LSC TRANSPORTATION CONSULTANTS, INC.
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High View Estates Minor Subdivision
Transportation Memorandum
PCD File No. SP-226
(LSC #S214800)
September 26, 2022

Traffic Engineer's Statement

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.

Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

9/27/2022
Date

High View Estates

Transportation Memorandum

Prepared for:

Collin Brones
954 Pinenut Court
Colorado Springs, CO 80921

SEPTEMBER 26, 2022

LSC Transportation Consultants
Prepared by: Jeffrey C. Hodsdon, P.E.

LSC #S214800
PCD File No. SP-226

CONTENTS

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September 26, 2022

Collin Brones
954 Pinenut Court
Colorado Springs, CO 80921

RE: High View Estates
Transportation Memorandum
El Paso County, CO
LSC # S214800
PCD File No. SP-226

Dear Mr. Brones

LSC Transportation Consultants, Inc. has prepared this transportation memorandum for the proposed High View Estates single-family residential subdivision located at 6665 Walker Road in El Paso County, Colorado. The proposed five-lot, single-family residential minor subdivision site is located east of the intersection of Walker Road/Thompson Road (El Paso County parcel ID 5100000421).

One access point is proposed for the property, located approximately 2,364 feet east of the intersection of Walker Road/Thompson Road. This is the current west property driveway location. This report has been prepared for submittal to El Paso County.

REPORT CONTENTS

The preparation of this report included the following:

- Inventory of existing adjacent and nearby area road system. This included surface conditions, functional classifications, roadway widths, lane configurations, traffic control, posted speed limits, pavement markings, intersection and access spacing, roadway and intersection alignments, auxiliary left- and right-turn lanes, intersection sight distances, etc.;
- Peak-hour traffic counts on Walker Road adjacent to the site;
- Short-term baseline traffic-volume estimates, which account for remaining effects of the COVID-19 pandemic;
- Review of previously-completed traffic studies in the vicinity of this site for information and findings relative to this development. Other recent studies completed in the area

and any applicable data/transferrable information/analysis etc. from previous LSC studies adjacent to the site were also utilized;

- Evaluation of intersection/access sight distance at the proposed access-point intersection on Walker Road, based on current criteria in El Paso County's *Engineering Criteria Manual* (*ECM*);
- Estimates of average weekday and peak-hour trip generation for the proposed development;
- Estimation of directional distribution of site-generated vehicle trips on the area road system and at the proposed site-access point;
- Projections of site-generated turning-movement traffic volumes at the site-access on Walker Road;
- Estimates of long-term background traffic volumes;
- Total traffic (site traffic-plus-background traffic) projections at for the short and long term;
- Level of service (LOS) analysis at the site-access point;
- Evaluation of existing, short-term, and long-term projected intersection volumes to determine the potential need for any new auxiliary right-/left-turn lanes on Walker Road, based on the criteria in the County's *Engineering Criteria Manual;*
- Identification of the El Paso County Road Impact Fee Program fee amounts; and
- Summary of compiled data, analysis, findings, and recommendations.

LAND USE AND ACCESS

Proposed Land Use

Figure 1 shows the site location relative to the adjacent and nearby roads. The site is located east of the intersection of Walker Road/Thompson Road in El Paso County (EPC), Colorado (EPC parcel ID 5100000421). The proposed High View Estates development is a five-lot (four new lots, one existing lot/home), single-family residential minor subdivision. A copy of the site plan is shown in Figure 2.

Proposed Site Access

One access point is proposed for the property, located approximately 2,364 feet east of the intersection of Walker Road/Thompson Road. This is the current west property driveway location.

ROAD AND TRAFFIC CONDITIONS

Figure 1 shows the roads adjacent to and in the vicinity of the site. Adjacent roads serving the site are identified below followed by a brief description of each:

Walker Road is a paved, two-lane, "unimproved" rural roadway that extends east from State Highway (SH) 83. The *Major Transportation Corridors Plan* (*MTCP) 2040 Roadway Plan* shows Walker Road classified as a two-lane Minor Arterial east of Steppler Road and a 4-lane Minor

Arterial roadway between Steppler Road and SH 83. The posted speed limit on Walker Road adjacent to the site is 45 miles per hour (mph).

Thompson Road extends approximately 1.5 miles north-to-south between Hodgen Road and Walker Road. Thompson Road is identified in the *El Paso County Road System – 2016* report as a two-lane, gravel, Local roadway. The posted speed limit along Thompson Road is 30 mph. Right-of-way width on Thompson Road is 60 feet, while the roadway width is 24 feet.

Black Forest Road is a two-lane, paved, rural Minor Arterial with a posted speed limit of 45 mph at its two-way stop-sign-controlled (TWSC) intersection with Walker Road. No auxiliary turn lanes currently exist at Black Forest Road/Walker Road. Black Forest Road extends north from Woodmen Road to County Line Road.

EXISTING AND BASELINE TRAFFIC VOLUMES

Existing Traffic Volumes

Vehicular peak-period traffic counts were conducted on Walker Road in the vicinity of the site. Raw count data is attached. Figure 3 shows these volumes, as well as estimates of the daily traffic volumes on Walker Road adjacent to the site.

Short-Term Baseline Traffic Volumes

The COVID-19 pandemic may have still been affecting the study-area traffic volumes at the time the counts were conducted. LSC incorporated recent traffic data and estimated "typical" current daily and design-hour volumes. Major-street through volumes on Walker Road were adjusted (increased) to align more closely with recently-recorded historical volumes from previously-conducted LSC traffic studies. Figure 4 shows estimated "short-term baseline" traffic volumes on the study-area streets and at the study-area intersections (short-term peak-hour turning-movement volumes).

ACCESS SIGHT DISTANCE

The proposed access point (a planned private, shared driveway) must meet *Engineering Criteria Manual* standards for sight distance. LSC has field-measured and evaluated the proposed (also existing) driveway location on Walker Road for sight distance.

Field-Measured (Available) Sight Distance

The sight-distance field measurements utilized a height of 3.5 feet for driver's eye height **and** for vehicles approaching from the east or west.

Field measurements recorded 517 feet of sight distance looking to/from the east and 698 feet looking to/from the west from the proposed site-access location, as shown in Exhibit 1.

Entering Sight Distance for Driveways

With a 45-mph posted speed limit, the minimum required entering/intersection sight distance for both approaches at the proposed site-access location is 450 feet for passenger vehicles (per Table 2-35 of the County's *Engineering Criteria Manual*). Per Table 2-36, the design vehicle is passenger cars/pickup trucks. Sight distances for both approaches at the proposed site-access location to Walker Road meet the required 450-foot requirement. Field measurements recorded 517 feet of sight distance looking to the east and 698 feet looking to the west from the proposed site-access location.

Sight Distance along the Roadway

The "sight distance along the roadway" for the proposed site-access driveway exceeds the required 400 feet approaching the site access from both directions along Walker Road (per Table 2-33 of the County's *Engineering Criteria Manual*).

TRIP GENERATION

Estimates of the existing and projected vehicle trips to be generated by the site have been made using nationally-published average trip-generation rates for land-use code "210 – Single-Family (Detached) Housing" in *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE). The proposed High View Estates development is a five-lot (four new lots, one existing lot/home), single-family residential minor subdivision.

Table 1 below presents a summary of the estimated site trip generation. A detailed trip-generation estimate for the development, including ITE rates for the proposed land uses, is presented in Table 3 (attached).

Table 1: Estimated Site Vehicle-Trip Generation

Analysis Period	Weekday		
	In	Out	Total
Morning Peak Hour	1	3	4
Evening Peak Hour	3	2	5
Daily/24-hour	24	24	47

Based on the ITE estimate for the proposed residential development, the site could generate about 47 external vehicle trips on the average weekday. During the weekday morning peak hour, approximately 1 vehicle would enter and 3 vehicles would exit the site. Approximately 3 entering vehicles and 2 exiting vehicles are projected for the weekday afternoon peak hour.

TRIP DISTRIBUTION AND ASSIGNMENT

Trip Directional Distribution

Estimating the directional distribution of site-generated vehicle trips to the study-area roads and intersections is a necessary component in determining the site's traffic impacts. Figure 5 shows the percentages of the site-generated vehicle trips projected to be oriented to and from the east and west on Walker Road. Estimates have been based on the following factors: the proposed land use, the area road system serving the site, previously-conducted traffic studies for the site, and the site's geographic location relative to the City of Colorado Springs metro area, El Paso County, and the Pikes Peak region.

Site-Generated Traffic

Figure 6 shows the projected site-generated traffic volumes for the weekday morning and evening peak hours. Site-generated traffic volumes have been calculated by applying the directional-distribution percentages estimated by LSC (from Figure 5) to the trip-generation estimates (from Table 3).

Short-Term Baseline-Plus-Site-Generated Traffic Volumes

Figure 7 shows the sum of the short-term baseline traffic volumes (from Figure 4) and site-generated peak-hour traffic volumes (shown in Figure 6). These volumes represent the projected short-term total traffic.

Estimated Future 2041 Background Traffic Volumes

Figure 8 shows the projected 20-year background traffic volumes for the year 2041. Estimated 2041 background through traffic volumes on Walker Road account for projected background growth in the vicinity of the site. Projected 20-year background traffic volumes do **not** include projected traffic to be generated by the proposed four additional homes.

Future 2041 Total Traffic Volumes

Figure 9 shows the projected 2040 total traffic volumes, which are the sum of 2040 background traffic volumes (from Figure 8) plus the site-generated traffic volumes (from Figure 6).

LEVEL OF SERVICE ANALYSIS

The Walker Road/proposed site-access point has been analyzed to determine the projected intersection levels of service for short- and long-term traffic scenarios for the morning and evening peak-hour time periods.

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Table 2 shows the level of service delay ranges for signalized and unsignalized intersections.

Table 2: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections Average Control Delay (seconds per vehicle)	Unsignalized Intersections Average Control Delay (seconds per vehicle)[(1)]
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

(1) For unsignalized intersections, if V/C ratio is greater than 1.0 the level of service is LOS F, regardless of the projected average control delay per vehicle.

Detailed Synchro reports are attached. A summary of LOS during the weekday morning and evening peak hours for the following unsignalized intersections is shown in the following figures:

- Figure 3: Existing Traffic, Lane Geometry, Traffic Control, and LOS
- Figure 4: Short-Term Baseline Traffic, Lane Geometry, Traffic Control, and LOS
- Figure 7: Short-Term Total Traffic, Lane Geometry, Traffic Control, and LOS
- Figure 8: 2041 Background Traffic, Lane Geometry, Traffic Control, and LOS
- Figure 9: 2041 Background + Site Traffic, Lane Geometry, Traffic Control, and LOS

Walker Road/Proposed Site Access

All individual turning movements at the proposed site-access with Walker Road currently operate at and are projected to remain at LOS A during all short-term and long-term scenarios following the addition of site-generated traffic.

AUXILIARY TURN-LANE ANALYSIS

The *Engineering Criteria Manual* contains turning-volume thresholds which require auxiliary left- or right-turn lanes by roadway classifications.

- Walker Road – Minor Arterial

Walker Road/Proposed Site Access

Left-Turn Deceleration Lanes

Left-turn deceleration auxiliary turn lanes are required for a Minor Arterial access with a projected peak-hour left-ingress turning volume of 25 vph or greater. The westbound left-turn volume is **not** projected to exceed this 25-vph threshold during either peak hour following the completion of this residential development. As such, no modifications would be required to the westbound approach on Walker Road approaching the proposed site access.

Right-Turn Deceleration Lanes

Right-turn deceleration auxiliary turn lanes are required for a Minor Arterial access with a projected peak-hour right-ingress turning volume of 50 vph or greater. The eastbound right-turn volume is **not** projected to exceed this 50-vph threshold during either peak hour following the completion of this residential development. As such, no modifications would be required to the eastbound approach on Walker Road approaching the proposed site access.

CONFORMANCE WITH THE MTCP

Walker Road is identified as a two-lane Minor Arterial on the *MTCP*.

Reimbursable Improvements

The following roadway improvement projects have been identified as being needed by the year 2040, per Map 13 and Table 4 of El Paso County's 2016 *MTCP*:

- U13 – Walker Road from Steppler Road to Black Forest Road ($6,783,000)
- Existing conditions – unimproved county road
- Future conditions – 2-lane Rural Principal Arterial

See the attached *MTCP* maps for reference.

COUNTY ROAD IMPROVEMENT FEE PROGRAM

The applicant will be required to participate in the County Road Improvement Fee Program. The applicant intends to opt out of the PID options. The current "full-fee" amount, payable at the building permit stage, identified on the County's Road Impact Fee Schedule is $3,830 per single-family dwelling unit, for a total of $15,420. The fees are subject to change.

MULTI-MODAL TRANSPORTATION AND TRANSPORTATION DEMAND MANAGEMENT (TDM) OPPORTUNITIES

The following roadway improvement projects have been identified as being needed by the year 2040 per Map 15 and Table 5 of El Paso County's 2016 *MTCP*:

- Proposed bicycle route on Walker Road (would begin at State Highway 105/Jackson Creek Parkway and extend east to Meridian Road, via Walker Road)

No sidewalks would be required, as the proposed subdivision roadway and study-area roadways are Rural.

CONCLUSIONS

- The additional four lots on the site are projected to generate about 38 **new** driveway vehicle trips on the average weekday (47 total driveway vehicle trips, including from the existing home).
- During the weekday morning peak hour of adjacent street traffic, 1 vehicle would enter the site while 3 vehicles would exit (total including trips from the existing home).
- During the weekday evening peak hour of adjacent street traffic, 3 vehicles would enter the site while 2 vehicles would exit (total including trips from the existing home).
- All approaches are projected to operate at LOS A through the 20-year horizon at the site-access point on Walker Road. Please refer to the "Level of Service" section above for detailed LOS analysis results for more details.
- No auxiliary turn lanes would be required at the site access on Walker Road, based on projected long-term total traffic volumes. Please refer to the "Auxiliary Turn-Lane Analysis" section more details.
- The proposed site-access point (a planned shared driveway access to Walker Road) would meet the *Engineering Criteria Manual's* standards for "sight distance along the roadway" and entering sight distance. Please refer to the "Sight Distance" section for details.
- Please refer to the El Paso County Road Improvement Fee Program amount above.

* * * * *

Please contact me if you have any questions regarding this report.

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E.
Principal

JCH/JAB:jas

Enclosures: Table 3
Figure 1 - Figure 9
Traffic Count Reports
Synchro LOS Reports
MTCP Maps

Tables

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Table 3: Detailed Trip Generation Estimate

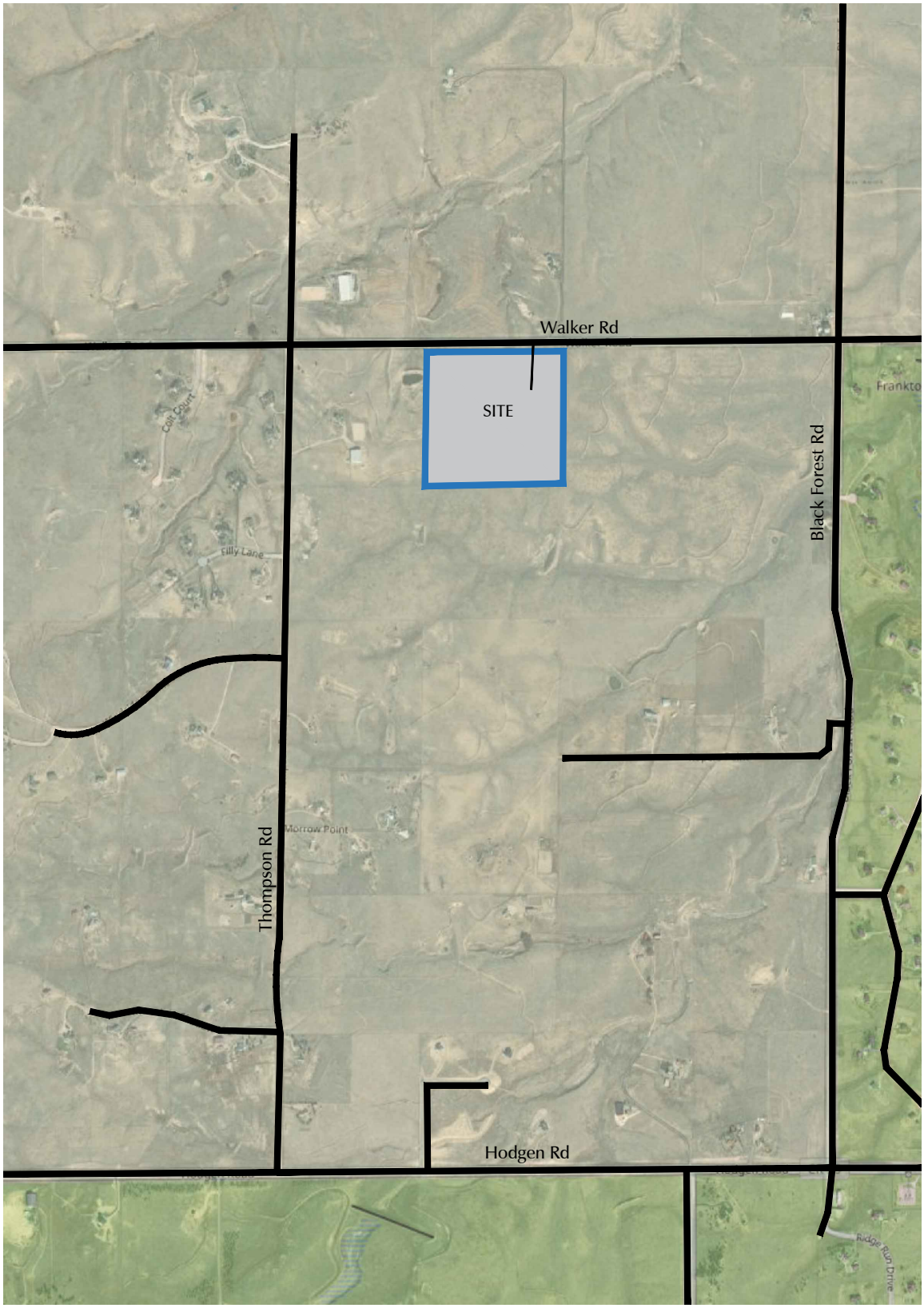
ITE		Value	Units [1]	Trip Generation Rates [2]					Total Trips Generated				
				Average	A.M.		P.M.		Average	A.M.		P.M.	
Code	Description			Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
Existing Home/Lot -- 1 Dwelling Unit													
210	Single-Family (Detached) Housing	1	DU	9.43	0.18	0.52	0.59	0.35	9	0	1	1	0
Proposed Additional Lots -- 4 Dwelling Units													
210	Single-Family (Detached) Housing	4	DU	9.43	0.18	0.52	0.59	0.35	38	1	2	2	1
Future Conditions -- 5 Dwelling Units													
210	Single-Family (Detached) Housing	5	DU	9.43	0.18	0.52	0.59	0.35	47	1	3	3	2

[1] DU = dwelling units

[2] Source: Trip Generation, 11th Edition, 2021, by the Institute of Transportation Engineers (ITE)

Figures

TRANSPORTATION
CONSULTANTS, INC.



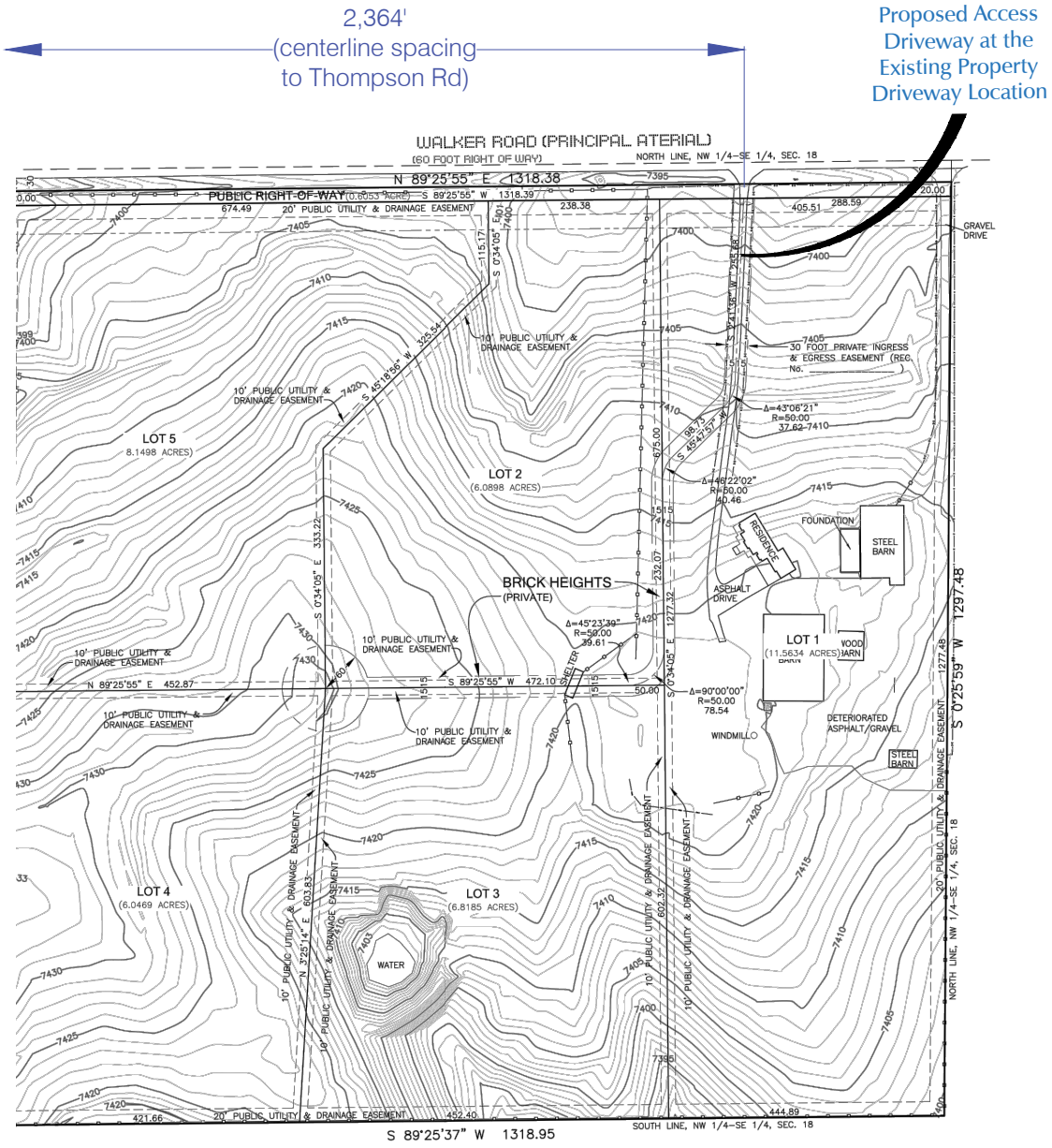
Not to scale

Figure 1

Vicinity Map

High View Estates (LSC #S214800)

LSC TRANSPORTATION CONSULTANTS, INC.



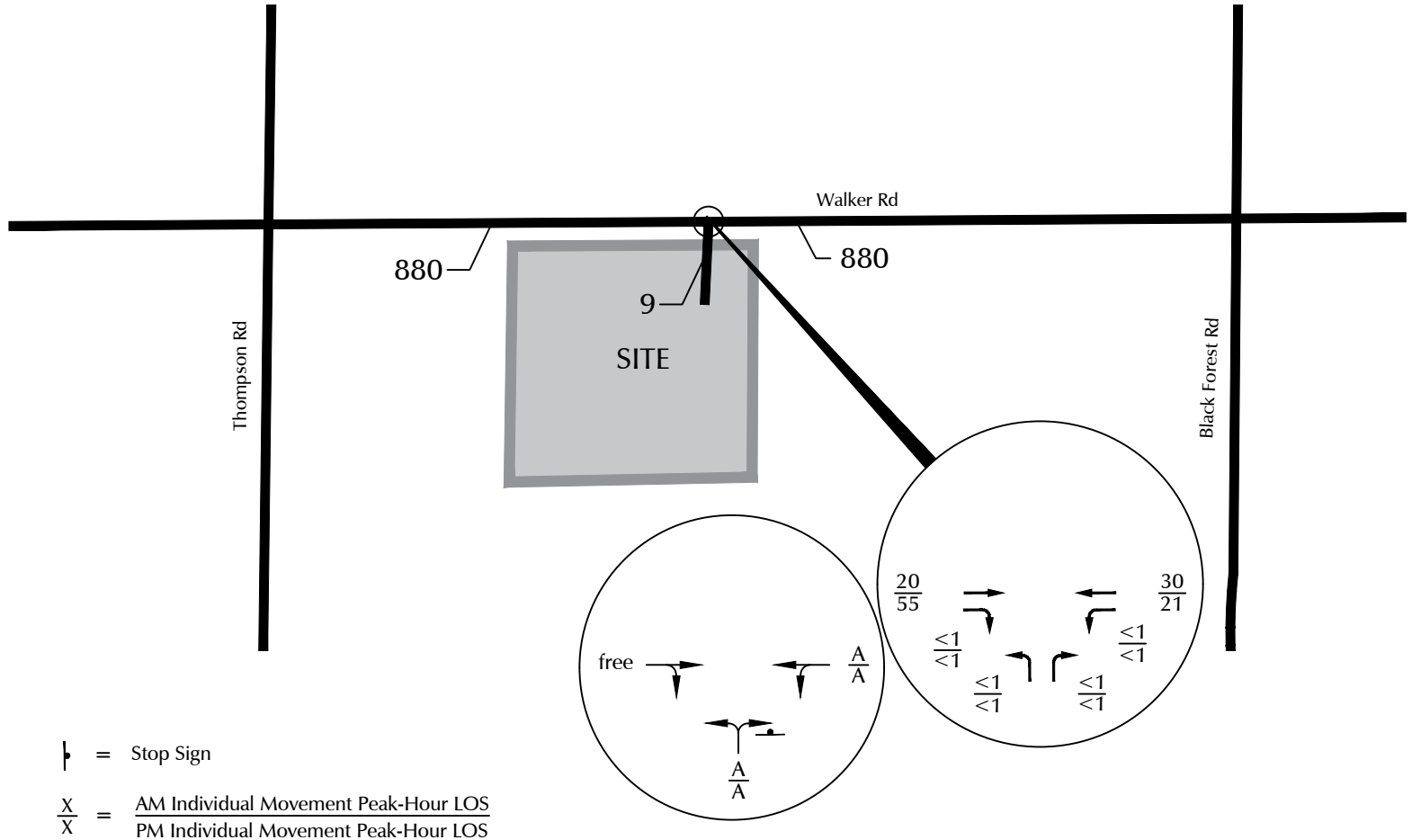
Not to scale

Figure 2

Site Plan

High View Estates (LSC #S214800)

TRANSPORTATION CONSULTANTS, INC.



Not to scale

	=	Stop Sign
X/X	=	AM Individual Movement Peak-Hour LOS / PM Individual Movement Peak-Hour LOS
XX/XX	=	AM Weekday Peak-Hour Traffic (Veh/Hour) / PM Weekday Peak-Hour Traffic (Veh/Hour)
X,XXX	=	Average Daily Traffic (Vehicles/Day), estimated by LSC

Based on counts by LSC (September 2021)

TRANSPORTATION CONSULTANTS, INC.

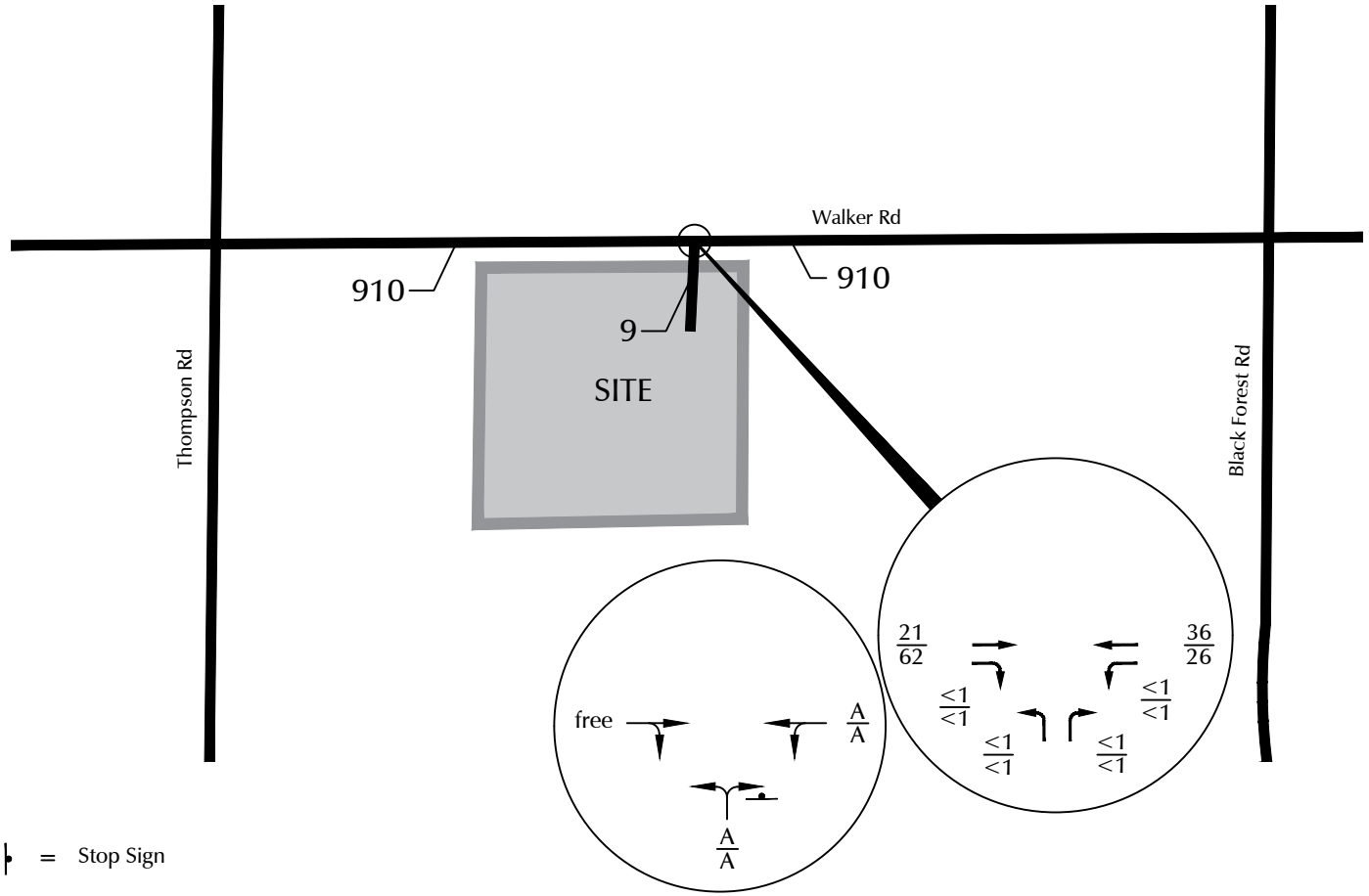
Figure 3

Existing Traffic Conditions

High View Estates (LSC #S214800)

Short-term baseline (adjusted estimates for effects of Covid-19 pandemic)

Not to scale



= Stop Sign

$\frac{X}{X}$ = AM Individual Movement Peak-Hour LOS / PM Individual Movement Peak-Hour LOS

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (Veh/Hour) / PM Weekday Peak-Hour Traffic (Veh/Hour)

X,XXX = Average Daily Traffic (Vehicles/Day)

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Figure 4

Short-Term Baseline Traffic Conditions

High View Estates (LSC #S214800)

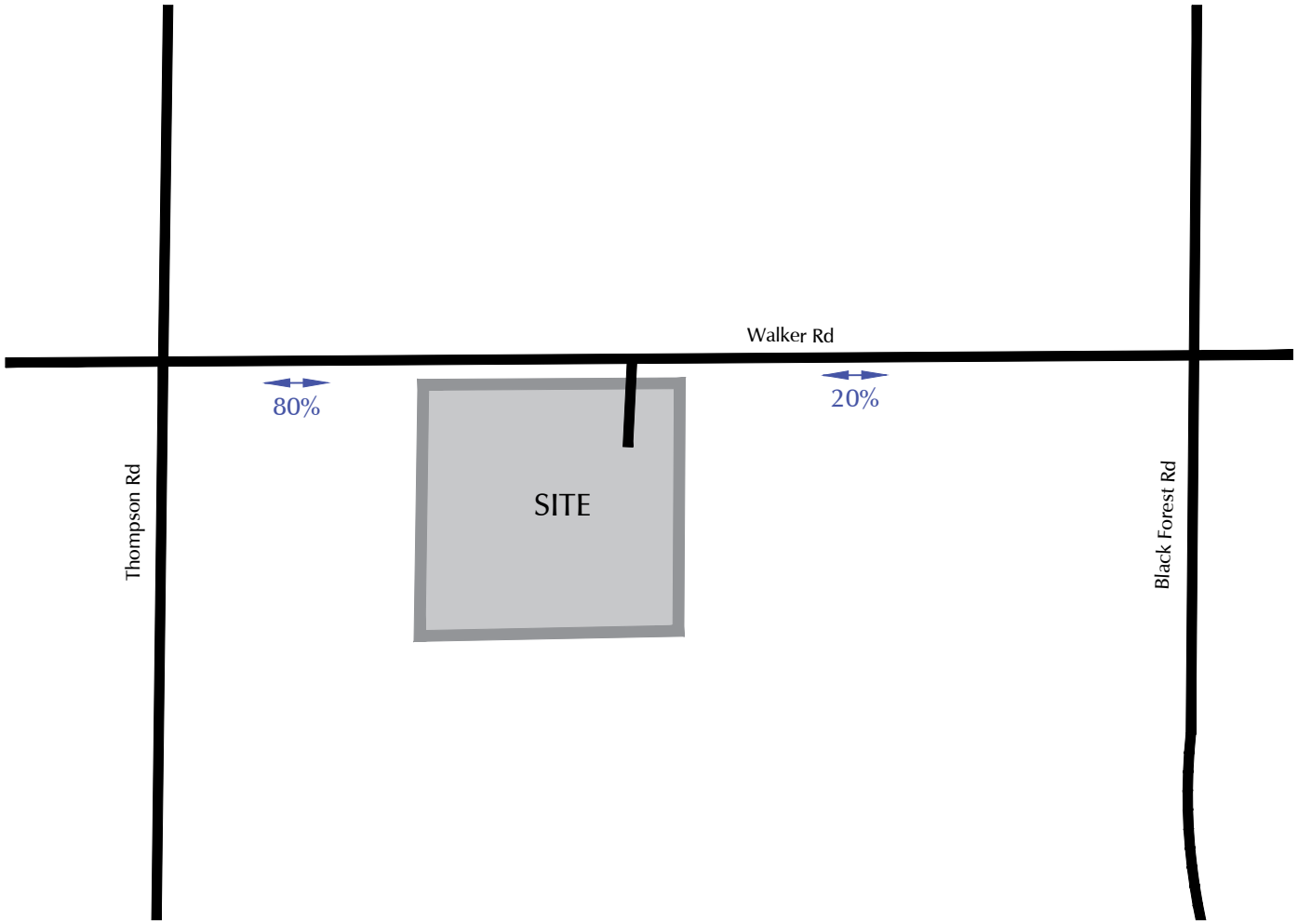

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Figure 5

Directional Distribution

High View Estates (LSC #S214800)

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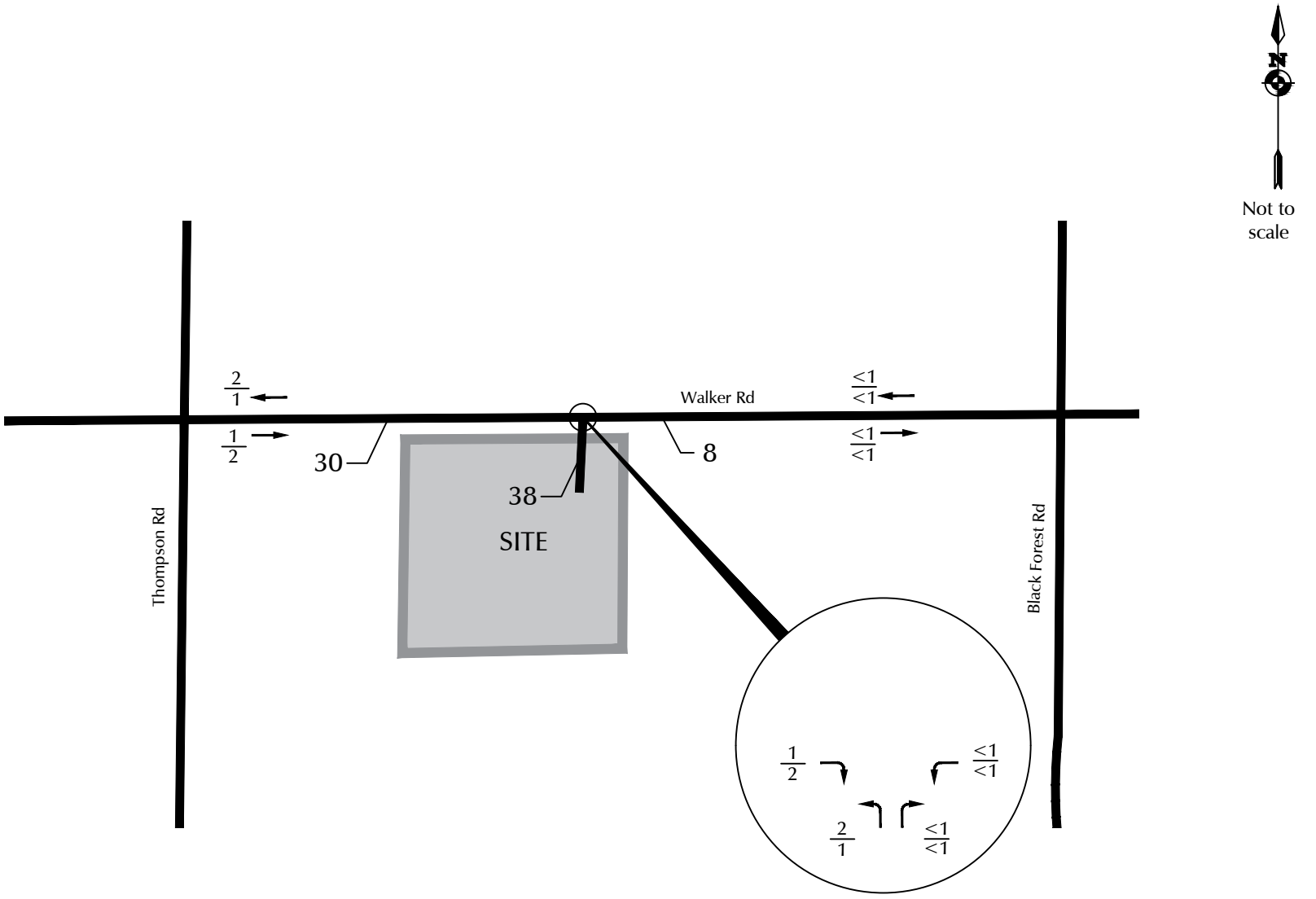
XX% = Directional Distribution Split



XX / XX = AM Weekday Peak-Hour Traffic (Veh/Hour) / PM Weekday Peak-Hour Traffic (Veh/Hour)

X,XXX = Average Daily Traffic (Vehicles/Day)

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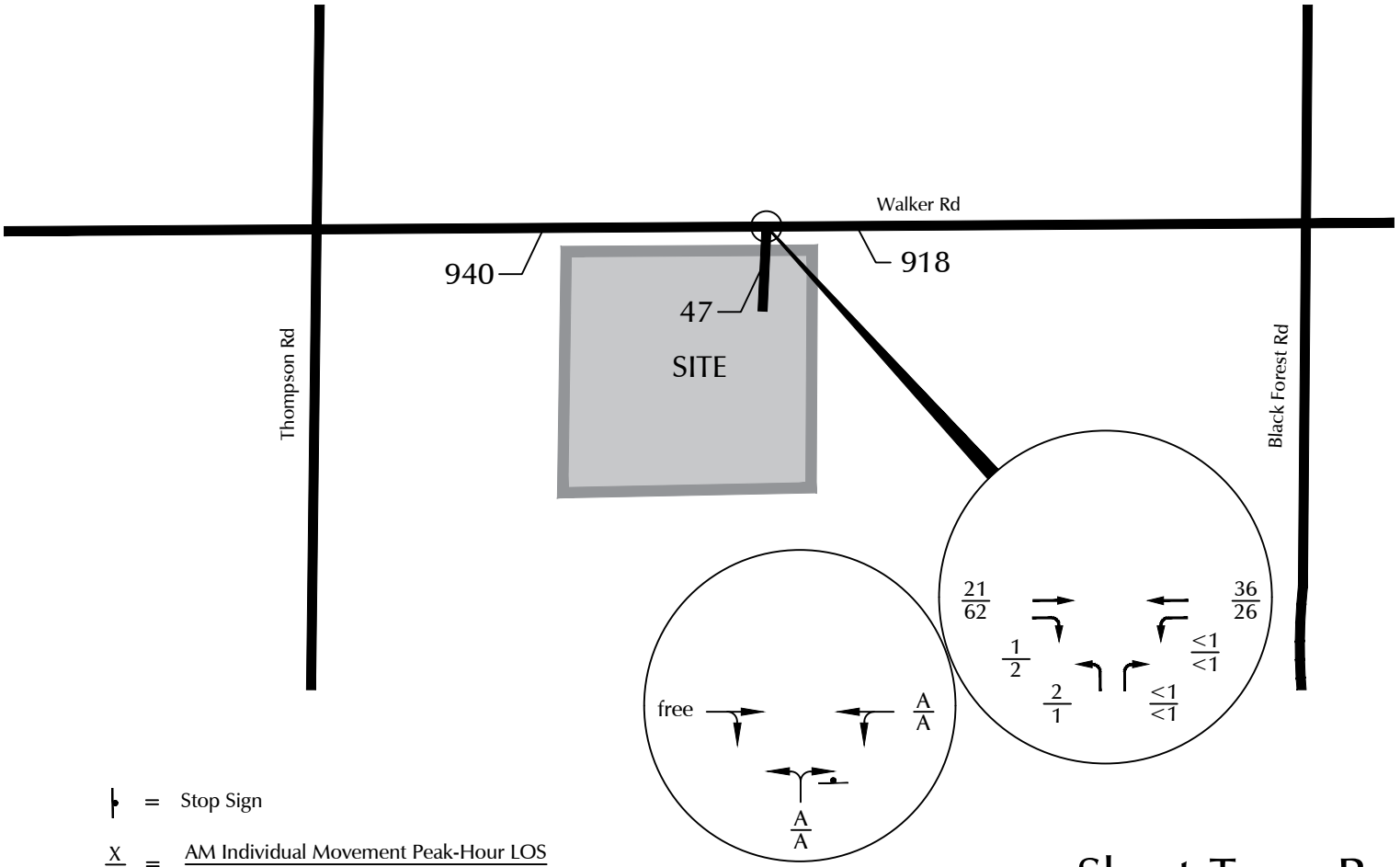
Figure 6

Site-Generated Traffic

High View Estates (LSC #S214800)



Not to scale

	=	Stop Sign
X / X	=	AM Individual Movement Peak-Hour LOS / PM Individual Movement Peak-Hour LOS
XX / XX	=	AM Weekday Peak-Hour Traffic (Veh/Hour) / PM Weekday Peak-Hour Traffic (Veh/Hour)
X,XXX	=	Average Daily Traffic (Vehicles/Day)

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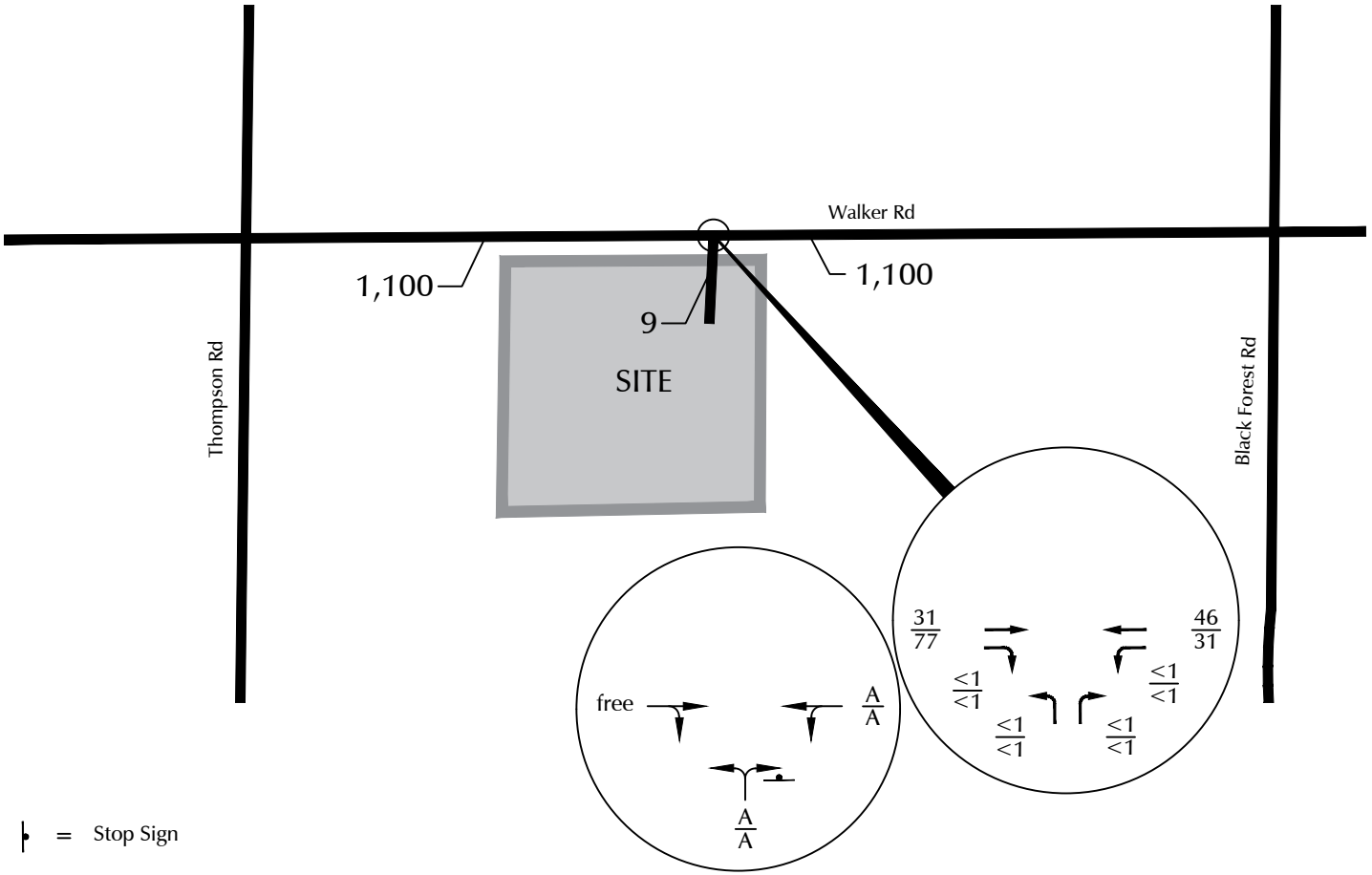
Figure 7

Short-Term Baseline + Site-Generated Traffic Conditions

High View Estates (LSC #S214800)



Not to scale

⊢	=	Stop Sign
X / X	=	AM Individual Movement Peak-Hour LOS / PM Individual Movement Peak-Hour LOS
XX / XX	=	AM Weekday Peak-Hour Traffic (Veh/Hour) / PM Weekday Peak-Hour Traffic (Veh/Hour)
X,XXX	=	Average Daily Traffic (Vehicles/Day)

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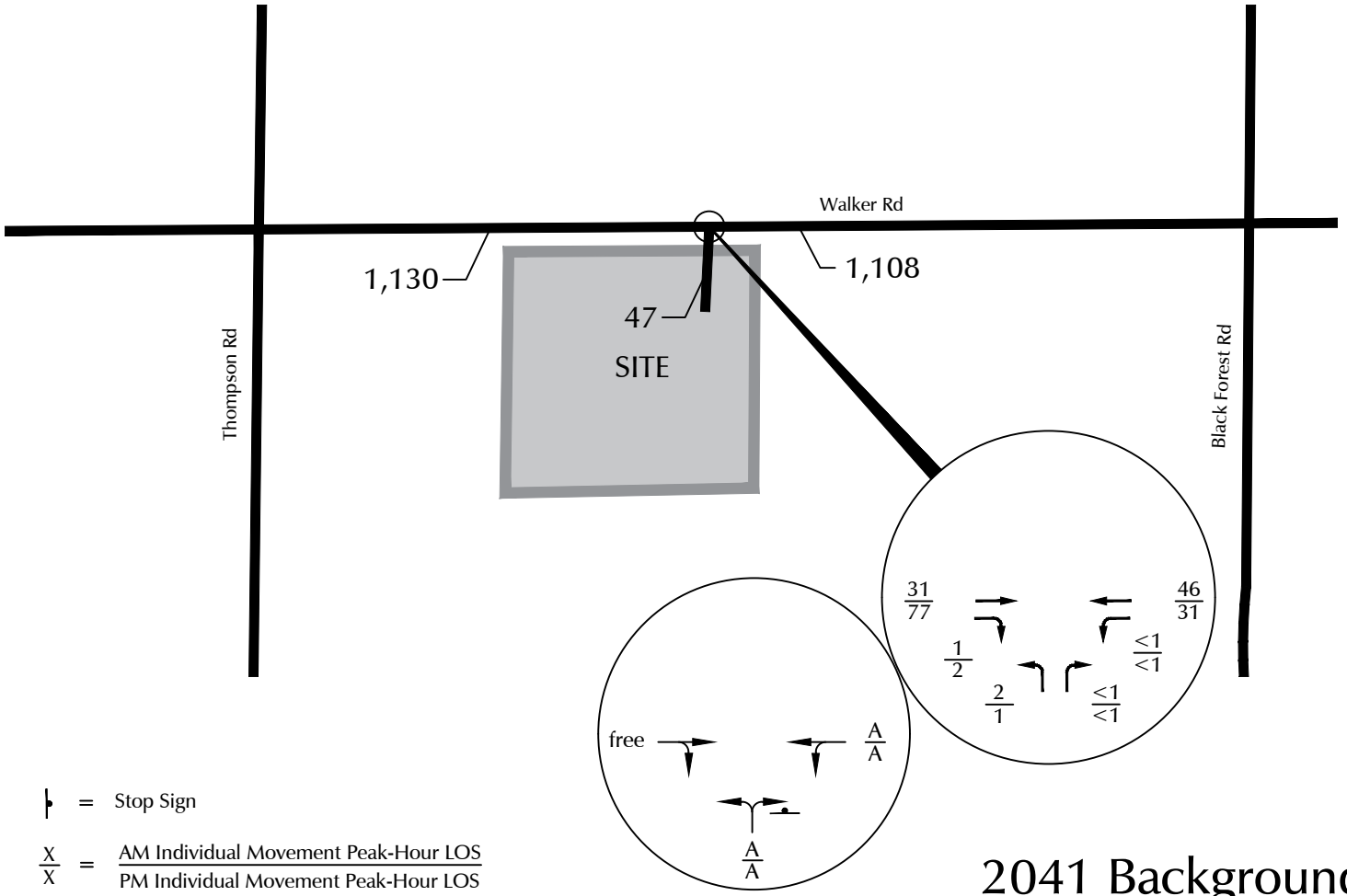
Figure 8

2041 Background Traffic Conditions

High View Estates (LSC #S214800)



Not to scale

= Stop Sign

X/X = AM Individual Movement Peak-Hour LOS / PM Individual Movement Peak-Hour LOS

XX/XX = AM Weekday Peak-Hour Traffic (Veh/Hour) / PM Weekday Peak-Hour Traffic (Veh/Hour)

X,XXX = Average Daily Traffic (Vehicles/Day)

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Figure 9

2041 Background + Site Traffic Conditions

High View Estates (LSC #S214800)

N

1" = 200' scale

Walker Road
45 mph = posted speed limit

400' = ECM-prescribed sight distance along roadway (Table 2-33)
450' = ECM-prescribed entering sight distance for driveways (Table 2-35)
XXX' = field-measured sight distance

TRANSPORTATION CONSULTANTS, INC.

Exhibit 1

Sight Distance Analysis

High View Estates (LSC #S214800)

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

LSC Transportation Consultants, Inc.

2504 E Pikes Peak Ave, Suite 304
Colorado Springs, CO 80909
719-633-2868

File Name : Thompson Rd - Walker Rd AM
Site Code : S214800
Start Date : 9/9/2021
Page No : 1

Groups Printed- Unshifted

	Southbound					Walker Rd Westbound					Thompson Rd Northbound					Walker Rd Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
06:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
06:35 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	3
06:40 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	2	0	0	2	8
06:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
06:50 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	6
06:55 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	20	0	0	20	0	0	1	0	1	0	5	1	0	6	27
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
07:05 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	3
07:10 AM	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	0	0	0	0	0	7
07:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
07:20 AM	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	0	1	0	0	1	4
07:25 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	3	0	0	3	6
07:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
07:35 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	9
07:40 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	1	1	0	2	0	0	2	7
07:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
07:50 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	1	0	2	5
07:55 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	1	28	0	0	29	4	0	1	1	6	0	17	1	0	18	53
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5

LSC Transportation Consultants, Inc.

2504 E Pikes Peak Ave, Suite 304
Colorado Springs, CO 80909
719-633-2868

File Name : Thompson Rd - Walker Rd AM
Site Code : S214800
Start Date : 9/9/2021

Groups Printed- Unshifted

	Southbound					Walker Rd Westbound					Thompson Rd Northbound					Walker Rd Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
08:05 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
08:10 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
08:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
08:20 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
08:25 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	1	1	0	0	0	0	0	3
Grand Total	0	0	0	0	0	1	60	0	0	61	4	0	2	2	8	0	30	2	0	32	101
Apprch %	0	0	0	0		1.6	98.4	0	0		50	0	25	25		0	93.8	6.2	0		
Total %	0	0	0	0	0	1	59.4	0	0	60.4	4	0	2	2	7.9	0	29.7	2	0	31.7	

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	Southbound					Walker Rd Westbound					Thompson Rd Northbound					Walker Rd Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:30 AM to 08:25 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:05 AM																					
07:05 AM	0	0	0	0	0	0	2	0	0	2	**1**	0	0	0	1	0	0	0	0	0	3
07:10 AM	0	0	0	0	0	0	**6**	0	0	**6**	1	0	0	0	1	0	0	0	0	0	7
07:15 AM	0	0	0	0	0	**1**	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
07:20 AM	0	0	0	0	0	0	1	0	0	1	1	0	**1**	0	**2**	0	1	0	0	1	4
07:25 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	3	0	0	3	6
07:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
07:35 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	**5**	0	0	**5**	**9**
07:40 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	**1**	1	0	2	0	0	2	7
07:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
07:50 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	**1**	0	2	5
07:55 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
Total Volume	0	0	0	0	0	1	29	0	0	30	4	0	1	1	6	0	19	1	0	20	56
% App. Total	0	0	0	0		3.3	96.7	0	0		66.7	0	16.7	16.7		0	95	5	0		
PHF	.000	.000	.000	.000	.000	.083	.403	.000	.000	.417	.333	.000	.083	.083	.250	.000	.317	.083	.000	.333	.519

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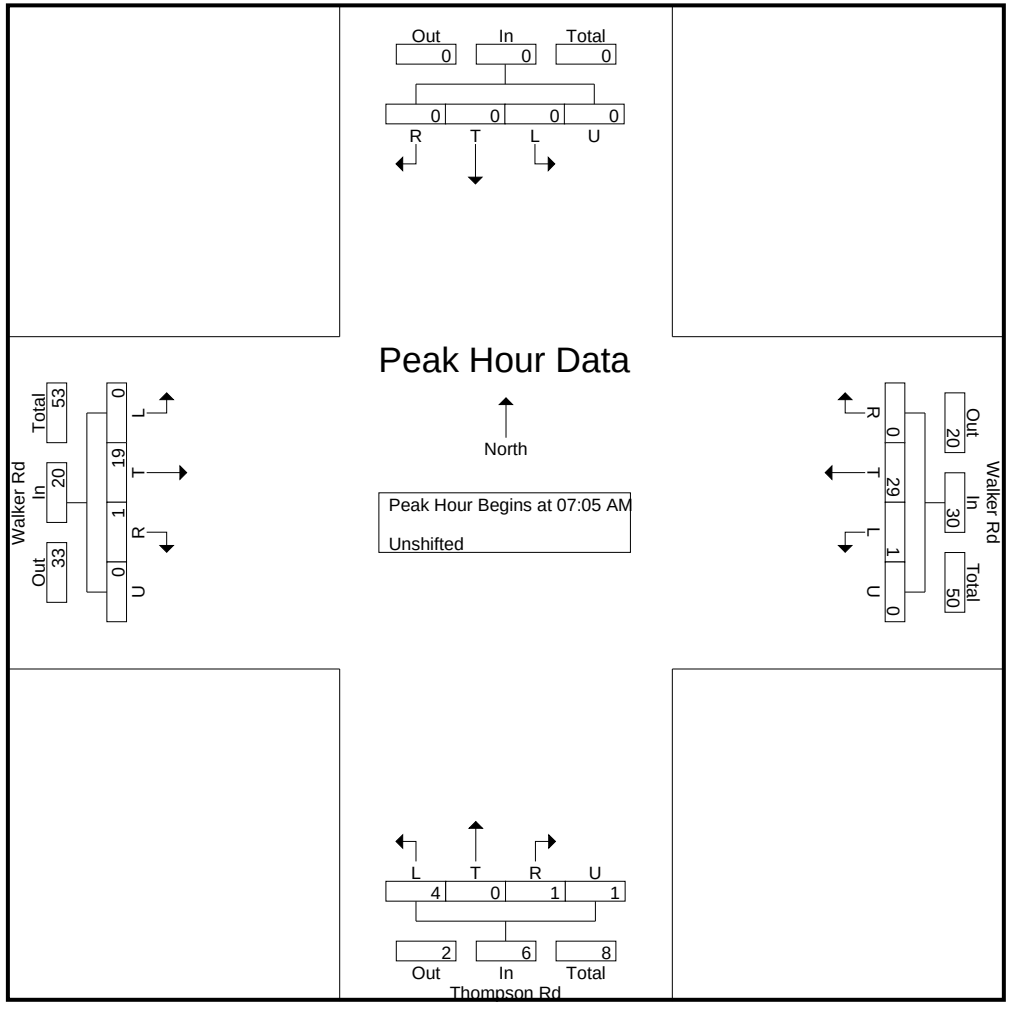

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	Southbound					Walker Rd Westbound					Thompson Rd Northbound					Walker Rd Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:30 AM to 08:25 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	06:30 AM					06:40 AM					06:45 AM					07:15 AM					
+0 mins.	0	0	0	0	0	0	**6**	0	0	**6**	0	0	0	0	0	0	1	0	0	1	
+5 mins.	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	
+10 mins.	0	0	0	0	0	0	5	0	0	5	0	0	**1**	0	1	0	3	0	0	3	
+15 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	
+20 mins.	0	0	0	0	0	0	1	0	0	1	**1**	0	0	0	1	0	**5**	0	0	**5**	
+25 mins.	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	
+30 mins.	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	2	0	0	2	
+35 mins.	0	0	0	0	0	**1**	0	0	0	1	1	0	1	0	**2**	0	1	**1**	0	2	
+40 mins.	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	
+50 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	
+55 mins.	0	0	0	0	0	0	4	0	0	4	0	0	0	**1**	1	0	1	0	0	1	
Total Volume	0	0	0	0	0	1	33	0	0	34	4	0	2	1	7	0	22	1	0	23	
% App. Total	0	0	0	0		2.9	97.1	0	0		57.1	0	28.6	14.3		0	95.7	4.3	0		
PHF	.000	.000	.000	.000	.000	.083	.458	.000	.000	.472	.333	.000	.167	.083	.292	.000	.367	.083	.000	.383	

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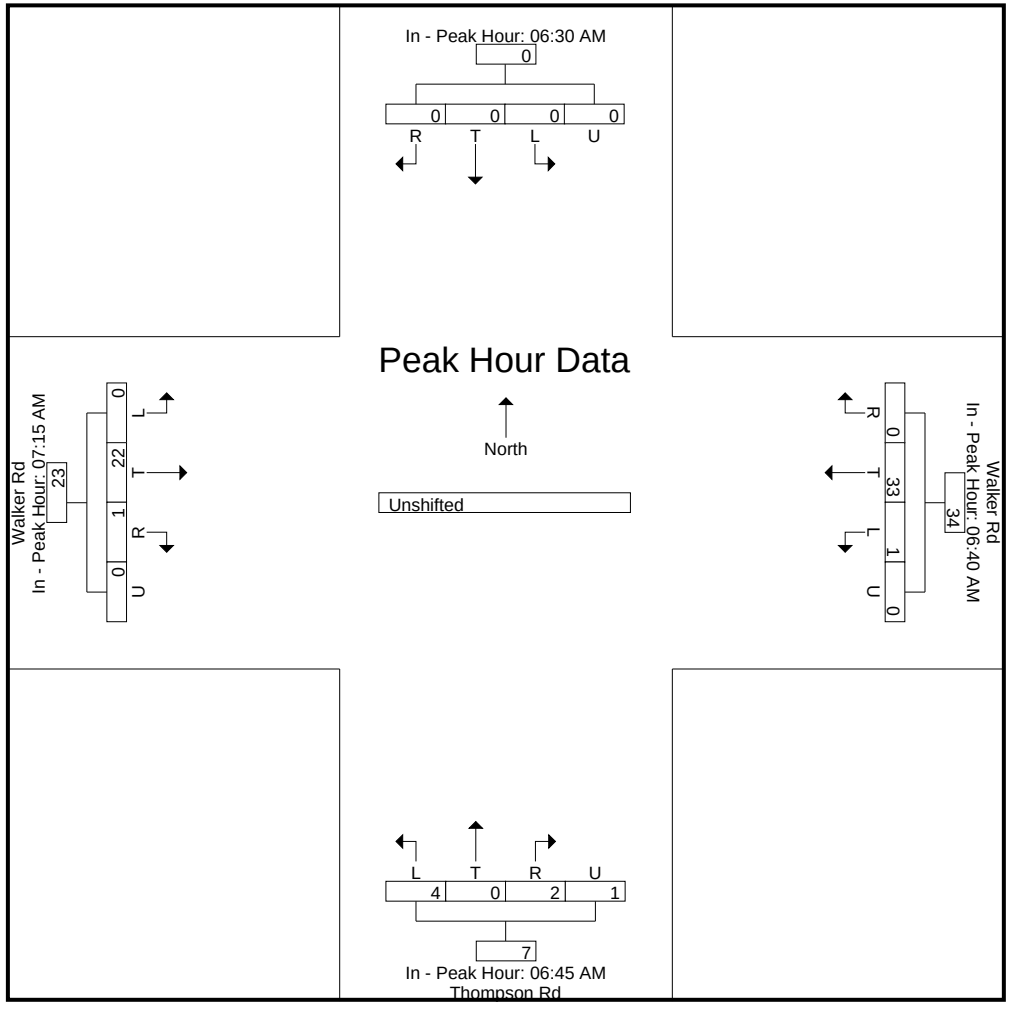

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Groups Printed- Unshifted

	Southbound					Walker Rd Westbound					Thompson Rd Northbound					Walker Rd Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
04:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	27	0	0	27	30
04:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	0	9	0	0	9	15
04:30 PM	0	0	0	0	0	0	8	0	0	8	2	0	0	0	2	0	5	0	0	5	15
04:45 PM	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	12	0	0	12	18
Total	0	0	0	0	0	1	20	0	0	21	2	0	2	0	4	0	53	0	0	53	78
05:00 PM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	10	1	0	11	16
05:15 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	9	0	0	9	15
05:30 PM	0	0	0	0	0	2	6	0	0	8	0	0	0	0	0	0	12	0	0	12	20
05:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	4	1	0	5	8
Total	0	0	0	0	0	3	18	0	0	21	0	0	1	0	1	0	35	2	0	37	59
Grand Total	0	0	0	0	0	4	38	0	0	42	2	0	3	0	5	0	88	2	0	90	137
Apprch %	0	0	0	0		9.5	90.5	0	0		40	0	60	0		0	97.8	2.2	0		
Total %	0	0	0	0	0	2.9	27.7	0	0	30.7	1.5	0	2.2	0	3.6	0	64.2	1.5	0	65.7	

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	Southbound					Walker Rd Westbound					Thompson Rd Northbound					Walker Rd Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 4:00:00 PM																					
4:00:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	**1**	0	1	0	**27**	0	0	**27**	**30**
4:15:00 PM	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	0	9	0	0	9	15
4:30:00 PM	0	0	0	0	0	0	**8**	0	0	**8**	**2**	0	0	0	**2**	0	5	0	0	5	15
4:45:00 PM	0	0	0	0	0	**1**	5	0	0	6	0	0	0	0	0	0	12	0	0	12	18
Total Volume	0	0	0	0	0	1	20	0	0	21	2	0	2	0	4	0	53	0	0	53	78
% App. Total	0	0	0	0		4.8	95.2	0	0		50	0	50	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.250	.625	.000	.000	.656	.250	.000	.500	.000	.500	.000	.491	.000	.000	.491	.650

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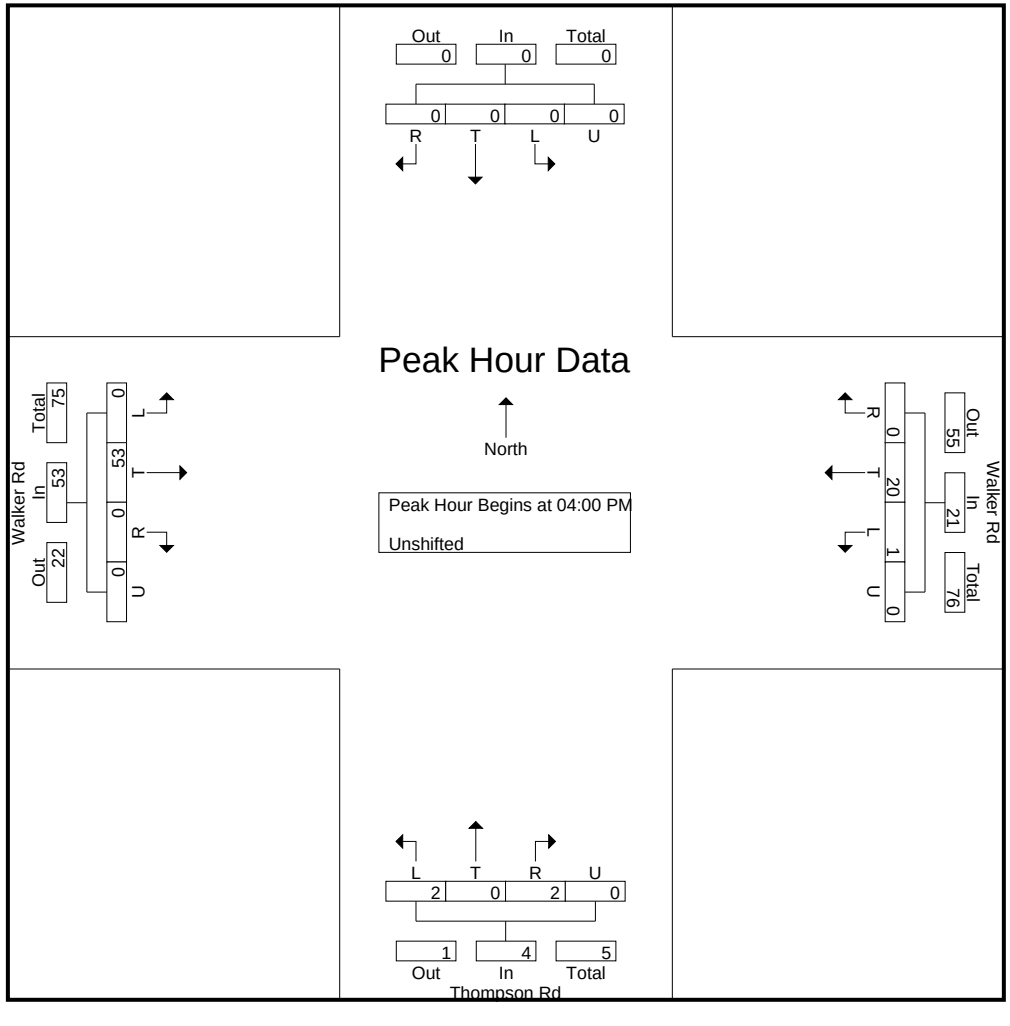

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	Southbound					Walker Rd Westbound					Thompson Rd Northbound					Walker Rd Eastbound					
Start Time	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**L**	**T**	**R**	**U**	**App. Total**	**Int. Total**
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	4:00:00 PM					4:30:00 PM					4:00:00 PM					4:00:00 PM					
+0 mins.	0	0	0	0	0	0	**8**	0	0	**8**	0	0	**1**	0	1	0	**27**	0	0	**27**	
+5 mins.	0	0	0	0	0	**1**	5	0	0	6	0	0	1	0	1	0	9	0	0	9	
+10 mins.	0	0	0	0	0	1	4	0	0	5	**2**	0	0	0	**2**	0	5	0	0	5	
+15 mins.	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	12	0	0	12	
Total Volume	0	0	0	0	0	2	23	0	0	25	2	0	2	0	4	0	53	0	0	53	
% App. Total	0	0	0	0		8	92	0	0		50	0	50	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.500	.719	.000	.000	.781	.250	.000	.500	.000	.500	.000	.491	.000	.000	.491	

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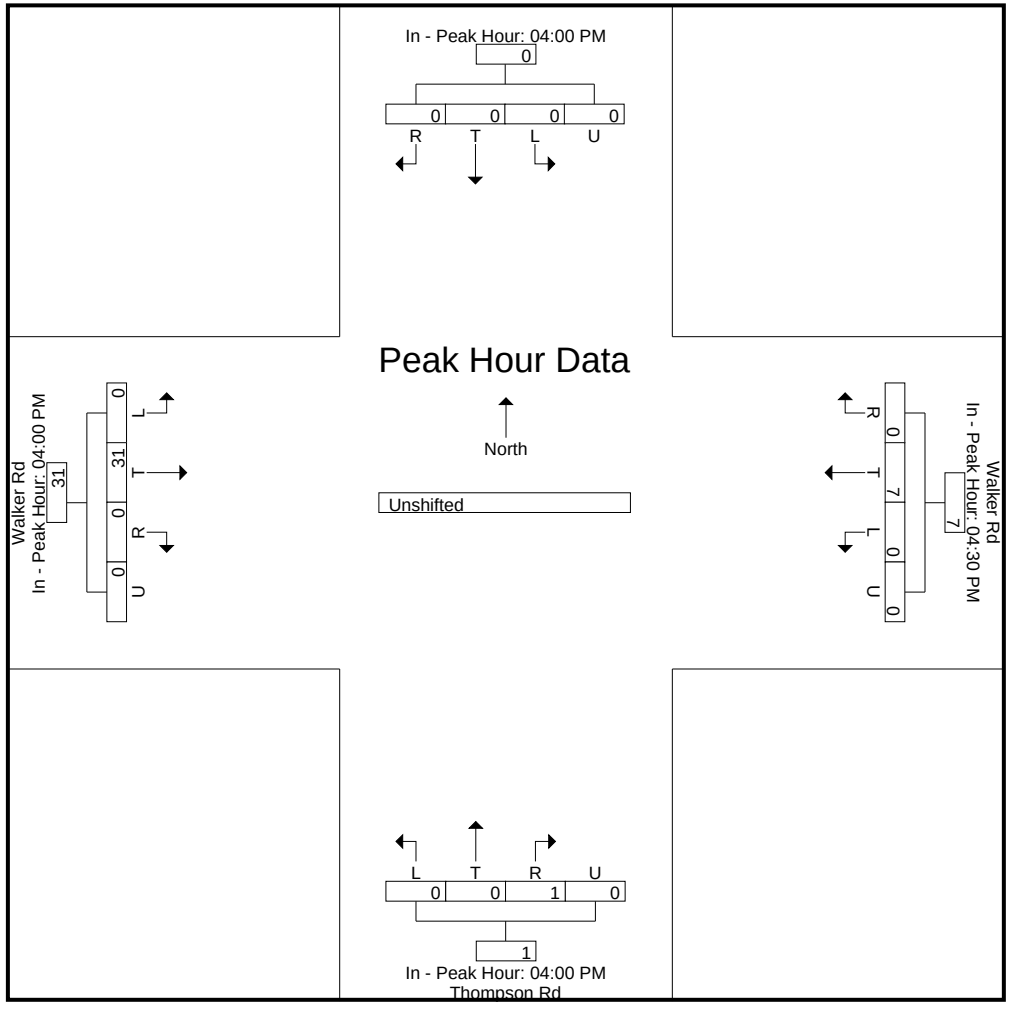


Levels of Service

TRANSPORTATION
CONSULTANTS, INC.

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	1	0	36	2	0
Future Vol, veh/h	21	1	0	36	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	1	0	46	3	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	28	0	74	28
Stage 1	-	-	-	-	28	-
Stage 2	-	-	-	-	46	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1585	-	930	1047
Stage 1	-	-	-	-	995	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1585	-	930	1047
Mov Cap-2 Maneuver	-	-	-	-	930	-
Stage 1	-	-	-	-	995	-
Stage 2	-	-	-	-	976	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	930	-	-	1585	-
HCM Lane V/C Ratio	0.003	-	-	-	-
HCM Control Delay (s)	8.9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	62	2	0	26	1	0
Future Vol, veh/h	62	2	0	26	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	2	0	33	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	109	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	33	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1522	-	888	985
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1522	-	888	985
Mov Cap-2 Maneuver	-	-	-	-	888	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	989	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	888	-	-	1522	-
HCM Lane V/C Ratio	0.001	-	-	-	-
HCM Control Delay (s)	9.1	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	0	0	46	2	0
Future Vol, veh/h	31	0	0	46	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	0	0	59	3	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	40	0	99	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	59	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1570	-	900	1031
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	964	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1570	-	900	1031
Mov Cap-2 Maneuver	-	-	-	-	900	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	964	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	900	-	-	1570	-
HCM Lane V/C Ratio	0.003	-	-	-	-
HCM Control Delay (s)	9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	76	0	1	31	0	2	0	2	0	0	0
Future Vol, veh/h	0	76	0	1	31	0	2	0	2	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	92	0	1	40	0	3	0	3	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	40	0	0	92	0	0	134	134	92	136	134	40
Stage 1	-	-	-	-	-	-	92	92	-	42	42	-
Stage 2	-	-	-	-	-	-	42	42	-	94	92	-
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	1570	-	-	1503	-	-	838	757	965	835	757	1031
Stage 1	-	-	-	-	-	-	915	819	-	972	860	-
Stage 2	-	-	-	-	-	-	972	860	-	913	819	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1570	-	-	1503	-	-	837	756	965	832	756	1031
Mov Cap-2 Maneuver	-	-	-	-	-	-	837	756	-	832	756	-
Stage 1	-	-	-	-	-	-	915	819	-	972	859	-
Stage 2	-	-	-	-	-	-	971	859	-	911	819	-

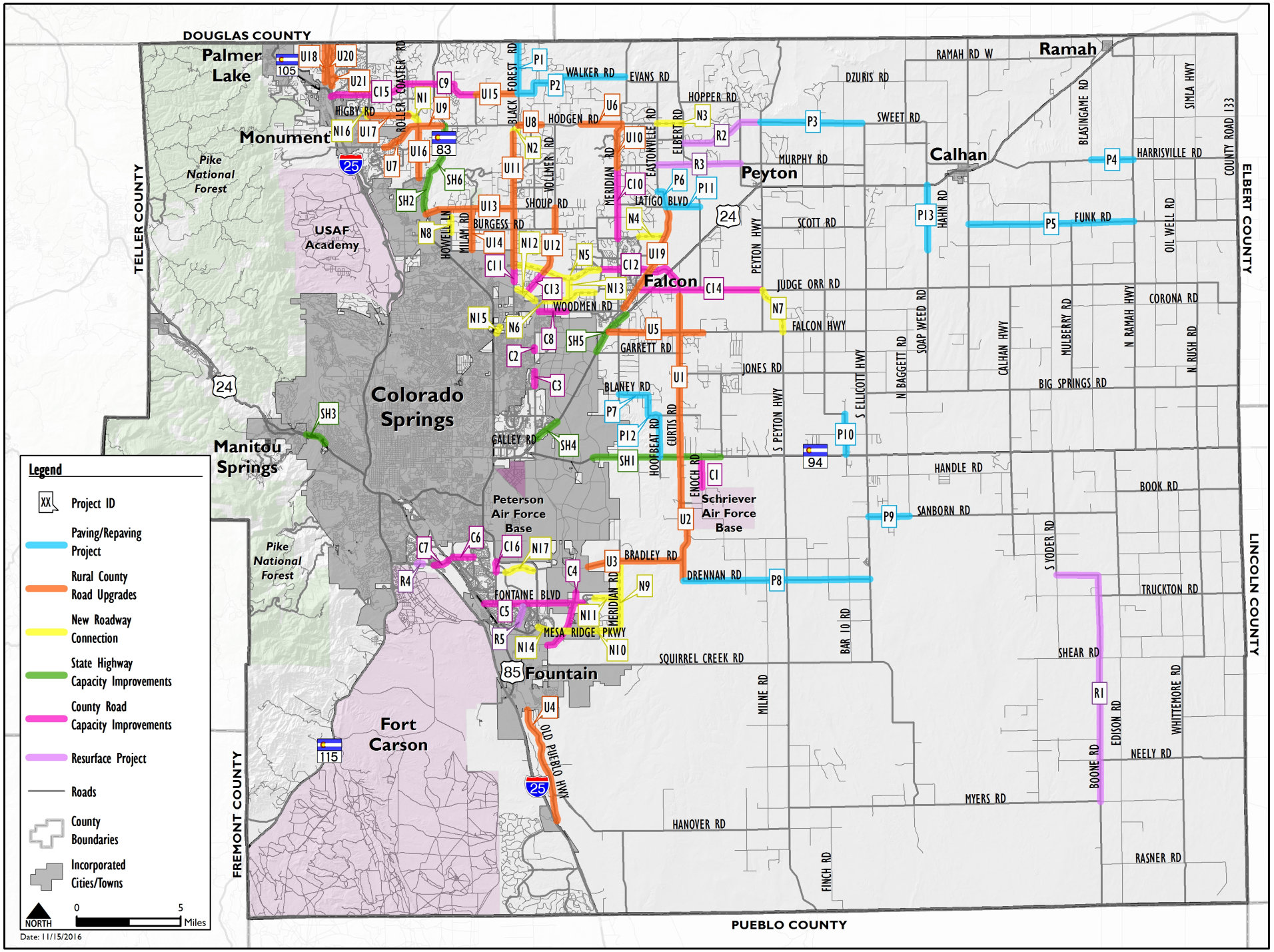
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	9	0
HCM LOS			A	A

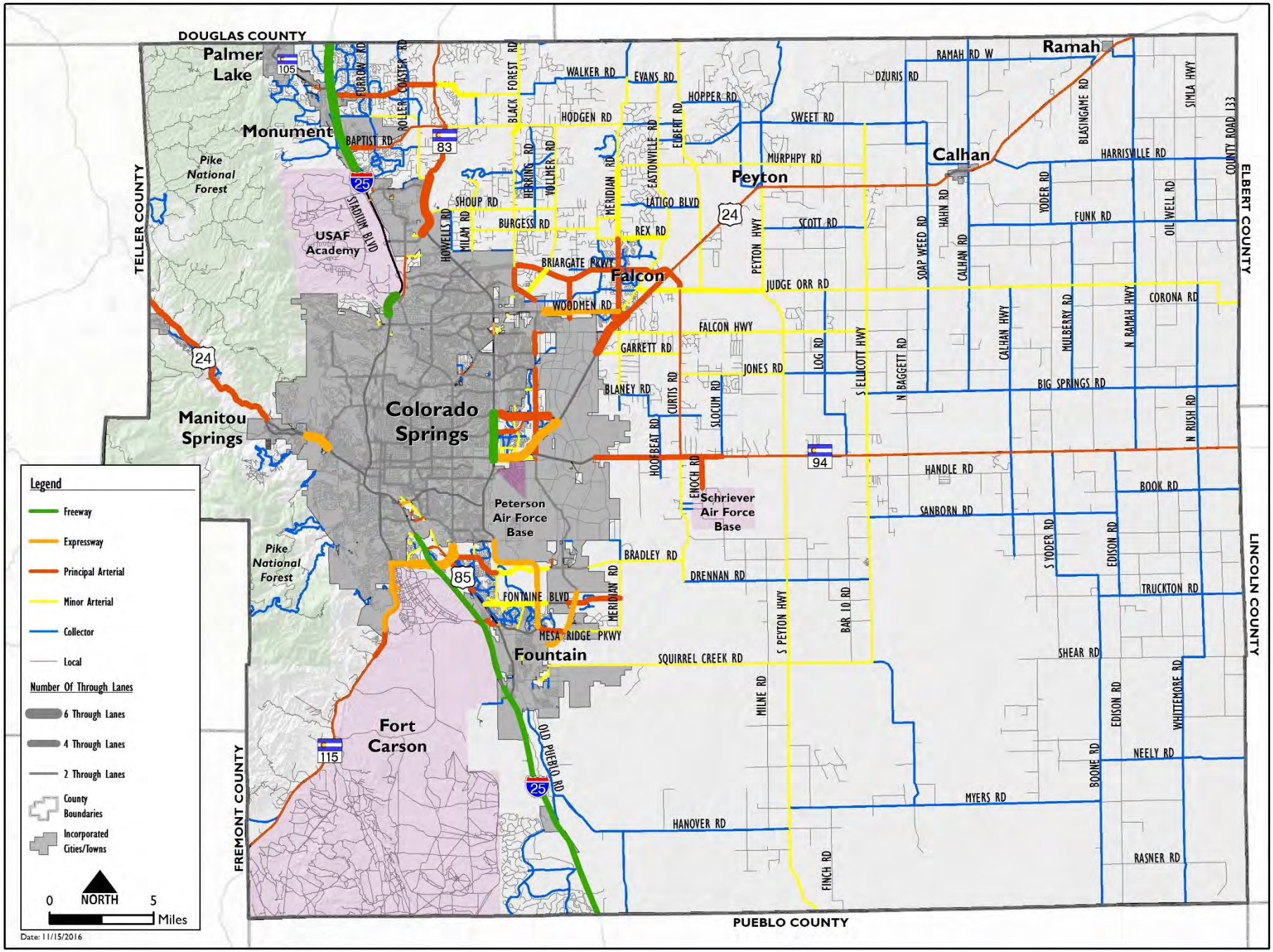
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	896	1570	-	-	1503	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	0.001	-	-	-
HCM Control Delay (s)	9	0	-	-	7.4	0	-	0
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

MTCP Maps

TRANSPORTATION
CONSULTANTS, INC.

Map 13: Improvements Map





Map 14: 2040 Roadway Plan (Classification and Lanes)

Map 15: Multimodal Improvements