TRAFFIC IMPACT STUDY

LOVELAND HOUSING AUTHORITY

Loveland, CO

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TABLE OF CONTENTS

Appendices:

A. Full Sized Conceptual Site Plan
B. Base Assumptions Form
C. LOS Descriptions
D. Traffic Counts
E. Existing Synchro Outputs
F. Pipeline Development Excerpts
G. Background (without site development) Synchro Outputs
H. Future (with site development) Synchro Outputs

Executive Summary

Site Location and Study Area

The property that comprises the application area for the proposed development is approximately 52.45 acres in size and is identified as Larimer County Parcel Numbers 9635225901 and 9635218902. It is located east of Taft Avenue (CR-17) and south of 57th Street in Loveland, CO. It is zoned Planned Unit Development P-73 Crossroads Addition and is currently vacant.

The study area is generally bounded by Taft Avenue to the west, 57th Street to the north, and property lines to the east and south. The study area for the project includes intersections that could be affected by the proposed development:

- 57th Street/Taft Avenue
- 57th Street/Duffield Avenue
- 50th Street/Duffield Avenue

Description of Proposed Development

The Applicant, Loveland Housing Authority, seeks to develop the property with affordable residential housing uses. Site access is proposed via the existing full movement access at 57th Street/Duffield Avenue, a new right-in/right out (RIRO) access along 57th Street, and an additional full movement access south of the site with the extension of Duffield Avenue.

Conclusions and Recommendations

Conclusions

Based on the results of this traffic impact study, the following may be concluded:

- Under existing traffic conditions, the intersections within the study area currently operate at overall acceptable levels of service (LOS) “D” or better during the weekday AM and PM peak hours, and queues remain within their respective storage lengths.

- Under background future 2028 and 2043 traffic conditions, without the development of the subject site, delays would increase at study intersections due to regional traffic growth and pipeline developments. Pipeline developments in the area are expected to improve the signalized intersection of 57th Street/Taft Avenue in background 2028 conditions based on their impact, and the intersection is expected to reach capacity with the existing lane use in study year 2043. Proposed intersection improvements are applied for study year 2043. With these improvements, the signalized intersection in the study is expected to operate at LOS “C” during the weekday AM peak hour and LOS “E” during the weekday PM peak hour.

- In the background future 2043 scenario, the NBL queue at the 57th Street/Taft Avenue intersection is expected to exceed its storage length during the PM peak hour due to pipeline developments.

- The proposed site development would generate, upon completion and full occupancy, 202 new weekday AM and 263 new weekday PM peak hour vehicle trips as well as 2,962 new weekday daily trips.

- Under total future 2028 and 2043 traffic conditions with development of the site, the intersections within the study area would operate consistent with background conditions with the exceptions of

the stop-controlled movements at the 57th Street/Duffield Avenue intersection which are shown to operate at LOS “D” in 2028 and LOS “F” in 2043 under total future conditions. However, these approaches are also shown to have a volume/capacity ratio, (V/C) of less than 1.0, suggesting additional capacity available for these movements. Signal warrants would not be triggered for this intersection. A scenario with double ¾ movements was analyzed and would mitigate this failure. Ultimately a roundabout will be provided for this intersection depending on certain triggers and funding.

Recommendations

- It is recommended that the Northbound left turn lane be extended to at least 225’ storage length to meet LCUASS standards in the future design of the 57th Street/Taft Avenue intersection improvement in background conditions.

- It is recommended that the Applicant provide an additional westbound left lane and northbound through lane at 57th Street and Duffield Avenue. No queueing issues were identified but due to the substandard existing geometry the Applicant should provide additional stacking capacity to the extent that physical site constraints (grade, proximity to the rail crossing, etc.) allow.

- It is recommended that the Applicant coordinate possible pedestrian crossing solutions across 57th Street with the City. No specific recommendations are provided herein.

- It is recommended that the Applicant provides access consistent with the site plan contained herein.

I. Introduction

Overview

This report presents the results of a Traffic Impact Study (TIS) conducted in support of a site plan to develop residential affordable housing in Loveland, CO. Currently the site is vacant.

Per the requirements of the City of Loveland and the Larimer County Urban Area Street Standards (LCUASS), a Transportation Impact Study is required to support the proposed development.

Site Location and Study Area

The property that comprises the application area for the proposed development is approximately 52.45 acres in size and is identified as Larimer County Parcel Numbers 9635225901 and 9635218902. It is located east of Taft Avenue (CR-17) and south of 57th Street in Loveland, CO, as shown in Figure 1-1. It is zoned Planned Unit Development (PUD) P-73 Crossroads Addition and is currently vacant. The PUD grants certain access to the site and the project is consistent with the PUD providing access via the existing full movement access at 57th Street/Duffield Avenue, a right-in/right out (RIRO) access along 57th Street, and an additional full movement access to the south of the site with the extension of Duffield Avenue.

The Applicant, Loveland Housing Authority, seeks to develop the property with residential affordable housing use. A reduction of the Applicant's proposed conceptual site plan is provided in Figure 1-2. A full-size copy of the plan is provided in Appendix A.

The study area is generally bounded by Taft Avenue to the west, 57th Street to the north, and property lines to the east and south.

Tasks undertaken in the course of this study included the following:

1. Reviewed the Applicant's proposed development plans and other background data.

2. Conducted a virtual field reconnaissance of existing roadway and intersection geometries, traffic controls, and speed limits.

3. Collected weekday AM/PM peak hour turning movement counts at the key intersections.

4. Analyzed existing levels of service at each of the key study intersections based on the methodologies set forth in the Highway Capacity Guidelines (HCM) 6th Edition and reports generated by Synchro as reported by Synchro version 11.

5. Forecasted background future traffic volumes based on baseline traffic counts, pipeline projects, and regional traffic growth for 2028 (build-out) and 2043 (long-range) conditions.

6. Calculated background levels of service at each of the key study intersections for the projected build-out year based on background future traffic forecasts and the existing/background lane use and traffic controls.

7. Estimated the number of AM and PM peak hour trips that would be generated by the proposed use based on the Institute of Transportation Engineers (ITE) Trip Generation 11th Edition rates/equations and methodologies.

8. Prepared AM and PM peak hour total future traffic forecasts based on background traffic forecasts plus site traffic assignments for the 2028 (build-out), as well as 2043 (long-range) conditions.

9. Calculated total future levels of service for each of the key study intersections based on projected total future traffic forecasts, existing traffic controls, and existing/future intersection geometries.

10. Identified roadway improvements required to accommodate future traffic volumes as necessary.

Sources of data for this analysis included the Institute of Transportation Engineers (ITE), Trip Generation, 11th edition, the Highway Capacity Guidelines HCM 6th, Synchro 11, Loveland Housing Authority, City of Loveland, Colorado, LCUASS, and the files/library of Galloway.

Site Description and Access

Site Conditions
The terrain proximate to and surrounding the site is generally classified as “level”.

Hazardous Conditions
Based on the field reconnaissance in the vicinity of the subject site, no hazardous features or constraints were identified.

Proposed Site Access
Access to the site is being proposed via the existing full movement access at 57th Street/Duffield Avenue, a new RIRO access on 57th Street, and an additional full movement access to the south of the site with the extension of Duffield Avenue. These accesses are consistent with the approved PUD.

Existing Zoning
The subject site is currently zoned Planned Unit Development P-73 Crossroads Addition and is currently vacant. Figure 1-3 depicts the existing zoning associated with the subject property, as well as neighboring properties as shown on the City of Loveland zoning map.

Nearby Uses
The properties surrounding the subject site are generally developed with residential uses.

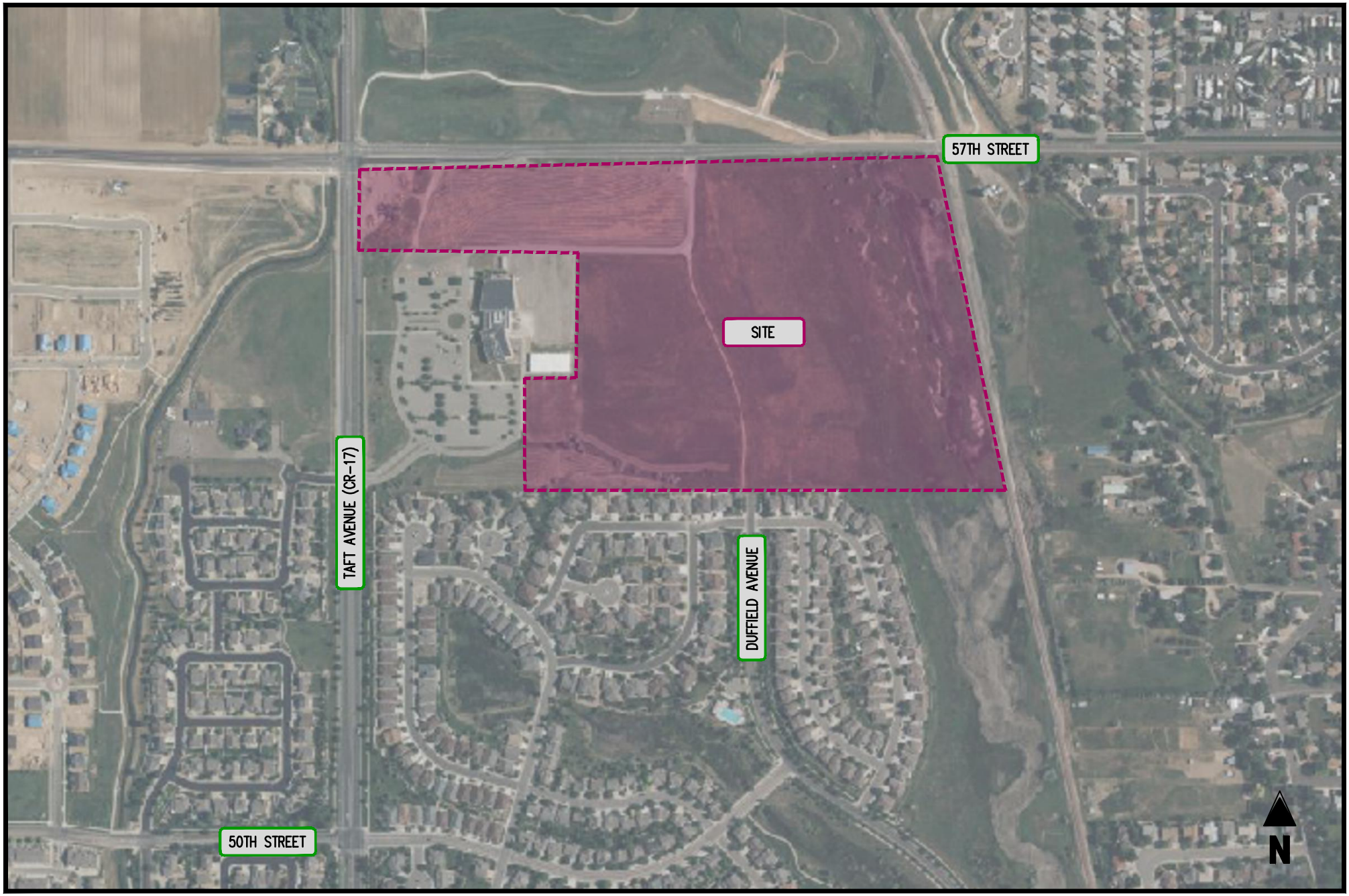


FIGURE 1-1
SITE LOCATION

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

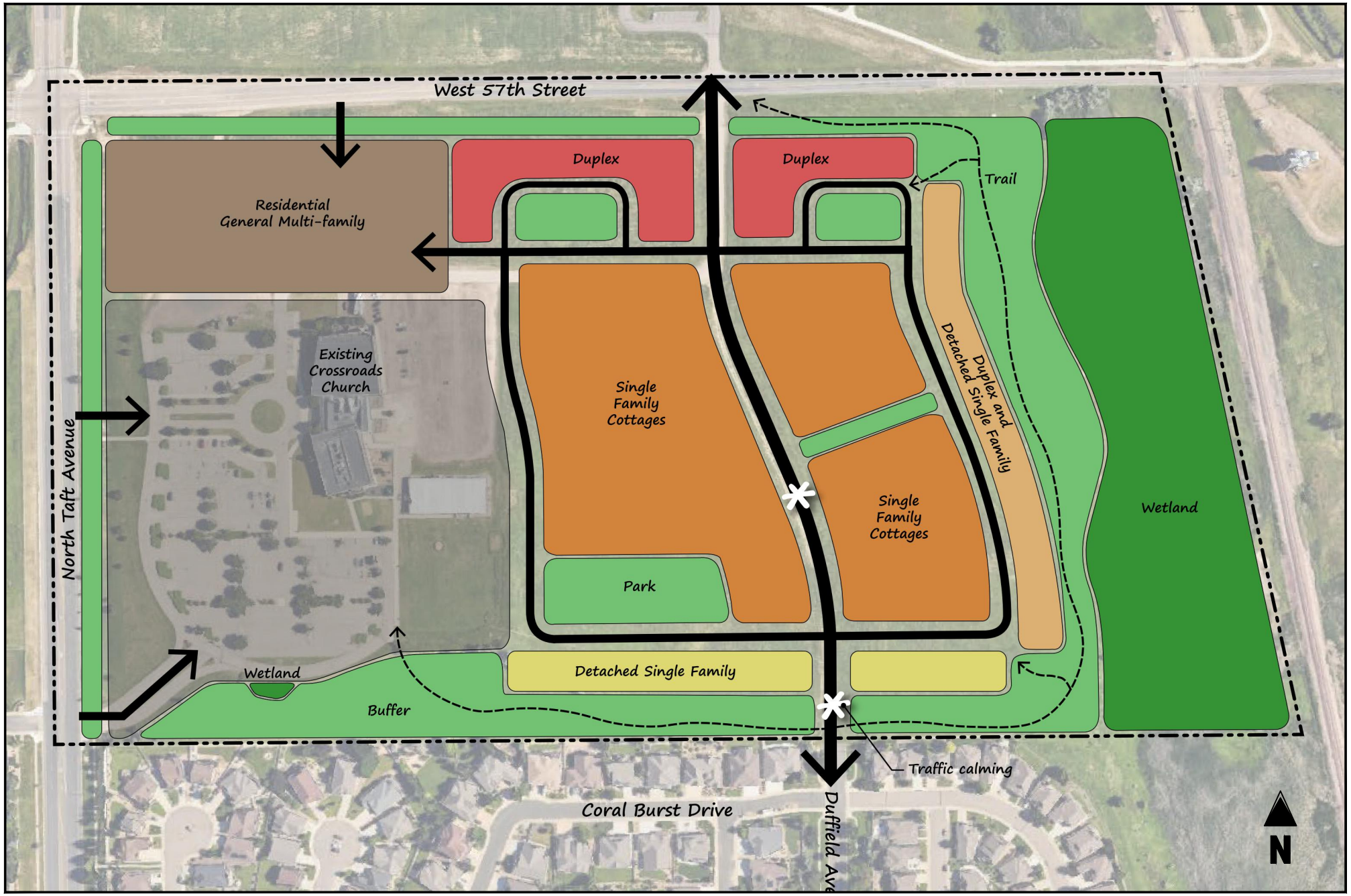


FIGURE 1-2
SITE PLAN

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

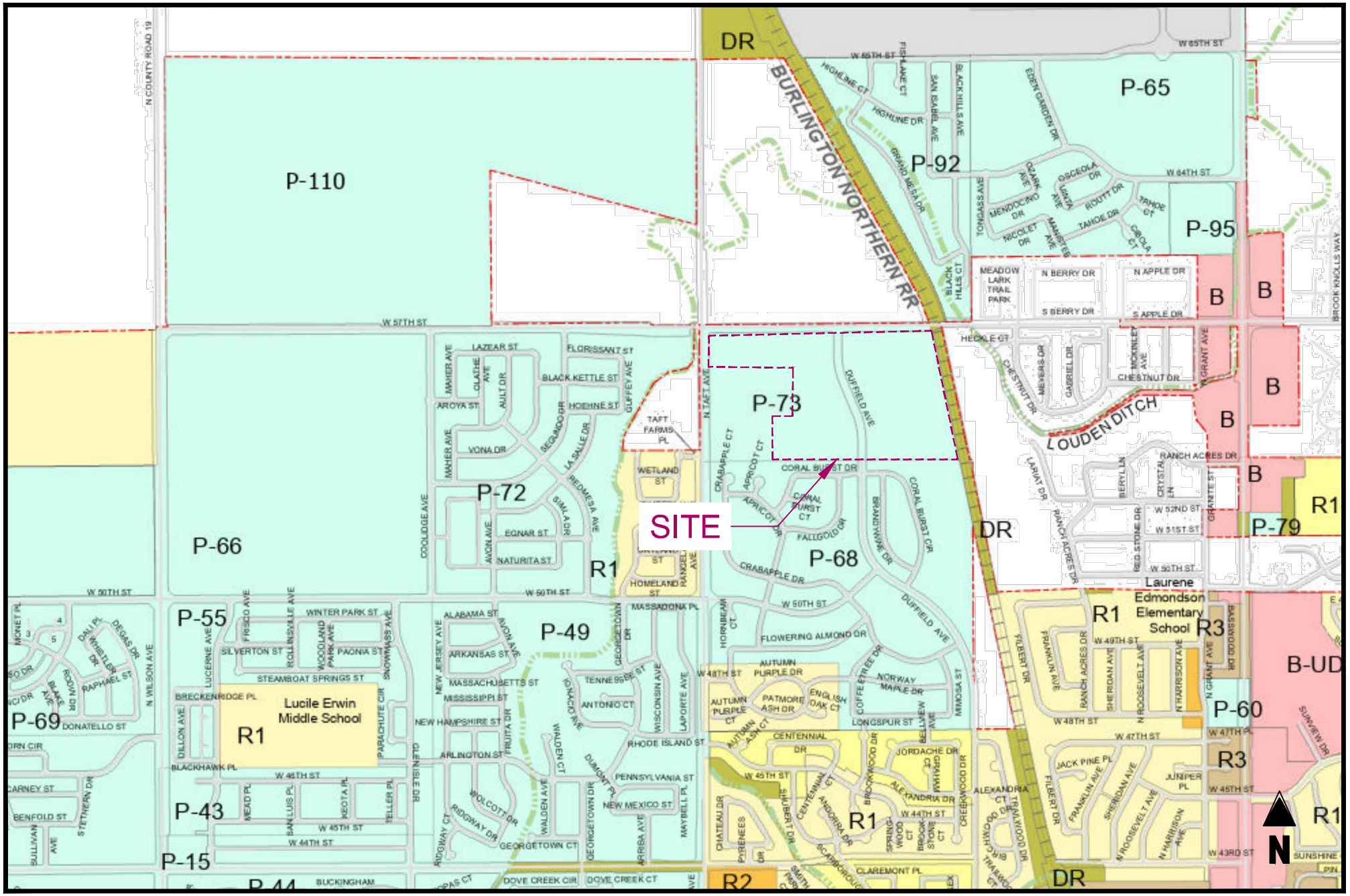


FIGURE 1-3
EXISTING ZONING

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

II. Background Information

Study Area

The study area was determined by a review of intersections that would experience a significant portion of turning movement volumes generated by the site. As such, the traffic study focuses primarily on the following intersections:

Study Intersections

- 57th Street/Taft Avenue
- 57th Street/Duffield Avenue
- 50th Street/Duffield Avenue

The study intersections, as well as additional study assumptions, were confirmed via a base assumptions form and subsequent conversations with Staff. The approved base assumptions form is provided as Appendix B.

Study Assumptions

For purposes of this analysis only, the proposed use was assumed to be built and occupied in one distinct phase. It was assumed that the use would be built and operational in study year 2028. A long-term analysis of 2043 is also provided.

Study Methodology

Synchro software version 11 was used to evaluate levels of service at each of the study intersections during the weekday AM and PM peak hours. Synchro is a macroscopic model used for optimizing traffic signal timing and performing capacity analyses. The software can model existing traffic signal timings or optimize splits, offsets, and cycle lengths for individual intersections, an arterial, or a complete network. Synchro allows the user to evaluate the effects of changing intersection geometrics, traffic demands, traffic control, and/or traffic signal settings as well as optimize traffic signal timings.

The levels of service reported for the signalized and unsignalized intersections analyzed herein were taken from the Highway Capacity Manual (HCM) 6th and reports generated by Synchro. Level of service descriptions are included in Appendix C.

A default percent heavy vehicle (%HV) factor of 2% was used for all movements in the study area.

Existing Roadway Network

Regional access to the subject site is provided by Taft Avenue, and local access is provided via 57th Street and Duffield Avenue. Figure 2-1 depicts existing lane use and traffic controls in the vicinity of the subject site. The following provides a description of each of the roadways within the study network.

Taft Avenue

Taft Avenue is constructed as a four-lane section with turn lanes at major intersections south of 57th Street and a two-lane section north of 57th Street. The posted speed limit is 45 mph in the vicinity of the subject site. The City of Loveland classifies the roadway as a Major Arterial south of 57th Street and as a Minor Arterial north of 57th Street. The intersection with 57th Street operates under signalized control.

57th Street

57th Street is constructed as a two-lane roadway with turn lanes at major intersections. The posted speed limit is 40 mph in the vicinity of the subject site. The City of Loveland classifies the roadway as a Major Arterial east of Taft Avenue and as a Minor Arterial west of Taft Avenue. The intersection with Taft Avenue operates under signalized control.

Duffield Avenue

Duffield Avenue is constructed as a two-lane roadway with a posted speed limit of 35 mph in the vicinity of the subject site. The City of Loveland classifies the roadway as a Major Collector. The intersections along the roadway operate under unsignalized control.

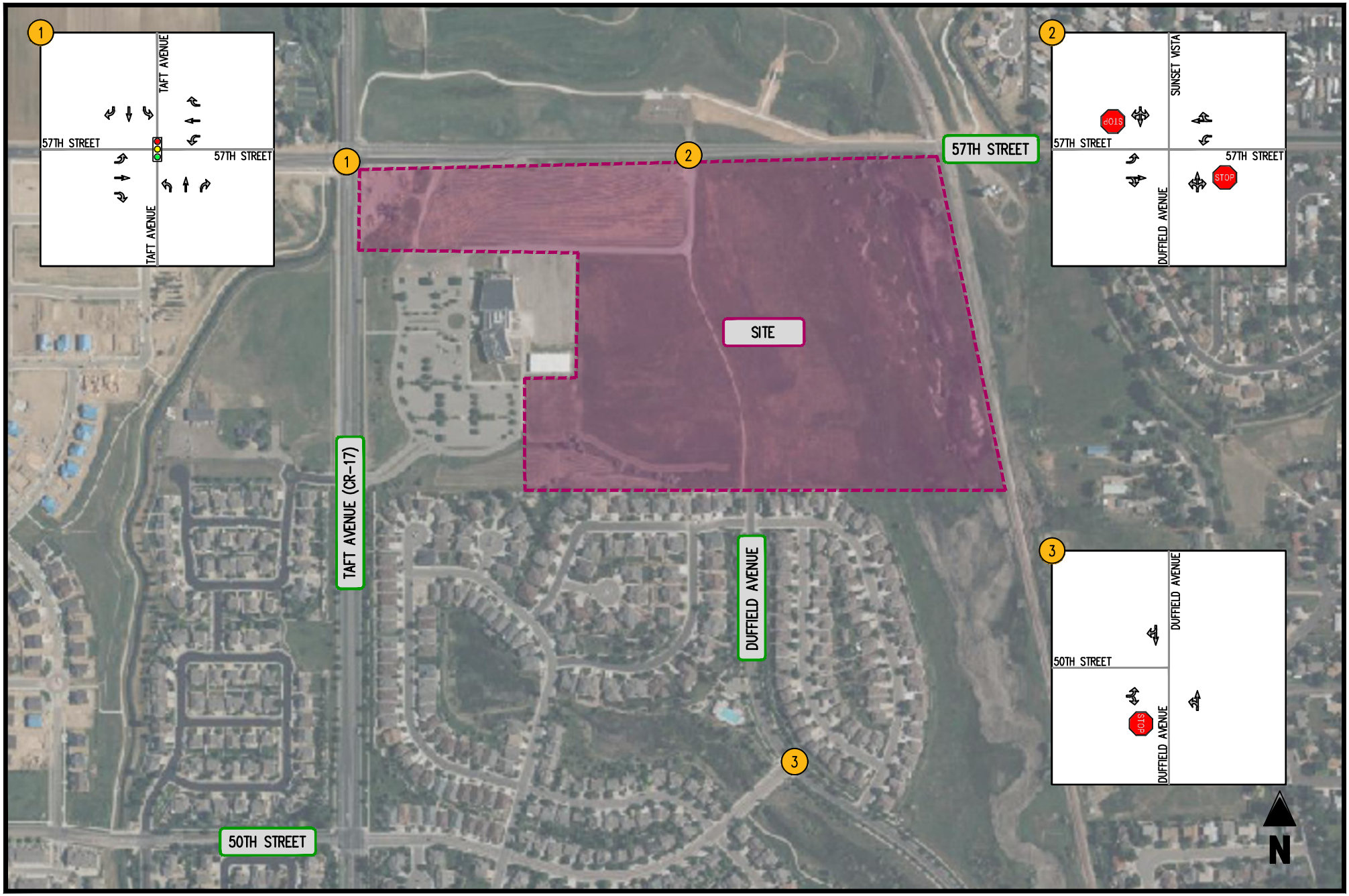


FIGURE 2-1
EXISTING LANE USE AND TRAFFIC CONTROL

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

MOVEMENT
SIGNALIZED INTERSECTION
STOP SIGN
YIELD SIGN

III. Analysis of Existing Conditions

Traffic Volumes

Weekday AM and PM peak hour traffic volumes counts were conducted on Wednesday October 4, 2023, from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM at the study intersections by IDAX Data Solutions.

The existing volumes are summarized in Figure 3-1. Copies of traffic counts are included in Appendix D. Existing peak hour factors (PHF) were also computed by approach from the traffic counts and applied to the analysis with a minimum of 0.85 and a maximum of 0.92.

Operational Analysis

Capacity/level of service (LOS) analyses were conducted at the study intersections based on the existing lane use and traffic controls shown in Figure 2-1 and existing baseline vehicular traffic volumes shown in Figure 3-1. The capacity analysis results are presented in Appendix E and summarized in Table 3-1 and in Figure 3-2.

As shown in Table 3-1, the intersections in the study area currently operate at overall acceptable levels of service (LOS) “D” or better during the weekday peak hours.

Existing Intersection Queues

An analysis of intersection 95th-percentile queues was performed at key locations. The results of the queuing analysis, as reported by Synchro, are summarized in Table 3-2. As shown in the table, queues are contained within their effective storage.

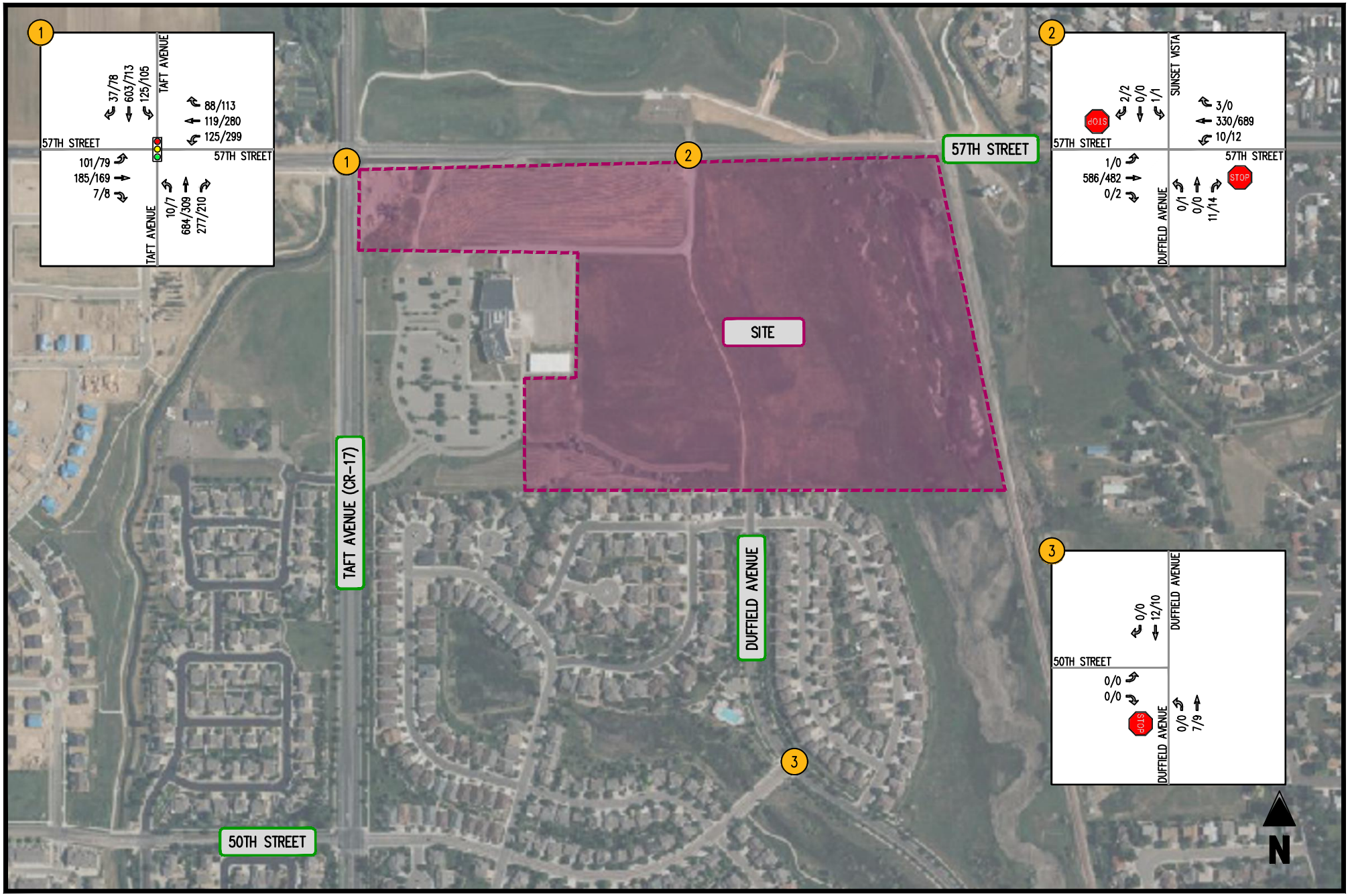


FIGURE 3-1
EXISTING VOLUMES

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

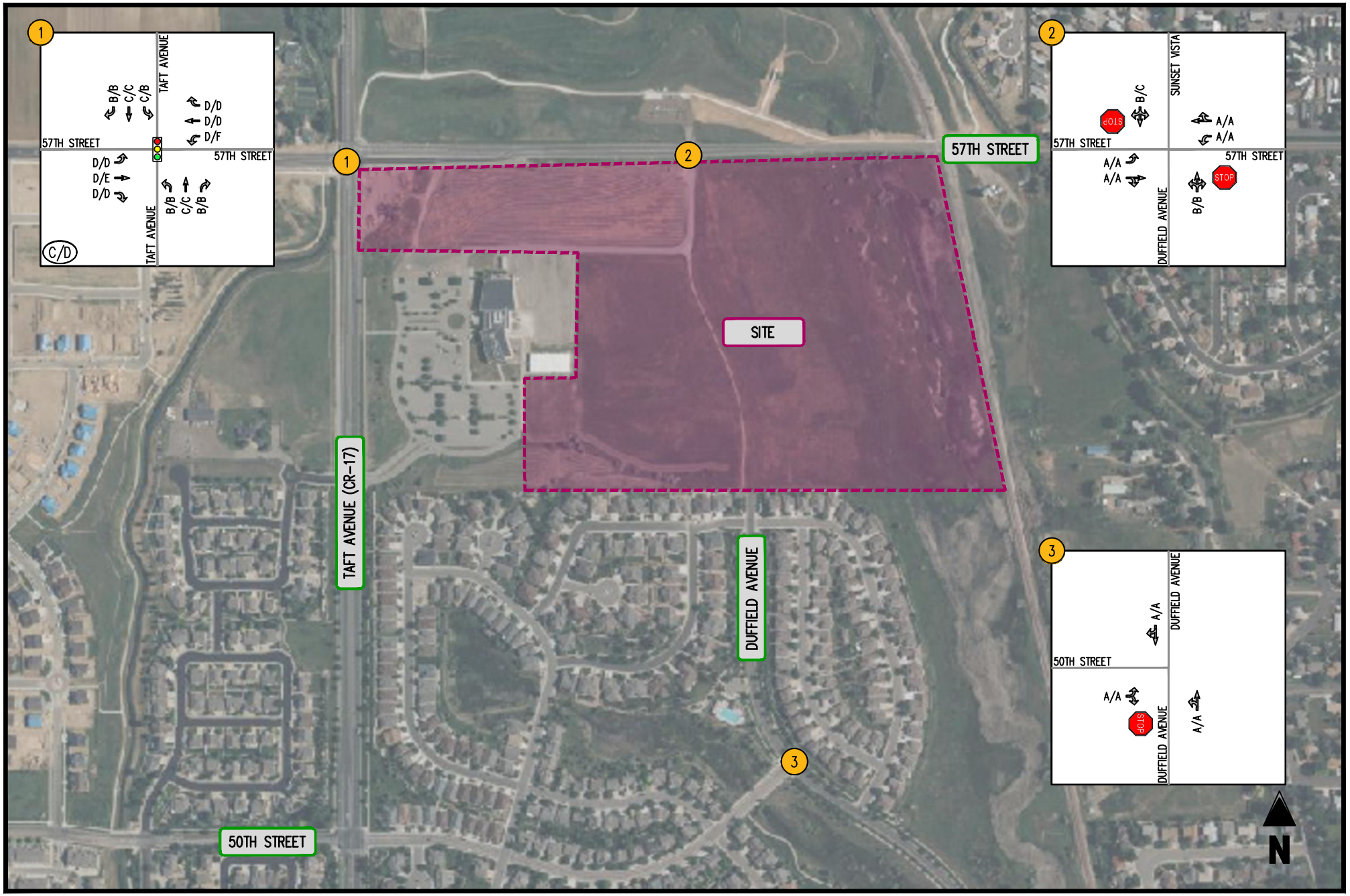


FIGURE 3-2
EXISTING LOS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

Table 3-1
Loveland Housing Authority - Loveland, CO
Existing Intersection Level of Service Summary (1) (2)

Intersection	Operating Condition	Street Name	Approach/ Movement	Existing 2023 AM Peak Hour	Existing 2023 PM Peak Hour
1 57th Street/Taft Avenue	SIGNAL	**Overall**		**C (28.8)**	**D (40.1)**
		57th Street	**EB**	**D (44.9)**	**D (53.3)**
			EBL	D (36.5)	D (42.3)
			EBT	D (49.8)	E (58.9)
			EBR	D (37.2)	D (42.3)
		57th Street	**WB**	**D (36.5)**	**E (77.4)**
			WBL	D (35.1)	F (116.2)
			WBT	D (37.5)	D (51.3)
			WBR	D (37.2)	D (39.0)
		Taft Avenue	**NB**	**C (27.7)**	**C (22.5)**
			NBL	B (14.5)	B (17.8)
			NBT	C (32.1)	C (24.6)
			NBR	B (17.3)	B (16.3)
		Taft Avenue	**SB**	**C (20.6)**	**C (23.4)**
			SBL	C (25.1)	B (17.3)
			SBT	C (20.3)	C (25.5)
			SBR	B (10.8)	B (12.3)
2 57th Street/Duffield Avenue	STOP	57th Street	**EB**	**A [0.0]**	**A [0.0]**
			EBL	A [8.0]	A [0.0]
			EBTR	A [0.0]	A [0.0]
		57th Street	**WB**	**A [0.3]**	**A [0.1]**
			WBL	A [8.9]	A [8.5]
			WBTR	A [0.0]	A [0.0]
		Duffield Avenue	**NB**	**B [13.0]**	**B [13.2]**
			NBLTR	B [13.0]	B [13.2]
		Sunset Vista	**SB**	**B [14.7]**	**C [20.2]**
			SBLTR	B [14.7]	C [20.2]
3 50th Street/Duffield Avenue	STOP	50th Street	**EB**	**A [0.0]**	**A [0.0]**
			EBLR	A [0.0]	A [0.0]
		Duffield Avenue	**NB**	**A [0.0]**	**A [0.0]**
			NBLT	A [0.0]	A [0.0]
		Duffield Avenue	**SB**	**A [0.0]**	**A [0.0]**
			SBTR	A [0.0]	A [0.0]

Notes : (1) Numbers in brackets [] represent delay at unsignalized intersections in seconds per vehicle.
(2) Numbers in parenthesis () represent delay at signalized intersections in seconds per vehicle.

Table 3-2
Loveland Housing Authority - Loveland, CO
Existing Intersection Queueing Summary (1)

Intersection	Operating Condition	Street Name	Approach/ Movement	Available Storage	Existing 2023 AM Peak Hour	Existing 2023 PM Peak Hour
1 57th Street/Taft Avenue	SIGNAL		EBL	450	84	77
		57th Street	EBT	-	185	194
			EBR	430	0	0
			WBL	550	101	361
		57th Street	WBT	-	114	292
			WBR	200	15	43
			NBL	200	12	10
		Taft Avenue	NBT	-	733	542
			NBR	-	68	43
			SBL	450	147	66
		Taft Avenue	SBT	-	596	777
			SBR	325	0	0
2 57th Street/Duffield Avenue	STOP	57th Street	EBL	400	0	0
			EBTR	-	0	0
		57th Street	WBL	200	0	0
			WBTR	-	0	0
		Duffield Avenue	NBLTR	-	2.5	2.5
		Sunset Vista	SBLTR	-	0	0
3 50th Street/Duffield Avenue	STOP	50th Street	EBLR	-	0	0
		Duffield Avenue	NBLT	-	0	0
		Duffield Avenue	SBTR	-	0	0

Notes : (1) Queue length, in feet, is based on the 95th percentile queue as reported by Synchro, Version 11.

IV. Analysis of Future Conditions without Site Development

Methodology

The future traffic forecasts, without the proposed new use, were developed for 2028 and 2043 conditions based on a composite of existing baseline traffic volumes and regional traffic. A 2.0% growth factor per year was applied to existing through traffic on Taft Avenue.

Regional Growth

Increases in traffic associated with regional growth were estimated at 2.0 percent per year compounded for through movements along Taft Avenue up to 2028 as well as to 2043. This growth accounts for increases in traffic resulting from influences outside of the immediate study area. The resulting increases in volumes within the study area are reflected in Figure 4-1 for 2028 conditions and Figure 4-2 for 2043 conditions.

Pipeline Developments

Approved but unbuilt/unoccupied (i.e., "pipeline") developments were identified for consideration within the study. The following pipeline developments and development programs were included in the background and total future analysis for 2043 conditions:

Green Valley Ranch & Elkader

957	DU	Single Family Detached
23,000	SF	Shopping Center
5,000	SF	Fast Casual Restaurant
3,500	SF	Fast-food Restaurant with Drive-Through

Taft Ridge

675	DU	Single Family Detached
310	DU	Single Family Attached
10	FP	Gas Station/C-Store
17.424	KSF	Strip Retail Plaza (<40k)

Eagle Brook

36	DU	Single Family Detached Housing
48	DU	Multifamily Housing (Low-Rise)

The location of the pipeline developments in relation to the Applicant's property are shown in Figure 4-3. Improvements for the intersection of 57th Street/Taft Avenue were identified by pipeline developments and assumed built for 2043 (long-range) conditions.

Pipeline development impacts are proposed to be mitigated by the following improvements to the 57th Street/Taft Avenue intersection:

- Additional northbound through lane
- Converting the southbound right turn lane to a through/right lane
- Dual westbound left turn lanes

Proposed Background future lane use and traffic control is shown in Figure 4-4.

Pipeline development site trips were obtained from the Green Valley Ranch & Elkader TIS, Taft Ridge TIS, and Eagle Brook TIS, and are shown in Figure 4-5. Relevant excerpts from the pipeline development TIS's are included in Appendix F.

Background Traffic Forecasts

The existing traffic forecasts depicted in Figure 3-1 and the regional growth shown in Figure 4-1 (2028) were added together to yield the background future traffic forecasts shown in Figure 4-6 for 2028 conditions. The existing traffic forecasts depicted in Figure 3-1, the regional growth shown in Figure 4-2 (2043), and the pipeline development site trips shown in Figure 4-5 were added together to yield the background future traffic forecasts shown in Figure 4-7 for 2043 conditions.

Background Future Levels of Service

Capacity analyses of 2028 and 2043 future traffic conditions without the proposed development are provided in Appendix G and summarized in Table 4-1. The forecasted levels of service are also depicted graphically in Figure 4-8 for 2028 conditions and Figure 4-9 for 2043 conditions.

As shown on Table 4-1, the signalized intersection in the study area is forecasted to approach capacity with existing lane configuration due to pipeline developments in 2043. With assumed intersection improvements from the pipeline TIS's, the signalized intersection is expected to operate at LOS "C" during weekday AM peak hour conditions and LOS "E" or better during weekday PM peak hour conditions.

Unsignalized intersection movements in the study area are expected to operate at LOS "C" or better during background future conditions with the exception of the southbound approach at the 57th Street/Duffield Avenue intersection which is expected to operate at LOS "E" in 2043 PM conditions due to growth from pipeline developments on 57th Street. The approach is forecasted to have a Volume-to-Capacity ratio of less than 1.0, suggesting additional capacity available for this movement.

Background Future Queueing

An analysis of intersection queues was performed at key locations under background future traffic conditions. The results of the queuing analysis are summarized in Table 4-2.

As shown in the table, queues within the study network will increase due to regional traffic growth. All queues are expected to be contained in their effective storage with the exception of the NBL movement at the 57th Street/Taft Avenue intersection during the PM peak hour under 2043 future traffic conditions.

Background Future Recommendations

Recommended improvements for the 57th Street/Taft Avenue intersection include:

- Northbound left turn lane extended to meet LCUASS standards (225' minimum, 300' desired storage length)

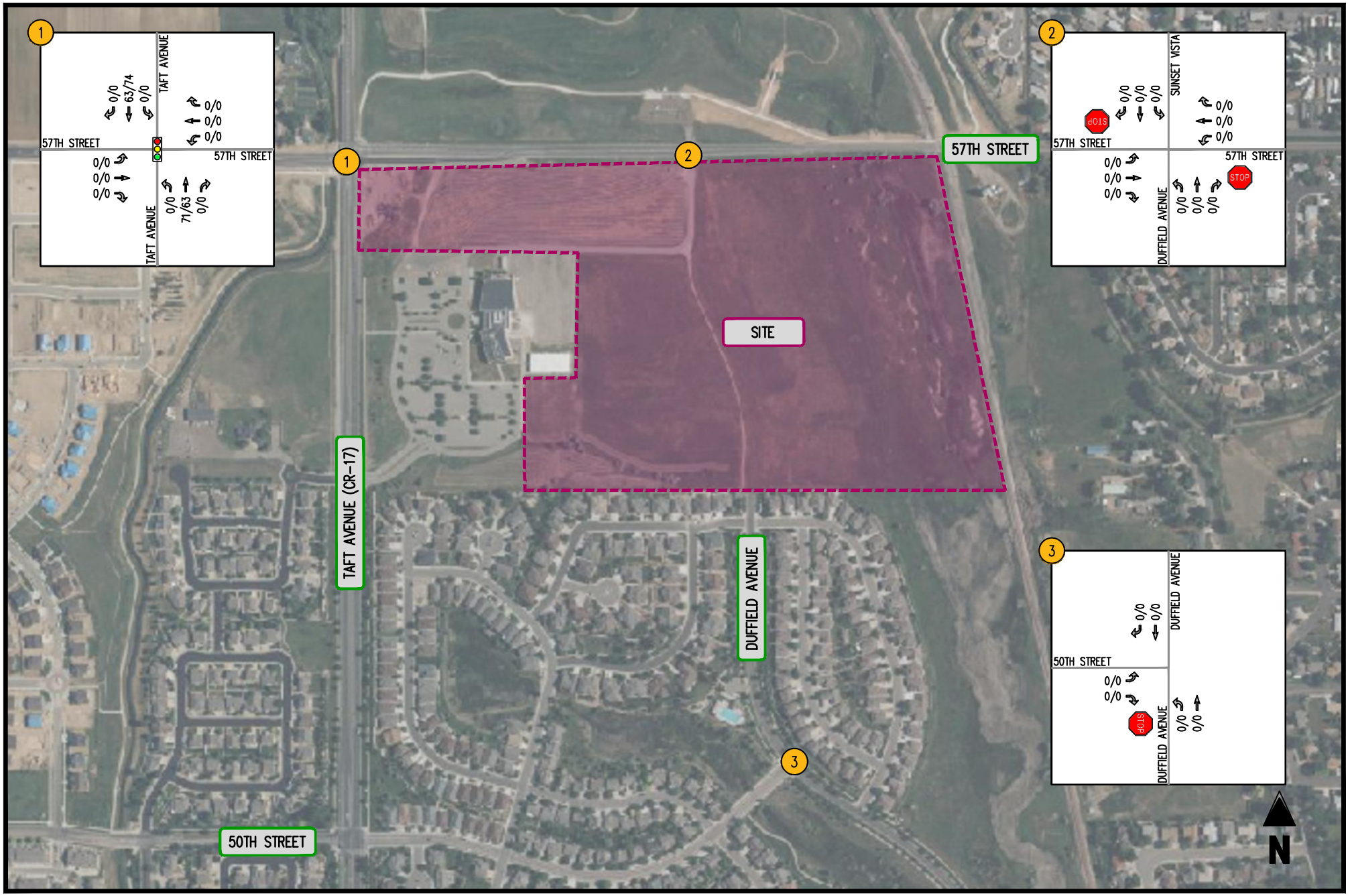


FIGURE 4-1
BACKGROUND 2028 REGIONAL GROWTH

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

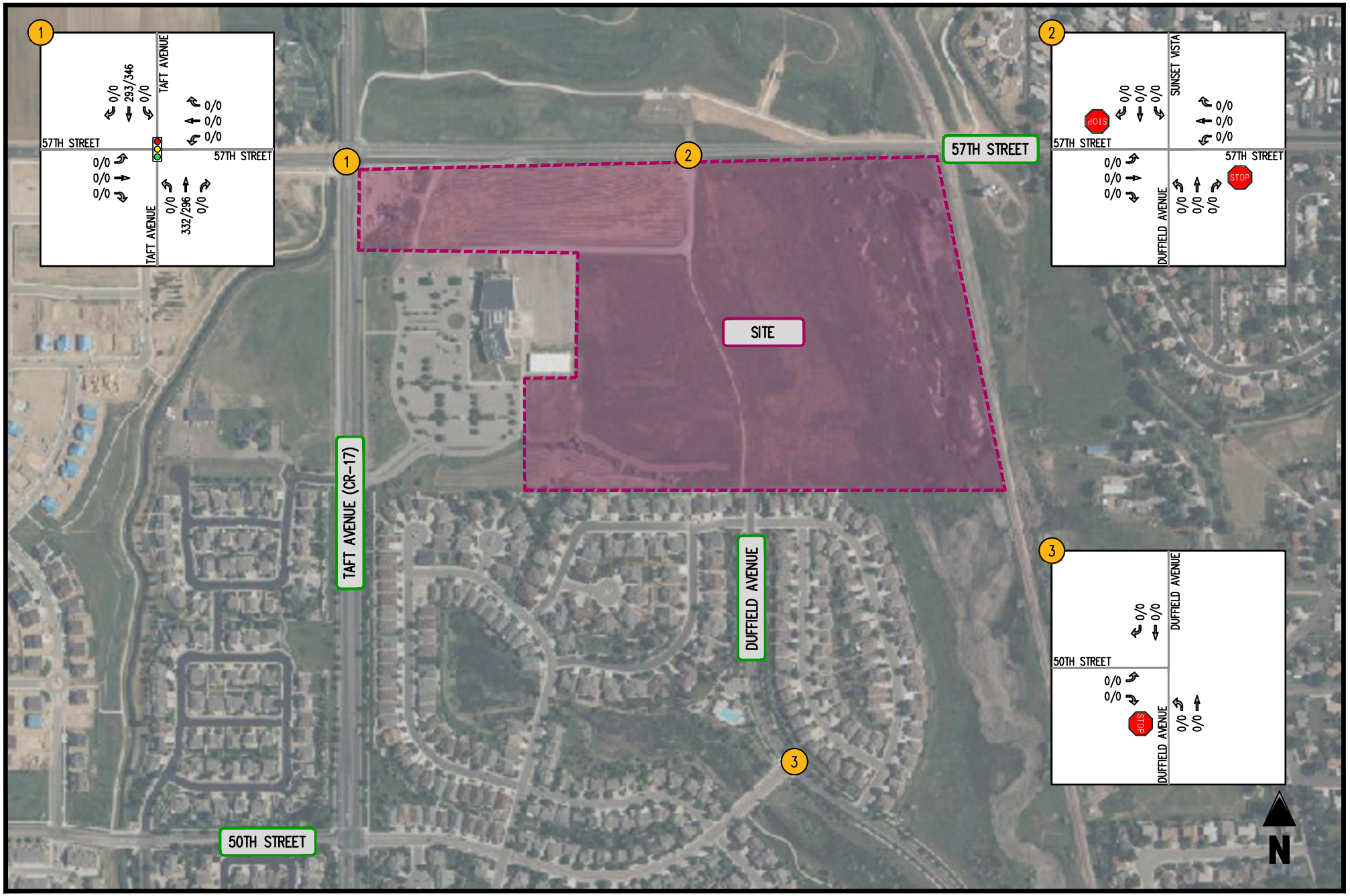


FIGURE 4-2
BACKGROUND 2043 REGIONAL GROWTH

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

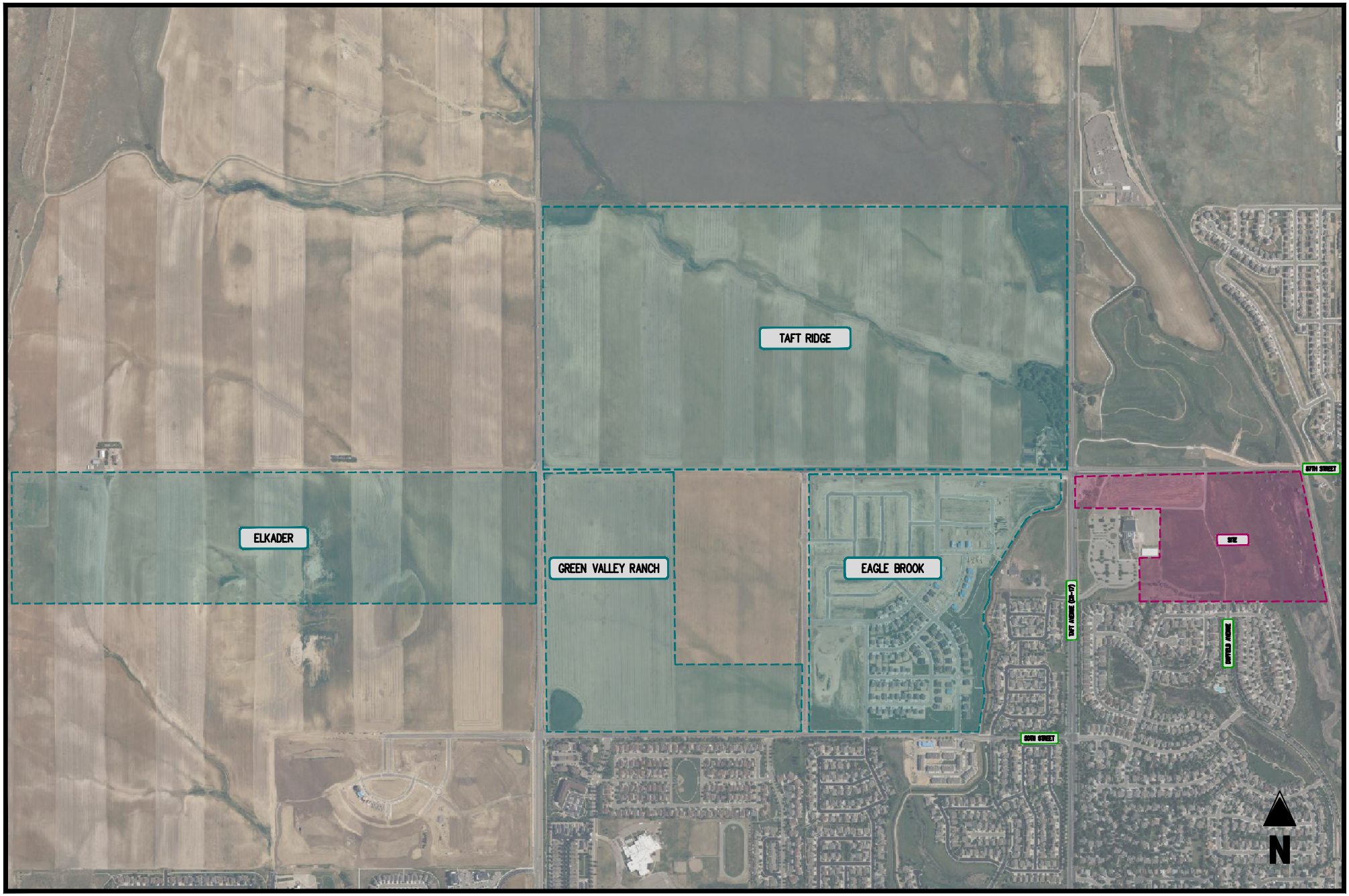


FIGURE 4-3
PIPELINE LOCATIONS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

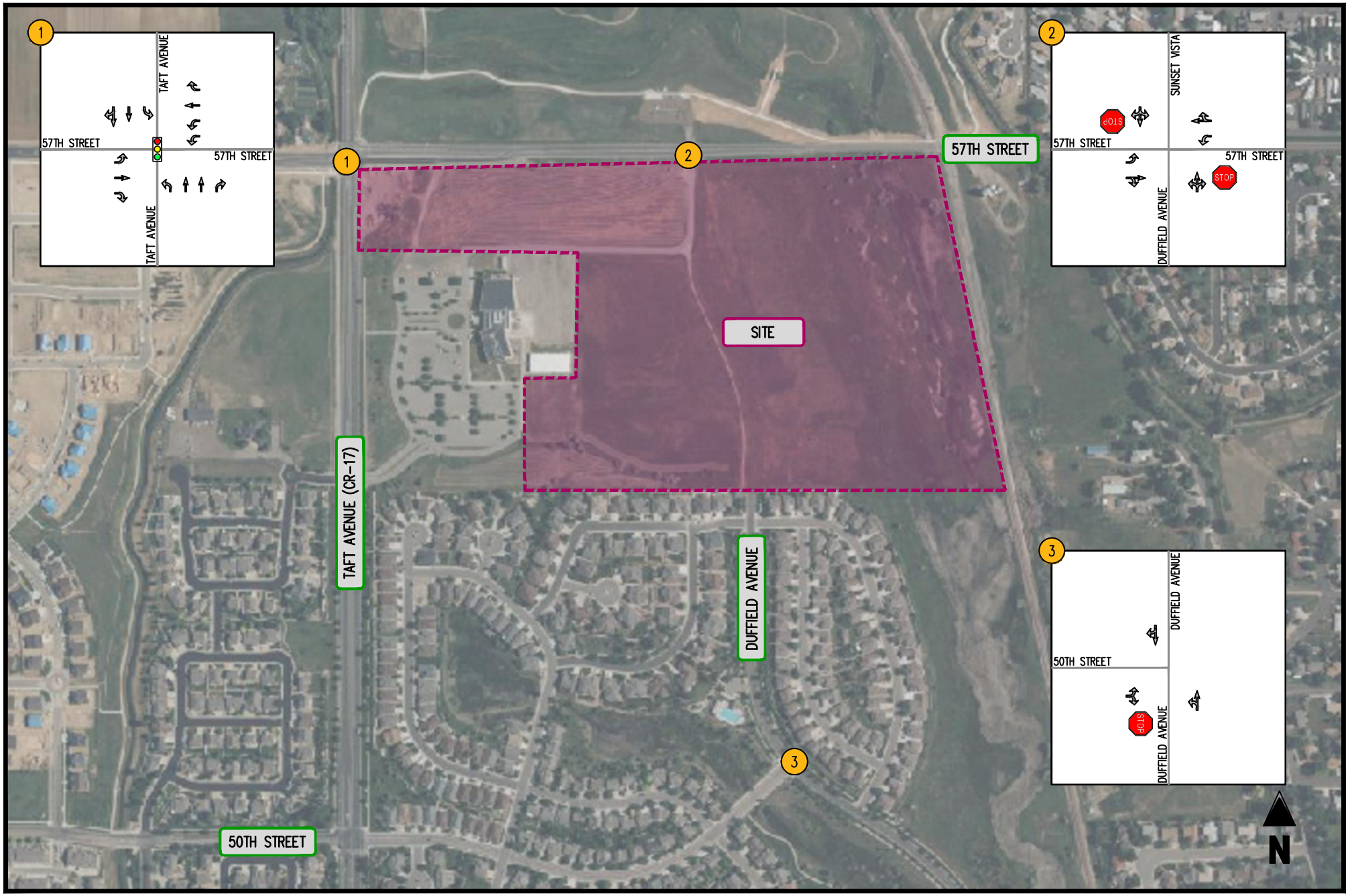


FIGURE 4-4
BACKGROUND 2043 LANE USE AND TRAFFIC CONTROL

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

MOVEMENT
SIGNALIZED INTERSECTION
STOP SIGN
YIELD SIGN

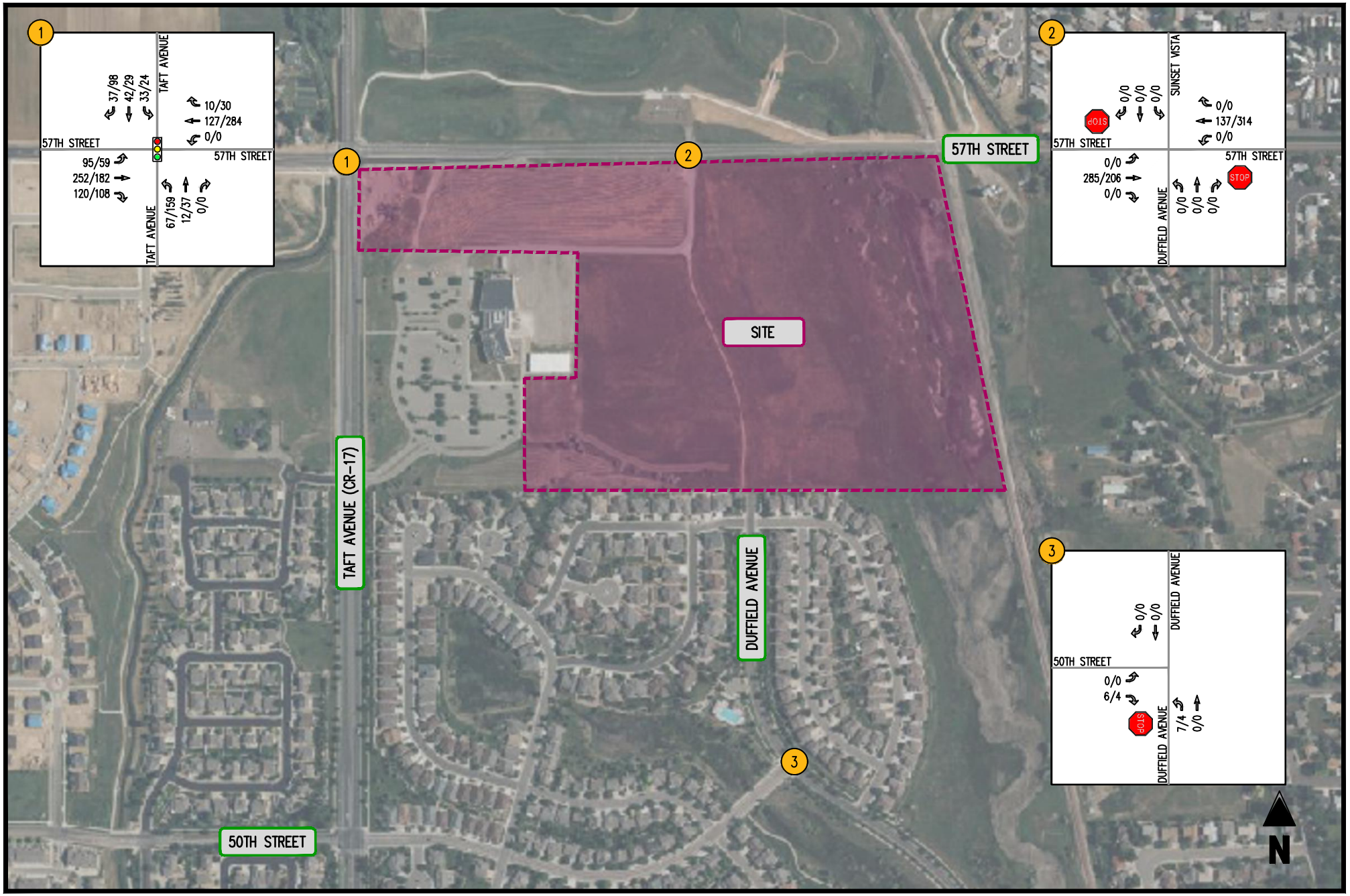


FIGURE 4-5
PIPELINE SITE TRIPS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

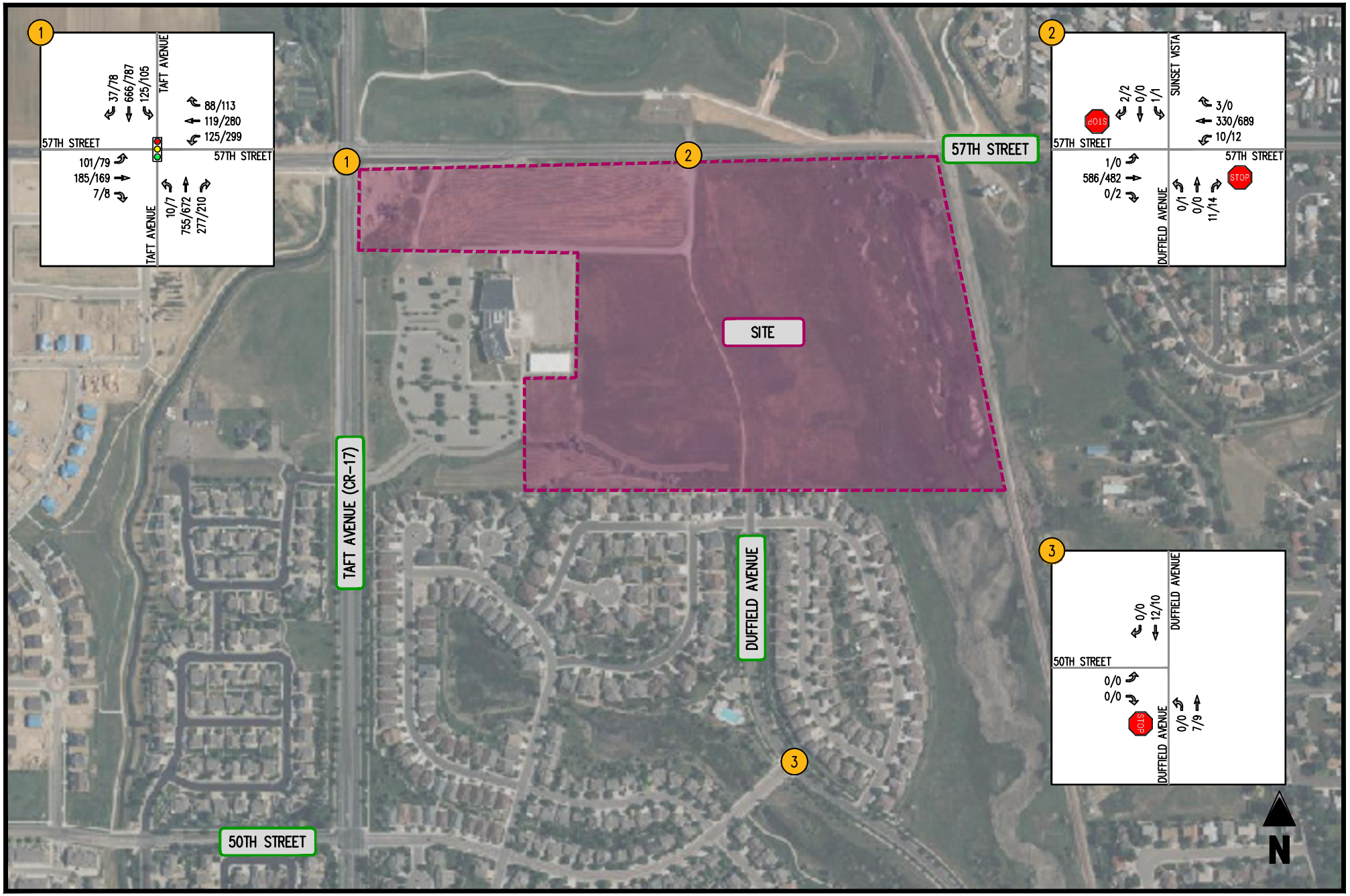


FIGURE 4-6
BACKGROUND 2028 FORECASTS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

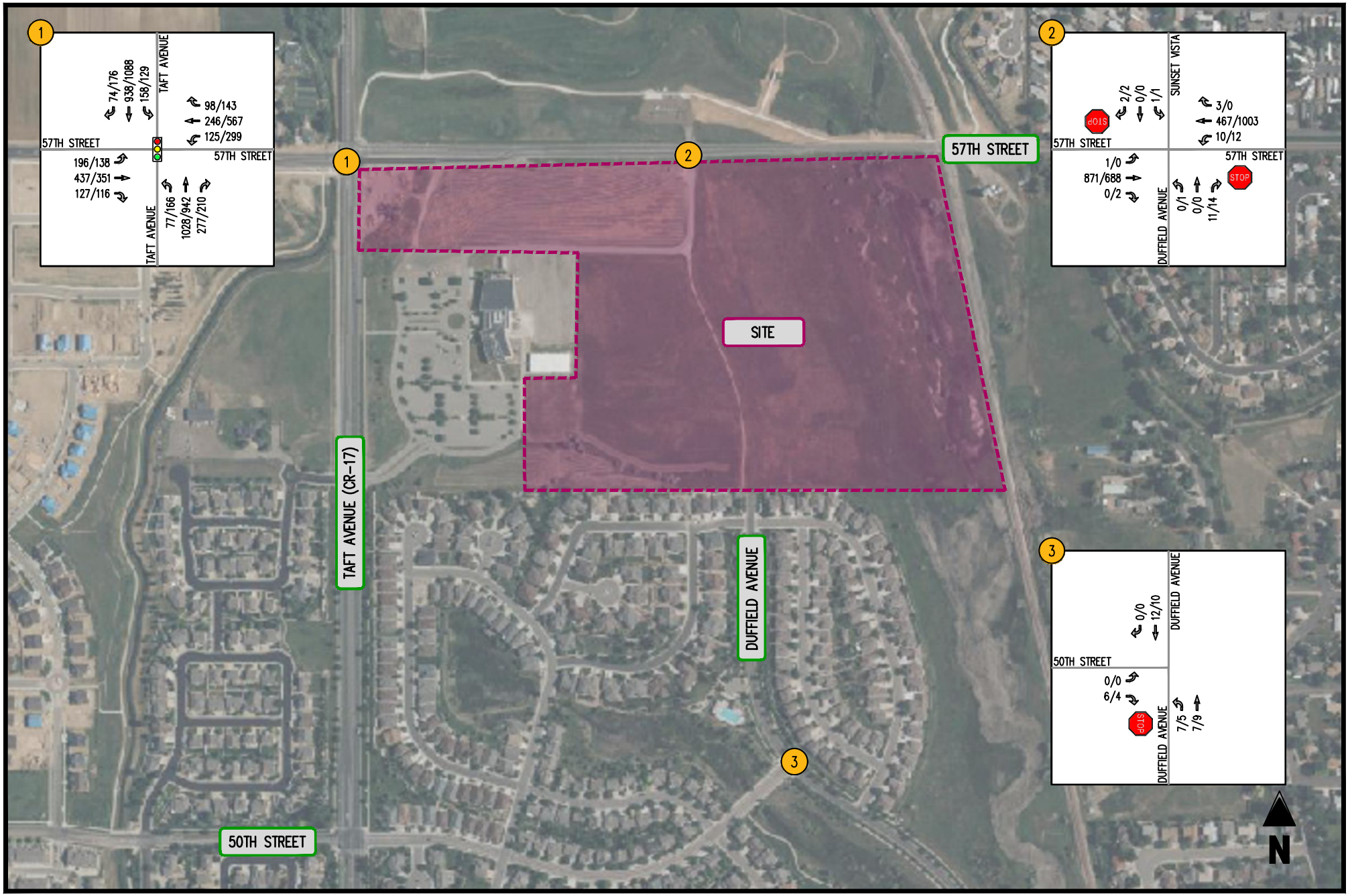


FIGURE 4-7
BACKGROUND 2043 FORECASTS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

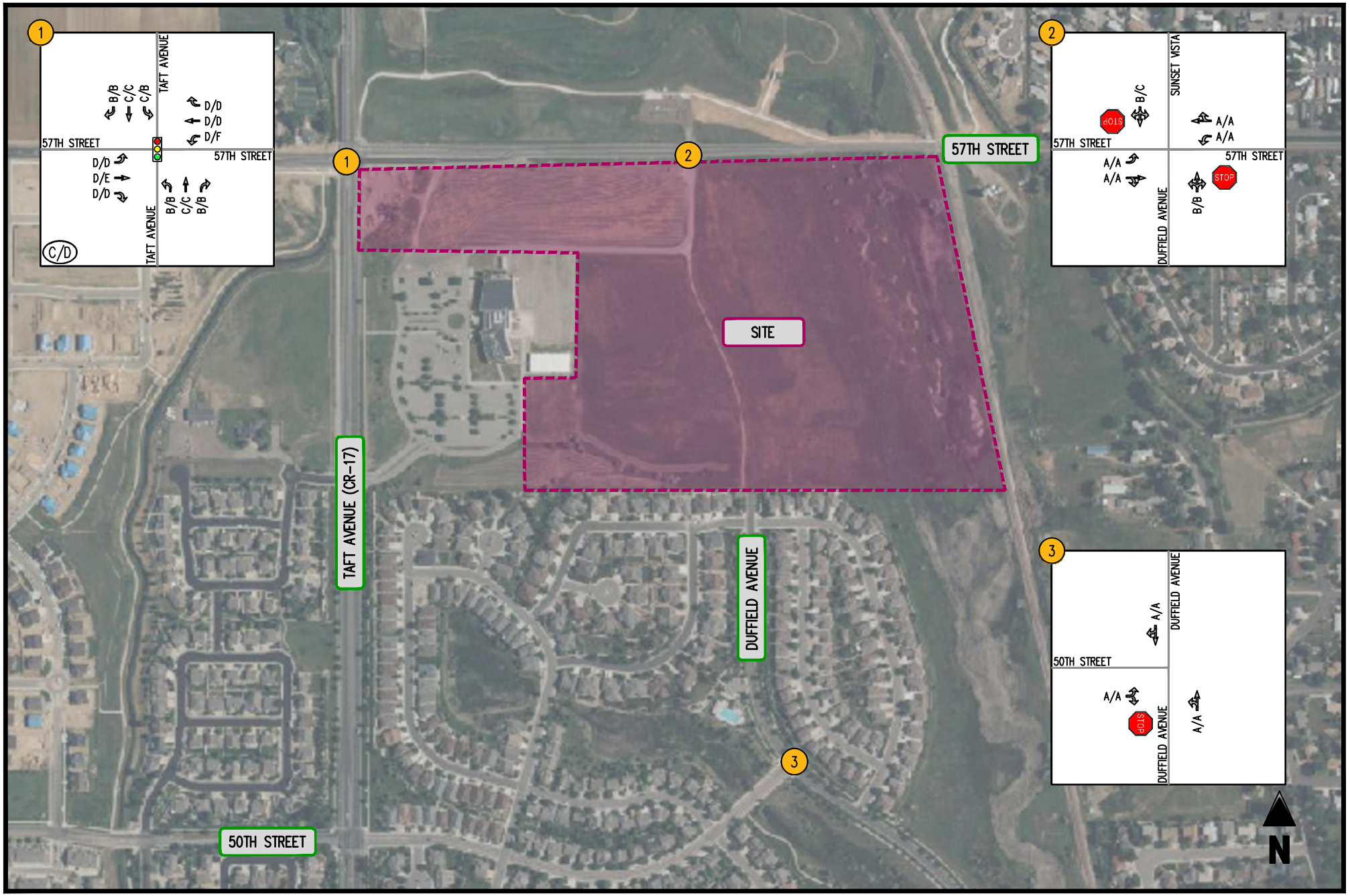


FIGURE 4-8
BACKGROUND 2028 LOS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

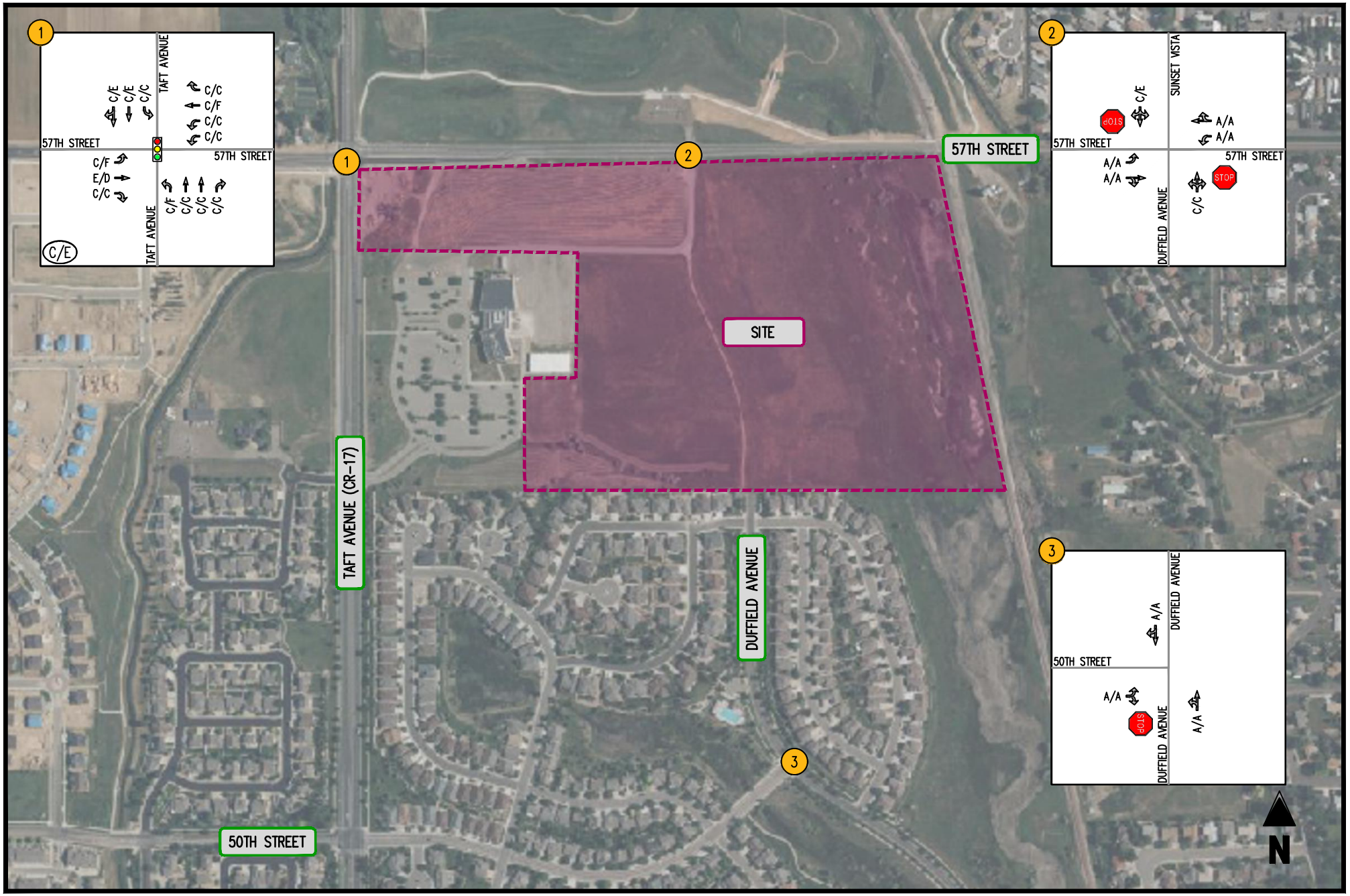


FIGURE 4-9
BACKGROUND 2043 LOS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

Table 4-1
Loveland Housing Authority - Loveland, CO
Background Future Intersection Level of Service Summary (1) (2)

Intersection	Operating Condition	Street Name	Approach/ Movement	Existing 2023 AM Peak Hour	Existing 2023 PM Peak Hour	Background 2028 AM Peak Hour	Background 2028 PM Peak Hour	Background 2043 AM Peak Hour	Background 2043 PM Peak Hour
1 57th Street/Taft Avenue	SIGNAL	**Overall**		**C (28.8)**	**D (40.1)**	**C (28.2)**	**D (40.0)**	**F (126.1)**	**F (145.0)**
			EB	**D (44.9)**	**D (53.3)**	**D (44.5)**	**D (52.2)**	**F (94.1)**	**F (112.3)**
		57th Street	EBL	D (36.5)	D (42.3)	D (36.9)	D (42.8)	D (46.9)	F (123.5)
			EBT	D (49.8)	E (58.9)	D (48.9)	E (57.1)	F (132.7)	F (131.4)
			EBR	D (37.2)	D (42.3)	D (38.0)	D (43.1)	C (34.0)	D (41.0)
			WB	**D (36.5)**	**E (77.4)**	**D (37.3)**	**E (76.7)**	**C (33.5)**	**F (151.9)**
		57th Street	WBL *	D (35.1)	F (116.2)	D (35.6)	F (112.3)	C (33.6)	F (144.3)
			WBT	D (37.5)	D (51.3)	D (38.4)	D (53.5)	C (34.5)	F (185.6)
			WBR	D (37.2)	D (39.0)	D (38.0)	D (39.8)	C (30.8)	C (34.5)
			NB	**C (27.7)**	**C (22.5)**	**C (26.9)**	**C (23.9)**	**F (170.9)**	**F (120.5)**
		Taft Avenue	NBL	B (14.5)	B (17.8)	B (14.4)	B (18.9)	C (27.3)	F (175.7)
			NBT	C (32.1)	C (24.6)	C (31.1)	C (26.4)	F (221.6)	F (133.1)
			NBR	B (17.3)	B (16.3)	B (16.0)	B (15.8)	C (22.7)	C (20.3)
			SB	**C (20.6)**	**C (23.4)**	**C (20.3)**	**C (25.5)**	**F (131.1)**	**F (177.3)**
		Taft Avenue	SBL	C (25.1)	B (17.3)	C (23.5)	B (18.7)	E (79.9)	F (87.3)
			SBT	C (20.3)	C (25.5)	C (20.3)	C (27.8)	F (148.7)	F (213.4)
			SBR	B (10.8)	B (12.3)	B (10.4)	B (11.8)	B (17.0)	B (19.5)
Intersection Lane Improvements	SIGNAL	**Overall**		-	-	-	-	**C (34.6)**	**E (56.8)**
- Additional WBL lane			**EB**	-	-	-	-	**D (46.2)**	**D (53.8)**
- Additional NBT lane		57th Street	EBL	-	-	-	-	C (34.2)	F (116.3)
- Convert SBR lane to SBTR lane			EBT	-	-	-	-	E (56.5)	D (37.2)
			EBR	-	-	-	-	C (29.2)	C (29.6)
			WB	-	-	-	-	**C (31.7)**	**E (65.7)**
		57th Street	WBL	-	-	-	-	C (28.8)	C (32.7)
			WBT	-	-	-	-	C (33.8)	F (92.4)
			WBR	-	-	-	-	C (30.2)	C (29.5)
			NB	-	-	-	-	**C (31.9)**	**D (40.3)**
		Taft Avenue	NBL	-	-	-	-	C (21.4)	F (96.9)
			NBT	-	-	-	-	C (34.1)	C (33.5)
			NBR	-	-	-	-	C (26.8)	C (26.3)
			SB	-	-	-	-	**C (31.5)**	**E (67.3)**
		Taft Avenue	SBL	-	-	-	-	C (30.8)	C (27.2)
			SBTR	-	-	-	-	C (31.7)	E (72.4)
2 57th Street/Duffield Avenue	STOP		**EB**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**
		57th Street	EBL	A [8.0]	A [0.0]	A [8.0]	A [0.0]	A [8.4]	A [0.0]
			EBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]
			WB	**A [0.3]**	**A [0.1]**	**A [0.3]**	**A [0.1]**	**A [0.2]**	**A [0.1]**
		57th Street	WBL	A [8.9]	A [8.5]	A [8.8]	A [8.5]	A [10.0]	A [9.3]
			WBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]
		Duffield Avenue	**NB**	**B [13.0]**	**B [13.2]**	**B [12.7]**	**B [13.1]**	**C [16.8]**	**C [18.2]**
			NBLTR	B [13.0]	B [13.2]	B [12.7]	B [13.1]	C [16.8]	C [18.2]
		Sunset Vista	**SB**	**B [14.7]**	**C [20.2]**	**B [14.4]**	**C [20.2]**	**C [21.8]**	**E [38.1]**
			SBLTR	B [14.7]	C [20.2]	B [14.4]	C [20.2]	C [21.8]	E [38.1]
3 50th Street/Duffield Avenue	STOP		**EB**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [8.4]**	**A [8.4]**
		50th Street	EBLR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [8.4]	A [8.4]
			NB	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [3.6]**	**A [2.6]**
		Duffield Avenue	NBLT	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [7.3]	A [7.2]
			SB	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**
		Duffield Avenue	SBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]

Notes : (1) Numbers in brackets [] represent delay at unsignalized intersections in seconds per vehicle.
(2) Numbers in parenthesis () represent delay at signalized intersections in seconds per vehicle.
* Dual westbound left turn lanes in Total Future Scenarios
** No new site trips contributed to these approaches/movements
*** Delays for these intersections/approaches/movements increased by 2% or less

Table 4-2
Loveland Housing Authority - Loveland, CO
Background Future Intersection Queueing Summary (1)

Intersection	Operating Condition	Street Name	Approach/ Movement	Available Storage	Existing 2023 AM Peak Hour	Existing 2023 PM Peak Hour	Background 2028 AM Peak Hour	Background 2028 PM Peak Hour	Background 2043 AM Peak Hour	Background 2043 PM Peak Hour
1 57th Street/Taft Avenue	SIGNAL		EBL	450	84	77	85	77	157	185
		57th Street	EBT	-	185	194	185	193	555	500
			EBR	430	0	0	0	0	46	18
			WBL	550	101	361	102	344	101	402
		57th Street	WBT	-	114	292	115	287	226	772
			WBR	200	15	43	15	42	22	66
			NBL	200	12	10	12	10	50	246
		Taft Avenue	NBT	-	733	542	829	681	1240	1134
			NBR	-	68	43	80	52	116	64
			SBL	450	147	66	141	71	192	172
		Taft Avenue	SBT	-	596	777	679	874	1094	1374
			SBR	325	0	0	0	0	3	44
Intersection Improvements										
- Additional WBL lane	SIGNAL		EBL	450	-	-	-	-	147	191
- Additional NBT lane		57th Street	EBT	-	-	-	-	-	468	346
- Convert SBR lane to SBTR lane			EBR	430	-	-	-	-	42	42
			WBL	550	-	-	-	-	46	108
		57th Street	WBT	-	-	-	-	-	226	697
			WBR	200	-	-	-	-	22	61
			NBL	200	-	-	-	-	53	221
		Taft Avenue	NBT	-	-	-	-	-	466	407
			NBR	-	-	-	-	-	75	48
		Taft Avenue	SBL	450	-	-	-	-	169	111
			SBTR	-	-	-	-	-	404	683
2 57th Street/Duffield Avenue	STOP	57th Street	EBL	400	0	0	0	0	0	0
			EBTR	-	0	0	0	0	0	0
		57th Street	WBL	200	0	0	0	0	0	0
			WBTR	-	0	0	0	0	0	0
		Duffield Avenue	NBLTR	-	2.5	2.5	2.5	2.5	2.5	5
		Sunset Vista	SBLTR	-	0	0	0	0	0	2.5
3 50th Street/Duffield Avenue	STOP	50th Street	EBLR	-	0	0	0	0	0	0
		Duffield Avenue	NBLT	-	0	0	0	0	0	0
		Duffield Avenue	SBTR	-	0	0	0	0	0	0

Notes : (1) Queue length, in feet, is based on the 95th percentile queue as reported by Synchro, Version 11.

V. Site Analysis

Overview

The Applicant is proposing to develop the approximately 52.45-acre site with residential use. For purposes of this study, the site is assumed to be complete and occupied in 2028. The following use and development programs were analyzed:

Build-Out 2028:

143	DU	Single Family Detached Housing
50	DU	Single Family Attached Housing
180	DU	Multifamily Housing (Low-Rise)

Proposed Site Access

As shown on the Applicant's conceptual plan (Figure 1-2), access to the development is proposed via the existing full movement access at 57th Street/Duffield Avenue, a new right-in/right out (RIRO) access along 57th Street, and an additional full movement access to the south of the site with the extension of Duffield Avenue. Proposed lane use and traffic control are shown in Figure 5-1 (2028) and Figure 5-2 (2043).

Trip Generation

Overview

Trip generation estimates for the weekday AM and PM peak hours, as well as the weekday average daily traffic (ADT), were derived from the standard Institute of Transportation Engineers (ITE) Trip Generation Manual rates/equations, as published in the 11th edition. The trip generation analysis is presented in Table 5-1.

Site Trips

The vehicle trips that would be generated by the proposed development plan are summarized in Table 5-1. As shown in Table 5-1, the site would generate upon completion and full occupancy 202 new weekday AM and 263 new weekday PM peak hour vehicle trips, as well as 2,962 new weekday daily trips.

Site Trip Distributions

The distribution of the anticipated trips generated by the completion of the proposed development was based on an examination of existing traffic counts and local knowledge. Existing travel patterns indicate the following distribution is appropriate in the forecasting of future site traffic and consistent with the agreed upon scope:

- To/from the east on 57th Street: 55%
- To/from the south on Taft Avenue: 25%
- To/from the north on Taft Avenue: 5%
- To/from the west on 57th Street: 5%
- To/from the south on Duffield Avenue: 10%

Site Trip Assignments

The assignment of the new vehicle trips generated upon the future build-out of the development project was based on the above distribution. The trips assignments are depicted in Figure 5-3.

Non-Auto Infrastructure & Safe Routes to School

During the scoping process, the City of Loveland requested that the study review safe routes to school (SRTS) for schools within a mile and a half of the subject site. SRTS is a comprehensive approach to providing and encouraging walking and biking routes to schools to facilitate safe options for children. Schools within 1.5 miles exist to the southeast and southwest of subject site, and as such, non-auto infrastructure to/from these areas was reviewed.

Figure 5-4 provides the non-auto infrastructure that would serve these areas. As can be seen in Figure 5-4, the subject project would be serviced with multiple walking and biking routes to nearby schools. Schools to the east of the subject site are currently challenged by a rail crossing as well as several gaps in the infrastructure. All schools within a mile and a half of the proposed site would have uninterrupted pedestrian and bicycle routes once the proposed sidewalks and bike lanes are constructed. There are adequate pedestrian crossing markings at major intersections along these routes. Additionally, there is a bus stop at W 50th St & Apricot Dr for the Laurene Edmondson Elementary School which will provide transportation to and from the school without the need for young children to cross the railroad tracks. The District has informed the project that if there is a need along N Duffield Ave that additional stops can be provided as there are additional stops along the same route in the neighborhoods on the northside of 57th St. The designated walk boundary for Laurene Edmonson does not cross the tracks to the west. This project will connect to the existing infrastructure to the extent possible as the applicant is currently coordinating those alternatives with the City.

It is desirable to connect to the pedestrian infrastructure north of 57th Street to connect to the Walmart Supercenter. Several options have been identified that would be feasible for the project:

- Pedestrian Crossing at 57th Street/Duffield Avenue. This option would require pedestrians to cross two travel lanes and a turn lane and would need a pedestrian connection on the north side of the road to connect to existing infrastructure.
- Pedestrian Crossing at 57th Street at the Rail Crossing. This alternative would provide the shortest travel distance to the Walmart Supercenter but would require coordination with the railroad.
- Connections to the existing crossing at 57th Street/Taft Avenue. This alternative would create some out of direction travel to the ultimate Walmart Supercenter destination.

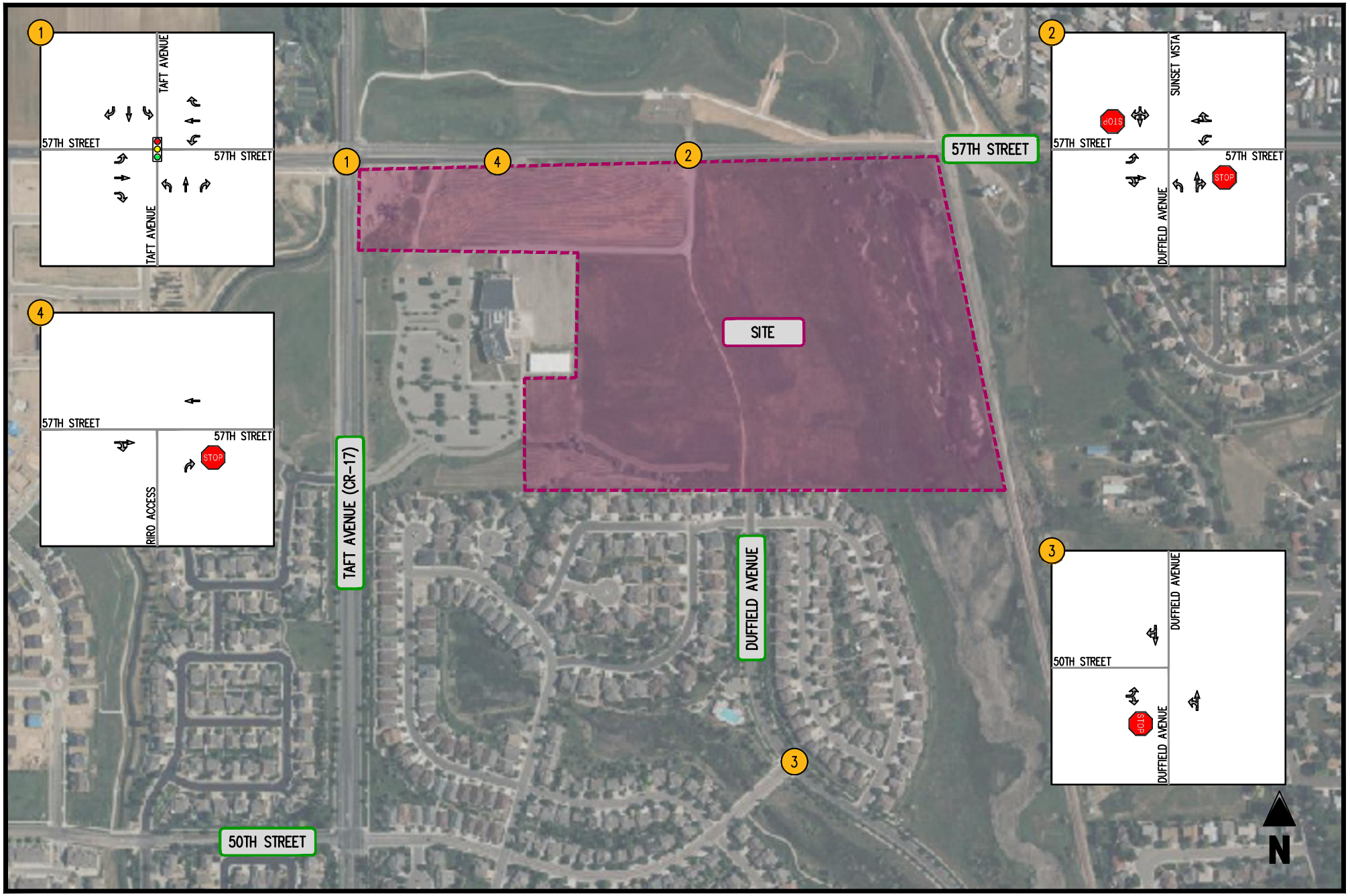


FIGURE 5-1
TOTAL FUTURE 2028 LANE USE AND TRAFFIC CONTROL

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

MOVEMENT
SIGNALIZED INTERSECTION
STOP SIGN
YIELD SIGN

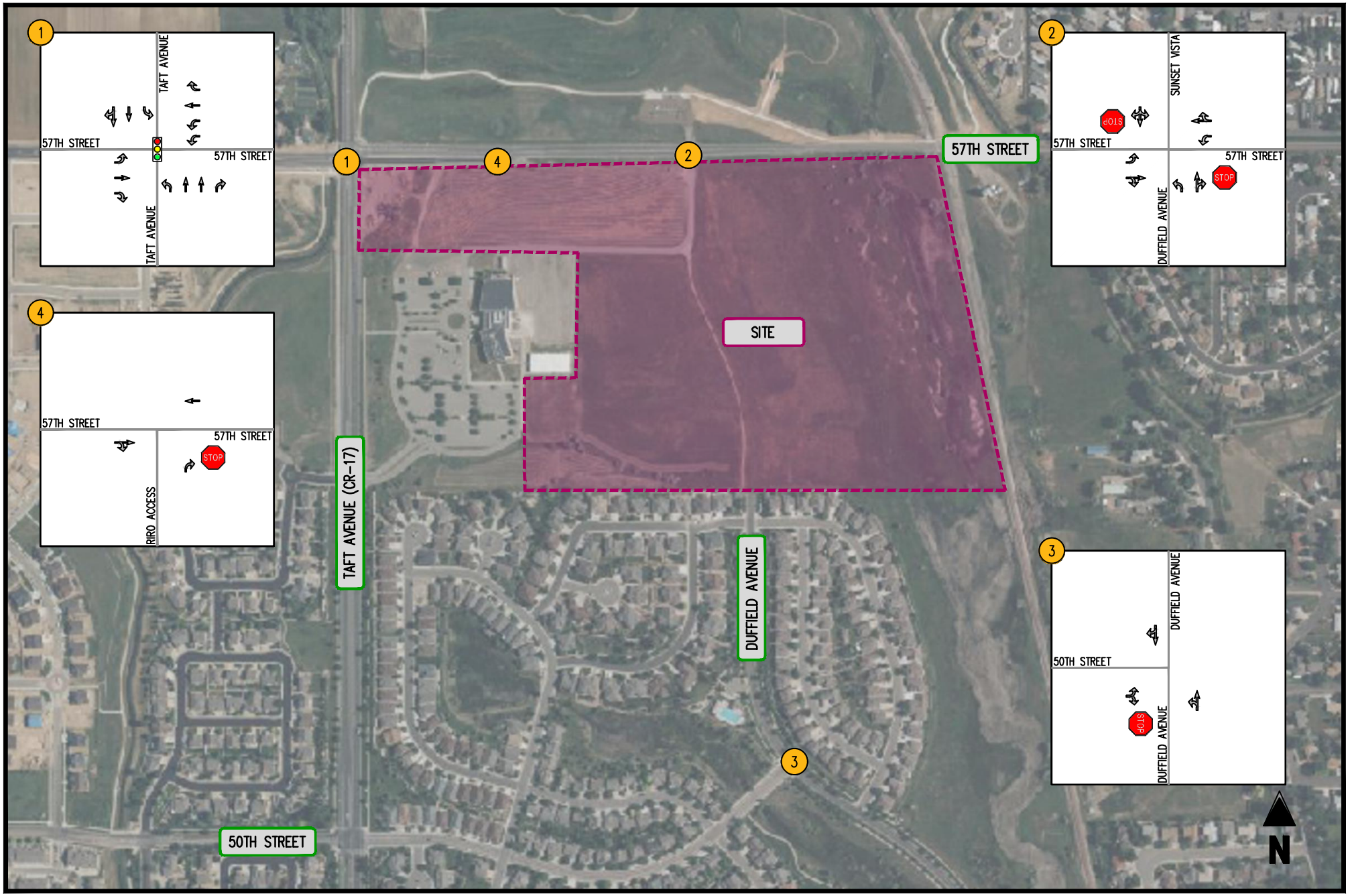


FIGURE 5-2
TOTAL FUTURE 2043 LANE USE AND TRAFFIC CONTROL

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

MOVEMENT
SIGNALIZED INTERSECTION
STOP SIGN
YIELD SIGN

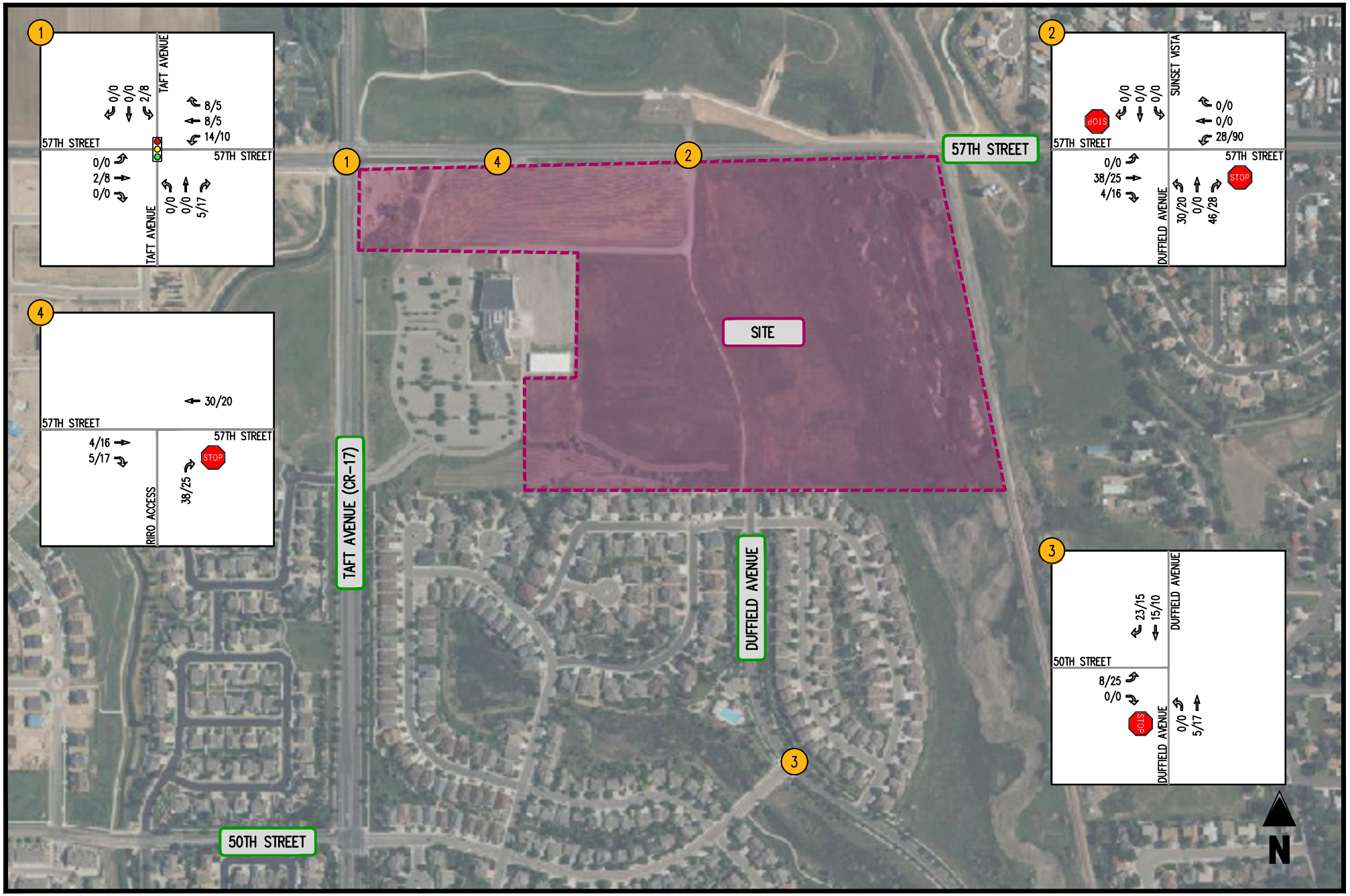


FIGURE 5-3
SITE TRIPS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

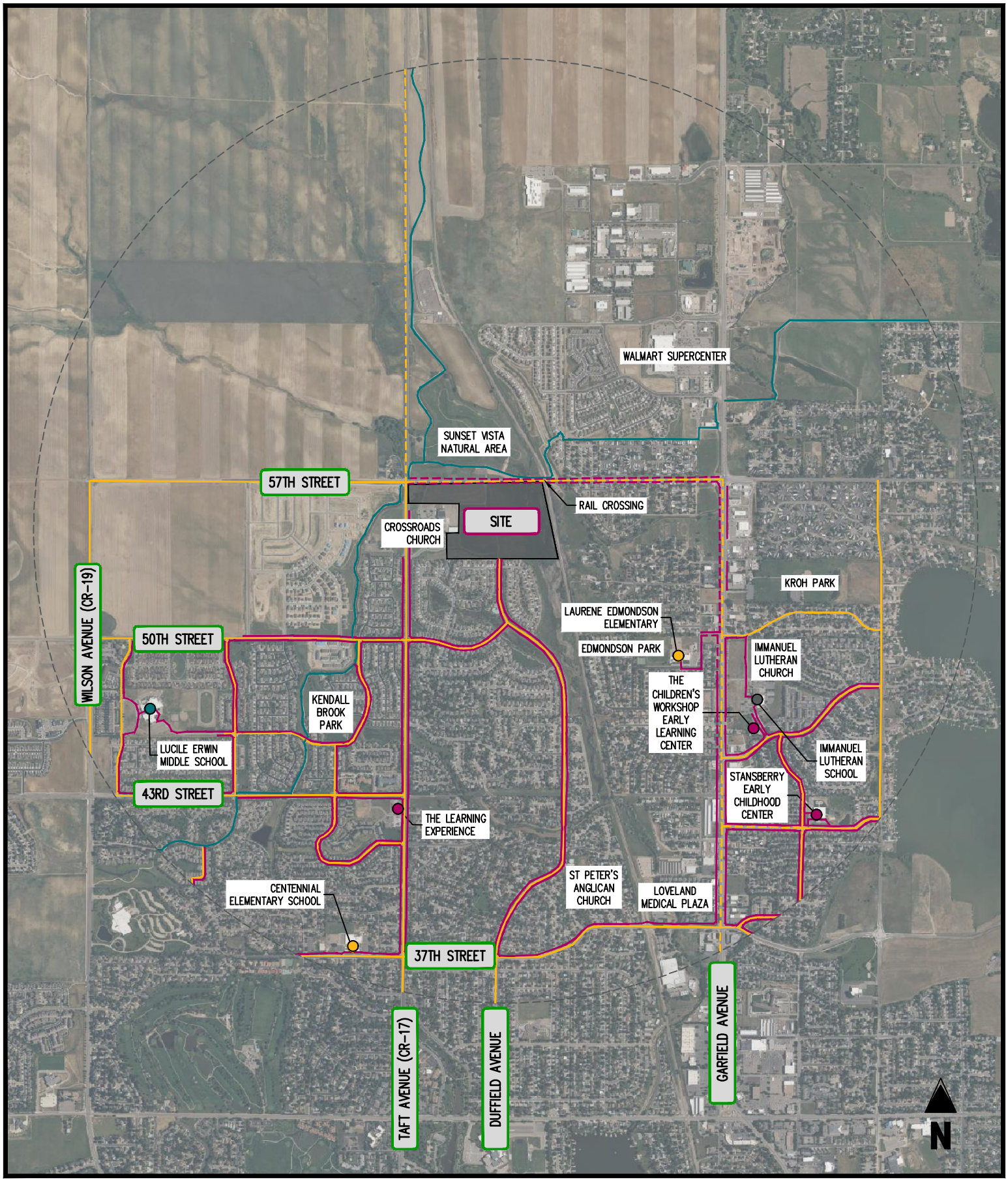


FIGURE 5-4
NON-AUTO INFRASTRUCTURE

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

Table 5-1

Loveland Housing Authority

Site Trip Generation

Land Use	Land Use Code	Amount	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Average Daily Trips
Proposed (1)										
Single-Family Detached Housing	210	143	DU	26	77	103	88	51	139	1,402
Single-Family Attached Housing	215	50	DU	5	15	20	15	11	26	331
Multifamily Housing (Low-Rise)	220	180	DU	19	60	79	62	36	98	1,229
Total Site Trips				**50**	**152**	**202**	**165**	**98**	**263**	**2,962**

Note(s):

(1) Trip generation based on the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition

VI. Analysis of Future Conditions with Site Development

Total Future Traffic Forecasts

The 2028 and 2043 total future traffic forecasts associated with the proposed development were developed by combining the background future forecasts shown in Figure 4-6 (2028) and Figure 4-7 (2043), and the site trip assignments shown in Figure 5-3. The resulting total future traffic forecasts are provided in Figure 6-1 for 2028 conditions and Figure 6-2 for 2043 conditions. The total future scenarios shown have the existing traffic control and lane configuration (shown in Figure 2-1) with an additional westbound left turn lane at the 57th Street/Taft Avenue intersection. An improvement scenario for the 57th Street/Taft Avenue intersection was also analyzed for 2043, and the lane use and traffic control is shown in Figure 5-2.

Total Future Levels of Service with Proposed Development

Future levels of service with the proposed development plan were estimated at key study intersections based on the future traffic volumes shown in Figures 6-1 and Figure 6-2, the total future lane use in Figure 5-1 (2028) and Figure 5-2 (2043), and the HCM 6th methodologies for signalized and unsignalized intersections. The results of these analyses are provided in Appendix H and presented in Table 6-1 along with the Adequate Community Facilities (ACF) compliance for the movements, approaches, and intersections. Total future levels of service are also presented graphically in Figure 6-3 (2028) and Figure 6-4 (2043).

As shown in Table 6-1, levels of service under future site development conditions would remain generally consistent with future background conditions (i.e., without site development). Overall delays would experience minor changes due to site trips and lane improvements. The signalized intersection within the study area would operate consistent with background conditions.

Unsignalized intersections in the study area are expected to operate at LOS “C” or better during total future conditions with the exception of the stop-controlled approaches at the 57th Street/Duffield Avenue intersection. Further review of this intersection shows the approaches are forecasted to have a V/C ratio less than 1.0, suggesting additional capacity available for these movements. The peak hour signal warrant for this intersection was also reviewed to determine if such an improvement might be recommended. Due to the reported V/C ratio and low side street volumes a signal/roundabout improvement would not be warranted. As required by LCUASS, the development will be required to mitigate these ACF failures including the northbound and southbound side street movements. In order to mitigate this, an analysis of double 3/4 movements at the 57th St/Duffield Avenue was conducted. The northbound left volumes were rerouted south through the 50th St/Duffield Avenue intersection, which would increase the ADT of the roadway by approximately 592 vehicles. The forecasted volumes for this ¾ movement scenario can be seen in Figure 6-5. This movement restriction would mitigate the failure, and the northbound and southbound movements would operate at overall acceptable LOS “C” or better. The results of the analysis can be seen in Table 6-2 and graphically in Figure 6-6. Ultimately a roundabout will be provided for this intersection depending on certain triggers and funding.

Total Future Queuing

Total future queues were forecasted using Synchro. The results of the queuing analysis are summarized in Table 6-3. The forecasted queues are expected to remain consistent with background conditions. As discussed during scoping conversations, the WBL at 57th Street/Duffield Avenue was noted for extra consideration. Although the WBL queues would not extend beyond the existing storage, due to the substandard existing design it was requested by the City to extend the turn lane to LCUASS standards.

Site constraints such as grade, right-of-way, and proximity to the rail should be considered in the ultimate design.

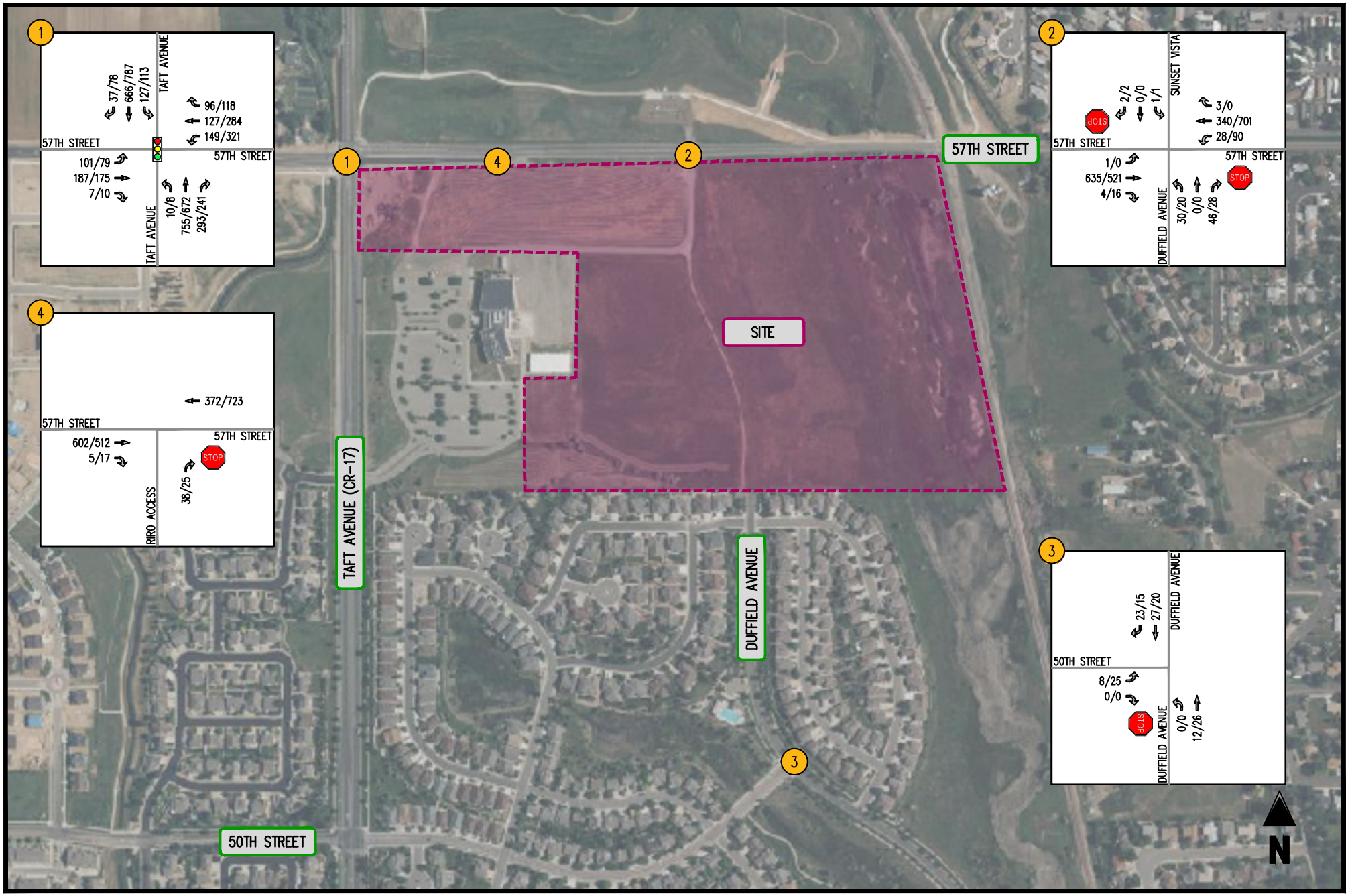


FIGURE 6-1
TOTAL FUTURE 2028 FORECASTS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

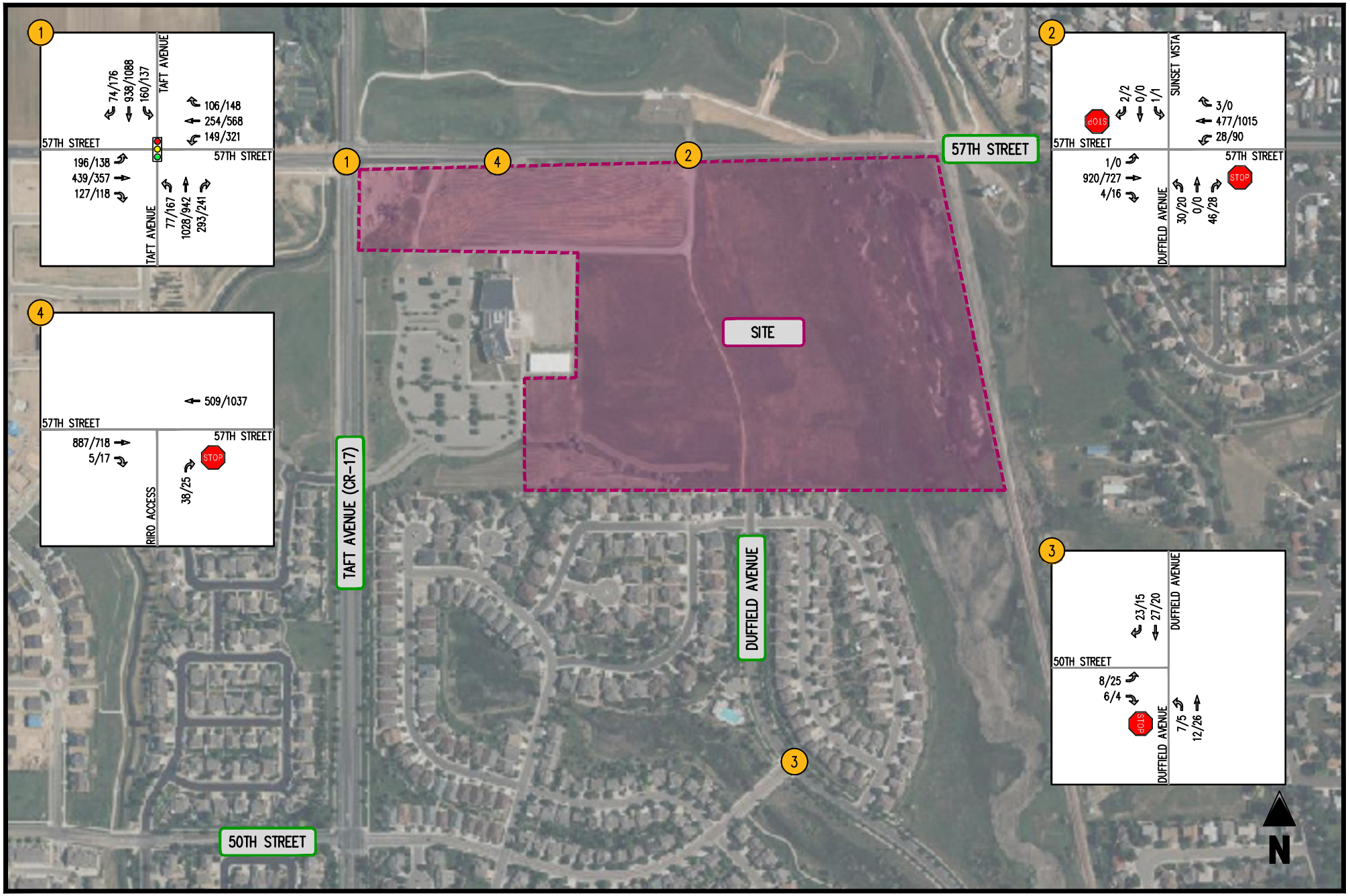


FIGURE 6-2
TOTAL FUTURE 2043 FORECASTS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

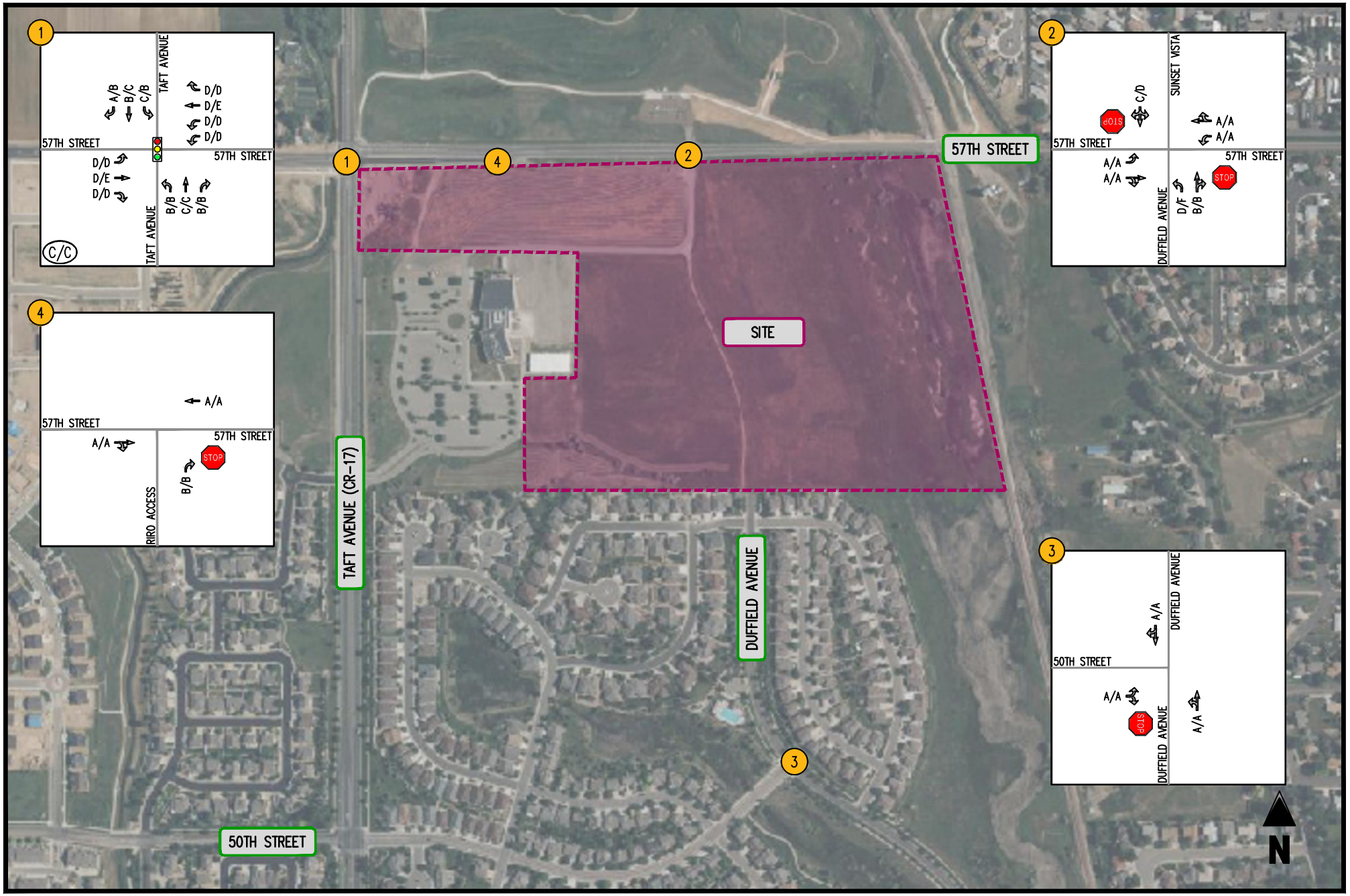


FIGURE 6-3
TOTAL FUTURE 2028 LOS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

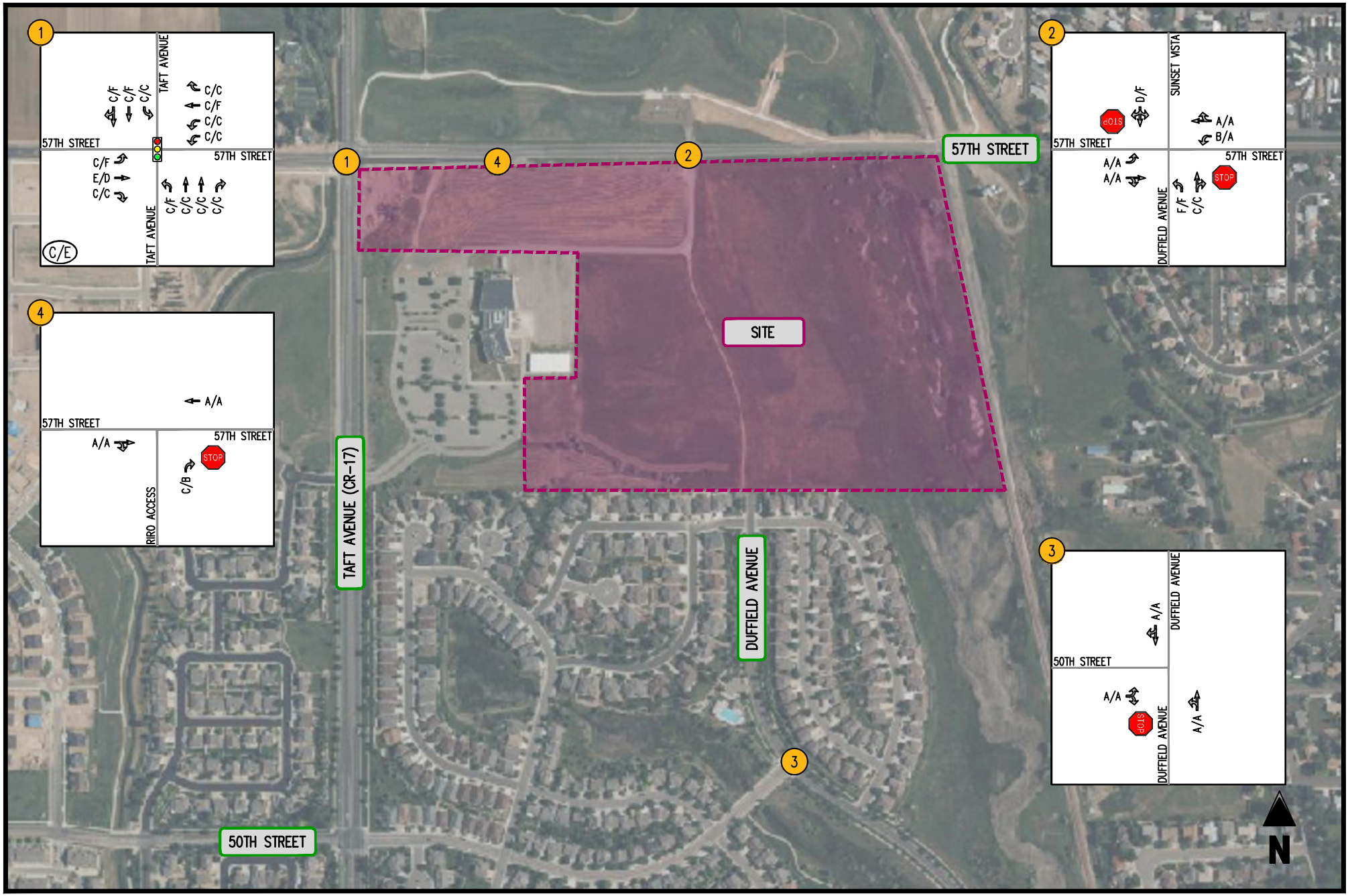


FIGURE 6-4
TOTAL FUTURE 2043 LOS

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

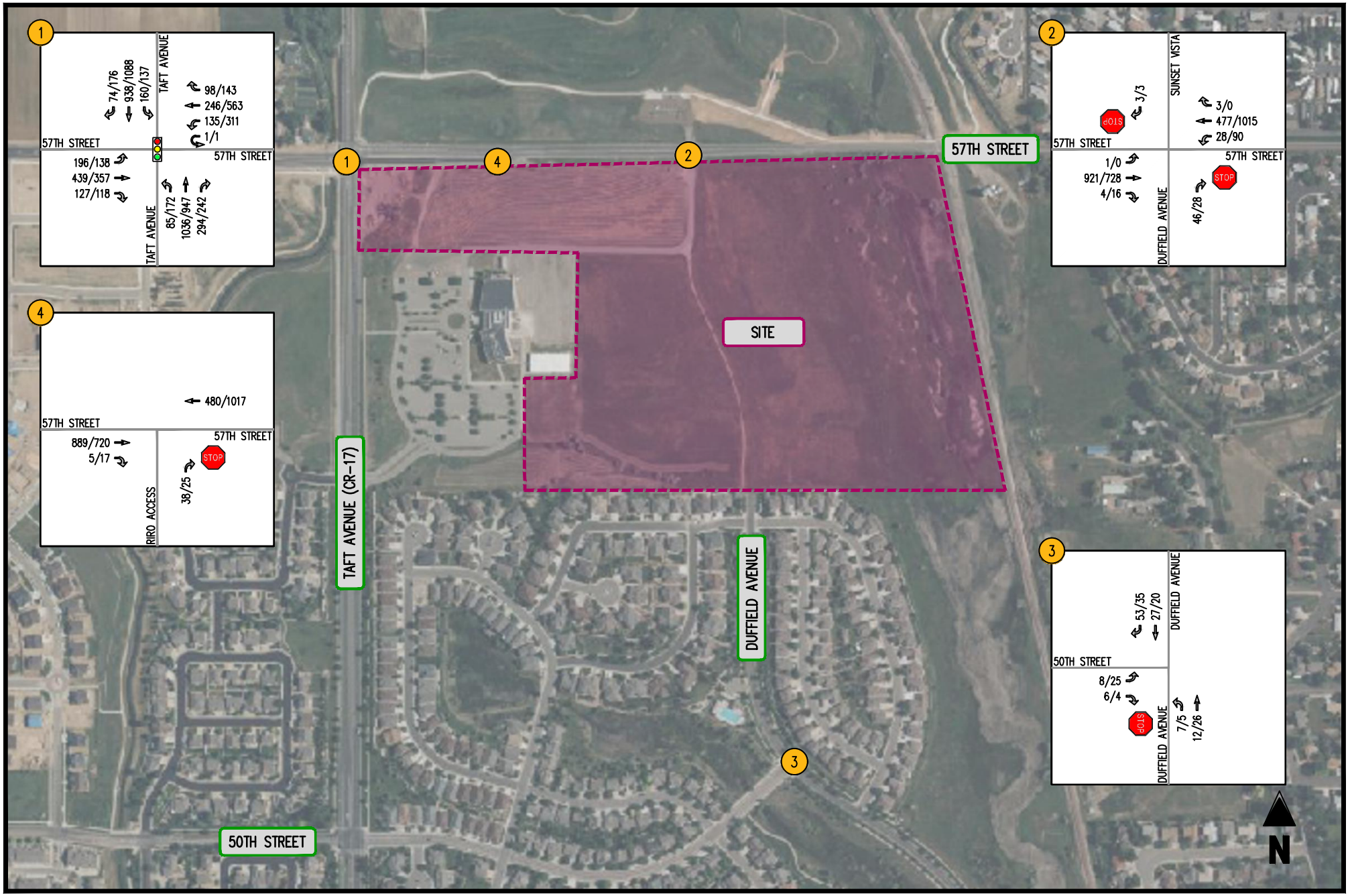


FIGURE 6-5
TOTAL FUTURE 2043 FORECASTS - 3/4 MOVEMENT SCENARIO

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

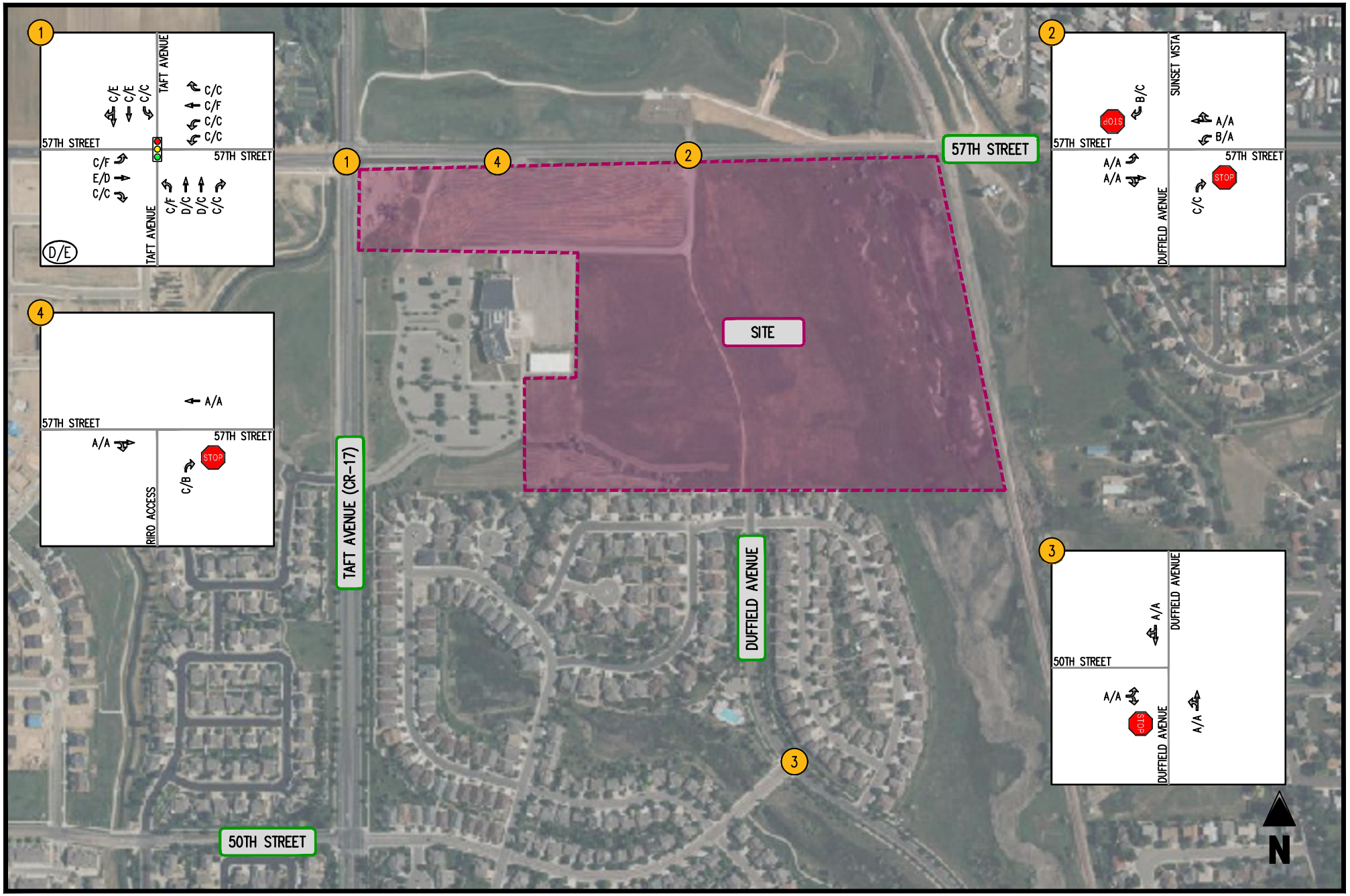


FIGURE 6-6
TOTAL FUTURE 2043 LOS - 3/4 MOVEMENT SCENARIO

LOVELAND HOUSING AUTHORITY
LOVELAND, CO

(A/A) INTERSECTION LOS

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

MOVEMENT

SIGNALIZED INTERSECTION

STOP SIGN

YIELD SIGN

Table 6-1
Loveland Housing Authority - Loveland, CO
Total Future Intersection Level of Service Summary (1) (2

Intersection	Operating Condition	Street Name	Approach/ Movement	Background 2028 AM Peak Hour	Background 2028 PM Peak Hour	Background 2043 AM Peak Hour	Background 2043 PM Peak Hour	Total Future 2028 AM Peak Hour	Total Future 2028 PM Peak Hour	Total Future 2043 AM Peak Hour	Total Future 2043 PM Peak Hour	ACF Compliant? (Yes/No)
1 57th Street/Taft Avenue	SIGNAL	**Overall**		**C (28.2)**	**D (40.0)**	**F (126.1)**	**F (145.0)**	**C (26.4)**	**C (31.9)**	**F (111.9)**	**F (134.3)**	**NO *****
			EB	**D (44.5)**	**D (52.2)**	**F (94.1)**	**F (112.3)**	**D (44.7)**	**D (49.3)**	**F (98.5)**	**F (91.5)**	**NO *****
		57th Street	EBL	D (36.9)	D (42.8)	D (46.9)	F (123.5)	D (37.5)	D (41.8)	E (59.4)	F (122.3)	NO ***
			EBT	D (48.9)	E (57.1)	F (132.7)	F (131.4)	D (48.9)	D (53.1)	F (134.5)	F (96.9)	NO ***
			EBR	D (38.0)	D (43.1)	C (34.0)	D (41.0)	D (37.9)	D (41.8)	C (34.0)	D (38.9)	YES
			WB	**D (37.3)**	**E (76.7)**	**C (33.5)**	**F (151.9)**	**D (38.7)**	**D (44.5)**	**C (34.5)**	**F (119.6)**	**NO *****
		57th Street	WBL *	D (35.6)	F (112.3)	C (33.6)	F (144.3)	D (35.4)	D (36.5)	C (30.9)	D (35.9)	NO ***
			WBT	D (38.4)	D (53.5)	C (34.5)	F (185.6)	D (41.2)	E (55.4)	D (37.3)	F (189.1)	NO ***
			WBR	D (38.0)	D (39.8)	C (30.8)	C (34.5)	D (40.8)	D (40.1)	C (32.7)	C (34.7)	YES
			NB	**C (26.9)**	**C (23.9)**	**F (170.9)**	**F (120.5)**	**C (23.4)**	**C (23.6)**	**F (147.3)**	**F (119.0)**	**NO *****
		Taft Avenue	NBL	B (14.4)	B (18.9)	C (27.3)	F (175.7)	B (13.0)	B (18.9)	C (27.1)	F (180.8)	NO ***
			NBT	C (31.1)	C (26.4)	F (221.6)	F (133.1)	C (26.9)	C (26.3)	F (192.1)	F (133.1)	NO ***
			NBR	B (16.0)	B (15.8)	C (22.7)	C (20.3)	B (14.8)	B (16.3)	C (21.5)	C (21.0)	YES
			SB	**C (20.3)**	**C (25.5)**	**F (131.1)**	**F (177.3)**	**B (18.2)**	**C (25.5)**	**F (112.0)**	**F (178.6)**	**NO *****
		Taft Avenue	SBL	C (23.5)	B (18.7)	E (79.9)	F (87.3)	C (20.8)	B (19.1)	F (84.2)	F (105.9)	NO
			SBT	C (20.3)	C (27.8)	F (148.7)	F (213.4)	B (18.2)	C (27.8)	F (124.3)	F (213.4)	NO ***
			SBR	B (10.4)	B (11.8)	B (17.0)	B (19.5)	A (9.4)	B (11.8)	B (15.8)	B (19.5)	YES
Intersection Lane Improvements	SIGNAL	**Overall**		-	-	**C (34.6)**	**E (56.8)**	-	-	**C (35.0)**	**E (58.1)**	**NO *****
- Additional WBL lane			**EB**	-	-	**D (46.2)**	**D (53.8)**	-	-	**D (46.4)**	**D (52.7)**	**YES**
- Additional NBT lane		57th Street	EBL	-	-	C (34.2)	F (116.3)	-	-	C (34.6)	F (115.8)	NO **
- Convert SBR lane to SBTR lane			EBT	-	-	E (56.5)	D (37.2)	-	-	E (56.7)	D (36.1)	YES
			EBR	-	-	C (29.2)	C (29.6)	-	-	C (29.2)	C (28.8)	YES
			WB	-	-	**C (31.7)**	**E (65.7)**	-	-	**C (31.8)**	**E (60.7)**	**NO *****
		57th Street	WBL	-	-	C (28.8)	C (32.7)	-	-	C (29.1)	C (33.7)	YES
			WBT	-	-	C (33.8)	F (92.4)	-	-	C (34.0)	F (84.2)	NO ***
			WBR	-	-	C (30.2)	C (29.5)	-	-	C (30.3)	C (28.8)	YES
			NB	-	-	**C (31.9)**	**D (40.3)**	-	-	**C (32.5)**	**D (41.7)**	**YES**
		Taft Avenue	NBL	-	-	C (21.4)	F (96.9)	-	-	C (21.5)	F (99.6)	NO **
			NBT	-	-	C (34.1)	C (33.5)	-	-	C (34.7)	C (34.8)	YES
			NBR	-	-	C (26.8)	C (26.3)	-	-	C (27.7)	C (28.3)	YES
			SB	-	-	**C (31.5)**	**E (67.3)**	-	-	**C (31.9)**	**E (74.3)**	**NO ****
		Taft Avenue	SBL	-	-	C (30.8)	C (27.2)	-	-	C (31.6)	C (30.7)	YES
			SBTR	-	-	C (31.7)	E (72.4)	-	-	C (32.0)	F (80.3)	NO **
2 57th Street/Duffield Avenue	STOP											
			EB	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	-	-	-	-	-
		57th Street	EBL	A [8.0]	A [0.0]	A [8.4]	A [0.0]	-	-	-	-	-
			EBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	-	-	-	-	-
			WB	**A [0.3]**	**A [0.1]**	**A [0.2]**	**A [0.1]**	-	-	-	-	-
		57th Street	WBL	A [8.8]	A [8.5]	A [10.0]	A [9.3]	-	-	-	-	-
			WBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	-	-	-	-	-
			NB	**B [12.7]**	**B [13.1]**	**C [16.8]**	**C [18.2]**	-	-	-	-	-
		Duffield Avenue	NBLTR	B [12.7]	B [13.1]	C [16.8]	C [18.2]	-	-	-	-	-
			SB	**B [14.4]**	**C [20.2]**	**C [21.8]**	**E [38.1]**	-	-	-	-	-
		Sunset Vista	SBLTR	B [14.4]	C [20.2]	C [21.8]	E [38.1]	-	-	-	-	-
NB leg improvements												
	STOP		**EB**	-	-	-	-	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**YES**
		57th Street	EBL	-	-	-	-	A [8.0]	A [0.0]	A [8.4]	A [0.0]	YES
			EBTR	-	-	-	-	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
			WB	-	-	-	-	**A [0.7]**	**A [1.0]**	**A [0.6]**	**A [0.8]**	**YES**
		57th Street	WBL	-	-	-	-	A [9.1]	A [9.0]	B [10.5]	A [10.0]	YES
			WBTR	-	-	-	-	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
			NB	-	-	-	-	**C [20.3]**	**D [32.1]**	**E [40.2]**	**F [101.4]**	**NO**
		Duffield Avenue	NBL	-	-	-	-	D [29.9]	F [59.6]	F [71.6]	F [222.2]	NO
			NBTR	-	-	-	-	B [14.1]	B [12.4]	C [19.7]	C [15.1]	YES
			SB	-	-	-	-	**C [16.6]**	**D [26.1]**	**D [27.7]**	**F [55.2]**	**NO ****
		Sunset Vista	SBLTR	-	-	-	-	C [16.6]	D [26.1]	D [27.7]	F [55.2]	NO **
3 50th Street/Duffield Avenue	STOP											
			EB	**A [0.0]**	**A [0.0]**	**A [8.4]**	**A [8.4]**	**A [8.8]**	**A [8.9]**	**A [8.8]**	**A [8.9]**	**YES**
		50th Street	EBLR	A [0.0]	A [0.0]	A [8.4]	A [8.4]	A [8.8]	A [8.9]	A [8.8]	A [8.9]	YES
			NB	**A [0.0]**	**A [0.0]**	**A [3.6]**	**A [2.6]**	**A [0.0]**	**A [0.0]**	**A [2.7]**	**A [1.2]**	**YES**
		Duffield Avenue	NBLT	A [0.0]	A [0.0]	A [7.3]	A [7.2]	A [0.0]	A [0.0]	A [7.3]	A [7.3]	YES
			SB	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**YES**
		Duffield Avenue	SBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
4 57th Street/RIRO Access	STOP											
			EB	-	-	-	-	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**YES**
		57th Street	EBTR	-	-	-	-	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
			WB	-	-	-	-	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**YES**
		57th Street	WBT	-	-	-	-	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
			NB	-	-	-	-	**B [13.5]**	**B [12.2]**	**C [18.5]**	**B [14.9]**	**YES**
		RIRO Access	NBR	-	-	-	-	B [13.5]	B [12.2]	C [18.5]	B [14.9]	YES

Notes : (1) Numbers in brackets [] represent delay at unsignalized intersections in seconds per vehicle.
(2) Numbers in parenthesis () represent delay at signalized intersections in seconds per vehicle.
* Dual westbound left turn lanes in Total Future Scenarios
** No new site trips contributed to these approaches/movements
*** Delays for these intersections/approaches/movements increased by 2% or less

Table 6-2
Loveland Housing Authority - Loveland, CO
Total Future Intersection Level of Service Summary - 3/4 Movement Scenario (1) (2)

Intersection	Operating Condition	Street Name	Approach/ Movement	Total Future 2028 AM Peak Hour	Total Future 2028 PM Peak Hour	Total Future 2043 AM Peak Hour	Total Future 2043 PM Peak Hour	ACF Compliant? (Yes/No)
1 57th Street/Taft Avenue	SIGNAL	**Overall**		**C (26.3)**	**C (31.8)**	**F (111.7)**	**F (134.7)**	**NO *****
			EB	**D (44.7)**	**D (49.6)**	**F (98.1)**	**F (89.4)**	**NO *****
		57th Street	EBL	D (37.4)	D (41.9)	E (58.0)	F (122.2)	NO ***
			EBT	D (48.9)	D (53.5)	F (134.5)	F (93.4)	NO ***
			EBR	D (37.9)	D (41.9)	C (34.0)	D (38.6)	YES
			WB	**D (38.9)**	**D (44.5)**	**C (34.5)**	**F (117.9)**	**NO *****
		57th Street	WBL *	D (35.5)	D (36.5)	C (31.0)	D (35.5)	NO ***
			WBT	D (41.3)	D (55.0)	D (37.2)	F (184.7)	NO ***
			WBR	D (40.8)	D (40.3)	C (32.8)	C (34.5)	YES
			NB	**C (23.3)**	**C (23.5)**	**F (146.8)**	**F (122.6)**	**NO *****
		Taft Avenue	NBL	B (12.9)	B (18.9)	C (29.0)	F (193.8)	NO ***
			NBT	C (26.9)	C (26.2)	F (192.1)	F (135.6)	NO ***
			NBR	B (14.7)	B (16.1)	C (21.3)	C (21.0)	YES
			SB	**B (18.5)**	**C (25.8)**	**F (109.8)**	**F (178.6)**	**NO *****
		Taft Avenue	SBL	C (20.8)	B (19.1)	F (84.4)	F (105.9)	NO
			SBT	B (18.6)	C (28.1)	F (121.5)	F (213.4)	NO ***
			SBR	A (9.6)	B (11.9)	B (15.6)	B (19.5)	YES
Intersection Lane Improvements	SIGNAL	**Overall**		-	-	**D (35.1)**	**E (57.1)**	**NO *****
- Additional WBL lane			**EB**	-	-	**D (46.2)**	**D (53.8)**	**YES**
- Additional NBT lane		57th Street	EBL	-	-	C (33.8)	F (116.3)	NO **
- Convert SBR lane to SBTR lane			EBT	-	-	E (56.7)	D (37.6)	YES
			EBR	-	-	C (29.2)	C (29.6)	YES
			WB	-	-	**C (31.5)**	**E (65.5)**	**NO *****
		57th Street	WBL	-	-	C (28.8)	C (34.4)	YES
			WBT	-	-	C (33.6)	F (91.9)	NO ***
			WBR	-	-	C (30.1)	C (29.5)	YES
			NB	-	-	**C (32.8)**	**D (41.9)**	**YES**
		Taft Avenue	NBL	-	-	C (21.9)	F (107.8)	NO **
			NBT	-	-	D (35.1)	C (33.6)	YES
			NBR	-	-	C (27.8)	C (27.4)	YES
			SB	-	-	**C (32.2)**	**E (67.3)**	**NO ****
		Taft Avenue	SBL	-	-	C (32.0)	C (29.4)	YES
			SBTR	-	-	C (32.4)	E (72.4)	NO **
2 57th Street/Duffield Avenue	STOP							
NB leg improvements			**EB**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**YES**
		57th Street	EBL	A [8.0]	A [0.0]	A [8.4]	A [0.0]	YES
			EBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
			WB	**A [0.7]**	**A [1.0]**	**A [0.6]**	**A [0.8]**	**YES**
		57th Street	WBL	A [9.1]	A [9.0]	B [10.5]	A [10.0]	YES
			WBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
		Duffield Avenue	**NB**	**B [14.2]**	**B [12.4]**	**C [19.7]**	**C [15.2]**	**YES**
			NBR	B [14.2]	B [12.4]	C [19.7]	C [15.2]	YES
		Sunset Vista	**SB**	**B [10.4]**	**B [14.0]**	**B [11.5]**	**C [19.2]**	**YES**
			SBR	B [10.4]	B [14.0]	B [11.5]	C [19.2]	YES
3 50th Street/Duffield Avenue	STOP							
		50th Street	**EB**	**A [8.9]**	**A [9.0]**	**A [8.9]**	**A [9.0]**	**YES**
			EBLR	A [8.9]	A [9.0]	A [8.9]	A [9.0]	YES
		Duffield Avenue	**NB**	**A [0.0]**	**A [0.0]**	**A [2.7]**	**A [1.2]**	**YES**
			NBLT	A [0.0]	A [0.0]	A [7.4]	A [7.3]	YES
		Duffield Avenue	**SB**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**YES**
			SBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
4 57th Street/RIRO Access	STOP							
		57th Street	**EB**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**YES**
			EBTR	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
		57th Street	**WB**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**A [0.0]**	**YES**
			WBT	A [0.0]	A [0.0]	A [0.0]	A [0.0]	YES
		RIRO Access	**NB**	**B [13.5]**	**B [12.3]**	**C [18.5]**	**B [14.9]**	**YES**
			NBR	B [13.5]	B [12.3]	C [18.5]	B [14.9]	YES

Notes : (1) Numbers in brackets [] represent delay at unsignalized intersections in seconds per vehicle.
(2) Numbers in parenthesis () represent delay at signalized intersections in seconds per vehicle.
* Dual westbound left turn lanes in Total Future Scenarios
** No new site trips contributed to these approaches/movements
*** Delays for these intersections/approaches/movements increased by 2% or less

Table 6-3
Loveland Housing Authority - Loveland, CO
Total Future Intersection Queueing Summary (1)

Intersection	Operating Condition	Street Name	Approach/ Movement	Available Storage	Background 2028 AM Peak Hour	Background 2028 PM Peak Hour	Background 2043 AM Peak Hour	Background 2043 PM Peak Hour	Total Future 2028 AM Peak Hour	Total Future 2028 PM Peak Hour	Total Future 2043 AM Peak Hour	Total Future 2043 PM Peak Hour
1 57th Street/Taft Avenue	SIGNAL		EBL	450	85	77	157	185	85	77	169	189
		57th Street	EBT	-	185	193	555	500	187	199	559	511
			EBR	430	0	0	46	18	0	0	46	19
			WBL	550	102	344	101	402	56	127	56	127
		57th Street	WBT	-	115	287	226	772	122	292	234	779
			WBR	200	15	42	22	66	21	46	28	71
			NBL	200	12	10	50	246	12	10	50	250
		Taft Avenue	NBT	-	829	681	1240	1134	829	681	1240	1134
			NBR	-	80	52	116	64	84	56	123	86
			SBL	450	141	71	192	172	146	86	196	190
		Taft Avenue	SBT	-	679	874	1094	1374	679	874	1094	1374
			SBR	325	0	0	3	44	0	0	3	44
Intersection Improvements												
- Additional WBL lane	SIGNAL		EBL	450	-	-	147	191	-	-	147	190
- Additional NBT lane		57th Street	EBT	-	-	-	468	346	-	-	472	347
- Convert SBR lane to SBTR lane			EBR	430	-	-	42	42	-	-	42	42
			WBL	550	-	-	46	108	-	-	54	113
		57th Street	WBT	-	-	-	226	697	-	-	234	692
			WBR	200	-	-	22	61	-	-	28	65
			NBL	200	-	-	53	221	-	-	53	224
		Taft Avenue	NBT	-	-	-	466	407	-	-	466	414
			NBR	-	-	-	75	48	-	-	89	52
		Taft Avenue	SBL	450	-	-	169	111	-	-	172	140
			SBTR	-	-	-	404	683	-	-	404	695
2 57th Street/Duffield Avenue	STOP	57th Street	EBL	400	0	0	0	0	-	-	-	-
			EBTR	-	0	0	0	0	-	-	-	-
		57th Street	WBL	200	0	0	0	0	-	-	-	-
			WBTR	-	0	0	0	0	-	-	-	-
		Duffield Avenue	NBLTR	-	2.5	2.5	2.5	5	-	-	-	-
		Sunset Vista	SBLTR	-	0	0	0	2.5	-	-	-	-
NB leg improvements												
	STOP	57th Street	EBL	400	-	-	-	-	0	0	0	0
			EBTR	-	-	-	-	-	0	0	0	0
		57th Street	WBL	200	-	-	-	-	2.5	7.5	2.5	10
			WBTR	-	-	-	-	-	0	0	0	0
		Duffield Avenue	NBL	-	-	-	-	-	17.5	22.5	37.5	55
			NBTR	-	-	-	-	-	10	5	15	7.5
		Sunset Vista	SBLTR	-	-	-	-	-	0	2.5	2.5	2.5
3 50th Street/Duffield Avenue	STOP	50th Street	EBLR	-	0	0	0	0	0	2.5	0	2.5
		Duffield Avenue	NBLT	-	0	0	0	0	0	0	0	0
		Duffield Avenue	SBTR	-	0	0	0	0	0	0	0	0
4 57th Street/RIRO Access	STOP	57th Street	EBTR	-	-	-	-	-	0	0	0	0
		57th Street	WBT	-	-	-	-	-	0	0	0	0
		RIRO Access	NBR	-	-	-	-	-	7.5	5	12.5	5

Notes : (1) Queue length, in feet, is based on the 95th percentile queue as reported by Synchro, Version 11.

VII. Conclusions and Recommendations

Conclusions

Based on the results of this traffic impact study, the following may be concluded:

- Under existing traffic conditions, the intersections within the study area currently operate at overall acceptable levels of service (LOS) “D” or better during the weekday AM and PM peak hours, and queues remain within their respective storage lengths.

- Under background future 2028 and 2043 traffic conditions, without the development of the subject site, delays would increase at study intersections due to regional traffic growth and pipeline developments. Pipeline developments in the area are expected to improve the signalized intersection of 57th Street/Taft Avenue in background 2028 conditions based on their impact, and the intersection is expected to reach capacity with the existing lane use in study year 2043. Proposed intersection improvements are applied for study year 2043. With these improvements, the signalized intersection in the study is expected to operate at LOS “C” during the weekday AM peak hour and LOS “E” during the weekday PM peak hour.

- In the background future 2043 scenario, the NBL queue at the 57th Street/Taft Avenue intersection is expected to exceed its storage length during the PM peak hour due to pipeline developments.

- The proposed site development would generate, upon completion and full occupancy, 202 new weekday AM and 263 new weekday PM peak hour vehicle trips as well as 2,962 new weekday daily trips.

- Under total future 2028 and 2043 traffic conditions with development of the site, the intersections within the study area would operate consistent with background conditions with the exceptions of the stop-controlled movements at the 57th Street/Duffield Avenue intersection which are shown to operate at LOS “D” in 2028 and LOS “F” in 2043 under total future conditions. However, these approaches are also shown to have a volume/capacity ratio, (V/C) of less than 1.0, suggesting additional capacity available for these movements. Signal warrants would not be triggered for this intersection. A scenario with double ¾ movements was analyzed and would mitigate this failure. Ultimately a roundabout will be provided for this intersection depending on certain triggers and funding.

Recommendations

- It is recommended that the Northbound left turn lane be extended to at least 225’ storage length to meet LCUASS standards in the future design of the 57th Street/Taft Avenue intersection improvement in background conditions.

- It is recommended that the Applicant provide an additional westbound left lane and northbound through lane at 57th Street and Duffield Avenue. No queueing issues were identified but due to the substandard existing geometry the Applicant should provide additional stacking capacity to the extent that physical site constraints (grade, proximity to the rail crossing, etc.) allow.

- It is recommended that the Applicant coordinate possible pedestrian crossing solutions across 57th Street with the City. No specific recommendations are provided herein.

- It is recommended that the Applicant provide access consistent with the site plan contained herein.

APPENDIX A – Full Sized Conceptual Plan

Legacy Crossing Concept Land Use Exhibit

Loveland, Colorado

October, 2024

Not a part of PUD Submittal

North

APPENDIX B – Base Assumptions Form

Reviewed By:
Randy Maizland
TDPP
9.21.23

Attachment A
sportation Impact Study Base Assumptions

Project Information			
Project Name	Loveland Housing Authority		
Project Location	Loveland, CO		
TIS Assumptions			
Type of Study	Full: ✓		Intermediate:
	MTIS:		Memo:
Study Area Boundaries	North: 57th St		South: Site Boundary
	East: Site Boundary		West: CR-17
Study Years	Short Range: 2025		Long Range: 2043
Future Traffic Growth Rate	2% per year		
Study Intersections	1. All access drives		5. Add Duffield/50th
	2. CR-17 & 57th St		6.
	3. 57th St & Duffield Ave		7. Add Taft/57th
	4.		8.
Time Period for Study	AM: 7:00-9:00	PM: 4:00-6:00	Sat Noon:
Trip Generation Rates	Trip generation calculations are attached		
Trip Adjustment Factors	Passby: N/A	Captive Market: N/A	
Overall Trip Distribution	SEE ATTACHED SKETCH		
Mode Split Assumptions			
Design Vehicle Information	SU-30 (Single Unit Truck)		
Committed Roadway Improvements	There are no committed roadway improvements at this time. The required roadway improvements will be based on the results of the traffic analysis.		
Other Traffic Studies	Several - Taft Ridge, Elkader, portions of Eagle Brook Meadows not built out, Green Valley Ranch		
Areas Requiring Special Study	Traffic Calming on Duffield at southern boundary connection to existing Safe pedestrian crossing at Duffield southern boundary/trail Roundabout at Duffield/57th intersection Safe routes to school analysis		

Date: 8/23/2023

Traffic Engineer: Max Rusch

Local Entity Engineer: _____

Table 1

Crossroads Church Development

Site Trip Generation

Land Use	Land Use Code	Amount	Units	AM Peak Hour			PM Peak Hour			Average Daily Trips
				In	Out	Total	In	Out	Total	
Single-Family Detached Housing	210	114	Homes	21	63	84	71	41	112	1138
Single-Family Attached Housing	215	68	Units	7	22	30	22	15	37	468
Multifamily Housing (Low-Rise)	220	171	Units	18	58	76	59	35	94	1170
Total Site Trips				**47**	**143**	**189**	**152**	**91**	**243**	**2,775**

Note(s):

(1) Trip generation based on the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition


5%
5%
57th St
57th St
65%
Site
Make sure to include the access on Taft in the list of "all accesses" to be included.
Please add 5% distribution going south on Duffield and add Duffield/50th intersection to the list of intersections to be analyzed. Adjust east-west distribution accordingly (60% east on 57th)
25%
Taft Ave
Google Earth

Crossroads Church Development Concept 1

Loveland, Colorado

June, 2023

CROSSROADS CHURCH

bha

0’ 100’ 200’ 400’ North

Mission Homes
95’ x 26.5’ Lots
Count: 65

Mission Ranch Home
95’ x 43’ Lots
Count: 16

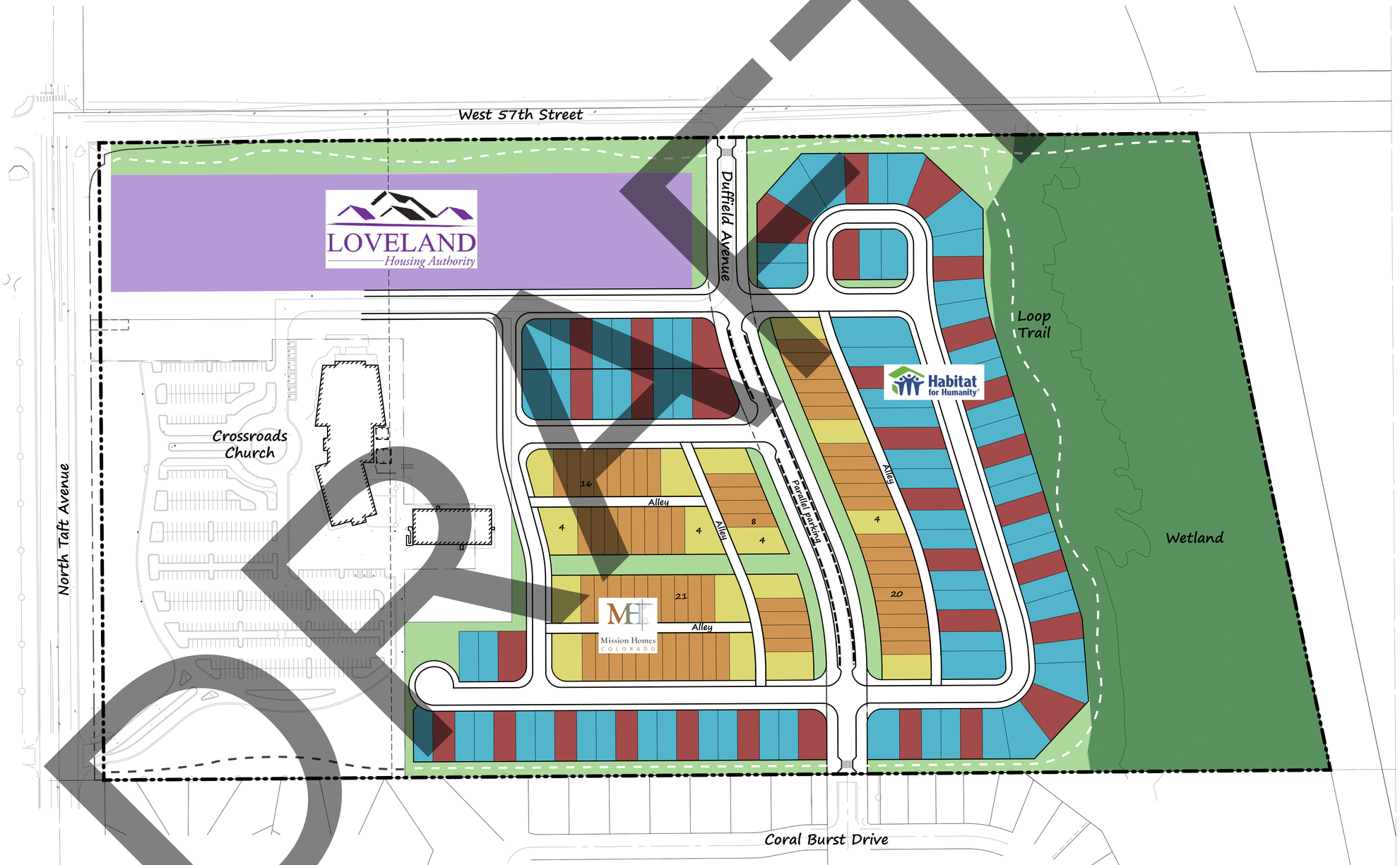
IDF Duplexes (Habitat)
100’ x 77’ Lots
Count: 68

Detached Single Family
100’ x 43.5’ Lots
Count: 33

Loveland Housing Authority
Appx Area: 6.3 Acres

Open Space / Landscape
Buffering, 4 Acres

Wetland and wetland
Setback, 13 Acres



APPENDIX C – LOS Descriptions

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	$\leq$10.0
B	> 10.0 and $\leq$20.0
C	> 20.0 and $\leq$ 35.0
D	> 35.0 and $\leq$ 55.0
E	> 55.0 and $\leq$ 80.0
F	>80.0

LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, 2000. Transportation Research Board, National Research Council

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Table 17-2. Level of Service Criteria for TWSC Intersections

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. . . .

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

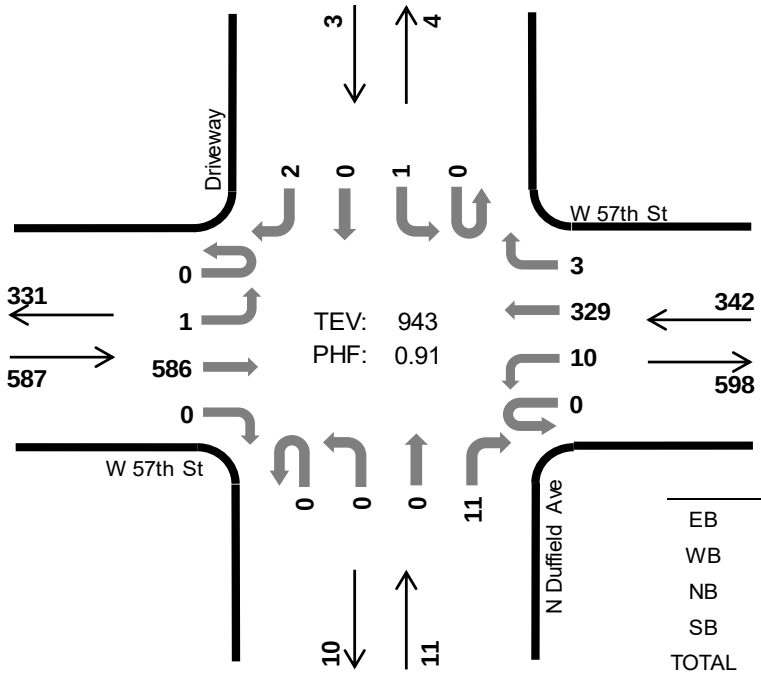
Source: Highway Capacity Manual, 2000. Transportation Research Board, National Research Council

APPENDIX D – Traffic Counts

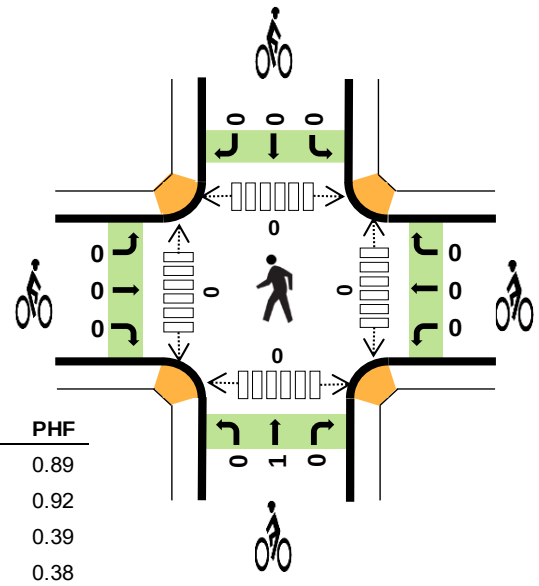
N Duffield Ave
W 57th St

Peak Hour

Date: 10/04/2023
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	1.0%	0.89
WB	0.6%	0.92
NB	0.0%	0.39
SB	0.0%	0.38
TOTAL	0.8%	0.91



Count Summaries

Interval Start	W 57th St Eastbound				W 57th St Westbound				N Duffield Ave Northbound				Driveway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	101	0	0	0	58	0	0	0	0	0	0	0	0	0	159	0
7:15 AM	**0**	**0**	**141**	**0**	**0**	**3**	**74**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**221**	0
7:30 AM	**0**	**0**	**160**	**0**	**0**	**5**	**87**	**1**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**260**	0
7:45 AM	**0**	**1**	**163**	**0**	**0**	**0**	**83**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**251**	891
8:00 AM	**0**	**0**	**122**	**0**	**0**	**2**	**85**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**211**	943
8:15 AM	0	1	117	0	0	3	76	1	0	2	0	3	0	0	0	2	205	927
8:30 AM	0	1	129	0	0	1	98	2	0	0	0	1	0	2	0	1	235	902
8:45 AM	0	1	120	1	0	0	84	1	0	0	0	2	0	0	0	2	211	862
Count Total	0	4	1,053	1	0	14	645	7	0	2	0	17	0	3	0	7	1,753	0
Peak Hour All	**0**	**1**	**586**	**0**	**0**	**10**	**329**	**3**	**0**	**0**	**0**	**11**	**0**	**1**	**0**	**2**	**943**	**0**
Peak Hour HV	**0**	**0**	**6**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**
Peak Hour HV%	**-**	**0%**	**1%**	**-**	**-**	**0%**	**1%**	**0%**	**-**	**-**	**-**	**0%**	**-**	**0%**	**-**	**0%**	**1%**	**0**

Note: Count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	*0*	0	0	1	0	*1*	0	0	0	0	*0*
7:15 AM	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**3**	**0**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
8:15 AM	3	2	0	0	*5*	0	0	0	0	*0*	0	2	0	0	*2*
8:30 AM	3	2	0	0	*5*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	4	1	0	0	*5*	0	0	0	0	*0*	0	2	0	0	*2*
Count Total	16	7	0	0	*23*	0	0	2	0	*2*	0	4	0	0	*4*
Peak Hour	**6**	**2**	**0**	**0**	***8***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***

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Count Summaries - Heavy Vehicles

Interval Start	W 57th St Eastbound				W 57th St Westbound				N Duffield Ave Northbound				Driveway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	6
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	8
8:15 AM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	5	11
8:30 AM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	5	15
8:45 AM	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	5	17
Count Total	0	0	16	0	0	0	7	0	0	0	0	0	0	0	0	0	23	0
Peak Hour	**0**	**0**	**6**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**

Count Summaries - Bikes

Interval Start	W 57th St Eastbound			W 57th St Westbound			N Duffield Ave Northbound			Driveway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	2	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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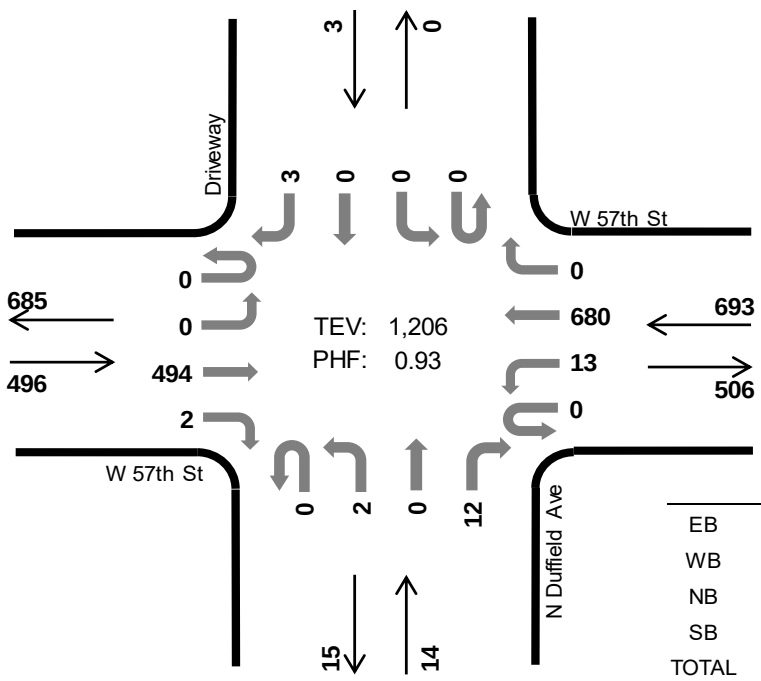
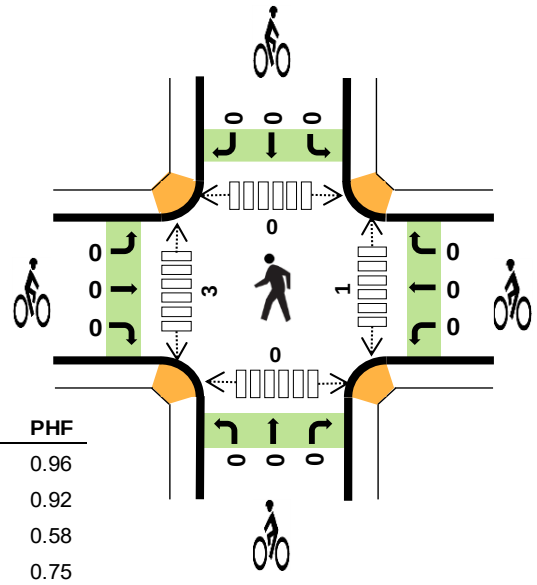
N Duffield Ave
W 57th St

Peak Hour

Date: 10/04/2023
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	1.4%	0.96
WB	0.7%	0.92
NB	0.0%	0.58
SB	0.0%	0.75
TOTAL	1.0%	0.93

Count Summaries

Interval Start	W 57th St Eastbound				W 57th St Westbound				N Duffield Ave Northbound				Driveway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	118	0	0	1	151	0	0	0	0	1	0	0	0	0	272	0
4:15 PM	0	1	161	1	0	2	134	1	0	0	0	1	0	0	0	2	303	0
4:30 PM	**0**	**0**	**126**	**1**	**0**	**1**	**149**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**1**	**281**	0
4:45 PM	**0**	**0**	**114**	**0**	**0**	**2**	**183**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**301**	1,157
5:00 PM	**0**	**0**	**126**	**0**	**0**	**3**	**167**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**300**	1,185
5:15 PM	**0**	**0**	**128**	**1**	**0**	**7**	**181**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**1**	**324**	1,206
5:30 PM	0	0	114	1	0	0	158	0	0	0	0	4	0	1	0	0	278	1,203
5:45 PM	0	0	96	3	0	7	139	2	0	0	0	2	0	1	0	2	252	1,154
Count Total	0	2	983	7	0	23	1,262	3	0	2	0	20	0	2	0	7	2,311	0
Peak Hour All	**0**	**0**	**494**	**2**	**0**	**13**	**680**	**0**	**0**	**2**	**0**	**12**	**0**	**0**	**0**	**3**	**1,206**	**0**
Peak Hour HV	**0**	**0**	**7**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**
Peak Hour HV%	**-**	**-**	**1%**	**0%**	**-**	**0%**	**1%**	**-**	**-**	**0%**	**-**	**0%**	**-**	**-**	**-**	**0%**	**1%**	**0**

Note: Count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	3	0	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	8	2	0	0	*10*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
4:45 PM	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**0**	*2*
5:00 PM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**3**	**2**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	*1*
5:30 PM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	4	0	0	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	21	11	0	0	*32*	0	0	0	0	*0*	1	3	0	0	*4*
Peak Hour	**7**	**5**	**0**	**0**	***12***	**0**	**0**	**0**	**0**	***0***	**1**	**3**	**0**	**0**	***4***

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Count Summaries - Heavy Vehicles

Interval Start	W 57th St Eastbound				W 57th St Westbound				N Duffield Ave Northbound				Driveway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	0
4:15 PM	0	0	8	0	0	0	2	0	0	0	0	0	0	0	0	0	10	0
4:30 PM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	19
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	17
5:15 PM	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	12
5:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	12
5:45 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	13
Count Total	0	0	21	0	0	0	11	0	0	0	0	0	0	0	0	0	32	0
Peak Hour	**0**	**0**	**7**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**

Count Summaries - Bikes

Interval Start	W 57th St Eastbound			W 57th St Westbound			N Duffield Ave Northbound			Driveway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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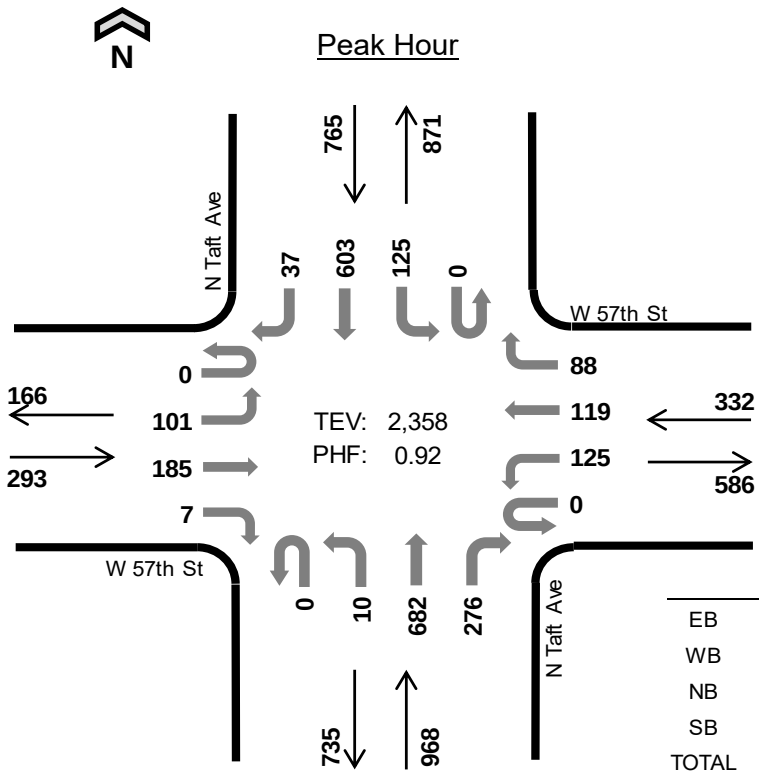
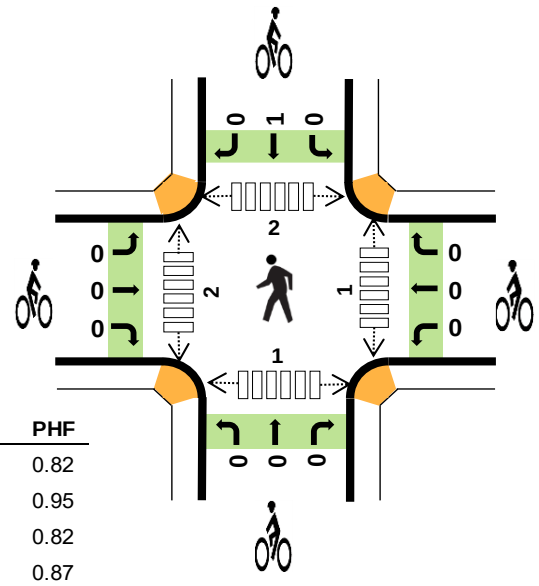
N Taft Ave
W 57th St



Date: 10/04/2023
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	1.7%	0.82
WB	0.6%	0.95
NB	1.1%	0.82
SB	1.6%	0.87
TOTAL	1.3%	0.92

Count Summaries

Interval Start	W 57th St Eastbound				W 57th St Westbound				N Taft Ave Northbound				N Taft Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	16	45	4	0	20	20	15	0	1	128	46	0	10	116	6	427	0
7:15 AM	**0**	**22**	**43**	**0**	**0**	**26**	**26**	**23**	**0**	**2**	**183**	**73**	**0**	**24**	**163**	**4**	**589**	0
7:30 AM	**0**	**38**	**50**	**1**	**0**	**33**	**25**	**29**	**0**	**3**	**207**	**84**	**0**	**27**	**141**	**6**	**644**	0
7:45 AM	**0**	**18**	**55**	**3**	**0**	**32**	**40**	**15**	**0**	**3**	**155**	**71**	**0**	**42**	**166**	**12**	**612**	2,272
8:00 AM	**0**	**23**	**37**	**3**	**0**	**34**	**28**	**21**	**0**	**2**	**137**	**48**	**0**	**32**	**133**	**15**	**513**	2,358
8:15 AM	0	29	36	1	0	33	26	22	0	0	144	51	0	33	147	10	532	2,301
8:30 AM	0	23	48	5	0	32	38	28	0	2	181	60	0	21	135	9	582	2,239
8:45 AM	0	11	38	4	0	34	32	21	0	2	136	48	0	38	129	16	509	2,136
Count Total	0	180	352	21	0	244	235	174	0	15	1,271	481	0	227	1,130	78	4,408	0
Peak Hour **All**	**0**	**101**	**185**	**7**	**0**	**125**	**119**	**88**	**0**	**10**	**682**	**276**	**0**	**125**	**603**	**37**	**2,358**	**0**
Peak Hour **HV**	**0**	**2**	**2**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**7**	**4**	**0**	**0**	**12**	**0**	**30**	**0**
Peak Hour **HV%**	**-**	**2%**	**1%**	**14%**	**-**	**1%**	**0%**	**1%**	**-**	**0%**	**1%**	**1%**	**-**	**0%**	**2%**	**0%**	**1%**	**0**

Note: Count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	3	*3*	0	0	0	0	*0*	0	1	0	0	*1*
7:15 AM	**0**	**0**	**3**	**2**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**1**	**1**	**1**	**4**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**1**	**0**	*2*
7:45 AM	**2**	**0**	**4**	**4**	***10***	**0**	**0**	**0**	**1**	***1***	**0**	**1**	**0**	**0**	*1*
8:00 AM	**2**	**1**	**3**	**2**	***8***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**1**	*3*
8:15 AM	0	2	7	1	*10*	0	0	0	1	*1*	1	1	1	1	*4*
8:30 AM	1	2	2	6	*11*	0	0	0	1	*1*	1	0	0	1	*2*
8:45 AM	2	1	2	4	*9*	0	0	0	0	*0*	1	0	0	1	*2*
Count Total	8	7	22	26	*63*	0	0	0	3	*3*	4	4	3	4	*15*
Peak Hour	**5**	**2**	**11**	**12**	***30***	**0**	**0**	**0**	**1**	***1***	**1**	**2**	**2**	**1**	***6***

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Count Summaries - Heavy Vehicles

Interval Start	W 57th St Eastbound				W 57th St Westbound				N Taft Ave Northbound				N Taft Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**2**	**0**	**5**	0
7:30 AM	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**7**	0
7:45 AM	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**4**	**0**	**10**	25
8:00 AM	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**8**	30
8:15 AM	0	0	0	0	0	0	1	1	0	0	3	4	0	0	1	0	10	35
8:30 AM	0	0	1	0	0	0	1	1	0	0	2	0	0	1	4	1	11	39
8:45 AM	0	0	2	0	0	0	1	0	0	0	1	1	0	1	3	0	9	38
Count Total	0	2	5	1	0	1	3	3	0	0	13	9	0	2	22	2	63	0
Peak Hour	**0**	**2**	**2**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**7**	**4**	**0**	**0**	**12**	**0**	**30**	**0**

Count Summaries - Bikes

Interval Start	W 57th St Eastbound			W 57th St Westbound			N Taft Ave Northbound			N Taft Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	0	0	0	0	0	0	0	3	0	3	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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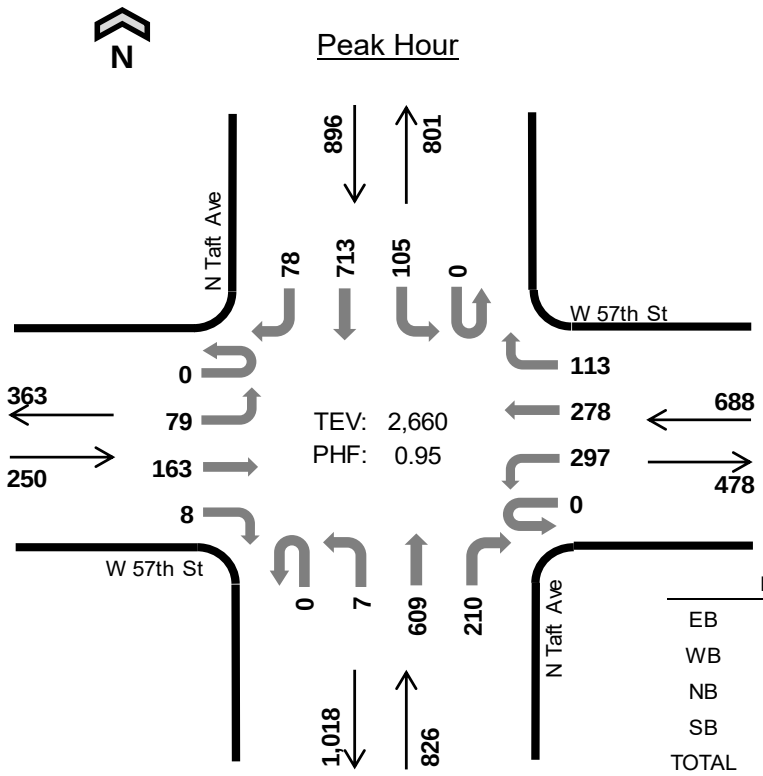
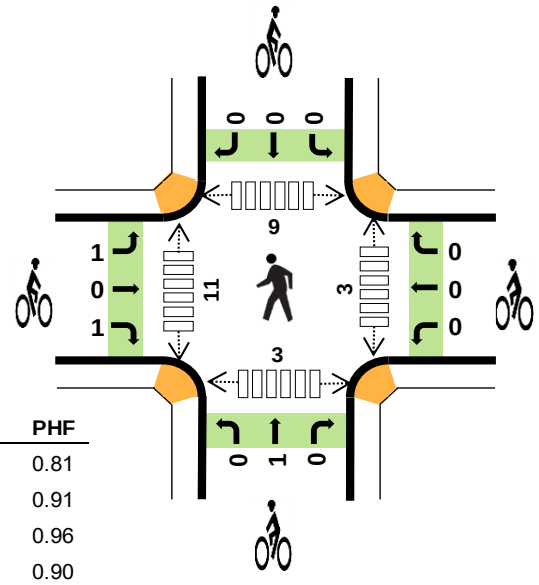
N Taft Ave
W 57th St



Date: 10/04/2023
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	1.2%	0.81
WB	0.7%	0.91
NB	0.7%	0.96
SB	0.9%	0.90
TOTAL	0.8%	0.95

Count Summaries

Interval Start	W 57th St Eastbound				W 57th St Westbound				N Taft Ave Northbound				N Taft Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	9	36	0	0	74	58	19	0	5	144	54	0	31	171	19	620	0
4:15 PM	0	16	51	2	0	57	55	22	0	6	129	79	0	35	160	18	630	0
4:30 PM	0	15	43	4	0	64	71	18	0	5	159	63	0	24	182	14	662	0
4:45 PM	**0**	**13**	**33**	**3**	**0**	**82**	**63**	**30**	**0**	**2**	**156**	**46**	**0**	**30**	**170**	**9**	**637**	2,549
5:00 PM	**0**	**26**	**47**	**1**	**0**	**62**	**70**	**25**	**0**	**1**	**146**	**57**	**0**	**25**	**182**	**11**	**653**	2,582
5:15 PM	**0**	**23**	**52**	**2**	**0**	**74**	**80**	**34**	**0**	**3**	**158**	**55**	**0**	**15**	**178**	**26**	**700**	2,652
5:30 PM	**0**	**17**	**31**	**2**	**0**	**79**	**65**	**24**	**0**	**1**	**149**	**52**	**0**	**35**	**183**	**32**	**670**	2,660
5:45 PM	0	7	26	2	0	55	64	24	0	2	148	46	0	27	160	20	581	2,604
Count Total	0	126	319	16	0	547	526	196	0	25	1,189	452	0	222	1,386	149	5,153	0
Peak Hour All	**0**	**79**	**163**	**8**	**0**	**297**	**278**	**113**	**0**	**7**	**609**	**210**	**0**	**105**	**713**	**78**	**2,660**	**0**
Peak Hour HV	**0**	**0**	**3**	**0**	**0**	**2**	**3**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**7**	**1**	**22**	**0**
Peak Hour HV%	**-**	**0%**	**2%**	**0%**	**-**	**1%**	**1%**	**0%**	**-**	**0%**	**0%**	**1%**	**-**	**0%**	**1%**	**1%**	**1%**	**0**

Note: Count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	3	2	3	*9*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	4	1	8	2	*15*	0	0	0	0	*0*	0	0	3	3	*6*
4:30 PM	1	2	2	5	*10*	0	0	1	0	*1*	0	1	2	0	*3*
4:45 PM	**1**	**1**	**1**	**2**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**1**	**0**	*5*
5:00 PM	**0**	**1**	**2**	**2**	***5***	**0**	**0**	**1**	**0**	***1***	**0**	**1**	**2**	**2**	*5*
5:15 PM	**2**	**2**	**2**	**3**	***9***	**2**	**0**	**0**	**0**	***2***	**1**	**1**	**1**	**1**	*4*
5:30 PM	**0**	**1**	**1**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**2**	**5**	**5**	**0**	*12*
5:45 PM	1	0	3	3	*7*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	10	11	21	21	*63*	2	0	2	0	*4*	3	12	14	6	*35*
Peak Hour	**3**	**5**	**6**	**8**	***22***	**2**	**0**	**1**	**0**	***3***	**3**	**11**	**9**	**3**	***26***

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Count Summaries - Heavy Vehicles

Interval Start	W 57th St Eastbound				W 57th St Westbound				N Taft Ave Northbound				N Taft Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	0	0	1	2	0	0	0	2	0	0	0	2	1	9	0
4:15 PM	0	2	2	0	0	1	0	0	0	0	2	6	0	0	2	0	15	0
4:30 PM	0	0	1	0	0	0	1	1	0	0	2	0	0	1	4	0	10	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**5**	39
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**1**	**5**	35
5:15 PM	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**3**	**0**	**9**	29
5:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**3**	22
5:45 PM	0	0	1	0	0	0	0	0	0	0	1	2	0	1	2	0	7	24
Count Total	0	2	8	0	0	4	6	1	0	0	10	11	0	2	17	2	63	0
Peak Hour	**0**	**0**	**3**	**0**	**0**	**2**	**3**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**7**	**1**	**22**	**0**

Count Summaries - Bikes

Interval Start	W 57th St Eastbound			W 57th St Westbound			N Taft Ave Northbound			N Taft Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	2
5:15 PM	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	4
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Count Total	1	0	1	0	0	0	0	2	0	0	0	0	4	0
Peak Hour	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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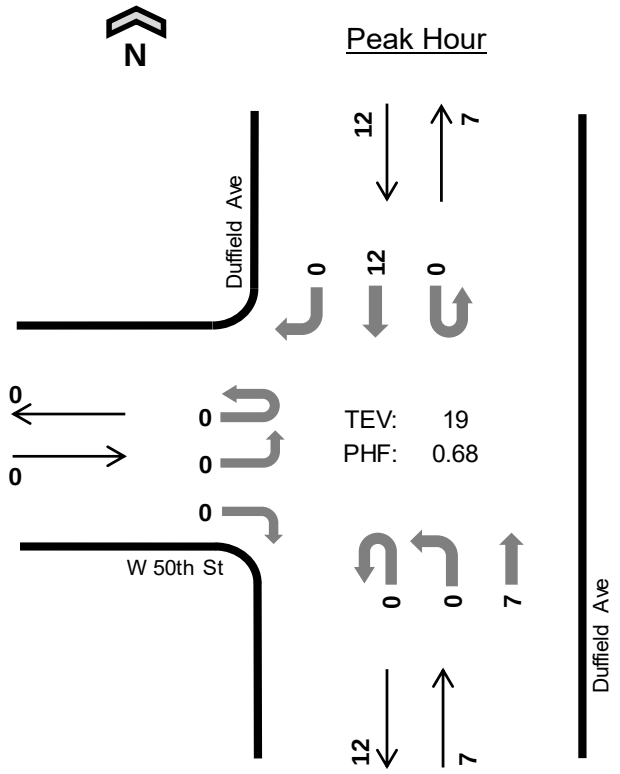
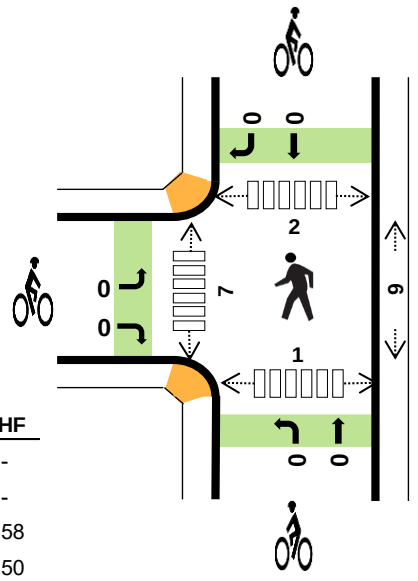
Duffield Ave
W 50th St

Peak Hour



Date: 10/04/2023
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	-	-
WB	-	-
NB	0.0%	0.58
SB	0.0%	0.50
TOTAL	0.0%	0.68

Count Summaries

Interval Start	W 50th St Eastbound				N/A Westbound				Duffield Ave Northbound				Duffield Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**4**	9
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**6**	**0**	**7**	15
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**4**	17
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**4**	19
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4	19
Count Total	0	0	0	0	0	0	0	0	0	0	10	0	0	0	18	0	28	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**12**	**0**	**19**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**0%**	**-**	**0%**	**0**

Note: Count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	*0*	0	0	1	0	*1*	1	4	0	0	*5*
7:15 AM	0	0	0	0	*0*	0	0	0	0	*0*	4	1	0	0	*5*
7:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	2	2	0	0	*4*
7:45 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**0**	**0**	*2*
8:00 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**2**	**2**	**1**	**0**	*5*
8:15 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**3**	**1**	**0**	**0**	*4*
8:30 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**3**	**3**	**1**	**1**	*8*
8:45 AM	0	0	0	0	*0*	0	0	0	0	*0*	5	4	0	0	*9*
Count Total	0	0	0	0	*0*	0	0	1	0	*1*	21	18	2	1	*42*
Peak Hr	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**9**	**7**	**2**	**1**	***19***

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Count Summaries - Heavy Vehicles

Interval Start	W 50th St				N/A				Duffield Ave				Duffield Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Count Summaries - Bikes

Interval Start	W 50th St			N/A			Duffield Ave			Duffield Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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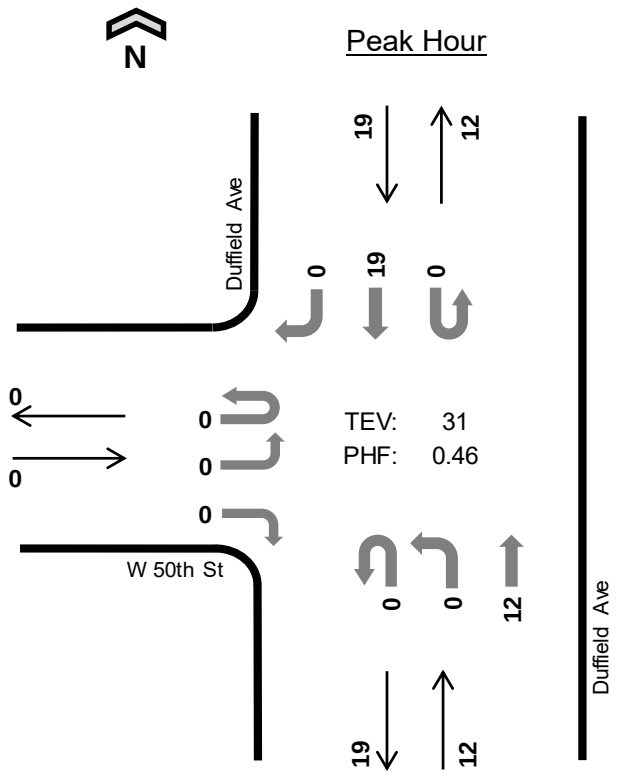
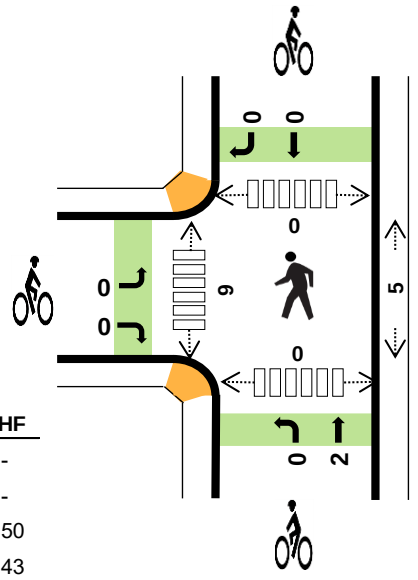
Duffield Ave
W 50th St

Peak Hour



Date: 10/04/2023
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	-	-
WB	-	-
NB	0.0%	0.50
SB	0.0%	0.43
TOTAL	0.0%	0.46

Count Summaries

Interval Start	W 50th St Eastbound				N/A Westbound				Duffield Ave Northbound				Duffield Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	6	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	10	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	26
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**2**	22
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**4**	21
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**4**	**0**	**8**	19
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**11**	**0**	**17**	31
Count Total	0	0	0	0	0	0	0	0	0	0	28	0	0	0	29	0	57	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**19**	**0**	**31**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**0%**	**-**	**0%**	**0**

Note: Count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	2	1	0	0	*3*
4:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	1	2	0	0	*3*
4:30 PM	0	0	0	0	*0*	0	0	1	0	*1*	2	0	0	0	*2*
4:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	8	0	0	*8*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**0**	**0**	*3*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**0**	***2***	**3**	**4**	**0**	**0**	*7*
5:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**0**	**0**	*4*
Count Total	0	0	0	0	*0*	0	0	3	0	*3*	10	20	0	0	*30*
Peak Hr	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**0**	***2***	**5**	**9**	**0**	**0**	***14***

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Count Summaries - Heavy Vehicles

Interval Start	W 50th St				N/A				Duffield Ave				Duffield Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Count Summaries - Bikes

Interval Start	W 50th St			N/A			Duffield Ave			Duffield Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	2
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
Count Total	0	0	0	0	0	0	0	3	0	0	0	0	3	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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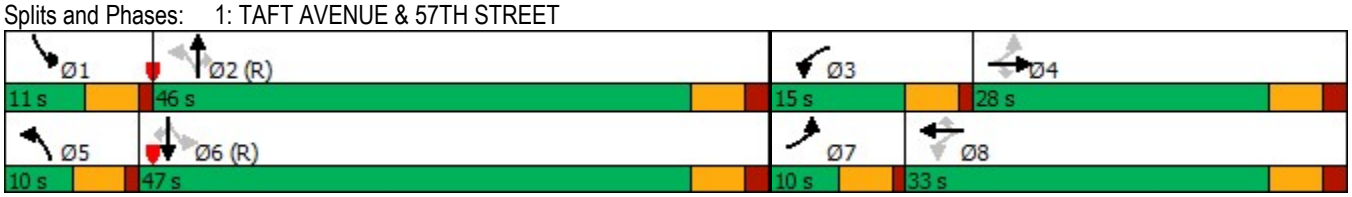
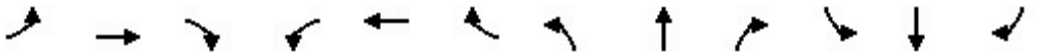
APPENDIX E – Existing Synchro Outputs

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	185	7	125	119	88	10	684	277	125	603	37
Future Volume (vph)	101	185	7	125	119	88	10	684	277	125	603	37
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0	34.0
Total Split (s)	10.0	28.0	28.0	15.0	33.0	33.0	10.0	46.0	46.0	11.0	47.0	47.0
Total Split (%)	10.0%	28.0%	28.0%	15.0%	33.0%	33.0%	10.0%	46.0%	46.0%	11.0%	47.0%	47.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	22.7	16.7	16.7	31.6	21.1	21.1	50.1	43.6	43.6	57.1	54.9	54.9
Actuated g/C Ratio	0.23	0.17	0.17	0.32	0.21	0.21	0.50	0.44	0.44	0.57	0.55	0.55
v/c Ratio	0.38	0.70	0.02	0.45	0.33	0.22	0.04	0.99	0.39	0.65	0.68	0.05
Control Delay	29.0	51.1	0.1	28.6	34.4	2.7	11.4	60.3	6.0	32.1	23.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	51.1	0.1	28.6	34.4	2.7	11.4	60.3	6.0	32.1	23.0	0.1
LOS	C	D	A	C	C	A	B	E	A	C	C	A
Approach Delay		42.3			23.8			44.3			23.4	
Approach LOS		D			C			D			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 34.6	Intersection LOS: C
Intersection Capacity Utilization 77.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: TAFT AVENUE & 57TH STREET



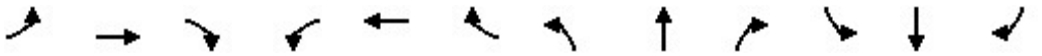


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	119	218	8	136	129	96	12	805	326	144	693	43
v/c Ratio	0.38	0.70	0.02	0.45	0.33	0.22	0.04	0.99	0.39	0.65	0.68	0.05
Control Delay	29.0	51.1	0.1	28.6	34.4	2.7	11.4	60.3	6.0	32.1	23.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	51.1	0.1	28.6	34.4	2.7	11.4	60.3	6.0	32.1	23.0	0.1
Queue Length 50th (ft)	54	132	0	63	70	0	3	~567	23	40	291	0
Queue Length 95th (ft)	84	185	0	101	114	15	12	#733	68	#147	#596	0
Internal Link Dist (ft)		956			1269			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	310	409	459	313	503	531	298	811	840	221	1022	932
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.53	0.02	0.43	0.26	0.18	0.04	0.99	0.39	0.65	0.68	0.05

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	185	7	125	119	88	10	684	277	125	603	37
Future Volume (veh/h)	101	185	7	125	119	88	10	684	277	125	603	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	119	218	8	136	129	96	12	805	326	144	693	43
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	262	222	250	323	274	295	936	793	234	1016	861
Arrive On Green	0.05	0.14	0.14	0.08	0.17	0.17	0.01	0.50	0.50	0.06	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	119	218	8	136	129	96	12	805	326	144	693	43
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	11.3	0.4	6.4	6.1	5.3	0.3	37.8	12.9	3.8	26.9	1.3
Cycle Q Clear(g_c), s	5.0	11.3	0.4	6.4	6.1	5.3	0.3	37.8	12.9	3.8	26.9	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	262	222	250	323	274	295	936	793	234	1016	861
V/C Ratio(X)	0.41	0.83	0.04	0.54	0.40	0.35	0.04	0.86	0.41	0.61	0.68	0.05
Avail Cap(c_a), veh/h	290	411	349	281	505	428	359	936	793	240	1016	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	41.8	37.1	33.2	36.7	36.4	14.5	21.9	15.7	20.6	16.6	10.7
Incr Delay (d2), s/veh	0.9	8.0	0.1	1.8	0.8	0.8	0.1	10.2	1.6	4.5	3.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	5.6	0.2	2.8	2.8	2.1	0.1	17.3	4.7	1.8	11.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	49.8	37.2	35.1	37.5	37.2	14.5	32.1	17.3	25.1	20.3	10.8
LnGrp LOS	D	D	D	D	D	D	B	C	B	C	C	B
Approach Vol, veh/h		345			361			1143			880	
Approach Delay, s/veh		44.9			36.5			27.7			20.6	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	56.0	13.3	20.0	6.4	60.3	10.0	23.3
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	6.0	40.0	10.0	22.0	5.0	41.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	5.8	39.8	8.4	13.3	2.3	28.9	7.0	8.1
Green Ext Time (p_c), s	0.0	0.2	0.0	0.7	0.0	3.5	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	586	0	10	330	3	0	0	11	1	0	2
Future Vol, veh/h	1	586	0	10	330	3	0	0	11	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	658	0	11	359	3	0	0	13	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	362	0	0	658	0	0	1044	1044	658	1050	1043	361
Stage 1	-	-	-	-	-	-	660	660	-	383	383	-
Stage 2	-	-	-	-	-	-	384	384	-	667	660	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1197	-	-	930	-	-	207	229	464	205	229	684
Stage 1	-	-	-	-	-	-	452	460	-	640	612	-
Stage 2	-	-	-	-	-	-	639	611	-	448	460	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1197	-	-	930	-	-	204	226	464	197	226	684
Mov Cap-2 Maneuver	-	-	-	-	-	-	204	226	-	197	226	-
Stage 1	-	-	-	-	-	-	452	460	-	639	605	-
Stage 2	-	-	-	-	-	-	629	604	-	435	460	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	13	14.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	464	1197	-	-	930	-	-	375
HCM Lane V/C Ratio	0.028	0.001	-	-	0.012	-	-	0.009
HCM Control Delay (s)	13	8	-	-	8.9	-	-	14.7
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	7	12	0
Future Vol, veh/h	0	0	0	7	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	8	14	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	22	14	14	0	-	0
Stage 1	14	-	-	-	-	-
Stage 2	8	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	995	1066	1604	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1015	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	995	1066	1604	-	-	-
Mov Cap-2 Maneuver	995	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1015	-	-	-	-	-

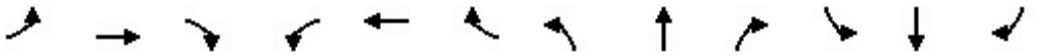
Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1604	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	169	8	299	280	113	7	609	210	105	713	78
Future Volume (vph)	79	169	8	299	280	113	7	609	210	105	713	78
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0	34.0
Total Split (s)	10.0	26.0	26.0	18.0	34.0	34.0	10.0	56.0	56.0	10.0	56.0	56.0
Total Split (%)	9.1%	23.6%	23.6%	16.4%	30.9%	30.9%	9.1%	50.9%	50.9%	9.1%	50.9%	50.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	23.2	16.3	16.3	37.5	27.9	27.9	56.3	49.8	49.8	61.5	59.5	59.5
Actuated g/C Ratio	0.21	0.15	0.15	0.34	0.25	0.25	0.51	0.45	0.45	0.56	0.54	0.54
v/c Ratio	0.36	0.72	0.02	0.89	0.65	0.25	0.04	0.79	0.27	0.48	0.79	0.09
Control Delay	31.2	59.2	0.1	58.0	44.6	6.6	11.3	33.8	3.2	19.0	28.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	59.2	0.1	58.0	44.6	6.6	11.3	33.8	3.2	19.0	28.5	0.2
LOS	C	E	A	E	D	A	B	C	A	B	C	A
Approach Delay		48.8			44.2			25.8			24.9	
Approach LOS		D			D			C			C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 105 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 32.6	Intersection LOS: C
Intersection Capacity Utilization 85.5%	ICU Level of Service E
Analysis Period (min) 15	

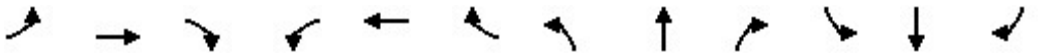
Splits and Phases: 1: TAFT AVENUE & 57TH STREET



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	93	199	9	329	308	124	8	662	228	117	792	87
v/c Ratio	0.36	0.72	0.02	0.89	0.65	0.25	0.04	0.79	0.27	0.48	0.79	0.09
Control Delay	31.2	59.2	0.1	58.0	44.6	6.6	11.3	33.8	3.2	19.0	28.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	59.2	0.1	58.0	44.6	6.6	11.3	33.8	3.2	19.0	28.5	0.2
Queue Length 50th (ft)	46	135	0	191	203	0	2	385	0	35	391	0
Queue Length 95th (ft)	77	194	0	#361	292	43	10	542	43	66	#777	0
Internal Link Dist (ft)		956			1269			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	259	338	434	370	489	511	196	860	853	244	1007	938
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.59	0.02	0.89	0.63	0.24	0.04	0.77	0.27	0.48	0.79	0.09

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	169	8	299	280	113	7	609	210	105	713	78
Future Volume (veh/h)	79	169	8	299	280	113	7	609	210	105	713	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	199	9	329	308	124	8	662	228	117	792	87
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.92	0.92	0.92	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	237	201	303	373	316	216	953	808	297	1020	864
Arrive On Green	0.05	0.13	0.13	0.12	0.20	0.20	0.01	0.51	0.51	0.05	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	93	199	9	329	308	124	8	662	228	117	792	87
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	11.4	0.5	13.0	17.4	7.5	0.2	29.6	9.1	3.4	36.7	2.9
Cycle Q Clear(g_c), s	5.0	11.4	0.5	13.0	17.4	7.5	0.2	29.6	9.1	3.4	36.7	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	186	237	201	303	373	316	216	953	808	297	1020	864
V/C Ratio(X)	0.50	0.84	0.04	1.09	0.83	0.39	0.04	0.69	0.28	0.39	0.78	0.10
Avail Cap(c_a), veh/h	186	340	288	303	476	403	280	953	808	297	1020	864
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	46.9	42.2	39.3	42.2	38.2	17.7	20.5	15.4	16.4	19.7	12.0
Incr Delay (d2), s/veh	2.1	11.9	0.1	77.0	9.1	0.8	0.1	4.2	0.9	0.8	5.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.0	0.2	8.3	8.7	2.9	0.1	12.8	3.3	1.3	15.8	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	58.9	42.3	116.2	51.3	39.0	17.8	24.6	16.3	17.3	25.5	12.3
LnGrp LOS	D	E	D	F	D	D	B	C	B	B	C	B
Approach Vol, veh/h		301			761			898			996	
Approach Delay, s/veh		53.3			77.4			22.5			23.4	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	62.1	18.0	19.9	6.1	66.0	10.0	27.9
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	5.0	50.0	13.0	20.0	5.0	50.0	5.0	28.0
Max Q Clear Time (g_c+I1), s	5.4	31.6	15.0	13.4	2.2	38.7	7.0	19.4
Green Ext Time (p_c), s	0.0	4.7	0.0	0.5	0.0	4.1	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	482	2	12	689	0	1	0	14	1	0	2
Future Vol, veh/h	0	482	2	12	689	0	1	0	14	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	524	2	13	749	0	1	0	16	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	749	0	0	526	0	0	1301	1300	525	1308	1301	749
Stage 1	-	-	-	-	-	-	525	525	-	775	775	-
Stage 2	-	-	-	-	-	-	776	775	-	533	526	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	860	-	-	1041	-	-	138	161	552	136	161	412
Stage 1	-	-	-	-	-	-	536	529	-	391	408	-
Stage 2	-	-	-	-	-	-	390	408	-	531	529	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	860	-	-	1041	-	-	136	159	552	131	159	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	159	-	131	159	-
Stage 1	-	-	-	-	-	-	536	529	-	391	403	-
Stage 2	-	-	-	-	-	-	383	403	-	515	529	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	13.2	20.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	459	860	-	-	1041	-	-	240
HCM Lane V/C Ratio	0.038	-	-	-	0.013	-	-	0.015
HCM Control Delay (s)	13.2	0	-	-	8.5	-	-	20.2
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	9	10	0
Future Vol, veh/h	0	0	0	9	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	11	12	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	23	12	12	0	-	0
Stage 1	12	-	-	-	-	-
Stage 2	11	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	993	1069	1607	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	993	1069	1607	-	-	-
Mov Cap-2 Maneuver	993	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1012	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1607	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

APPENDIX F – Pipeline Development Excerpts

Traffic Impact Study

Green Valley Ranch & Elkader
Loveland, Colorado

Prepared for:

LGI Homes, LLC

Kimley»Horn

T R A F F I C I M P A C T S T U D Y

Green Valley Ranch & Elkader

Loveland, Colorado

Prepared for
LGI Homes, LLC
12951 Bel-Red Road
Suite 150
Bellevue, Washington 98005

Prepared by
Kimley-Horn and Associates, Inc.
4582 South Ulster Street
Suite 1500
Denver, Colorado 80237
(303) 228-2300

August 2021

GREEN VALLEY RANCH & ELKADER
VICINITY MAP

FIGURE 1

4.0 PROJECT TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*[1] published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. For the purposes of this study, Kimley-Horn used the ITE Trip Generation equations that apply to Single-Family Detached Housing (ITE Code 210), Shopping Center (ITE 820), Fast Casual Restaurant (ITE 930), and Fast Food with Drive-Thru (ITE 934).

Since the Elkader property is proposed to contain a mix of residential and retail uses, internal capture trips are expected to occur on site as well. These internal capture trips are shared trips from vehicles already within the internal street network. These shared trips reduce the number of total external trips and were calculated directly per the ITE procedure.

Green Valley Ranch and Elkader is expected to generate approximately 10,784 weekday daily external trips, with 912 of these trips occurring during the morning peak hour and 1,000 of these trips occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 10th Edition – Volume 1: User's Guide and Handbook*, 2017. **Table 1** summarizes the estimated trip generation for the Green Valley Ranch and Elkader development. The trip generation worksheets are included in **Appendix C**.

[1] Institute of Transportation Engineers, *Trip Generation Manual*, Tenth Edition, Washington DC, 2017.

Table 1 – Green Valley Ranch & Elkader Traffic Generation

Land Use and Size	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single-Family Detached Housing (ITE 210) – 957 Dwelling Units	7,840	165	492	657	518	306	824
Shopping Center (ITE 820) – 23,000 Square Feet	1,456	88	51	139	43	42	85
Fast Casual Restaurant (ITE 930) – 5,000 Square Feet	448	5	3	8	22	13	35
Fast Food with DT (ITE 934) – 3,500 Square Feet	1,040	50	58	108	34	22	56
Total Project Trips after Internal Capture	**10,784**	**308**	**604**	**912**	**617**	**383**	**1,000**

4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project trip distribution for the proposed development is illustrated in **Figure 6** for the residential portion of Green Valley Ranch, **Figure 7** for the residential portion of Elkader, and **Figure 8** for the commercial portion of Elkader.

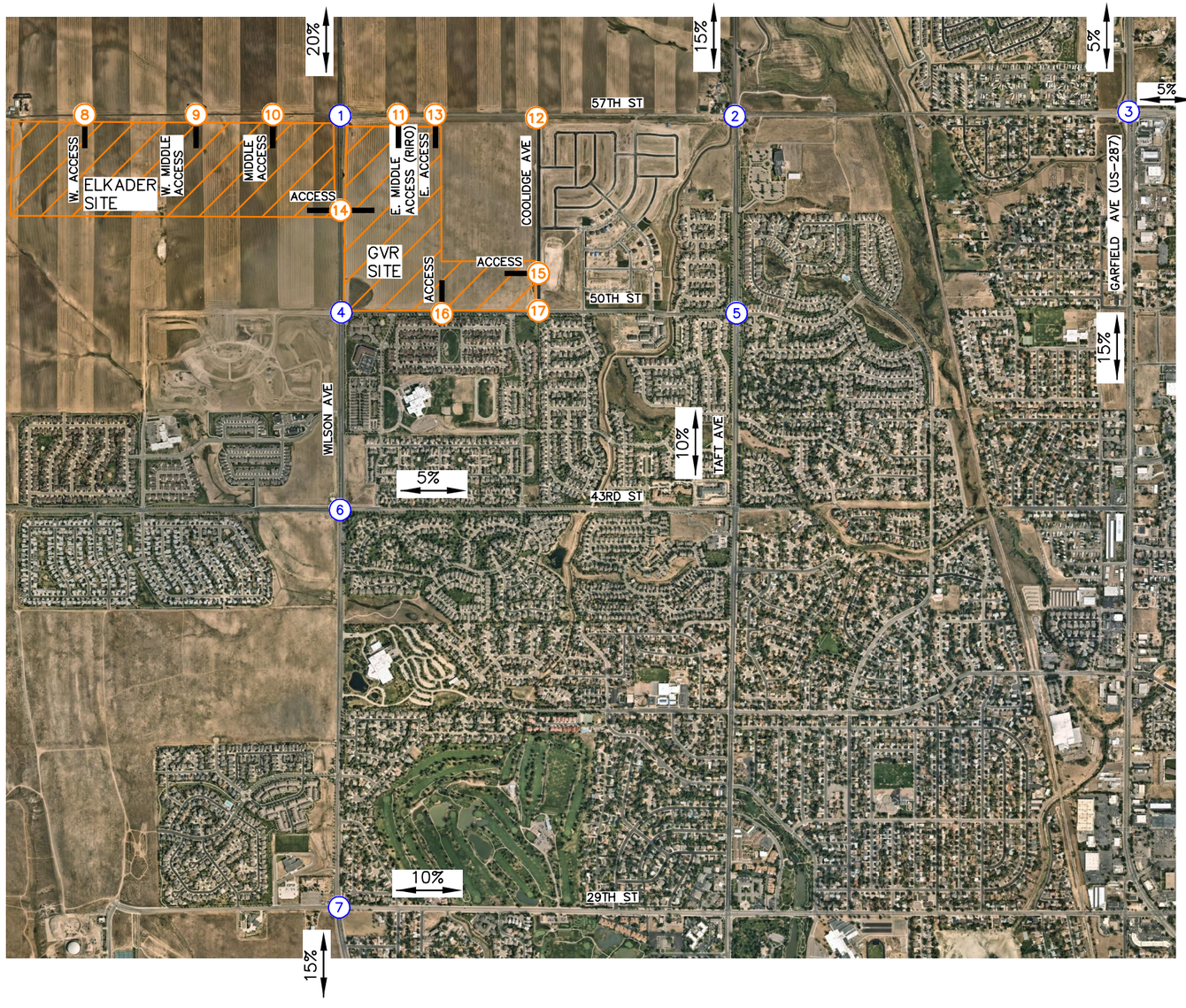
4.3 Traffic Assignment

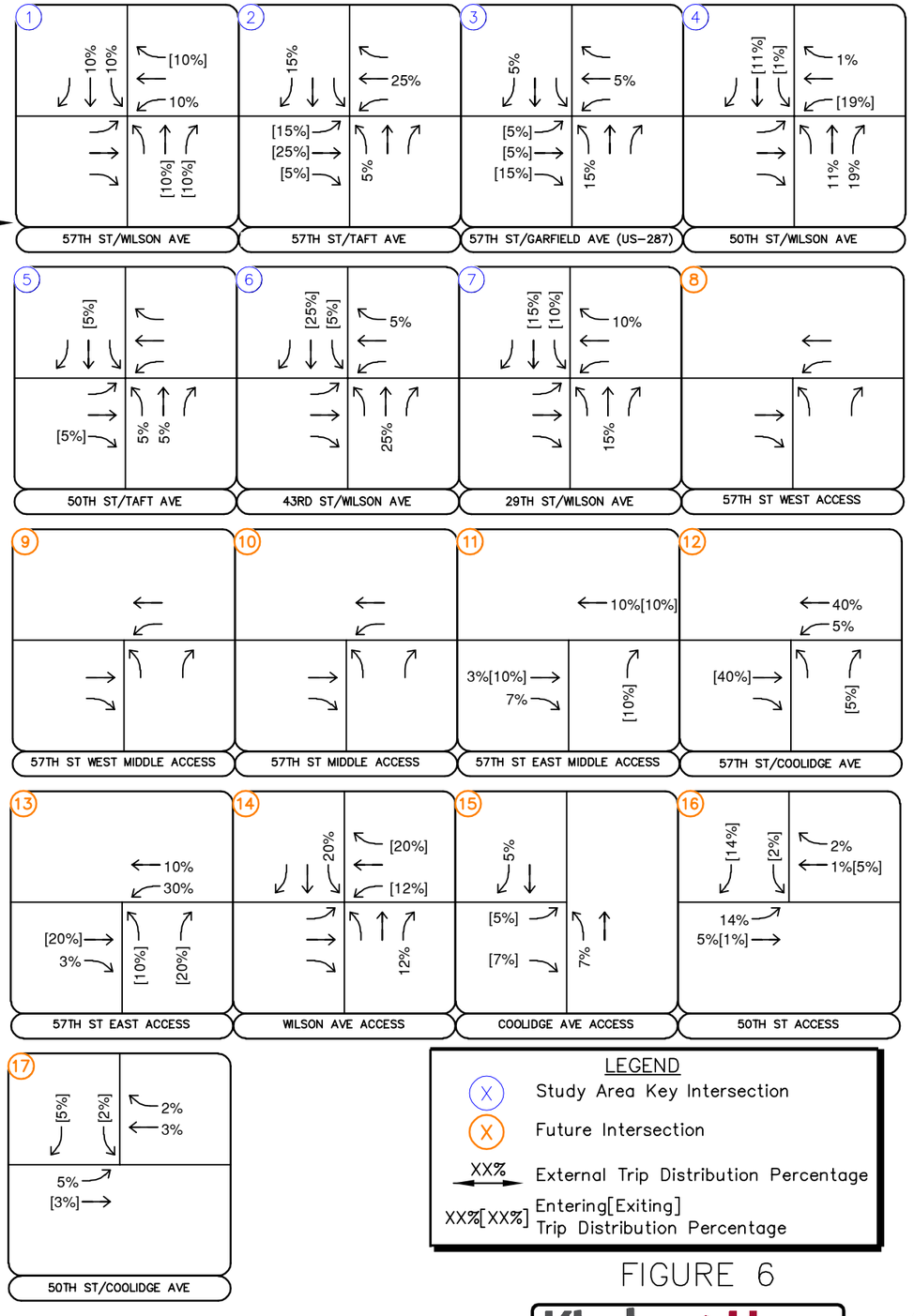
Green Valley Ranch and Elkader traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 9.**

4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the 2025 horizon and long term 2040 horizon. These total traffic volumes for the study area are illustrated for the 2025 and 2040 horizon years in **Figures 9** and **10**, respectively.

Kimley»Horn
NORTH
NTS 196011010





LEGEND

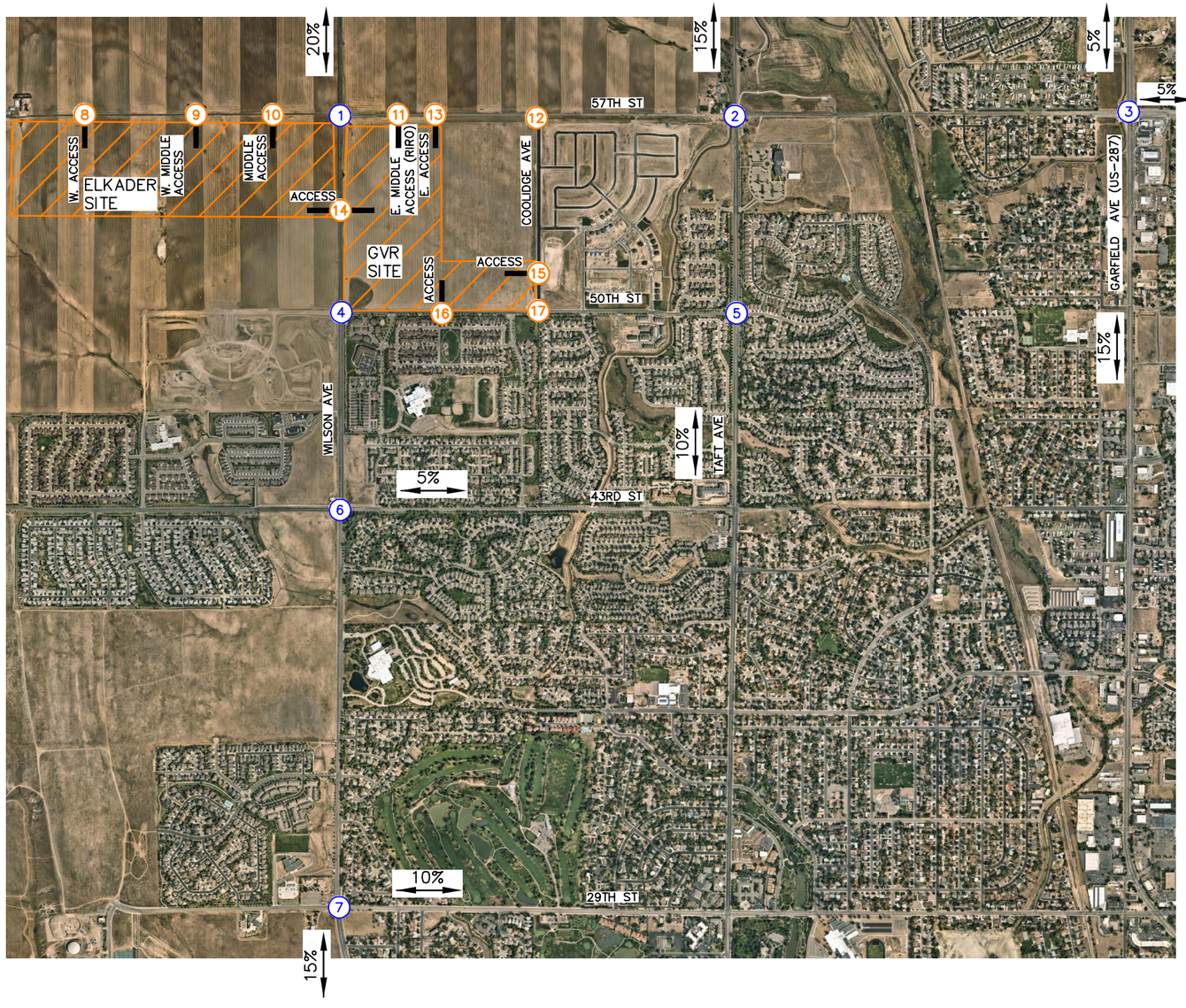
- X — Study Area Key Intersection
- X — Future Intersection
- XX% — External Trip Distribution Percentage
- XX%[XX%] — Entering[Exiting] Trip Distribution Percentage

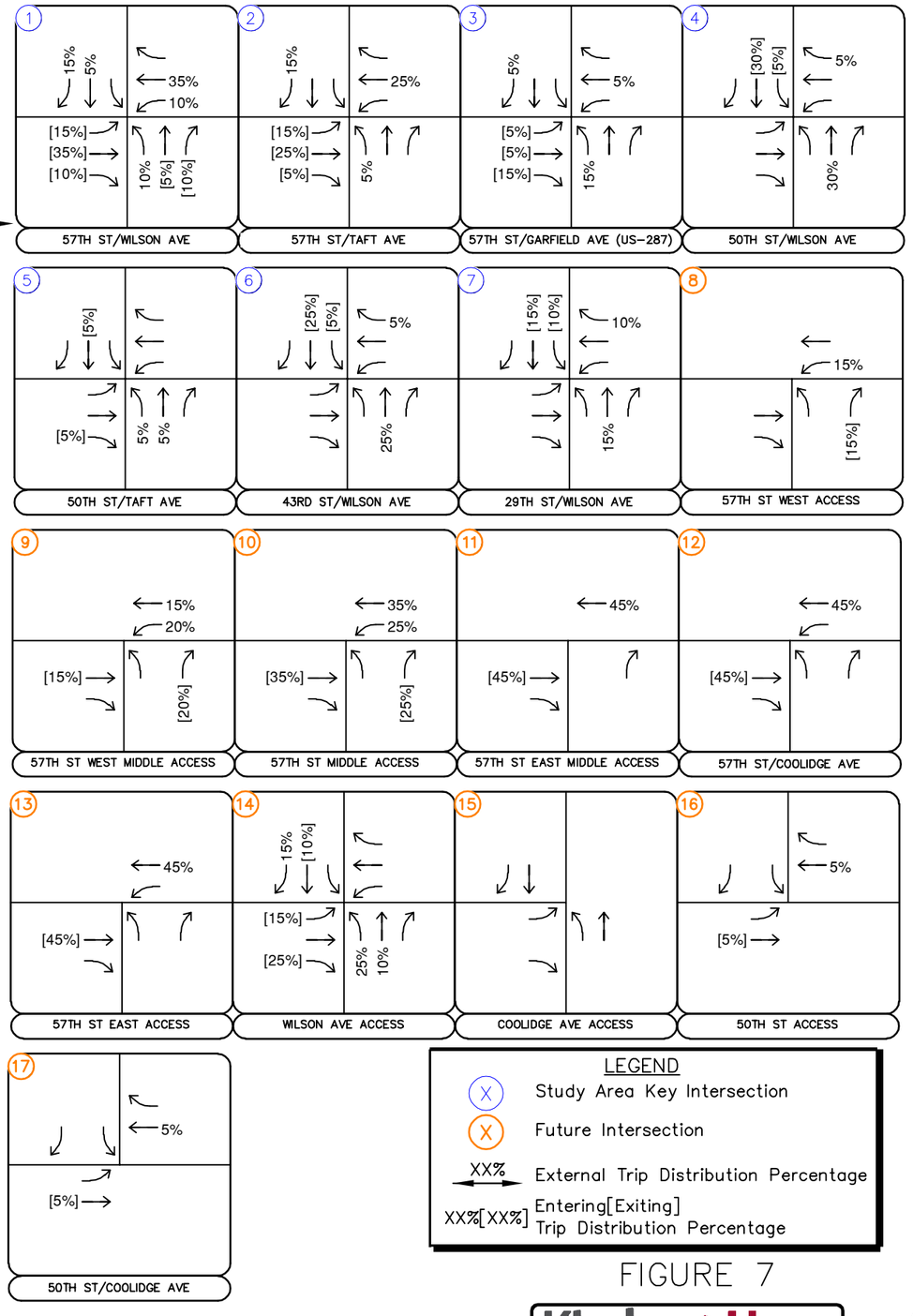
GREEN VALLEY RANCH & ELKADER
GREEN VALLEY RANCH RESIDENTIAL PROJECT TRIP DISTRIBUTION

FIGURE 6

Kimley»Horn

Kimley»Horn
NORTH
NTS 196011010





LEGEND

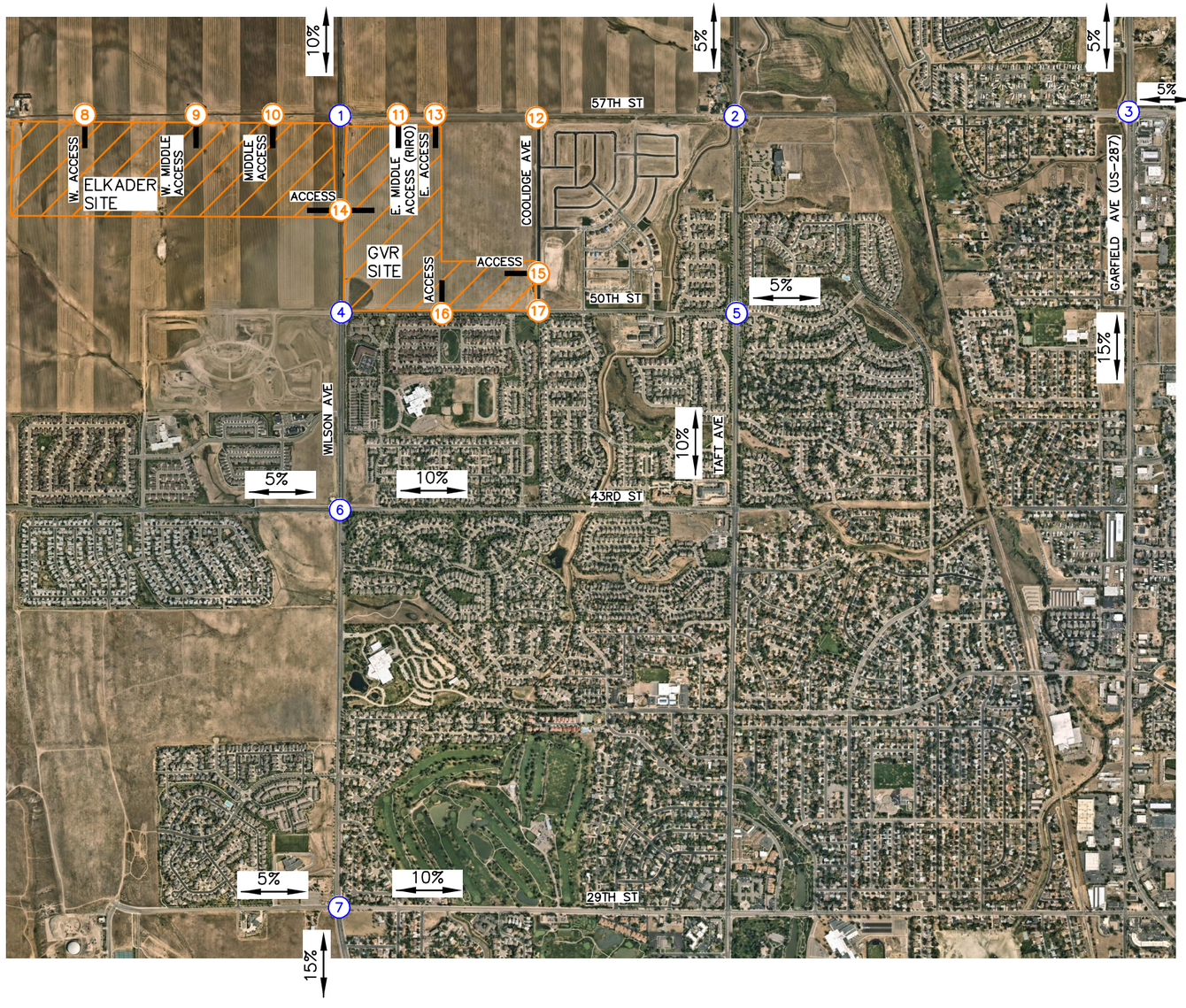
- X — Study Area Key Intersection
- X — Future Intersection
- XX% — External Trip Distribution Percentage
- XX%[XX%] — Entering[Exiting] Trip Distribution Percentage

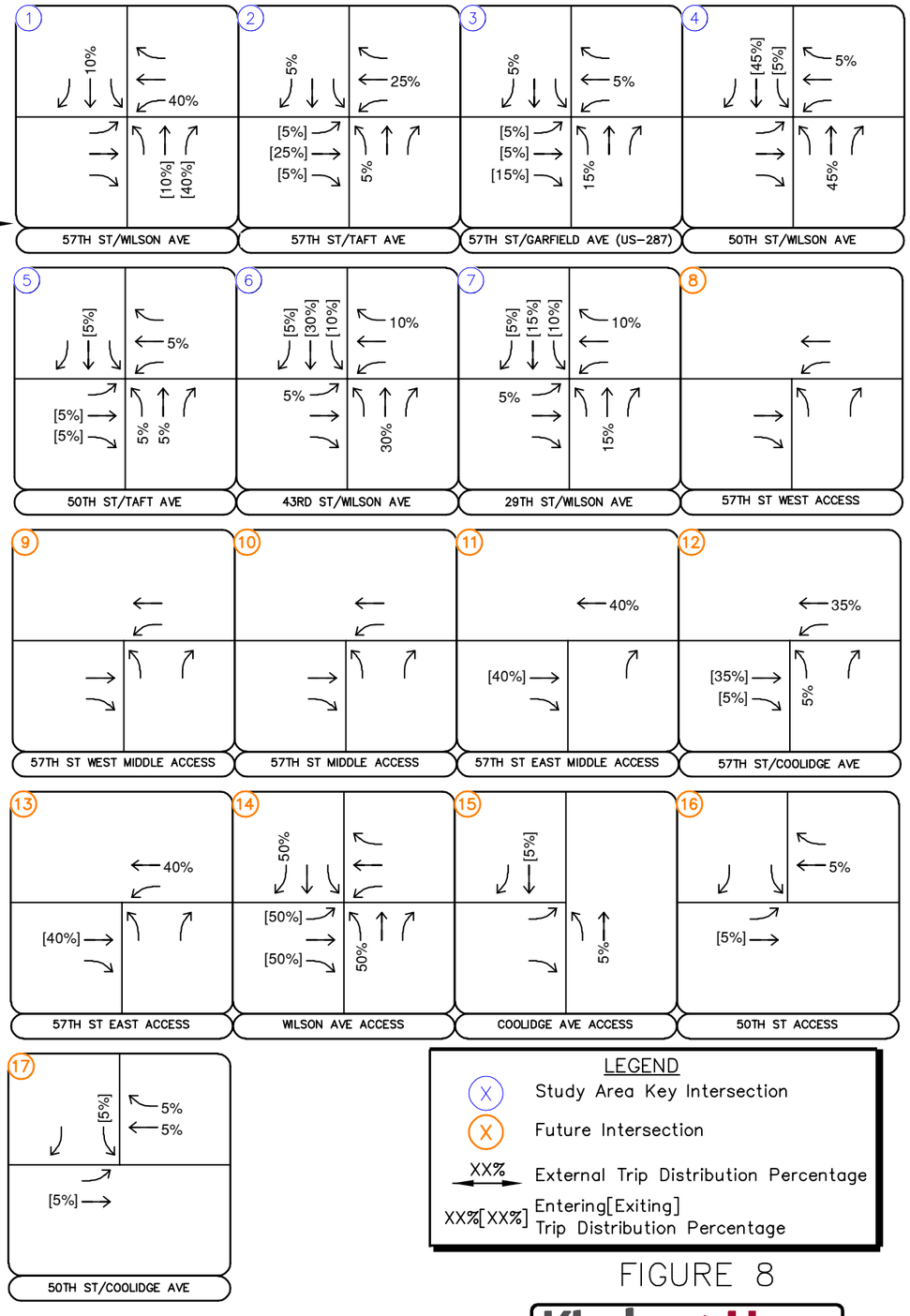
GREEN VALLEY RANCH & ELKADER
ELKADER RESIDENTIAL PROJECT TRIP DISTRIBUTION

FIGURE 7

Kimley»Horn

Kimley»Horn
NORTH
NTS 196011010





LEGEND

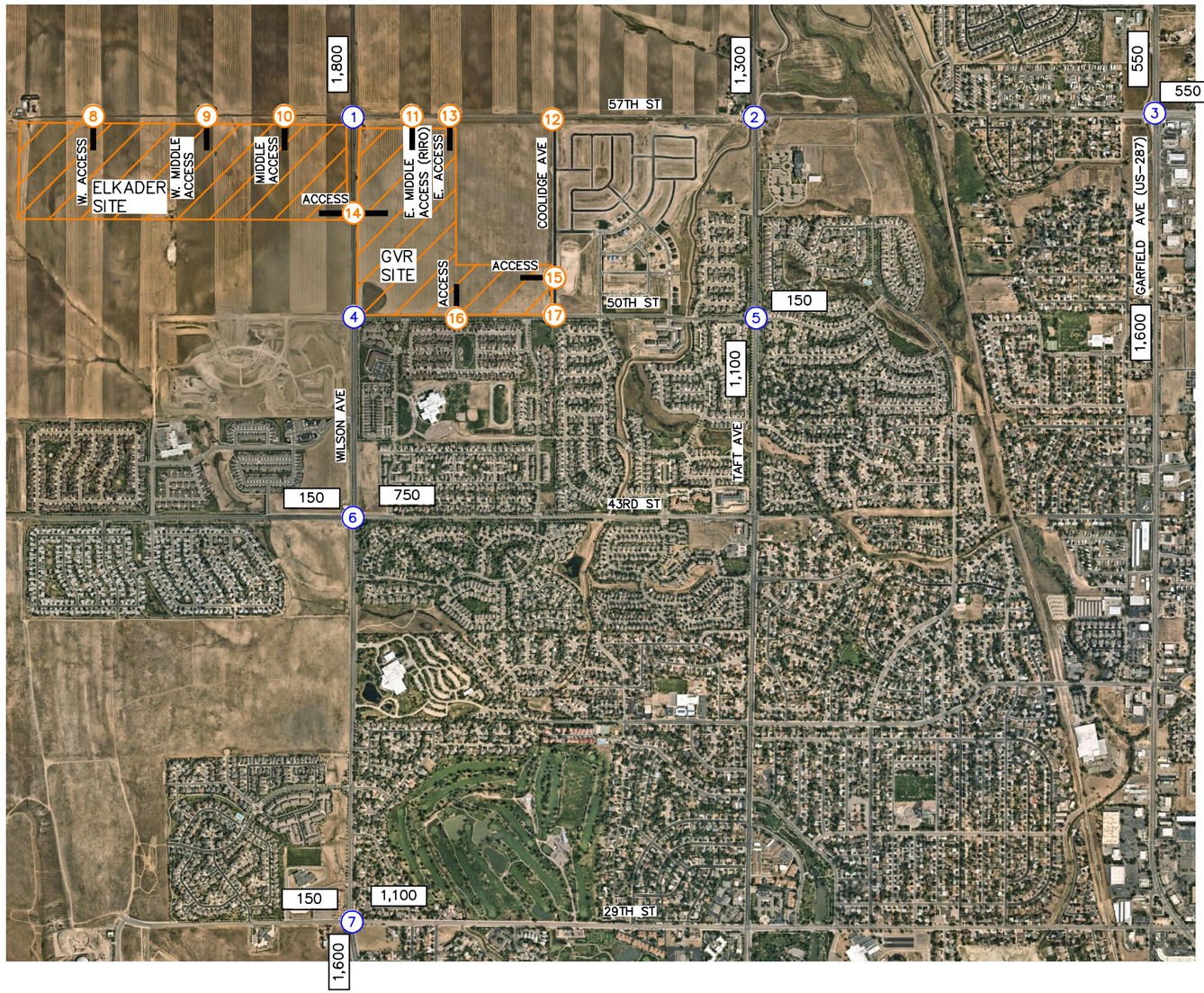
- X — Study Area Key Intersection
- X — Future Intersection
- XX% — External Trip Distribution Percentage
- XX%[XX%] — Entering[Exiting] Trip Distribution Percentage

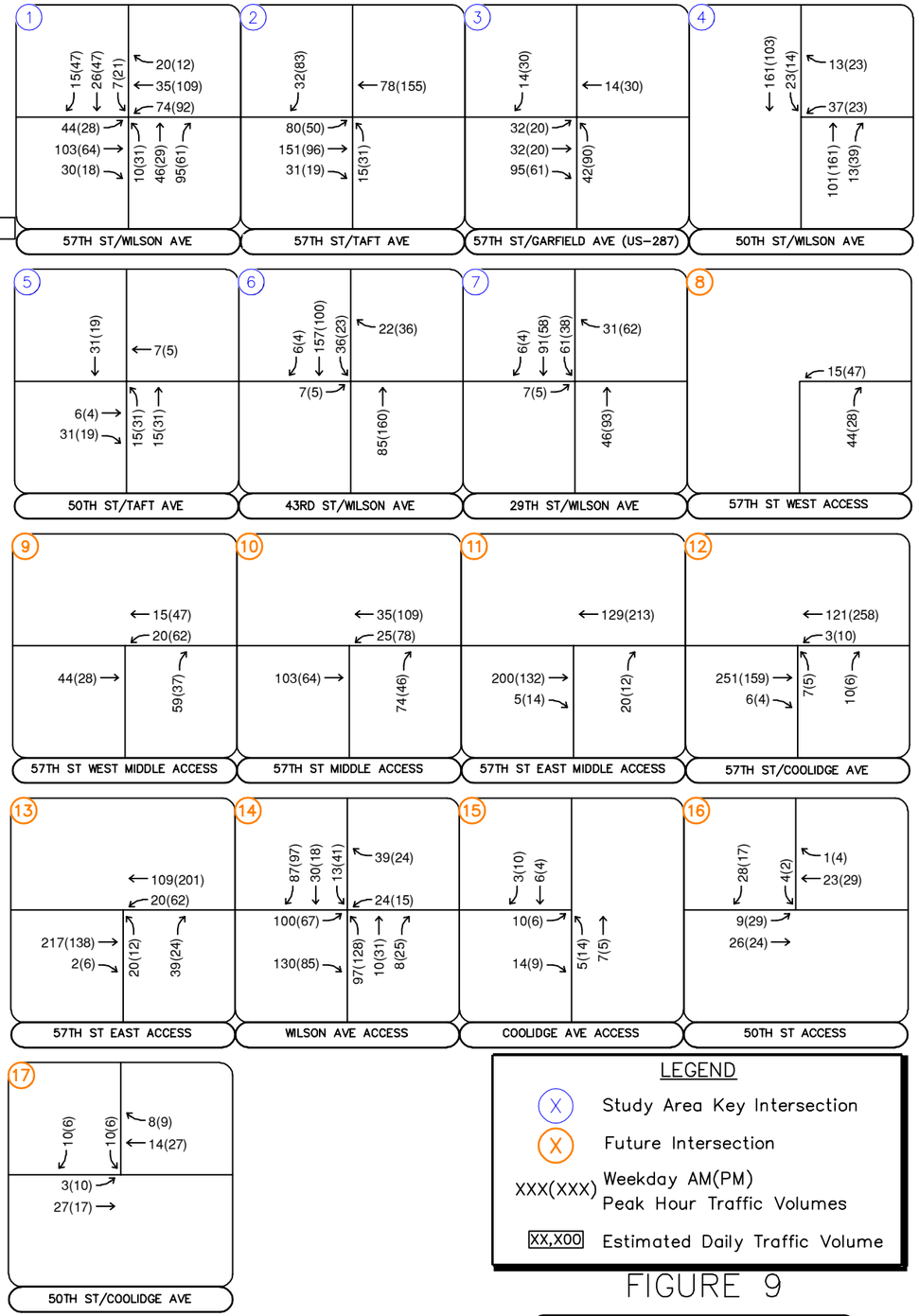
GREEN VALLEY RANCH & ELKADER
ELKADER COMMERCIAL PROJECT TRIP DISTRIBUTION

FIGURE 8

Kimley»Horn

Kimley»Horn
NORTH
NTS 196011010





LEGEND

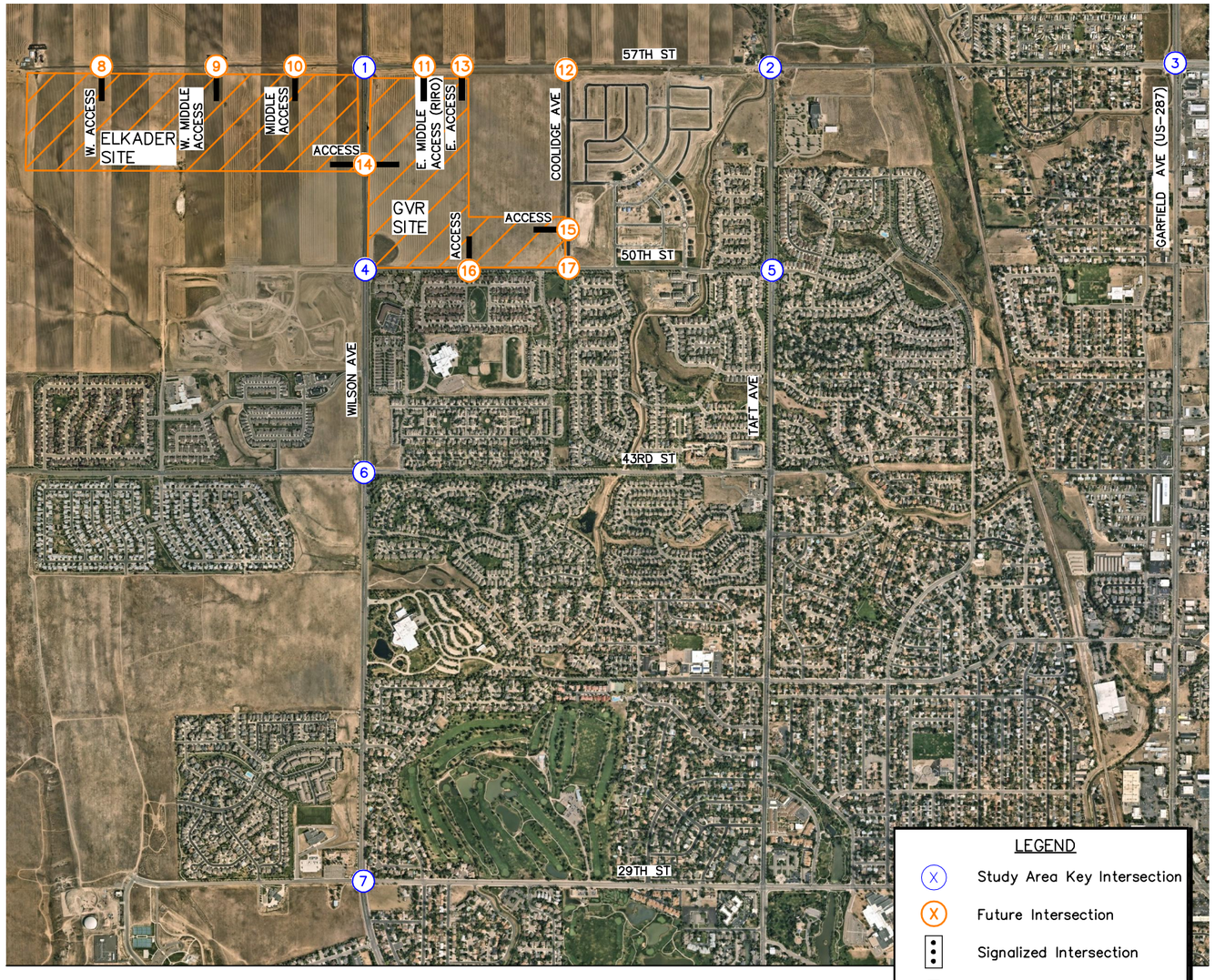
- (X) Study Area Key Intersection
- (X) Future Intersection
- XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes
- XX,X00 Estimated Daily Traffic Volume

GREEN VALLEY RANCH & ELKADER PROJECT TRAFFIC ASSIGNMENT

FIGURE 9

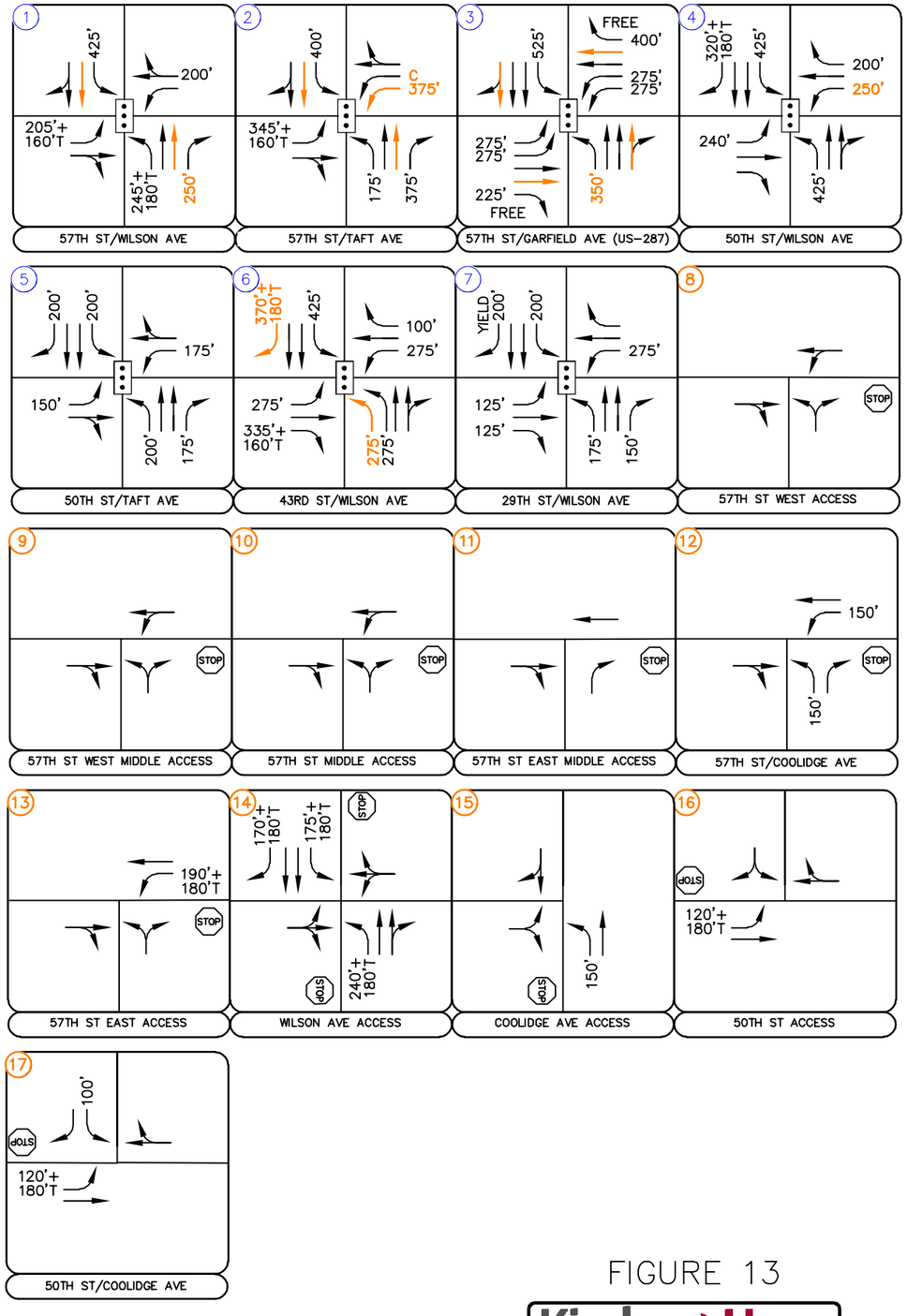
Kimley»Horn

Kimley»Horn
NORTH
NTS 196011010



LEGEND

- Study Area Key Intersection
- Future Intersection
- Signalized Intersection
- Stop Controlled Approach
- Improvement
- 100' Turn Lane Length (feet)



GREEN VALLEY RANCH & ELKADER
2040 RECOMMENDED LANE CONFIGURATION AND GEOMETRY

FIGURE 13

Kimley»Horn

TAFT RIDGE
MASTER TRAFFIC IMPACT STUDY

LOVELAND, COLORADO

MARCH 2022
REVISED JUNE 2022
REVISED SEPTEMBER 2022

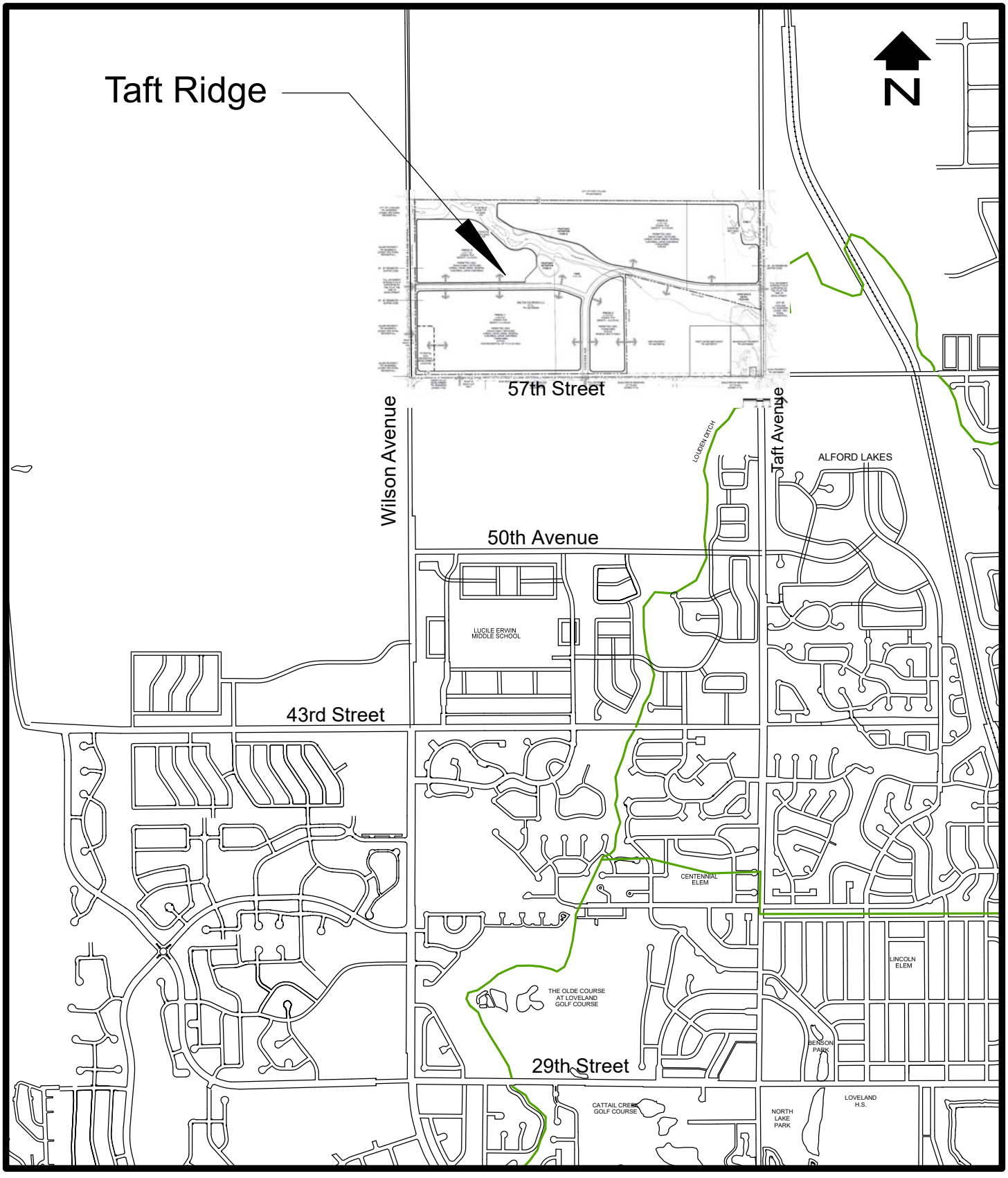
Prepared for:

Walton Colorado, LLC
14614 N. Kierland Blvd., Suite 120
Scottsdale, AZ 85254

Prepared by:

DELICH ASSOCIATES
2272 Glen Haven Drive
Loveland, CO 80538
Phone: 970-669-2061
FAX: 970-669-5034

Project #2126



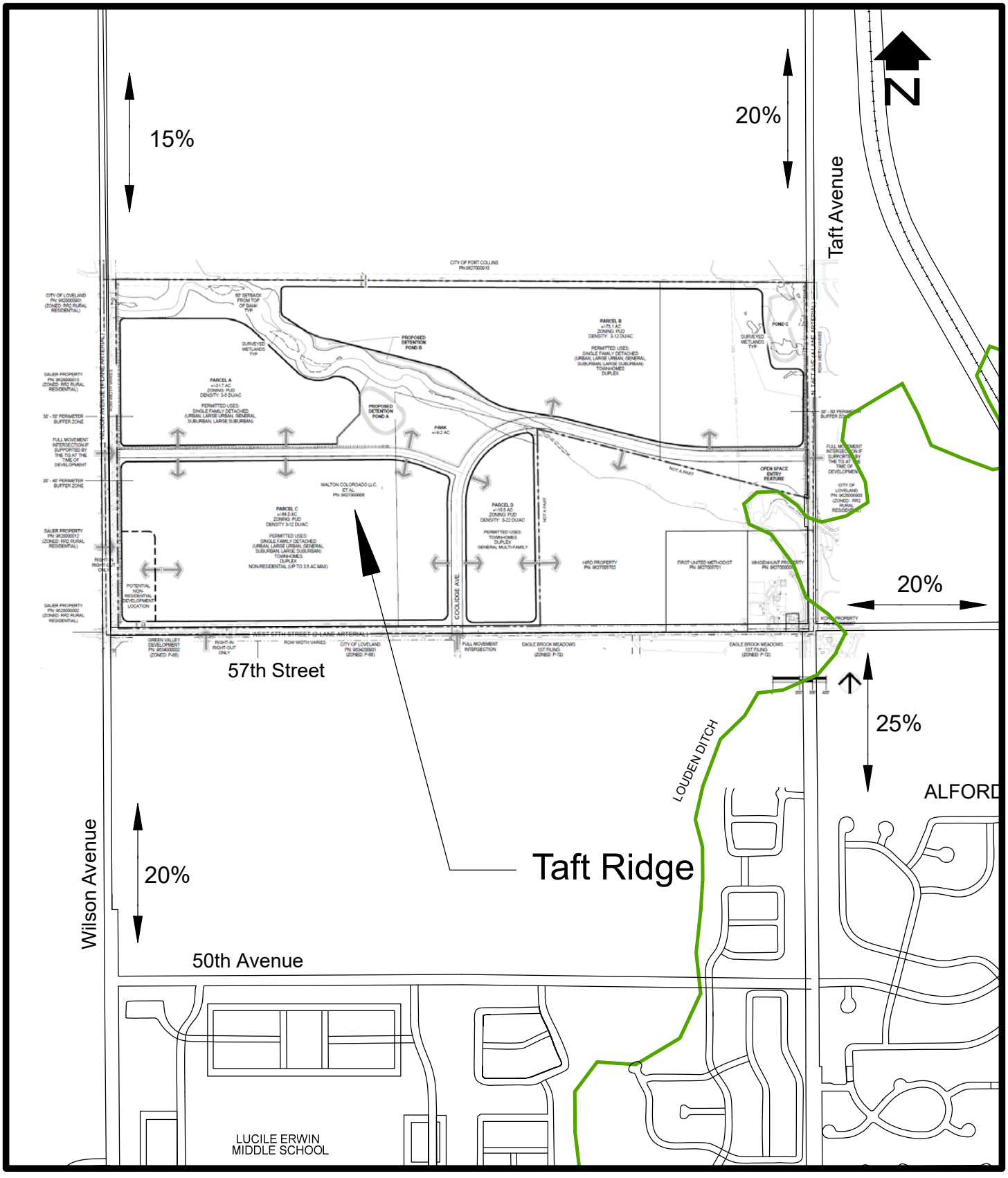
SCALE: 1"=2000'

SITE LOCATION

Figure 1

DELICH ASSOCIATES

TABLE 2 Trip Generation												
Code	Use	Size	AWDTE		AM Peak Hour				PM Peak Hour			
			Rate	Trips	Rate	In	Rate	Out	Rate	In	Rate	Out
210	A – Single Family Detached	140 D.U.	EQ.	1376	EQ.	26	EQ.	75	EQ.	86	EQ.	50
210	B – Single Family Detached	245 D.U.	EQ.	2302	EQ.	43	EQ.	125	EQ.	145	EQ.	86
215	B - Single Family Attached	150 D.U.	EQ.	1092	EQ.	22	EQ.	50	EQ.	49	EQ.	37
210	C - Single Family Detached	290 D.U.	EQ.	2688	EQ.	51	EQ.	145	EQ.	170	EQ.	100
945	C – Gas/C-Store	10 Fueling Positions	EQ.	2434	EQ.	80	EQ.	81	EQ.	92	EQ.	92
822	C – Strip Retail Plaza (<40K)	17.424 KSF	EQ.	964	EQ.	25	EQ.	17	EQ.	57	EQ.	58
215	D – Single Family Attached	160 D.U.	EQ.	1168	EQ.	24	EQ.	54	EQ.	52	EQ.	40
Total				12024		271		547		651		463

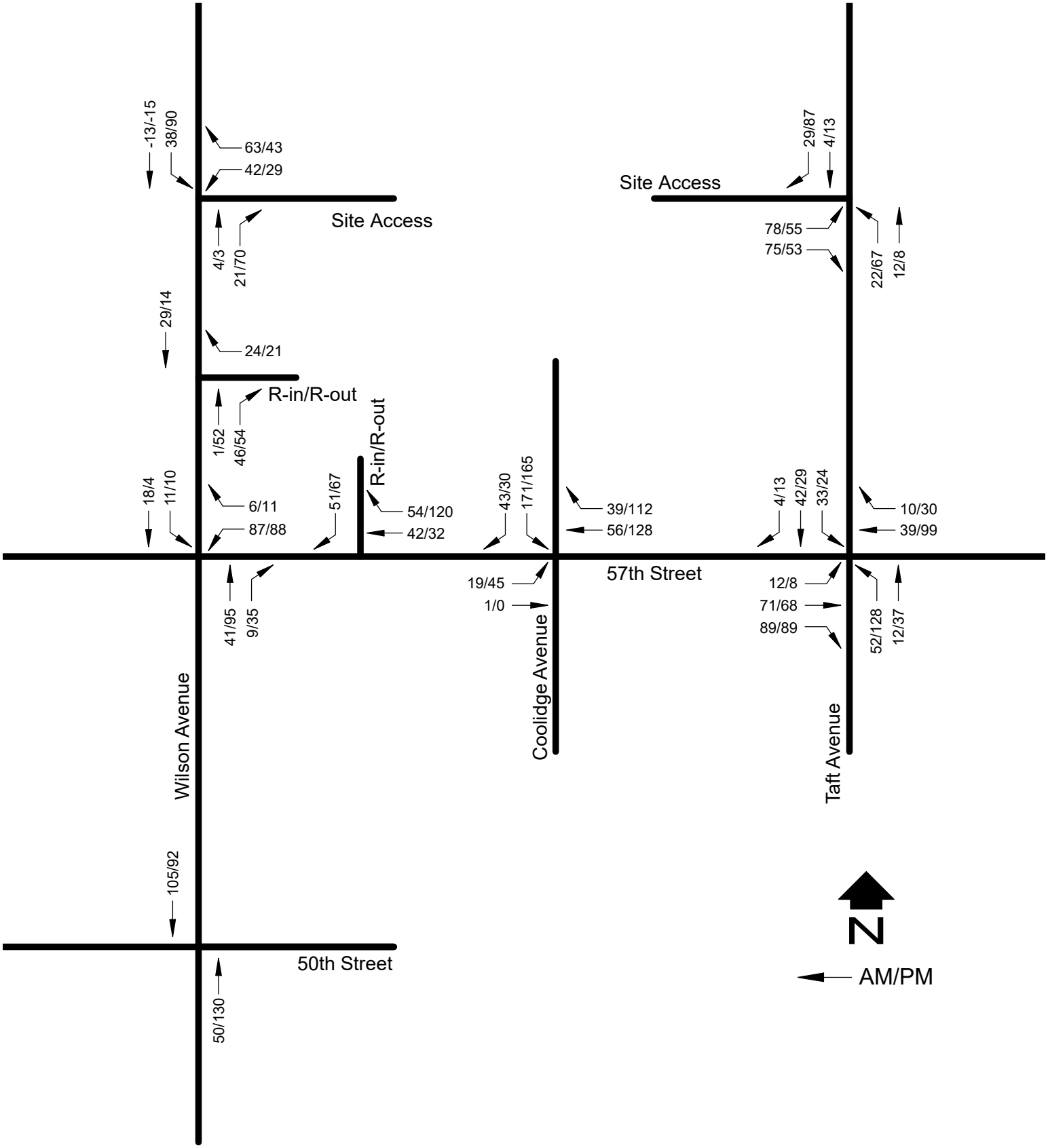


SCALE: 1"=1000'

TRIP DISTRIBUTION

Figure 5

DELICH ASSOCIATES



SITE GENERATED PEAK HOUR TRAFFIC

Figure 6

DELICH ASSOCIATES Traffic & Transportation Engineering
2272 Glen Haven Drive Loveland, Colorado 80538
Phone: (970) 669-2061 Fax: (970) 669-5034

MEMORANDUM

TO: Russell Baker/Robert Eck, Front Range Investment Holdings LLC
Kristin Turner, TB Group
Randy Maizland, Loveland TDR

FROM: Matt Delich

DATE: November 20, 2019

SUBJECT: Eagle Brook Meadows, Outlot A (Phase 4) – Trip Generation Analysis
(File: 1159ME01)

This memorandum provides trip generation analyses related to the proposed change of use on Outlot A (Phase 4) within Eagle Brook Meadows in Loveland, Colorado. The purpose is to compare the trip generation of the proposed land use with the trip generation of the land use on the same lot, the differences, and any change in the conclusions in the "Eagle Brook Meadows Traffic Impact Study" (TIS), dated June 2012.

The site plan and trip generation table from the cited TIS are provided in Appendix A. The subject lot is in the north of the West 50th Street and east of future Coolidge Avenue in Eagle Brook Meadows. The subject lot is highlighted in red. The land use in the cited TIS was apartments. The trip generation in the cited TIS was calculated using **Trip Generation, 8th Edition**, ITE, as the reference document. Apartments (Code 220) was the designated land use with dwelling units as the trip generation variable. Table 1 shows the calculated trip generation for this lot. The calculated trip generation was: 1034 daily trip ends, 77 morning peak hour trip ends, and 100 afternoon peak hour trip ends.

The site plan of the proposed Outlot A is provided in Appendix B. The land use is a mix of residential housing types. Table 2 shows the calculated trip generation using **Trip Generation, 10th Edition**, ITE, Code 210 (Single Family Detached Housing), with dwelling units as the trip generation variable. The calculated trip generation related to the 84 dwelling units will be: 728 daily trip ends, 54 morning peak hour trip ends, and 69 afternoon peak hour trip ends. The change in the calculated trip generation for the subject lot will be: 306 less daily trip ends, the 23 less morning peak hour trip ends, and 31 less afternoon peak hour trip ends.

The impact on the short range peak hour operation at the key intersections will not be significant. The conclusions in the cited TIS will not change. It is respectfully requested that no further traffic studies be required related to the proposed change of use on Outlot A within Eagle Brook Meadows.

Do not hesitate to contact me if there are questions or if additional information is required.

TABLE 1 Trip Generation for the Subject Outlot A [Phase 4] (TIS)								
Code	Use	Size	AWDTE		AM Peak Hour		PM Peak Hour	
			Rate	Trip Ends	Rate	Trip Ends	Rate	Trip Ends
220	Apartments	150 DU	EQ	1034	EQ	77	EQ	100

TABLE 2 Trip Generation for the Subject Outlot A [Change of Use]								
Code	Use	Size	AWDTE		AM Peak Hour		PM Peak Hour	
			Rate	Trip Ends	Rate	Trip Ends	Rate	Trip Ends
210	Single Family Detached Housing	36 DU	EQ	406	EQ	30	EQ	38
220	Townhome	48 DU	EQ	322	EQ	24	EQ	31
Total				**728**		**54**		**69**

APPENDIX A

SITE PLAN

Figure 5

DELICH ASSOCIATES

III. PROPOSED DEVELOPMENT

The Eagle Brook Meadows is a proposed 447 unit residential development. Figure 5 shows the site plan for the Eagle Brook Meadows development. The Eagle Brook Meadows development is expected to be built in four phases. Phase 1 is 96 single family residential homes that will access 50th Street at the future 50th/Redmesa and 50th/Avon intersections and is expected to be built in the next 2-3 years, following approval. Phase 1 future was determined to be the year 2015. Phase 2 is 95 single family residential homes that will add an access to 57th Street at the future 57th/Segundo intersection. The Phase 2 future was determined to be the year 2017. Phase 3 is 106 single family residential homes that will add accesses to 50th Street and 57th Street at the future 50th/Coolidge and 57th/Coolidge intersections. The Phase 3 future was determined to be the year 2019. The long range future (year 2030) includes full development and an appropriate increase in background traffic. Phases 2, 3, and full development include the previous phases, later in this report.

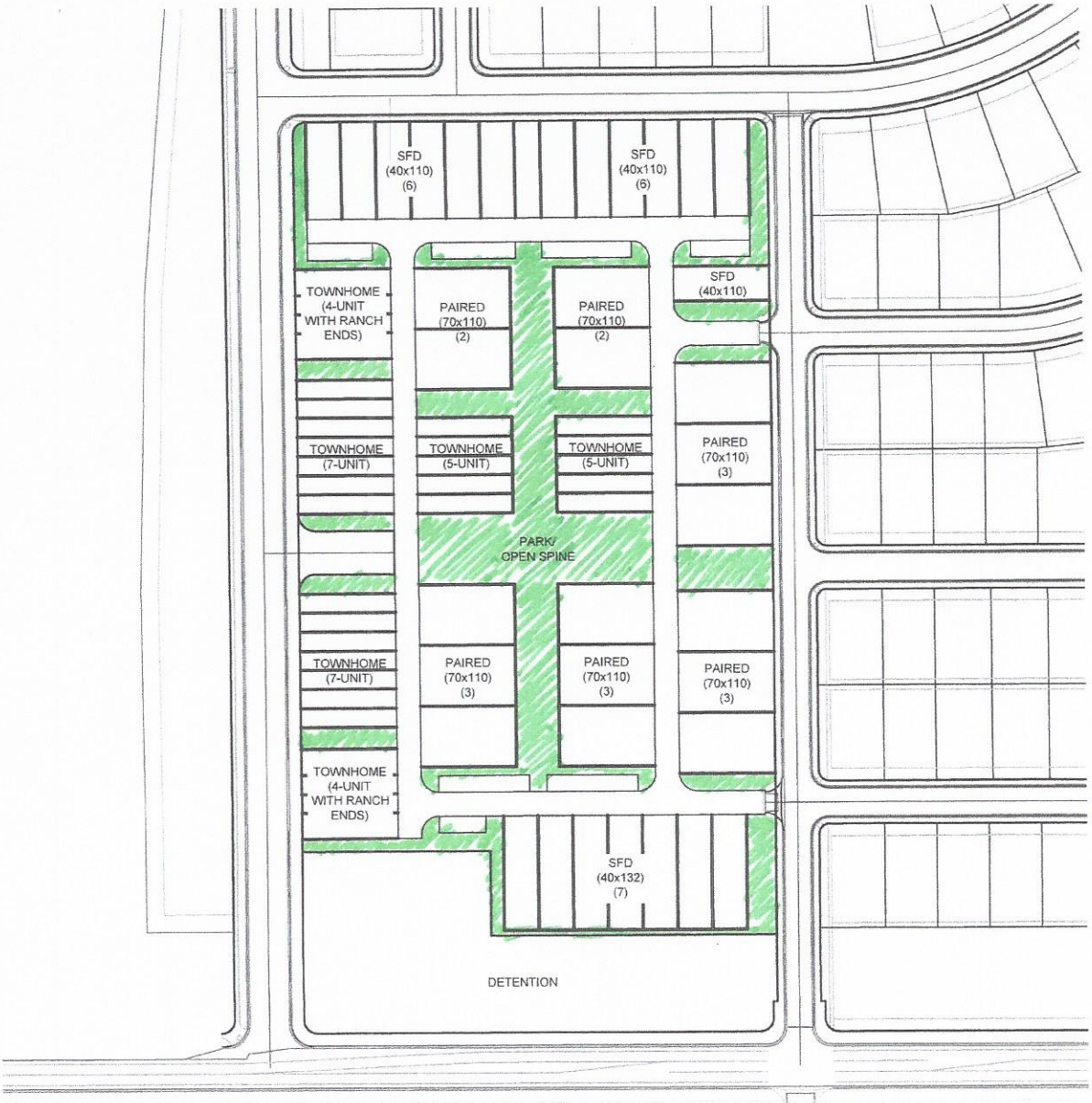
Trip Generation

Trip generation is important in considering the impact of a development, such as this, upon the existing and proposed street system. Trip generation information contained in Trip Generation, 8th Edition, ITE was used to estimate trips that would be generated by the proposed uses at this site. As discussed with City staff, the trip generation was determined using the equations. A trip is defined as a one-way vehicle movement from origin to destination. Table 2 shows the expected trip generation for the Eagle Brook Meadows site. The trip generation of the Eagle Brook Meadows resulted in 4124 daily trip ends, 314 morning peak hour trip ends, and 412 afternoon peak hour trip ends.

TABLE 2
Trip Generation

Code	Use	Size	AWDTE		AM Peak Hour				PM Peak Hour			
			Rate	Trips	Rate	In	Rate	Out	Rate	In	Rate	Out
Phase 1												
210	Single Family	96 D.U.	EQ.	1000	EQ.	19	EQ.	58	EQ.	64	EQ.	37
Phase 2												
210	Single Family	95 D.U.	EQ.	992	EQ.	19	EQ.	57	EQ.	63	EQ.	37
Phase 2 Subtotal				1992		38		115		127		74
Phase 3												
210	Single Family	106 D.U.	EQ.	1098	EQ.	21	EQ.	63	EQ.	70	EQ.	41
Phase 3 Subtotal				3090		59		178		197		115
Phase 4												
220	Apartments	150 D.U.	EQ.	1034	EQ.	15	EQ.	62	EQ.	65	EQ.	35
Total				4124		74		240		262		150

APPENDIX B



EAGLE BROOK - CONCEPT
10.16.19

38% (32) 16 PAIRED HOMES (70x110)
38% (32) (2) 4-UNIT TOWNHOMES (22x110 + 30x110 E
(2) 5-UNIT TOWNHOMES (22x110)
(2) 7-UNIT TOWNHOMES (22x110)
24% (20) SFD (40x110)

100% = 84 UNITS
11.25 AC = RESIDENTIAL (~5.5 DU/AC)

APPENDIX G – Background (without site development) Synchro Outputs

Queues
1: TAFT AVENUE & 57TH STREET

08/20/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	110	201	8	136	129	96	11	821	301	136	724	40
v/c Ratio	0.37	0.68	0.02	0.44	0.34	0.22	0.04	0.99	0.36	0.62	0.70	0.04
Control Delay (s/veh)	28.9	50.6	0.1	28.9	35.1	2.8	11.1	60.0	6.1	29.6	23.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.9	50.6	0.1	28.9	35.1	2.8	11.1	60.0	6.1	29.6	23.4	0.1
Queue Length 50th (ft)	51	122	0	63	70	0	3	~568	22	37	304	0
Queue Length 95th (ft)	85	185	0	102	115	15	12	#829	80	#141	#679	0
Internal Link Dist (ft)		956			1269			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	301	409	459	317	503	531	283	826	837	220	1033	941
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.49	0.02	0.43	0.26	0.18	0.04	0.99	0.36	0.62	0.70	0.04

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	185	7	125	119	88	10	755	277	125	666	37
Future Volume (veh/h)	101	185	7	125	119	88	10	755	277	125	666	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	201	8	136	129	96	11	821	301	136	724	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	245	208	251	307	261	285	957	811	233	1033	876
Arrive On Green	0.05	0.13	0.13	0.08	0.16	0.16	0.01	0.51	0.51	0.05	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	110	201	8	136	129	96	11	821	301	136	724	40
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	10.5	0.4	6.5	6.2	5.4	0.3	38.2	11.4	3.5	28.3	1.2
Cycle Q Clear(g_c), s	5.0	10.5	0.4	6.5	6.2	5.4	0.3	38.2	11.4	3.5	28.3	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	245	208	251	307	261	285	957	811	233	1033	876
V/C Ratio(X)	0.39	0.82	0.04	0.54	0.42	0.37	0.04	0.86	0.37	0.58	0.70	0.05
Avail Cap(c_a), veh/h	279	411	349	281	505	428	351	957	811	244	1033	876
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	42.3	37.9	33.8	37.5	37.2	14.3	21.2	14.7	20.3	16.3	10.3
Incr Delay (d2), s/veh	0.9	6.6	0.1	1.8	0.9	0.9	0.1	9.8	1.3	3.3	4.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	5.1	0.2	2.8	2.8	2.1	0.1	17.3	4.1	1.6	11.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	36.9	48.9	38.0	35.6	38.4	38.0	14.4	31.1	16.0	23.5	20.3	10.4
LnGrp LOS	D	D	D	D	D	D	B	C	B	C	C	B
Approach Vol, veh/h		319			361			1133			900	
Approach Delay, s/veh		44.5			37.3			26.9			20.3	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	57.2	13.3	19.1	6.3	61.2	10.0	22.4
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	6.0	40.0	10.0	22.0	5.0	41.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	5.5	40.2	8.5	12.5	2.3	30.3	7.0	8.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	3.5	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	28.2
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	586	0	10	330	3	0	0	11	1	0	2
Future Vol, veh/h	1	586	0	10	330	3	0	0	11	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	637	0	11	359	3	0	0	12	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	362	0	0	637	0	0	1023	1023	637	1028	1022	361
Stage 1	-	-	-	-	-	-	639	639	-	383	383	-
Stage 2	-	-	-	-	-	-	384	384	-	645	639	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1197	-	-	947	-	-	214	236	477	212	236	684
Stage 1	-	-	-	-	-	-	464	470	-	640	612	-
Stage 2	-	-	-	-	-	-	639	611	-	461	470	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1197	-	-	947	-	-	211	233	477	205	233	684
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	233	-	205	233	-
Stage 1	-	-	-	-	-	-	464	470	-	639	605	-
Stage 2	-	-	-	-	-	-	630	604	-	449	470	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.3	12.7	14.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	477	1197	-	-	947	-	-	385
HCM Lane V/C Ratio	0.025	0.001	-	-	0.011	-	-	0.008
HCM Control Delay (s/veh)	12.7	8	-	-	8.8	-	-	14.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q (veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	7	12	0
Future Vol, veh/h	0	0	0	7	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	8	13	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	21	13	13	0	-	0
Stage 1	13	-	-	-	-	-
Stage 2	8	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	996	1067	1606	-	-	-
Stage 1	1010	-	-	-	-	-
Stage 2	1015	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	996	1067	1606	-	-	-
Mov Cap-2 Maneuver	996	-	-	-	-	-
Stage 1	1010	-	-	-	-	-
Stage 2	1015	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1606	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	-

Queues
1: TAFT AVENUE & 57TH STREET

08/20/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	86	184	9	325	304	123	8	730	228	114	855	85
v/c Ratio	0.39	0.69	0.02	0.96	0.70	0.26	0.04	0.82	0.26	0.50	0.81	0.09
Control Delay (s/veh)	33.1	58.1	0.1	72.7	48.2	6.7	11.1	35.0	4.2	19.9	28.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.1	58.1	0.1	72.7	48.2	6.7	11.1	35.0	4.2	19.9	28.5	0.2
Queue Length 50th (ft)	43	125	0	191	202	0	2	449	8	33	441	0
Queue Length 95th (ft)	77	193	0	#344	287	42	10	#681	52	#71	#874	0
Internal Link Dist (ft)		956			1269			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	222	338	434	340	475	500	183	887	861	227	1054	974
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.54	0.02	0.96	0.64	0.25	0.04	0.82	0.26	0.50	0.81	0.09

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	169	8	299	280	113	7	672	210	105	787	78
Future Volume (veh/h)	79	169	8	299	280	113	7	672	210	105	787	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	184	9	325	304	123	8	730	228	114	855	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	222	188	303	358	304	188	968	820	269	1035	877
Arrive On Green	0.05	0.12	0.12	0.12	0.19	0.19	0.01	0.52	0.52	0.05	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	86	184	9	325	304	123	8	730	228	114	855	85
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.7	10.6	0.6	13.0	17.3	7.5	0.2	34.0	8.9	3.2	41.4	2.8
Cycle Q Clear(g_c), s	4.7	10.6	0.6	13.0	17.3	7.5	0.2	34.0	8.9	3.2	41.4	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	180	222	188	303	358	304	188	968	820	269	1035	877
V/C Ratio(X)	0.48	0.83	0.05	1.07	0.85	0.41	0.04	0.75	0.28	0.42	0.83	0.10
Avail Cap(c_a), veh/h	180	340	288	303	476	403	252	968	820	269	1035	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	47.4	42.9	39.9	42.9	39.0	18.8	21.0	15.0	17.7	20.2	11.6
Incr Delay (d2), s/veh	2.0	9.7	0.1	72.4	10.6	0.9	0.1	5.4	0.8	1.1	7.6	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	5.4	0.2	7.9	8.8	2.9	0.1	14.8	3.2	1.2	18.1	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.8	57.1	43.1	112.3	53.5	39.8	18.9	26.4	15.8	18.7	27.8	11.8
LnGrp LOS	D	E	D	F	D	D	B	C	B	B	C	B
Approach Vol, veh/h		279			752			966			1054	
Approach Delay, s/veh		52.2			76.7			23.9			25.5	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	62.9	18.0	19.1	6.1	66.8	10.0	27.1
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	5.0	50.0	13.0	20.0	5.0	50.0	5.0	28.0
Max Q Clear Time (g_c+I1), s	5.2	36.0	15.0	12.6	2.2	43.4	6.7	19.3
Green Ext Time (p_c), s	0.0	4.7	0.0	0.5	0.0	3.2	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	40.0
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	482	2	12	689	0	1	0	14	1	0	2
Future Vol, veh/h	0	482	2	12	689	0	1	0	14	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	524	2	13	749	0	1	0	15	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	749	0	0	526	0	0	1301	1300	525	1308	1301	749
Stage 1	-	-	-	-	-	-	525	525	-	775	775	-
Stage 2	-	-	-	-	-	-	776	775	-	533	526	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	860	-	-	1041	-	-	138	161	552	136	161	412
Stage 1	-	-	-	-	-	-	536	529	-	391	408	-
Stage 2	-	-	-	-	-	-	390	408	-	531	529	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	860	-	-	1041	-	-	136	159	552	131	159	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	159	-	131	159	-
Stage 1	-	-	-	-	-	-	536	529	-	391	403	-
Stage 2	-	-	-	-	-	-	383	403	-	516	529	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.1	13.1	20.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	459	860	-	-	1041	-	-	240
HCM Lane V/C Ratio	0.036	-	-	-	0.013	-	-	0.014
HCM Control Delay (s/veh)	13.1	0	-	-	8.5	-	-	20.2
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q (veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	9	10	0
Future Vol, veh/h	0	0	0	9	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	10	11	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	21	11	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	10	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	996	1070	1608	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	1013	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	996	1070	1608	-	-	-
Mov Cap-2 Maneuver	996	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	1013	-	-	-	-	-

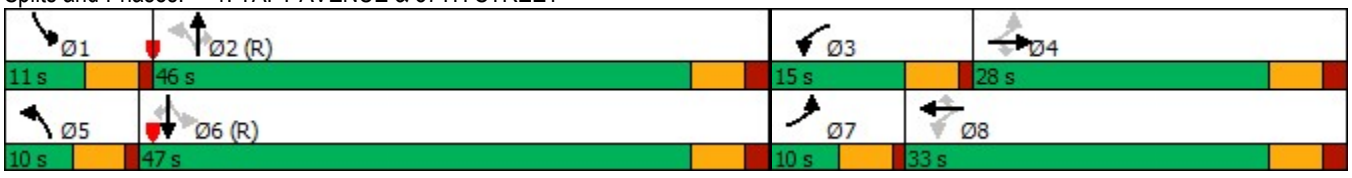
Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

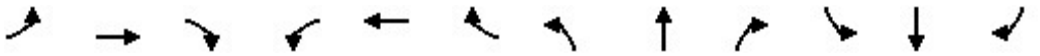
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	437	127	125	246	98	77	1028	277	158	938	74
Future Volume (vph)	196	437	127	125	246	98	77	1028	277	158	938	74
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0	34.0
Total Split (s)	10.0	28.0	28.0	15.0	33.0	33.0	10.0	46.0	46.0	11.0	47.0	47.0
Total Split (%)	10.0%	28.0%	28.0%	15.0%	33.0%	33.0%	10.0%	46.0%	46.0%	11.0%	47.0%	47.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	28.8	22.8	22.8	37.2	27.0	27.0	46.0	40.0	40.0	48.8	43.0	43.0
Actuated g/C Ratio	0.29	0.23	0.23	0.37	0.27	0.27	0.46	0.40	0.40	0.49	0.43	0.43
v/c Ratio	0.66	1.12	0.29	0.57	0.53	0.20	0.51	1.50	0.41	0.95	1.27	0.11
Control Delay	38.0	118.8	7.1	30.5	35.7	3.2	23.9	258.4	10.3	76.5	161.2	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	118.8	7.1	30.5	35.7	3.2	23.9	258.4	10.3	76.5	161.2	0.6
LOS	D	F	A	C	D	A	C	F	B	E	F	A
Approach Delay		79.3			27.5			195.6			139.6	
Approach LOS		E			C			F			F	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.50	
Intersection Signal Delay: 134.0	Intersection LOS: F
Intersection Capacity Utilization 111.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: TAFT AVENUE & 57TH STREET



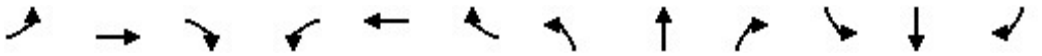


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	213	475	138	136	267	107	84	1117	301	172	1020	80
v/c Ratio	0.66	1.12	0.29	0.57	0.53	0.20	0.51	1.50	0.41	0.95	1.27	0.11
Control Delay	38.0	118.8	7.1	30.5	35.7	3.2	23.9	258.4	10.3	76.5	161.2	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	118.8	7.1	30.5	35.7	3.2	23.9	258.4	10.3	76.5	161.2	0.6
Queue Length 50th (ft)	94	~360	0	57	145	0	26	~993	50	59	~851	0
Queue Length 95th (ft)	#157	#555	46	101	226	22	50	#1240	116	#192	#1094	3
Internal Link Dist (ft)		956			1269			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	322	423	470	254	503	531	164	745	740	181	800	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	1.12	0.29	0.54	0.53	0.20	0.51	1.50	0.41	0.95	1.27	0.11

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	437	127	125	246	98	77	1028	277	158	938	74
Future Volume (veh/h)	196	437	127	125	246	98	77	1028	277	158	938	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	475	138	136	267	107	84	1117	301	172	1020	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	411	349	209	462	391	152	791	671	179	819	694
Arrive On Green	0.05	0.22	0.22	0.08	0.25	0.25	0.05	0.42	0.42	0.06	0.44	0.44
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	213	475	138	136	267	107	84	1117	301	172	1020	80
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	22.0	7.4	5.8	12.5	5.5	2.6	42.3	13.5	5.6	43.8	3.0
Cycle Q Clear(g_c), s	5.0	22.0	7.4	5.8	12.5	5.5	2.6	42.3	13.5	5.6	43.8	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	411	349	209	462	391	152	791	671	179	819	694
V/C Ratio(X)	0.75	1.15	0.40	0.65	0.58	0.27	0.55	1.41	0.45	0.96	1.25	0.12
Avail Cap(c_a), veh/h	284	411	349	250	505	428	161	791	671	179	819	694
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	39.0	33.3	29.2	33.1	30.4	23.8	28.8	20.5	24.0	28.1	16.6
Incr Delay (d2), s/veh	10.7	93.7	0.7	4.4	1.4	0.4	3.6	192.7	2.2	55.9	120.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	20.4	2.8	2.6	5.7	2.1	1.1	59.5	5.1	4.9	45.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	132.7	34.0	33.6	34.5	30.8	27.3	221.6	22.7	79.9	148.7	17.0
LnGrp LOS	D	F	C	C	C	C	C	F	C	E	F	B
Approach Vol, veh/h		826			510			1502			1272	
Approach Delay, s/veh		94.1			33.5			170.9			131.1	
Approach LOS		F			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	48.3	12.7	28.0	9.5	49.8	10.0	30.7
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	6.0	40.0	10.0	22.0	5.0	41.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	7.6	44.3	7.8	24.0	4.6	45.8	7.0	14.5
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	126.1
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	871	0	10	467	3	0	0	11	1	0	2
Future Vol, veh/h	1	871	0	10	467	3	0	0	11	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	947	0	11	508	3	0	0	12	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	511	0	0	947	0	0	1482	1482	947	1487	1481	510
Stage 1	-	-	-	-	-	-	949	949	-	532	532	-
Stage 2	-	-	-	-	-	-	533	533	-	955	949	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1054	-	-	725	-	-	103	125	317	103	125	563
Stage 1	-	-	-	-	-	-	313	339	-	531	526	-
Stage 2	-	-	-	-	-	-	531	525	-	310	339	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1054	-	-	725	-	-	101	123	317	98	123	563
Mov Cap-2 Maneuver	-	-	-	-	-	-	101	123	-	98	123	-
Stage 1	-	-	-	-	-	-	313	339	-	530	518	-
Stage 2	-	-	-	-	-	-	521	517	-	298	339	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	16.8	21.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	317	1054	-	-	725	-	-	218
HCM Lane V/C Ratio	0.038	0.001	-	-	0.015	-	-	0.015
HCM Control Delay (s)	16.8	8.4	-	-	10	-	-	21.8
HCM Lane LOS	C	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	7	7	12	0
Future Vol, veh/h	0	6	7	7	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	7	8	8	13	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	37	13	13	0	-	0
Stage 1	13	-	-	-	-	-
Stage 2	24	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	975	1067	1606	-	-	-
Stage 1	1010	-	-	-	-	-
Stage 2	999	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	970	1067	1606	-	-	-
Mov Cap-2 Maneuver	970	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	999	-	-	-	-	-

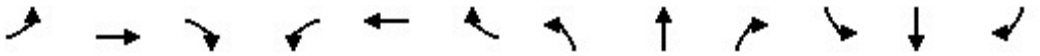
Approach	EB	NB	SB
HCM Control Delay, s	8.4	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1606	-	1067	-	-
HCM Lane V/C Ratio	0.005	-	0.006	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	351	116	299	564	143	166	942	210	129	1088	176
Future Volume (vph)	138	351	116	299	564	143	166	942	210	129	1088	176
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0	34.0
Total Split (s)	10.0	26.0	26.0	18.0	34.0	34.0	10.0	56.0	56.0	10.0	56.0	56.0
Total Split (%)	9.1%	23.6%	23.6%	16.4%	30.9%	30.9%	9.1%	50.9%	50.9%	9.1%	50.9%	50.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	26.0	20.0	20.0	39.0	28.0	28.0	56.0	50.0	50.0	56.0	50.0	50.0
Actuated g/C Ratio	0.24	0.18	0.18	0.35	0.25	0.25	0.51	0.45	0.45	0.51	0.45	0.45
v/c Ratio	0.99	1.13	0.29	1.16	1.29	0.31	1.21	1.21	0.28	0.94	1.40	0.23
Control Delay	105.7	130.7	3.4	134.9	182.1	10.3	162.8	134.8	5.7	80.8	214.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.7	130.7	3.4	134.9	182.1	10.3	162.8	134.8	5.7	80.8	214.0	3.9
LOS	F	F	A	F	F	B	F	F	A	F	F	A
Approach Delay		100.7			143.7			117.8			175.2	
Approach LOS		F			F			F			F	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 105 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.40	
Intersection Signal Delay: 139.9	Intersection LOS: F
Intersection Capacity Utilization 122.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: TAFT AVENUE & 57TH STREET

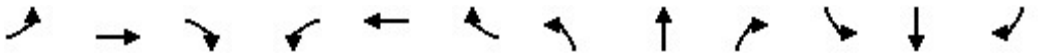


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	150	382	126	325	613	155	180	1024	228	140	1183	191
v/c Ratio	0.99	1.13	0.29	1.16	1.29	0.31	1.21	1.21	0.28	0.94	1.40	0.23
Control Delay	105.7	130.7	3.4	134.9	182.1	10.3	162.8	134.8	5.7	80.8	214.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.7	130.7	3.4	134.9	182.1	10.3	162.8	134.8	5.7	80.8	214.0	3.9
Queue Length 50th (ft)	74	~313	0	~220	~554	14	~103	~885	19	47	~1119	5
Queue Length 95th (ft)	#185	#500	18	#402	#772	66	#246	#1134	64	#172	#1374	44
Internal Link Dist (ft)		956			1269			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	151	338	434	279	474	499	149	846	817	149	846	817
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	1.13	0.29	1.16	1.29	0.31	1.21	1.21	0.28	0.94	1.40	0.23

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	351	116	299	564	143	166	942	210	129	1088	176
Future Volume (veh/h)	138	351	116	299	564	143	166	942	210	129	1088	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	150	382	126	325	613	155	180	1024	228	140	1183	191
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	340	288	276	476	403	146	850	720	146	850	720
Arrive On Green	0.05	0.18	0.18	0.12	0.25	0.25	0.05	0.45	0.45	0.05	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	150	382	126	325	613	155	180	1024	228	140	1183	191
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	20.0	7.8	13.0	28.0	8.9	5.0	50.0	10.1	4.7	50.0	8.2
Cycle Q Clear(g_c), s	5.0	20.0	7.8	13.0	28.0	8.9	5.0	50.0	10.1	4.7	50.0	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	146	340	288	276	476	403	146	850	720	146	850	720
V/C Ratio(X)	1.02	1.12	0.44	1.18	1.29	0.38	1.23	1.20	0.32	0.96	1.39	0.27
Avail Cap(c_a), veh/h	146	340	288	276	476	403	146	850	720	146	850	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.6	45.0	40.0	33.3	41.0	33.9	26.8	30.0	19.1	26.3	30.0	18.6
Incr Delay (d2), s/veh	81.0	86.4	1.0	111.1	144.6	0.6	148.9	103.1	1.2	61.0	183.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	17.2	3.0	14.2	31.5	3.4	7.9	44.8	3.8	4.3	63.7	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	123.5	131.4	41.0	144.3	185.6	34.5	175.7	133.1	20.3	87.3	213.4	19.5
LnGrp LOS	F	F	D	F	F	C	F	F	C	F	F	B
Approach Vol, veh/h		658			1093			1432			1514	
Approach Delay, s/veh		112.3			151.9			120.5			177.3	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	56.0	18.0	26.0	10.0	56.0	10.0	34.0
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	5.0	50.0	13.0	20.0	5.0	50.0	5.0	28.0
Max Q Clear Time (g_c+I1), s	6.7	52.0	15.0	22.0	7.0	52.0	7.0	30.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	145.0
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	688	2	12	1003	0	1	0	14	1	0	2
Future Vol, veh/h	0	688	2	12	1003	0	1	0	14	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	748	2	13	1090	0	1	0	15	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1090	0	0	750	0	0	1866	1865	749	1873	1866	1090
Stage 1	-	-	-	-	-	-	749	749	-	1116	1116	-
Stage 2	-	-	-	-	-	-	1117	1116	-	757	750	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	640	-	-	859	-	-	56	73	412	55	73	262
Stage 1	-	-	-	-	-	-	404	419	-	252	283	-
Stage 2	-	-	-	-	-	-	252	283	-	400	419	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	640	-	-	859	-	-	55	72	412	52	72	262
Mov Cap-2 Maneuver	-	-	-	-	-	-	55	72	-	52	72	-
Stage 1	-	-	-	-	-	-	404	419	-	252	279	-
Stage 2	-	-	-	-	-	-	246	279	-	385	419	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	18.2	38.1
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	288	640	-	-	859	-	-	112
HCM Lane V/C Ratio	0.057	-	-	-	0.015	-	-	0.029
HCM Control Delay (s)	18.2	0	-	-	9.3	-	-	38.1
HCM Lane LOS	C	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	5	9	10	0
Future Vol, veh/h	0	4	5	9	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	5	10	11	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	31	11	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	20	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	983	1070	1608	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	980	1070	1608	-	-	-
Mov Cap-2 Maneuver	980	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1003	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1070	-	-
HCM Lane V/C Ratio	0.003	-	0.004	-	-
HCM Control Delay (s)	7.2	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	196	437	127	125	246	98	77	1028	277	158	938
Future Volume (vph)	196	437	127	125	246	98	77	1028	277	158	938
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0
Total Split (s)	12.0	35.0	35.0	10.0	33.0	33.0	10.0	42.0	42.0	13.0	45.0
Total Split (%)	12.0%	35.0%	35.0%	10.0%	33.0%	33.0%	10.0%	42.0%	42.0%	13.0%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	36.3	27.8	27.8	31.9	25.6	25.6	43.0	36.8	36.8	49.3	41.8
Actuated g/C Ratio	0.36	0.28	0.28	0.32	0.26	0.26	0.43	0.37	0.37	0.49	0.42
v/c Ratio	0.62	0.92	0.25	0.41	0.56	0.21	0.45	0.86	0.40	0.79	0.75
Control Delay	30.9	59.3	5.7	23.2	37.0	3.2	21.6	37.6	6.2	44.2	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	59.3	5.7	23.2	37.0	3.2	21.6	37.6	6.2	44.2	29.3
LOS	C	E	A	C	D	A	C	D	A	D	C
Approach Delay		43.0			26.3			30.4			31.3
Approach LOS		D			C			C			C

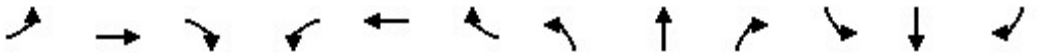
Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 32.7	Intersection LOS: C
Intersection Capacity Utilization 82.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: TAFT AVENUE & 57TH STREET

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	213	475	138	136	267	107	84	1117	301	172	1100
v/c Ratio	0.62	0.92	0.25	0.41	0.56	0.21	0.45	0.86	0.40	0.79	0.75
Control Delay	30.9	59.3	5.7	23.2	37.0	3.2	21.6	37.6	6.2	44.2	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	59.3	5.7	23.2	37.0	3.2	21.6	37.6	6.2	44.2	29.3
Queue Length 50th (ft)	91	288	0	27	145	0	27	346	16	58	320
Queue Length 95th (ft)	147	#468	42	46	226	22	53	#466	75	#169	404
Internal Link Dist (ft)		956			1269			1182			652
Turn Bay Length (ft)	450		430	550		200	200			450	
Base Capacity (vph)	346	540	559	330	503	531	186	1301	747	219	1468
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.88	0.25	0.41	0.53	0.20	0.45	0.86	0.40	0.79	0.75

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	437	127	125	246	98	77	1028	277	158	938	74
Future Volume (veh/h)	196	437	127	125	246	98	77	1028	277	158	938	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	475	138	136	267	107	84	1117	301	172	1020	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	514	435	357	474	402	230	1347	601	245	1373	108
Arrive On Green	0.07	0.27	0.27	0.05	0.25	0.25	0.05	0.38	0.38	0.08	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	3456	1870	1585	1781	3554	1585	1781	3338	262
Grp Volume(v), veh/h	213	475	138	136	267	107	84	1117	301	172	543	557
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1585	1781	1777	1585	1781	1777	1823
Q Serve(g_s), s	7.0	24.7	6.9	2.9	12.4	5.4	2.8	28.5	14.6	5.8	25.9	25.9
Cycle Q Clear(g_c), s	7.0	24.7	6.9	2.9	12.4	5.4	2.8	28.5	14.6	5.8	25.9	25.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	327	514	435	357	474	402	230	1347	601	245	731	750
V/C Ratio(X)	0.65	0.92	0.32	0.38	0.56	0.27	0.36	0.83	0.50	0.70	0.74	0.74
Avail Cap(c_a), veh/h	327	542	460	360	505	428	239	1347	601	250	731	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	35.3	28.8	28.1	32.5	29.9	20.5	28.1	23.8	22.5	25.0	25.0
Incr Delay (d2), s/veh	4.5	21.2	0.4	0.7	1.3	0.4	1.0	6.0	3.0	8.2	6.7	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	13.7	2.6	1.2	5.6	2.0	1.2	12.2	5.7	2.7	11.4	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	56.5	29.2	28.8	33.8	30.2	21.4	34.1	26.8	30.8	31.7	31.5
LnGrp LOS	C	E	C	C	C	C	C	C	C	C	C	C
Approach Vol, veh/h		826			510			1502			1272	
Approach Delay, s/veh		46.2			31.7			31.9			31.5	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	43.9	9.9	33.5	9.5	47.1	12.0	31.4
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	8.0	36.0	5.0	29.0	5.0	39.0	7.0	27.0
Max Q Clear Time (g_c+I1), s	7.8	30.5	4.9	26.7	4.8	27.9	9.0	14.4
Green Ext Time (p_c), s	0.0	3.6	0.0	0.8	0.0	4.9	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	34.6
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	138	351	116	299	564	143	166	942	210	129	1088
Future Volume (vph)	138	351	116	299	564	143	166	942	210	129	1088
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0
Total Split (s)	10.0	39.0	39.0	11.0	40.0	40.0	12.0	48.0	48.0	12.0	48.0
Total Split (%)	9.1%	35.5%	35.5%	10.0%	36.4%	36.4%	10.9%	43.6%	43.6%	10.9%	43.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	39.0	33.0	33.0	41.0	34.0	34.0	50.0	42.0	42.0	50.0	42.0
Actuated g/C Ratio	0.35	0.30	0.30	0.37	0.31	0.31	0.45	0.38	0.38	0.45	0.38
v/c Ratio	1.00	0.68	0.22	0.63	1.07	0.27	0.99	0.76	0.31	0.69	1.03
Control Delay	103.0	41.3	5.8	28.7	93.8	8.6	90.8	34.0	4.1	34.4	66.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.0	41.3	5.8	28.7	93.8	8.6	90.8	34.0	4.1	34.4	66.3
LOS	F	D	A	C	F	A	F	C	A	C	E
Approach Delay		48.6			62.4			36.4			63.4
Approach LOS		D			E			D			E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 105 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 52.8	Intersection LOS: D
Intersection Capacity Utilization 100.5%	ICU Level of Service G
Analysis Period (min) 15	

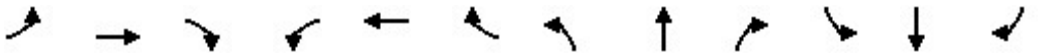
Splits and Phases: 1: TAFT AVENUE & 57TH STREET

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	150	382	126	325	613	155	180	1024	228	140	1374
v/c Ratio	1.00	0.68	0.22	0.63	1.07	0.27	0.99	0.76	0.31	0.69	1.03
Control Delay	103.0	41.3	5.8	28.7	93.8	8.6	90.8	34.0	4.1	34.4	66.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.0	41.3	5.8	28.7	93.8	8.6	90.8	34.0	4.1	34.4	66.3
Queue Length 50th (ft)	67	237	0	75	~479	13	76	326	0	52	~543
Queue Length 95th (ft)	#191	346	42	108	#697	61	#221	407	48	#111	#683
Internal Link Dist (ft)		956			1269			1182			652
Turn Bay Length (ft)	450		430	550		200	200			450	
Base Capacity (vph)	150	558	565	517	575	578	181	1351	745	204	1334
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.68	0.22	0.63	1.07	0.27	0.99	0.76	0.31	0.69	1.03

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	351	116	299	564	143	166	942	210	129	1088	176
Future Volume (veh/h)	138	351	116	299	564	143	166	942	210	129	1088	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	150	382	126	325	613	155	180	1024	228	140	1183	191
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	561	476	528	578	490	179	1357	605	237	1171	188
Arrive On Green	0.05	0.30	0.30	0.05	0.31	0.31	0.06	0.38	0.38	0.06	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	3456	1870	1585	1781	3554	1585	1781	3066	493
Grp Volume(v), veh/h	150	382	126	325	613	155	180	1024	228	140	683	691
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1585	1781	1777	1585	1781	1777	1782
Q Serve(g_s), s	5.0	19.8	6.6	6.0	34.0	8.2	7.0	27.5	11.4	5.2	42.0	42.0
Cycle Q Clear(g_c), s	5.0	19.8	6.6	6.0	34.0	8.2	7.0	27.5	11.4	5.2	42.0	42.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	146	561	476	528	578	490	179	1357	605	237	678	680
V/C Ratio(X)	1.02	0.68	0.26	0.62	1.06	0.32	1.01	0.75	0.38	0.59	1.01	1.02
Avail Cap(c_a), veh/h	146	561	476	528	578	490	179	1357	605	237	678	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	33.9	29.3	30.5	38.0	29.1	27.9	29.5	24.5	23.4	34.0	34.0
Incr Delay (d2), s/veh	81.0	3.3	0.3	2.2	54.4	0.4	69.0	3.9	1.8	3.8	36.3	38.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	9.2	2.5	1.3	23.6	3.1	6.1	11.8	4.4	2.3	23.6	24.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	116.3	37.2	29.6	32.7	92.4	29.5	96.9	33.5	26.3	27.2	70.3	72.4
LnGrp LOS	F	D	C	C	F	C	F	C	C	C	F	F
Approach Vol, veh/h		658			1093			1432			1514	
Approach Delay, s/veh		53.8			65.7			40.3			67.3	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	48.0	11.0	39.0	12.0	48.0	10.0	40.0
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	7.0	42.0	6.0	33.0	7.0	42.0	5.0	34.0
Max Q Clear Time (g_c+I1), s	7.2	29.5	8.0	21.8	9.0	44.0	7.0	36.0
Green Ext Time (p_c), s	0.0	5.9	0.0	2.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	56.8
HCM 6th LOS	E

APPENDIX H – Future (with site development) Synchro Outputs

Queues
1: TAFT AVENUE & 57TH STREET

08/20/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	110	203	8	162	138	104	11	821	318	138	724	40
v/c Ratio	0.37	0.68	0.02	0.52	0.36	0.24	0.04	1.00	0.38	0.62	0.70	0.04
Control Delay (s/veh)	28.7	50.5	0.1	30.8	35.3	3.4	11.2	62.3	6.2	29.9	23.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.7	50.5	0.1	30.8	35.3	3.4	11.2	62.3	6.2	29.9	23.7	0.1
Queue Length 50th (ft)	50	123	0	77	75	0	3	~572	23	38	305	0
Queue Length 95th (ft)	85	187	0	118	122	21	12	#829	84	#146	#679	0
Internal Link Dist (ft)		956			642			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	301	409	459	317	503	531	279	819	839	221	1028	937
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.50	0.02	0.51	0.27	0.20	0.04	1.00	0.38	0.62	0.70	0.04

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	187	7	149	127	96	10	755	293	127	666	37
Future Volume (veh/h)	101	187	7	149	127	96	10	755	293	127	666	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	203	8	162	138	104	11	821	318	138	724	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	247	210	272	331	281	270	930	788	222	1009	855
Arrive On Green	0.05	0.13	0.13	0.09	0.18	0.18	0.01	0.50	0.50	0.06	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	110	203	8	162	138	104	11	821	318	138	724	40
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	10.6	0.4	7.6	6.6	5.8	0.3	39.3	12.6	3.7	29.1	1.2
Cycle Q Clear(g_c), s	5.0	10.6	0.4	7.6	6.6	5.8	0.3	39.3	12.6	3.7	29.1	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	288	247	210	272	331	281	270	930	788	222	1009	855
V/C Ratio(X)	0.38	0.82	0.04	0.60	0.42	0.37	0.04	0.88	0.40	0.62	0.72	0.05
Avail Cap(c_a), veh/h	288	411	349	281	505	428	336	930	788	230	1009	855
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	42.2	37.8	32.4	36.5	36.2	15.2	22.5	15.8	21.3	17.3	10.9
Incr Delay (d2), s/veh	0.8	6.6	0.1	3.2	0.8	0.8	0.1	11.9	1.5	4.8	4.4	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	5.2	0.2	3.4	3.0	2.2	0.1	18.3	4.6	1.8	12.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	36.6	48.9	37.9	35.6	37.4	37.0	15.2	34.4	17.3	26.1	21.7	11.0
LnGrp LOS	D	D	D	D	D	D	B	C	B	C	C	B
Approach Vol, veh/h		321			404			1150			902	
Approach Delay, s/veh		44.4			36.6			29.5			21.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	55.7	14.5	19.2	6.3	60.0	10.0	23.7
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	6.0	40.0	10.0	22.0	5.0	41.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	5.7	41.3	9.6	12.6	2.3	31.1	7.0	8.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	3.3	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	29.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	635	4	28	340	3	30	0	46	1	0	2
Future Vol, veh/h	1	635	4	28	340	3	30	0	46	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	690	4	30	370	3	33	0	50	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	373	0	0	694	0	0	1127	1127	692	1151	1128	372
Stage 1	-	-	-	-	-	-	694	694	-	432	432	-
Stage 2	-	-	-	-	-	-	433	433	-	719	696	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1185	-	-	901	-	-	182	205	444	175	204	674
Stage 1	-	-	-	-	-	-	433	444	-	602	582	-
Stage 2	-	-	-	-	-	-	601	582	-	420	443	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1185	-	-	901	-	-	177	198	444	151	197	674
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	198	-	151	197	-
Stage 1	-	-	-	-	-	-	433	444	-	601	563	-
Stage 2	-	-	-	-	-	-	579	563	-	372	443	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.7	20.3	16.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	177	444	1185	-	-	901	-	-	313
HCM Lane V/C Ratio	0.184	0.113	0.001	-	-	0.034	-	-	0.01
HCM Control Delay (s/veh)	29.9	14.1	8	-	-	9.1	-	-	16.6
HCM Lane LOS	D	B	A	-	-	A	-	-	C
HCM 95th %tile Q (veh)	0.7	0.4	0	-	-	0.1	-	-	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	0	0	12	27	23
Future Vol, veh/h	8	0	0	12	27	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	0	13	29	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	55	42	54	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	13	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	953	1029	1551	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	953	1029	1551	-	-	-
Mov Cap-2 Maneuver	953	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	1010	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1551	-	953	-	-
HCM Lane V/C Ratio	-	-	0.009	-	-
HCM Control Delay (s/veh)	0	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	602	5	0	372	0	38
Future Vol, veh/h	602	5	0	372	0	38
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	654	5	0	404	0	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	657
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	465
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	465
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	465	-	-	-
HCM Lane V/C Ratio	0.089	-	-	-
HCM Control Delay (s/veh)	13.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q (veh)	0.3	-	-	-

Queues
1: TAFT AVENUE & 57TH STREET

08/20/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	86	190	11	349	309	128	9	730	262	123	855	85
v/c Ratio	0.39	0.70	0.03	1.03	0.70	0.27	0.05	0.83	0.30	0.55	0.81	0.09
Control Delay (s/veh)	32.9	58.6	0.1	91.1	48.2	7.2	11.4	35.5	4.2	22.6	28.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.9	58.6	0.1	91.1	48.2	7.2	11.4	35.5	4.2	22.6	28.9	0.2
Queue Length 50th (ft)	43	129	0	~214	205	0	2	450	10	36	444	0
Queue Length 95th (ft)	77	199	0	#397	292	46	10	#681	56	#86	#874	0
Internal Link Dist (ft)		956			662			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	221	338	434	338	476	501	180	881	874	224	1050	970
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.56	0.03	1.03	0.65	0.26	0.05	0.83	0.30	0.55	0.81	0.09

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	175	10	321	284	118	8	672	241	113	787	78
Future Volume (veh/h)	79	175	10	321	284	118	8	672	241	113	787	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	190	11	349	309	128	9	730	262	123	855	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	228	193	303	364	309	186	962	815	262	1027	870
Arrive On Green	0.05	0.12	0.12	0.12	0.19	0.19	0.01	0.51	0.51	0.05	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	86	190	11	349	309	128	9	730	262	123	855	85
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.6	10.9	0.7	13.0	17.5	7.8	0.3	34.2	10.6	3.5	41.8	2.8
Cycle Q Clear(g_c), s	4.6	10.9	0.7	13.0	17.5	7.8	0.3	34.2	10.6	3.5	41.8	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	180	228	193	303	364	309	186	962	815	262	1027	870
V/C Ratio(X)	0.48	0.83	0.06	1.15	0.85	0.41	0.05	0.76	0.32	0.47	0.83	0.10
Avail Cap(c_a), veh/h	180	340	288	303	476	403	247	962	815	262	1027	870
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	47.2	42.7	39.6	42.7	38.8	19.1	21.3	15.5	18.2	20.6	11.8
Incr Delay (d2), s/veh	2.0	10.6	0.1	99.5	10.7	0.9	0.1	5.6	1.0	1.3	7.9	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	5.6	0.3	10.2	9.0	3.0	0.1	15.0	3.8	1.4	18.4	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.5	57.8	42.8	139.2	53.5	39.7	19.2	26.9	16.6	19.5	28.5	12.1
LnGrp LOS	D	E	D	F	D	D	B	C	B	B	C	B
Approach Vol, veh/h		287			786			1001			1063	
Approach Delay, s/veh		52.6			89.3			24.1			26.2	
Approach LOS		D			F			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	62.6	18.0	19.4	6.2	66.4	10.0	27.4
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	5.0	50.0	13.0	20.0	5.0	50.0	5.0	28.0
Max Q Clear Time (g_c+I1), s	5.5	36.2	15.0	12.9	2.3	43.8	6.6	19.5
Green Ext Time (p_c), s	0.0	4.7	0.0	0.5	0.0	3.0	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	43.7
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	521	16	90	701	0	20	0	28	1	0	2
Future Vol, veh/h	0	521	16	90	701	0	20	0	28	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	566	17	98	762	0	22	0	30	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	762	0	0	583	0	0	1534	1533	575	1548	1541	762
Stage 1	-	-	-	-	-	-	575	575	-	958	958	-
Stage 2	-	-	-	-	-	-	959	958	-	590	583	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	850	-	-	991	-	-	95	116	518	93	115	405
Stage 1	-	-	-	-	-	-	503	503	-	309	336	-
Stage 2	-	-	-	-	-	-	309	336	-	494	499	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	850	-	-	991	-	-	87	105	518	81	104	405
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	105	-	81	104	-
Stage 1	-	-	-	-	-	-	503	503	-	309	303	-
Stage 2	-	-	-	-	-	-	277	303	-	465	499	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	1	32.1	26.1
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	87	518	850	-	-	991	-	-	174
HCM Lane V/C Ratio	0.25	0.059	-	-	-	0.099	-	-	0.019
HCM Control Delay (s/veh)	59.6	12.4	0	-	-	9	-	-	26.1
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q (veh)	0.9	0.2	0	-	-	0.3	-	-	0.1

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	0	0	26	20	15
Future Vol, veh/h	25	0	0	26	20	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	0	0	28	22	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	58	30	38	0	-	0
Stage 1	30	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	949	1044	1572	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	949	1044	1572	-	-	-
Mov Cap-2 Maneuver	949	-	-	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	995	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1572	-	949	-	-
HCM Lane V/C Ratio	-	-	0.029	-	-
HCM Control Delay (s/veh)	0	-	8.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	512	17	0	723	0	25
Future Vol, veh/h	512	17	0	723	0	25
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	557	18	0	786	0	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	566
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	524
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	524
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	524	-	-	-
HCM Lane V/C Ratio	0.052	-	-	-
HCM Control Delay (s/veh)	12.2	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q (veh)	0.2	-	-	-

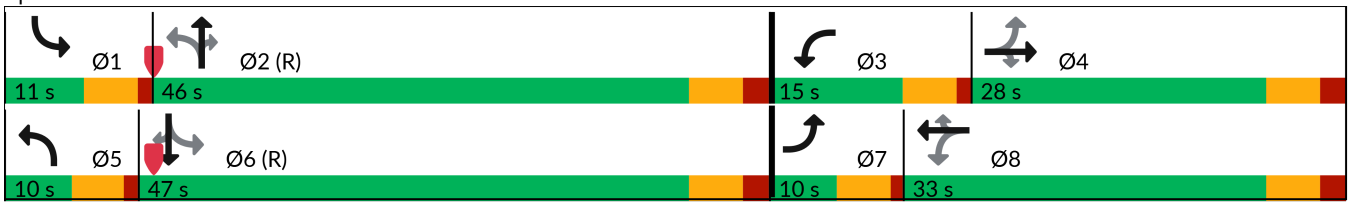
Timings
1: TAFT AVENUE & 57TH STREET

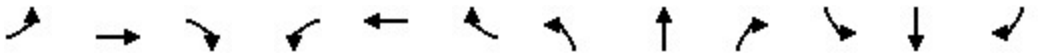
06/11/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	439	127	149	254	106	77	1028	293	160	938	74
Future Volume (vph)	196	439	127	149	254	106	77	1028	293	160	938	74
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0	34.0
Total Split (s)	10.0	28.0	28.0	15.0	33.0	33.0	10.0	46.0	46.0	11.0	47.0	47.0
Total Split (%)	10.0%	28.0%	28.0%	15.0%	33.0%	33.0%	10.0%	46.0%	46.0%	11.0%	47.0%	47.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	28.4	22.4	22.4	37.6	27.0	27.0	46.0	40.0	40.0	48.8	43.0	43.0
Actuated g/C Ratio	0.28	0.22	0.22	0.38	0.27	0.27	0.46	0.40	0.40	0.49	0.43	0.43
v/c Ratio	0.68	1.14	0.30	0.66	0.55	0.22	0.51	1.50	0.43	0.96	1.27	0.11
Control Delay (s/veh)	39.0	126.7	7.1	34.8	36.2	3.9	23.9	258.4	10.5	79.2	161.2	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.0	126.7	7.1	34.8	36.2	3.9	23.9	258.4	10.5	79.2	161.2	0.6
LOS	D	F	A	C	D	A	C	F	B	E	F	A
Approach Delay (s/veh)		84.2			29.1			193.5			139.9	
Approach LOS		F			C			F			F	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.50	
Intersection Signal Delay (s/veh): 133.7	Intersection LOS: F
Intersection Capacity Utilization 112.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: TAFT AVENUE & 57TH STREET



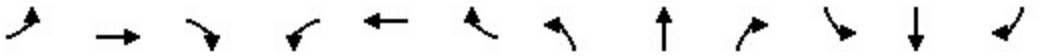


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	213	477	138	162	276	115	84	1117	318	174	1020	80
v/c Ratio	0.68	1.14	0.30	0.66	0.55	0.22	0.51	1.50	0.43	0.96	1.27	0.11
Control Delay (s/veh)	39.0	126.7	7.1	34.8	36.2	3.9	23.9	258.4	10.5	79.2	161.2	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.0	126.7	7.1	34.8	36.2	3.9	23.9	258.4	10.5	79.2	161.2	0.6
Queue Length 50th (ft)	94	~363	0	69	151	0	26	~993	53	60	~851	0
Queue Length 95th (ft)	#160	#559	46	#122	234	28	50	#1240	123	#196	#1094	3
Internal Link Dist (ft)		956			662			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	315	417	465	254	503	531	164	745	746	181	800	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	1.14	0.30	0.64	0.55	0.22	0.51	1.50	0.43	0.96	1.28	0.11

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	439	127	149	254	106	77	1028	293	160	938	74
Future Volume (veh/h)	196	439	127	149	254	106	77	1028	293	160	938	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	477	138	162	276	115	84	1117	318	174	1020	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	411	349	229	482	409	152	771	653	179	799	677
Arrive On Green	0.05	0.22	0.22	0.09	0.26	0.26	0.05	0.41	0.41	0.06	0.43	0.43
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	213	477	138	162	276	115	84	1117	318	174	1020	80
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	22.0	7.4	6.8	12.8	5.8	2.7	41.2	14.8	5.7	42.7	3.0
Cycle Q Clear(g_c), s	5.0	22.0	7.4	6.8	12.8	5.8	2.7	41.2	14.8	5.7	42.7	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	411	349	229	482	409	152	771	653	179	799	677
V/C Ratio(X)	0.74	1.16	0.40	0.71	0.57	0.28	0.55	1.45	0.49	0.97	1.28	0.12
Avail Cap(c_a), veh/h	290	411	349	250	505	428	161	771	653	179	799	677
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	39.0	33.3	28.3	32.3	29.7	23.9	29.4	21.6	23.9	28.7	17.3
Incr Delay (d2), s/veh	9.4	95.5	0.7	8.1	1.4	0.4	3.6	209.4	2.6	59.1	134.5	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	20.6	2.8	3.3	5.8	2.2	1.2	61.6	5.6	5.1	47.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.2	134.5	34.0	36.4	33.7	30.1	27.5	238.8	24.2	83.0	163.1	17.6
LnGrp LOS	D	F	C	D	C	C	C	F	C	F	F	B
Approach Vol, veh/h		828			553			1519			1274	
Approach Delay, s/veh		94.8			33.8			182.2			143.0	
Approach LOS		F			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	47.2	13.8	28.0	9.5	48.7	10.0	31.8
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	6.0	40.0	10.0	22.0	5.0	41.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	7.7	43.2	8.8	24.0	4.7	44.7	7.0	14.8
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	133.2
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	920	4	28	477	3	30	0	46	1	0	2
Future Vol, veh/h	1	920	4	28	477	3	30	0	46	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1000	4	30	518	3	33	0	50	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	521	0	0	1004	0	0	1585	1585	1002	1609	1586	520
Stage 1	-	-	-	-	-	-	1004	1004	-	580	580	-
Stage 2	-	-	-	-	-	-	581	581	-	1029	1006	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1045	-	-	690	-	-	88	108	294	84	108	556
Stage 1	-	-	-	-	-	-	291	320	-	500	500	-
Stage 2	-	-	-	-	-	-	499	500	-	282	319	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1045	-	-	690	-	-	85	103	294	67	103	556
Mov Cap-2 Maneuver	-	-	-	-	-	-	85	103	-	67	103	-
Stage 1	-	-	-	-	-	-	291	320	-	500	479	-
Stage 2	-	-	-	-	-	-	475	479	-	234	319	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.6	40.2	27.7
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	85	294	1045	-	-	690	-	-	162
HCM Lane V/C Ratio	0.384	0.17	0.001	-	-	0.044	-	-	0.02
HCM Control Delay (s/veh)	71.6	19.7	8.4	-	-	10.5	-	-	27.7
HCM Lane LOS	F	C	A	-	-	B	-	-	D
HCM 95th %tile Q (veh)	1.5	0.6	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	6	7	12	27	23
Future Vol, veh/h	8	6	7	12	27	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	7	8	13	29	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	71	42	54	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	933	1029	1551	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	928	1029	1551	-	-	-
Mov Cap-2 Maneuver	928	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	994	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.8	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1551	-	969	-	-
HCM Lane V/C Ratio	0.005	-	0.016	-	-
HCM Control Delay (s/veh)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	887	5	0	509	0	38
Future Vol, veh/h	887	5	0	509	0	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
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	964	5	0	553	0	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	967
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	308
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	308
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

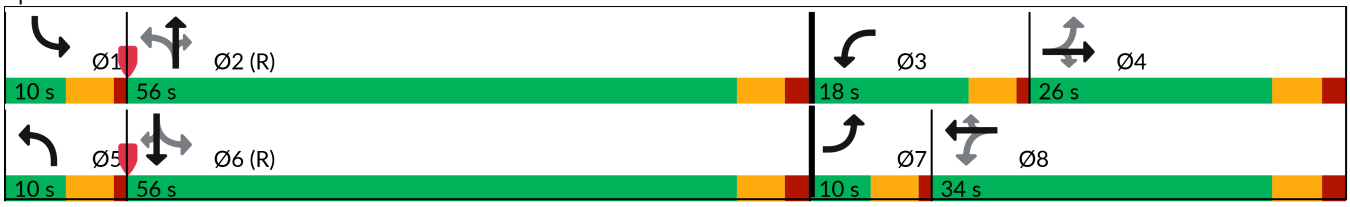
Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	18.5
HCM LOS			C

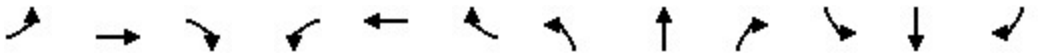
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	308	-	-	-
HCM Lane V/C Ratio	0.134	-	-	-
HCM Control Delay (s/veh)	18.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q (veh)	0.5	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	357	118	321	568	148	167	942	241	137	1088	176
Future Volume (vph)	138	357	118	321	568	148	167	942	241	137	1088	176
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0	34.0
Total Split (s)	10.0	26.0	26.0	18.0	34.0	34.0	10.0	56.0	56.0	10.0	56.0	56.0
Total Split (%)	9.1%	23.6%	23.6%	16.4%	30.9%	30.9%	9.1%	50.9%	50.9%	9.1%	50.9%	50.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	26.0	20.0	20.0	39.0	28.0	28.0	56.0	50.0	50.0	56.0	50.0	50.0
Actuated g/C Ratio	0.24	0.18	0.18	0.35	0.25	0.25	0.51	0.45	0.45	0.51	0.45	0.45
v/c Ratio	0.99	1.15	0.29	1.25	1.30	0.32	1.22	1.21	0.32	1.00	1.40	0.23
Control Delay (s/veh)	105.7	136.6	3.6	167.0	185.5	10.9	167.7	134.8	7.3	96.8	214.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	105.7	136.6	3.6	167.0	185.5	10.9	167.7	134.8	7.3	96.8	214.0	3.9
LOS	F	F	A	F	F	B	F	F	A	F	F	A
Approach Delay (s/veh)		104.1			154.8			116.1			176.2	
Approach LOS		F			F			F			F	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 105 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.40	
Intersection Signal Delay (s/veh): 142.7	Intersection LOS: F
Intersection Capacity Utilization 122.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: TAFT AVENUE & 57TH STREET



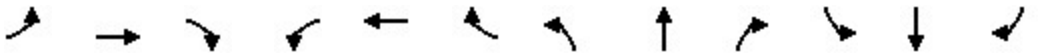


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	150	388	128	349	617	161	182	1024	262	149	1183	191
v/c Ratio	0.99	1.15	0.29	1.25	1.30	0.32	1.22	1.21	0.32	1.00	1.40	0.23
Control Delay (s/veh)	105.7	136.6	3.6	167.0	185.5	10.9	167.7	134.8	7.3	96.8	214.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	105.7	136.6	3.6	167.0	185.5	10.9	167.7	134.8	7.3	96.8	214.0	3.9
Queue Length 50th (ft)	74	~322	0	~256	~560	17	~106	~885	33	54	~1119	5
Queue Length 95th (ft)	#185	#511	19	#442	#779	71	#250	#1134	86	#190	#1374	44
Internal Link Dist (ft)		956			632			1182			652	
Turn Bay Length (ft)	450		430	550		200	200			450		325
Base Capacity (vph)	151	338	434	279	474	499	149	846	817	149	846	817
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	1.15	0.29	1.25	1.30	0.32	1.22	1.21	0.32	1.00	1.40	0.23

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	357	118	321	568	148	167	942	241	137	1088	176
Future Volume (veh/h)	138	357	118	321	568	148	167	942	241	137	1088	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	150	388	128	349	617	161	182	1024	262	149	1183	191
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	340	288	276	476	403	146	850	720	146	850	720
Arrive On Green	0.05	0.18	0.18	0.12	0.25	0.25	0.05	0.45	0.45	0.05	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	150	388	128	349	617	161	182	1024	262	149	1183	191
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	20.0	7.9	13.0	28.0	9.3	5.0	50.0	11.9	5.0	50.0	8.2
Cycle Q Clear(g_c), s	5.0	20.0	7.9	13.0	28.0	9.3	5.0	50.0	11.9	5.0	50.0	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	146	340	288	276	476	403	146	850	720	146	850	720
V/C Ratio(X)	1.02	1.14	0.44	1.26	1.30	0.40	1.24	1.20	0.36	1.02	1.39	0.27
Avail Cap(c_a), veh/h	146	340	288	276	476	403	146	850	720	146	850	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.6	45.0	40.1	33.3	41.0	34.0	26.8	30.0	19.6	26.8	30.0	18.6
Incr Delay (d2), s/veh	81.0	92.7	1.1	144.7	148.1	0.6	154.0	103.1	1.4	79.1	183.4	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	17.8	3.1	16.8	32.0	3.6	8.1	44.8	4.5	5.1	63.7	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	123.5	137.7	41.1	178.0	189.1	34.7	180.8	133.1	21.0	105.9	213.4	19.5
LnGrp LOS	F	F	D	F	F	C	F	F	C	F	F	B
Approach Vol, veh/h		666			1127			1468			1523	
Approach Delay, s/veh		116.0			163.6			119.0			178.6	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	56.0	18.0	26.0	10.0	56.0	10.0	34.0
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	5.0	50.0	13.0	20.0	5.0	50.0	5.0	28.0
Max Q Clear Time (g_c+I1), s	7.0	52.0	15.0	22.0	7.0	52.0	7.0	30.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	148.1
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	727	16	90	1015	0	20	0	28	1	0	2
Future Vol, veh/h	0	727	16	90	1015	0	20	0	28	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	400	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	790	17	98	1103	0	22	0	30	1	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1103	0	0	807	0	0	2099	2098	799	2113	2106	1103
Stage 1	-	-	-	-	-	-	799	799	-	1299	1299	-
Stage 2	-	-	-	-	-	-	1300	1299	-	814	807	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	633	-	-	818	-	-	38	52	386	37	51	257
Stage 1	-	-	-	-	-	-	379	398	-	199	232	-
Stage 2	-	-	-	-	-	-	198	232	-	372	394	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	633	-	-	818	-	-	34	46	386	31	45	257
Mov Cap-2 Maneuver	-	-	-	-	-	-	34	46	-	31	45	-
Stage 1	-	-	-	-	-	-	379	398	-	199	204	-
Stage 2	-	-	-	-	-	-	173	204	-	343	394	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.8	101.4	55.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	34	386	633	-	-	818	-	-	75
HCM Lane V/C Ratio	0.639	0.079	-	-	-	0.12	-	-	0.043
HCM Control Delay (s/veh)	222.2	15.1	0	-	-	10	-	-	55.2
HCM Lane LOS	F	C	A	-	-	A	-	-	F
HCM 95th %tile Q (veh)	2.2	0.3	0	-	-	0.4	-	-	0.1

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	4	5	26	20	15
Future Vol, veh/h	25	4	5	26	20	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	4	5	28	22	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	68	30	38	0	-	0
Stage 1	30	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	937	1044	1572	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	934	1044	1572	-	-	-
Mov Cap-2 Maneuver	934	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.9	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1572	-	948	-	-
HCM Lane V/C Ratio	0.003	-	0.033	-	-
HCM Control Delay (s/veh)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	718	17	0	1037	0	25
Future Vol, veh/h	718	17	0	1037	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
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	780	18	0	1127	0	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	789
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	391
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	391
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

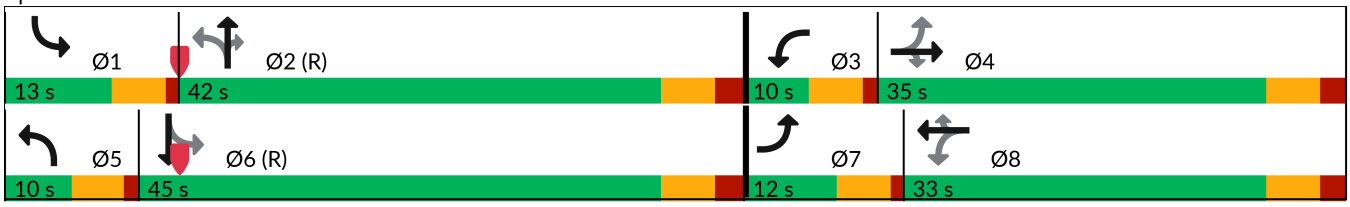
Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	391	-	-	-
HCM Lane V/C Ratio	0.069	-	-	-
HCM Control Delay (s/veh)	14.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q (veh)	0.2	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	196	439	127	149	254	106	77	1028	293	160	938
Future Volume (vph)	196	439	127	149	254	106	77	1028	293	160	938
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0
Total Split (s)	12.0	35.0	35.0	10.0	33.0	33.0	10.0	42.0	42.0	13.0	45.0
Total Split (%)	12.0%	35.0%	35.0%	10.0%	33.0%	33.0%	10.0%	42.0%	42.0%	13.0%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	36.4	27.9	27.9	32.1	25.8	25.8	42.8	36.6	36.6	49.2	41.7
Actuated g/C Ratio	0.36	0.28	0.28	0.32	0.26	0.26	0.43	0.37	0.37	0.49	0.42
v/c Ratio	0.63	0.92	0.25	0.49	0.57	0.22	0.46	0.86	0.43	0.79	0.75
Control Delay (s/veh)	31.3	59.4	5.7	24.7	37.4	4.0	21.9	37.9	7.2	45.0	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.3	59.4	5.7	24.7	37.4	4.0	21.9	37.9	7.2	45.0	29.4
LOS	C	E	A	C	D	A	C	D	A	D	C
Approach Delay (s/veh)		43.2			26.7			30.6			31.5
Approach LOS		D			C			C			C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay (s/veh): 32.9	Intersection LOS: C
Intersection Capacity Utilization 83.0%	ICU Level of Service E
Analysis Period (min) 15	

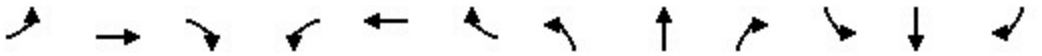
Splits and Phases: 1: TAFT AVENUE & 57TH STREET



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	213	477	138	162	276	115	84	1117	318	174	1100
v/c Ratio	0.63	0.92	0.25	0.49	0.57	0.22	0.46	0.86	0.43	0.79	0.75
Control Delay (s/veh)	31.3	59.4	5.7	24.7	37.4	4.0	21.9	37.9	7.2	45.0	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.3	59.4	5.7	24.7	37.4	4.0	21.9	37.9	7.2	45.0	29.4
Queue Length 50th (ft)	91	290	0	32	151	0	27	346	24	59	320
Queue Length 95th (ft)	147	#472	42	54	234	28	53	#466	89	#172	404
Internal Link Dist (ft)		956			1269			1182			652
Turn Bay Length (ft)	450		430	550		200	200			450	
Base Capacity (vph)	340	540	559	333	503	531	184	1295	744	220	1464
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.88	0.25	0.49	0.55	0.22	0.46	0.86	0.43	0.79	0.75

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	439	127	149	254	106	77	1028	293	160	938	74
Future Volume (veh/h)	196	439	127	149	254	106	77	1028	293	160	938	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	477	138	162	276	115	84	1117	318	174	1020	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	322	515	437	360	478	405	229	1337	596	245	1366	107
Arrive On Green	0.07	0.28	0.28	0.05	0.26	0.26	0.05	0.38	0.38	0.08	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	3456	1870	1585	1781	3554	1585	1781	3338	262
Grp Volume(v), veh/h	213	477	138	162	276	115	84	1117	318	174	543	557
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1585	1781	1777	1585	1781	1777	1823
Q Serve(g_s), s	7.0	24.8	6.9	3.4	12.9	5.8	2.9	28.6	15.7	5.9	26.0	26.0
Cycle Q Clear(g_c), s	7.0	24.8	6.9	3.4	12.9	5.8	2.9	28.6	15.7	5.9	26.0	26.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	322	515	437	360	478	405	229	1337	596	245	727	746
V/C Ratio(X)	0.66	0.93	0.32	0.45	0.58	0.28	0.37	0.84	0.53	0.71	0.75	0.75
Avail Cap(c_a), veh/h	322	542	460	360	505	428	238	1337	596	248	727	746
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	35.2	28.7	28.2	32.5	29.9	20.6	28.4	24.3	22.6	25.1	25.1
Incr Delay (d2), s/veh	4.9	21.5	0.4	0.9	1.5	0.4	1.0	6.3	3.4	9.0	6.9	6.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	13.8	2.6	1.4	5.8	2.2	1.2	12.4	6.1	2.8	11.4	11.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.6	56.7	29.2	29.1	34.0	30.3	21.6	34.7	27.7	31.6	32.0	31.8
LnGrp LOS	C	E	C	C	C	C	C	C	C	C	C	C
Approach Vol, veh/h		828			553			1519			1274	
Approach Delay, s/veh		46.4			31.8			32.5			31.9	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	43.6	10.0	33.6	9.5	46.9	12.0	31.6
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	8.0	36.0	5.0	29.0	5.0	39.0	7.0	27.0
Max Q Clear Time (g_c+I1), s	7.9	30.6	5.4	26.8	4.9	28.0	9.0	14.9
Green Ext Time (p_c), s	0.0	3.5	0.0	0.8	0.0	4.9	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	35.0
HCM 6th LOS	C

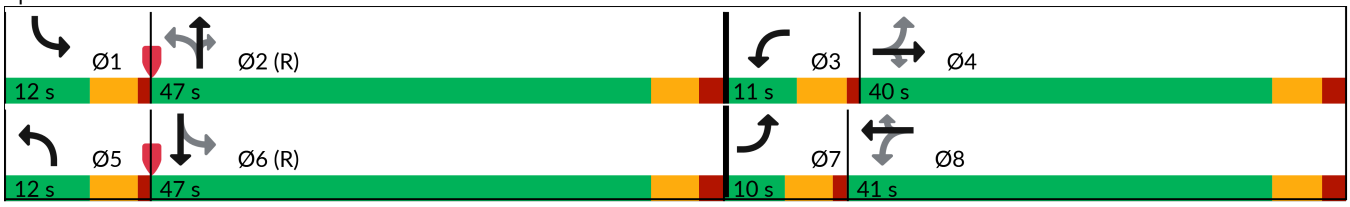
Timings
1: TAFT AVENUE & 57TH STREET

06/11/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	138	357	118	321	568	148	167	942	241	137	1088
Future Volume (vph)	138	357	118	321	568	148	167	942	241	137	1088
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	8.0	5.0	20.0	20.0	5.0	20.0
Minimum Split (s)	10.0	26.0	26.0	10.0	32.0	32.0	10.0	30.0	30.0	10.0	34.0
Total Split (s)	10.0	40.0	40.0	11.0	41.0	41.0	12.0	47.0	47.0	12.0	47.0
Total Split (%)	9.1%	36.4%	36.4%	10.0%	37.3%	37.3%	10.9%	42.7%	42.7%	10.9%	42.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	40.0	34.0	34.0	42.0	35.0	35.0	49.0	41.0	41.0	49.0	41.0
Actuated g/C Ratio	0.36	0.31	0.31	0.38	0.32	0.32	0.45	0.37	0.37	0.45	0.37
v/c Ratio	1.00	0.67	0.22	0.66	1.04	0.27	1.00	0.78	0.35	0.75	1.05
Control Delay (s/veh)	102.3	40.1	5.8	29.1	85.9	8.9	92.1	35.4	4.3	41.6	74.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	102.3	40.1	5.8	29.1	85.9	8.9	92.1	35.4	4.3	41.6	74.4
LOS	F	D	A	C	F	A	F	D	A	D	E
Approach Delay (s/veh)		47.5			57.3			36.9			71.2
Approach LOS		D			E			D			E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 105 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay (s/veh): 54.1	Intersection LOS: D
Intersection Capacity Utilization 100.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 1: TAFT AVENUE & 57TH STREET

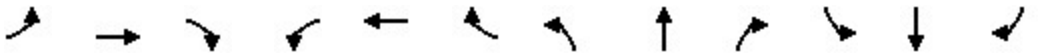


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	150	388	128	349	617	161	182	1024	262	149	1374
v/c Ratio	1.00	0.67	0.22	0.66	1.04	0.27	1.00	0.78	0.35	0.75	1.05
Control Delay (s/veh)	102.3	40.1	5.8	29.1	85.9	8.9	92.1	35.4	4.3	41.6	74.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	102.3	40.1	5.8	29.1	85.9	8.9	92.1	35.4	4.3	41.6	74.4
Queue Length 50th (ft)	66	238	0	80	~472	16	76	331	0	57	~556
Queue Length 95th (ft)	#190	347	42	113	#692	64	#224	414	52	#140	#695
Internal Link Dist (ft)		956			1269			1182			652
Turn Bay Length (ft)	450		430	550		200	200			450	
Base Capacity (vph)	150	575	578	531	592	591	182	1319	754	198	1303
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.67	0.22	0.66	1.04	0.27	1.00	0.78	0.35	0.75	1.05

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	357	118	321	568	148	167	942	241	137	1088	176
Future Volume (veh/h)	138	357	118	321	568	148	167	942	241	137	1088	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	150	388	128	349	617	161	182	1024	262	149	1183	191
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	578	490	540	595	504	179	1325	591	230	1143	184
Arrive On Green	0.05	0.31	0.31	0.05	0.32	0.32	0.06	0.37	0.37	0.06	0.37	0.37
Sat Flow, veh/h	1781	1870	1585	3456	1870	1585	1781	3554	1585	1781	3066	493
Grp Volume(v), veh/h	150	388	128	349	617	161	182	1024	262	149	683	691
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1585	1781	1777	1585	1781	1777	1782
Q Serve(g_s), s	5.0	19.9	6.7	6.0	35.0	8.5	7.0	27.9	13.7	5.7	41.0	41.0
Cycle Q Clear(g_c), s	5.0	19.9	6.7	6.0	35.0	8.5	7.0	27.9	13.7	5.7	41.0	41.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	146	578	490	540	595	504	179	1325	591	230	662	664
V/C Ratio(X)	1.02	0.67	0.26	0.65	1.04	0.32	1.02	0.77	0.44	0.65	1.03	1.04
Avail Cap(c_a), veh/h	146	578	490	540	595	504	179	1325	591	230	662	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	33.1	28.6	31.0	37.5	28.5	27.5	30.4	25.9	24.5	34.5	34.5
Incr Delay (d2), s/veh	81.0	3.0	0.3	2.7	46.7	0.4	72.0	4.4	2.4	6.2	43.4	45.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	9.2	2.5	1.7	23.0	3.2	6.3	12.0	5.4	2.6	24.4	24.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	115.8	36.1	28.8	33.7	84.2	28.8	99.6	34.8	28.3	30.7	77.9	80.3
LnGrp LOS	F	D	C	C	F	C	F	C	C	C	F	F
Approach Vol, veh/h		666			1127			1468			1523	
Approach Delay, s/veh		52.7			60.7			41.7			74.3	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	47.0	11.0	40.0	12.0	47.0	10.0	41.0
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Green Setting (Gmax), s	7.0	41.0	6.0	34.0	7.0	41.0	5.0	35.0
Max Q Clear Time (g_c+I1), s	7.7	29.9	8.0	21.9	9.0	43.0	7.0	37.0
Green Ext Time (p_c), s	0.0	5.6	0.0	2.1	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	58.1
HCM 6th LOS	E