Location and Study Intersections

Scale: Not to Scale

Figure 1



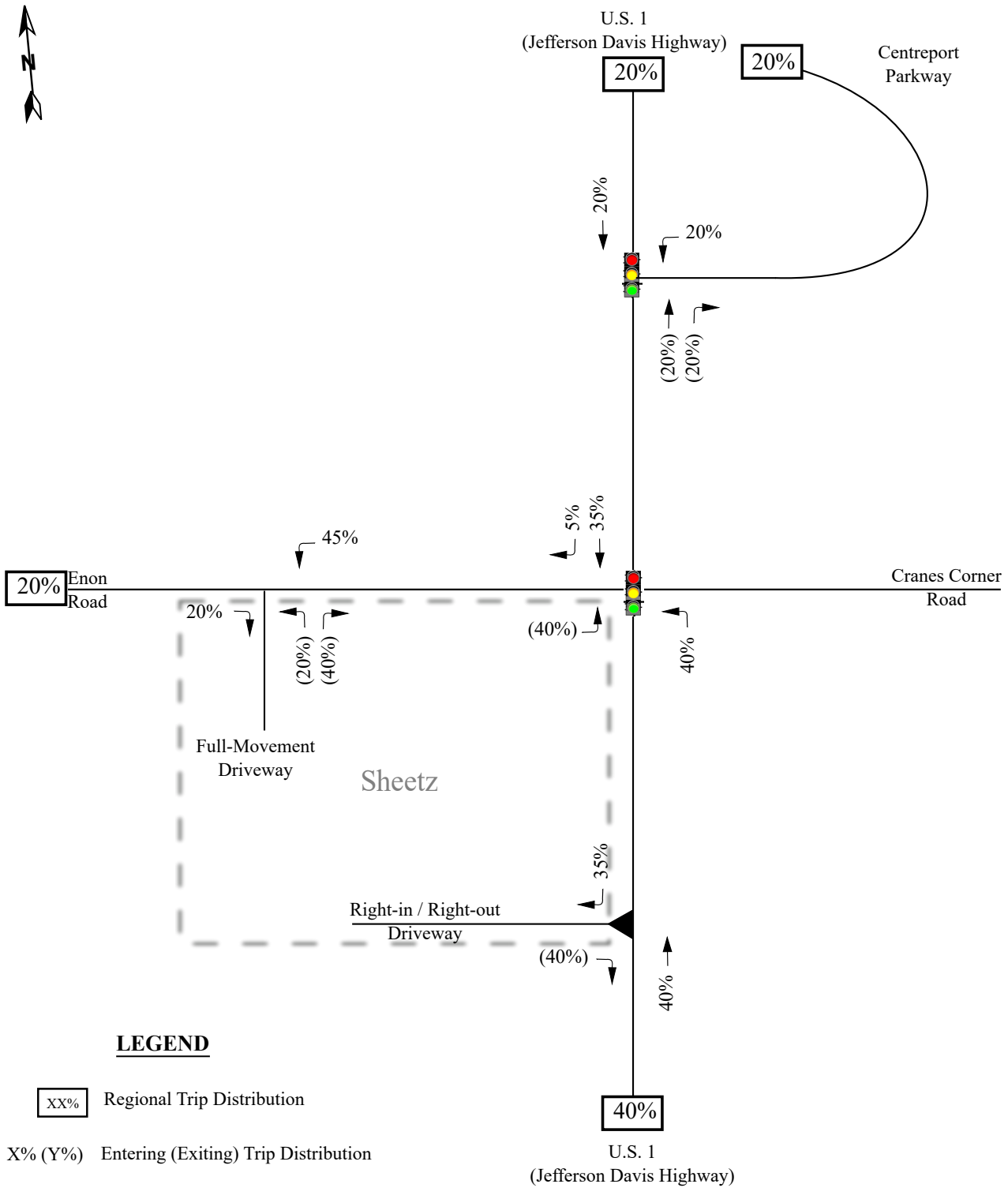
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Potomac Creek Commercial
Primary Distribution

Scale: Not to Scale

Figure 2



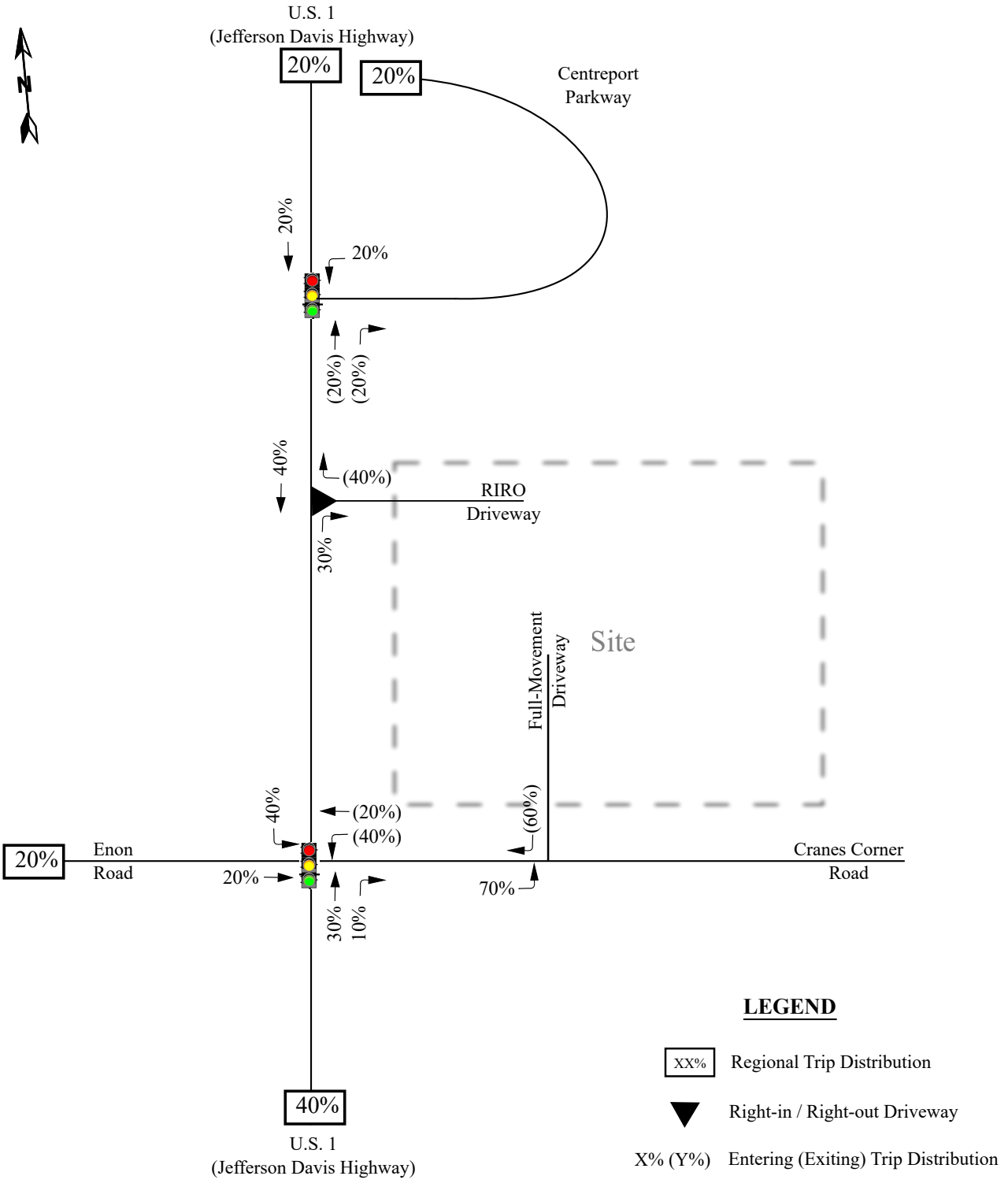
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Sheetz Primary
Site Trip Distribution

Scale: Not to Scale

Figure 3



RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wawa - Cranes Corner
Stafford County, Virginia

Primary Site
Trip Distribution

Scale: Not to Scale | Figure 4

SCOPE OF WORK MEETING CONCLUSIONS

ADDITIONS TO THE VDOT REQUIRED ELEMENTS, CHANGES TO THE METHODOLOGY OR STANDARD ASSUMPTIONS, AND SIGNATURE PAGE

Any additions to the VDOT Required Elements or changes to the Methodology or Standard Assumptions due to special circumstances that are approved by VDOT:

NONE

The applicant will contact VDOT and the locality prior to the preparation of the traffic impact analysis study in the event there are any substantial changes in the existing conditions that will affect the scope of the study.

AGREED: Mary Lee — DATE: 9-12-19
Applicant or Consultant

PRINT NAME: Mary Lee, P.E.
Applicant or Consultant

SIGNED: James C. Rice, PE — DATE: 9.16.19
VDOT Representative

PRINT NAME: JAMES C. RICE
VDOT Representative

SIGNED: [signature] — DATE: 9/18/19
Local Government Representative

PRINT NAME: MICHAEL ZURAF
Local Government Representative