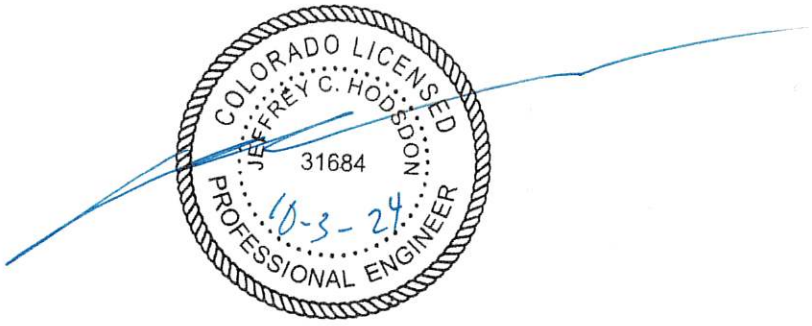
LSC TRANSPORTATION CONSULTANTS, INC.
2504 East Pikes Peak Avenue, Suite 304
Colorado Springs, CO 80909
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: http://www.lsctrans.com

Nabulsi-Abushaban Subdivision
Traffic Impact Study

EPC PCD File No. MS2211
(LSC #S224340)
October 3, 2024

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.

10/16/2024
Date

Nabulsi-Abushaban Subdivision

Traffic Impact Study

Prepared for:
Taher Nabulsi, Co-Trustee
Nabulsi-Abushaban Family Trust
14384 Whispering Ridge Road
San Diego, CA 92131-4268

OCTOBER 3, 2024

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

LSC # S224340
PCD File No.: MS2211

CONTENTS

REPORT CONTENTS 1
RECENT TRAFFIC REPORTS 2
LAND USE AND ACCESS 2
Proposed Land Use 2
Existing and Proposed Subdivision Access 2
Other Area Parcels Adjacent to Old Ranch Road 3
INTERSECTION SIGHT DISTANCE 3
Entering Sight Distance 3
Stopping Sight Distance to Downstream Intersection 3
ROAD AND TRAFFIC CONDITIONS 4
Existing Traffic Volumes 5
Crash History 5
Pedestrian Facilities 5
OLD RANCH ROAD CONNECTION SCENARIO 5
TRIP GENERATION 5
TRIP DIRECTIONAL DISTRIBUTION & SITE-GENERATED TRAFFIC 6
FUTURE TOTAL TRAFFIC VOLUMES 6
Short-Term (Existing-Plus-Site-Generated) Traffic Volumes 6
2043 Projected Background Traffic Volumes 6
2043 Projected Total Traffic Volumes 6
LEVEL OF SERVICE ANALYSIS 7
Old Ranch Road/Site Access 7
Old Ranch Road/Black Forest Road 7
OLD RANCH ROAD FUTURE PROJECTED VOLUMES AND “LINK LOS” 8
AUXILIARY TURN LANE NEEDS ANALYSIS 8
MTCP ROADWAY IMPROVEMENTS 9
INTERNAL STREET CLASSIFICATIONS 9
MULTI-MODAL AND PEDESTRIAN/BIKE TRANSPORTATION 9
PEDESTRIAN AND BICYCLE ACCOMMODATION 9
COUNTY ROAD IMPROVEMENT FEE PROGRAM 9
REIMBURSABLE MTCP IMPROVEMENTS 10
DEVIATIONS 10

FINDINGS AND CONCLUSIONS 10
Trip Generation 10
Auxiliary Turn Lanes 10
Intersection Levels of Service 11
Access and Internal Street Classification 11
Old Ranch Road 11
Roadway Impact Fee Program 12
Enclosures: 12
Table 1
Figure 1 - Figure 9
Appendix Figure 1
Traffic Count Reports
Synchro LOS Reports

LSC TRANSPORTATION CONSULTANTS, INC.
2504 East Pikes Peak Avenue, Suite 304
Colorado Springs, CO 80909
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: http://www.lsctrans.com

October 3, 2024

Taher Nabulsi, Co-Trustee
Nabulsi-Abushaban Family Trust
14384 Whispering Ridge Road
San Diego, CA 92131-4268

RE: Nabulsi-Abushaban Subdivision
Transportation Memorandum
El Paso County, CO
PCD File No.: MS2211
LSC # S224340

Dear Mr. Nabulsi,

LSC Transportation Consultants, Inc. has prepared this traffic impact study for the proposed four-lot residential subdivision in the Black Forest area of El Paso County, Colorado. The 24.8-acre site is located on the northwest corner of the intersection of Black Forest Road/Old Ranch Road (El Paso County parcel ID 5219000101).

The parcel is proposed to be subdivided into four single-family lots. The existing home on the site will remain on one of the subdivision lots. This report presents the estimated vehicle-trip generation and traffic impacts of the proposed subdivision. This report has been prepared for submittal to El Paso County.

REPORT CONTENTS

The preparation of this report included the following:

- Inventory of the existing adjacent and nearby roadway system. This includes functional classifications, roadway width and surface condition, posted speed limit, intersection/access spacing, intersection sight distance, etc.;
- A review of the proposed site land use and access location;
- Existing traffic volumes on Old Ranch Road adjacent to the site and at the intersection of Black Forest Road and Old Ranch Road;
- Crash history at the intersection of Black Forest Road/Old Ranch Road;
- Estimates of the net new and total daily and peak-hour trip generation for the proposed subdivision;

- The estimated directional distribution of site-generated vehicle trips;
- Projections of additional daily trips on Old Ranch Road in the vicinity of the site;
- Projections of peak-hour site-generated turning-movement traffic volumes at the site-access intersection and at the intersection of Black Forest Road and Old Ranch Road;
- Evaluation of the post-development traffic volumes on Old Ranch Road in the vicinity of the site, and at the site-access intersection, and the intersection of Black Forest Road and Old Ranch Road;
- Findings and recommendations with respect to Old Ranch Road; and
- Estimated Road Impact Fee Program amounts and potential for fee program credit.

RECENT TRAFFIC REPORTS

- *Black Forest Road Widening Project Traffic Impact Study* – (AECOM - November 2019) – Prepared for the City of Colorado Springs.
- Koinonia Ranch Minor Subdivision Transportation Memorandum (LSC - June 1, 2023)

LAND USE AND ACCESS

Figure 1 shows the site location relative to the adjacent and nearby streets. The 24.8-acre site is located on the northwest corner of the intersection of Black Forest Road/Old Ranch Road (El Paso County parcel ID 5219000101).

Proposed Land Use

A four-lot, single-family-residential, minor subdivision is proposed. Figure 2 shows the proposed subdivision. The development would contain three new single-family dwelling units and one existing single-family dwelling unit (Lot 3 will contain the existing single-family dwelling).

Existing and Proposed Subdivision Access

Access to the 24.8-acre property is **currently** via two driveways on Black Forest Road. These two access points are proposed to be closed, and the subdivision access would be to Old Ranch Road via a new private road that would extend north from Old Ranch Road approximately 660 feet west of Black Forest Road.

Per the *2024 MTCP 2045 Roadway Functional Classifications* plan, Old Ranch Road is shown as a "Rural Major Collector." Per the El Paso County *Engineering Criteria Manual* (*ECM*), intersection spacing for Rural Major Collector roadways is one-quarter mile. Old Ranch Road is **presently** a rural local (gravel) roadway, rather than a collector. The intersection spacing along a Rural Local (Gravel) roadway is 330 feet. The proposed spacing exceeds this prescribed spacing distance.

Other Area Parcels Adjacent to Old Ranch Road

- The Black Forest Saddle Club also accesses Old Ranch Road. This is an existing land use.
- The Wolf Ranch Master Plan (City of Colorado Springs) along the south side of Old Ranch Road will not add a vehicular access to Old Ranch Road.

This report also considers potential future trip generation by other area potential future land uses:

- Koinonia Ranch proposed Subdivision (Minor) – 6170 Old Ranch Road (EDARP Nos. SP214 and SF2135) has the potential to add five lots which would access Old Ranch Road west of this site.
- The vacant lot west of Koinonia Ranch site.

INTERSECTION SIGHT DISTANCE

Entering Sight Distance

Intersection entering sight distance at the proposed site-access (private street) location on Old Ranch Road shown on the site plan would meet sight-distance requirements in *ECM* Table 2-21. The criteria for a 30-mph design speed is 335 feet of sight distance. The following are the existing sight-distance measurements. These measurements were conducted in the field by LSC. The line of sight is from a driver's eye height of 3.5 feet to an approaching vehicle height of 3.5 feet.

- Site Access/Old Ranch Road intersection:
- At least 850 feet looking west from the site access location.
- 660 feet east to the intersection of Black Forest Road/Old Ranch Road.

Please refer to Figure 3 which shows the sight-distance analysis. The proposed subdivision road/access intersection with Old Ranch Road is anticipated to meet the minimum required entering sight distance in both directions. The required intersection line-of-sight "triangles" should be maintained and kept free of any sight-distance obstructions. Site improvements must not restrict the line of sight needed to maintain the prescribed sight distance). This includes landscaping, signage, etc. proposed for the residential development.

Stopping Sight Distance to Downstream Intersection

Stopping sight distance along Old Ranch Road approaching the proposed site access would meet stopping sight-distance requirements in *ECM* Table 2-17 (or 2-18 for grades over 3% - not applicable). The criteria for a 30-mph design speed is 200 feet of sight distance. The following are the existing sight-distance measurements. The line of sight is from the driver's eye height of an approaching vehicle (3.5 feet) to a height of 3.5 feet at the center of the proposed access.

- Site Access/Old Ranch Road intersection:
  - At least 850 feet to the site access on the eastbound approach, west of the site.
  - 600 feet to the site access on the westbound approach, east of the site. The 600-foot distance is assumed to be from a driver's eye location 45 feet west of the west edge of the traveled way of Black Forest Road.

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:

Black Forest Road was previously shown as a two-lane Rural Minor Arterial on the (now outdated) 2016 *MTCP*. The new *2024 MTCP* shows Black Forest Road as a **Rural Principal Arterial** (2045 Roadway Classification Map and Required Laneage Map) between Old Ranch Road and Shoup Road. South of Old Ranch Road, Black Forest Road is under the jurisdiction of the City of Colorado Springs. The roadway extends from just south of Woodmen Road north to the county line. The intersection with Old Ranch Road is stop-controlled. The roadway is planned for improvements between Hodgen Road and Stapleton Drive per the *MTCP*. The posted speed limit is 55 miles per hour (mph) approaching Old Ranch Road in the northbound direction and drops to 40 mph immediately prior to the intersection. In the southbound direction the speed limit is 40 mph.

Old Ranch Road is a Rural Local (Gravel), approximately 28-foot-wide roadway (in the vicinity of the site) which extends approximately 5,700 feet to the west from Black Forest Road where it ends at the intersection with Forest Drive. The El Paso County Road Book (2019) identifies this segment of Old Ranch Road as a County-maintained, 30-foot-wide gravel roadway with 60 feet of right-of-way. The posted speed limit is 25 mph. The functional classification as listed in the *Road Book* is "Urban Area - Local" and the administration classification is "Secondary Service." The 2045 classification of Old Ranch Road on the *2024 MTCP 2045 Roadway Functional Classifications* plan, is *Rural Major Collector*.

MTCP Figures 12_and 30, which show *Gravel Road Analysis* – existing and 2045 Gravel Road Upgrade Projects, respectively), show this section of Old Ranch Road as not programmed for paving. Therefore, the roadway existing/baseline condition should not be considered "deficient.".

Approximately one mile west of the end of Old Ranch Road, there is another segment of Old Ranch Road that extends from Milam Road to west of Voyager Parkway. This western segment of Old Ranch Road is paved. It is anticipated that the two segments of Old Ranch Road may be connected in the future, although the connection is not shown on the MTCP.

Existing Traffic Volumes

Vehicular peak-period turning-movement traffic counts were conducted at the intersection of Black Forest Road/Old Ranch Road.

Figure 4 shows the peak hour-traffic volumes at the Old Ranch Road/Black Forest Road intersection, based on the turning-movement count data. The figure also shows the daily volume on Old Ranch Road just west of the Black Forest Road intersection. This Old Ranch Road daily traffic volume has been based on actual counts for most of a 24-hour period. LSC has estimated existing traffic volumes on Old Ranch Road west of site. Raw count data is attached.

Crash History

Three years of crash history were analyzed at the intersection of Old Ranch Road/Black Forest Road. Only one crash was recorded during the study period, which was a rear-end crash that did not result in any injuries.

Pedestrian Facilities

No existing or planned future pedestrian facilities are shown on Old Ranch Road or Black Forest Road adjacent to the site on "Map 15: Bicycle and Pedestrian Network and Improvements" on El Paso County's *Major Transportation Corridors Plan* (*MTCP*).

OLD RANCH ROAD CONNECTION SCENARIO

As mentioned previously, there is a potential for the two segments of Old Ranch Road (described above) to be connected in the future. An analysis was completed to determine the long-term impacts of the proposed development, should such a connection occur in the future. To forecast the volume of traffic traveling on Old Ranch Road, the Pikes Peak Area Council of Government (PPACG) travel demand model was modified (by LSC) with the connection. Based on LSC model projections, it is estimated that Old Ranch Road will carry 4,500 vehicles per day. Historical count data on the west segment of Old Ranch Road was used to estimate the peak-hour directional traffic.

TRIP GENERATION

Estimates of the existing and projected vehicle trips to be generated by the site have been made using the following 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). Table 1 (attached) presents the estimated site trip generation.

Based on the ITE estimate for the proposed residential development, the site could generate about 38 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 DIRECTIONAL DISTRIBUTION & SITE-GENERATED TRAFFIC

Figure 5 shows the directional-distribution estimate for the proposed development. This assumes almost all trips are oriented to/from the east.

Site-generated traffic volumes at the access intersection and at the intersection of Black Forest Road/Old Ranch Road have been calculated by applying the directional-distribution percentages estimated by LSC to the trip-generation estimates (from Table 1). Figure 6 shows estimates of the new site-generated traffic to be added to Old Ranch Road by the proposed subdivision and turning movements added to the Old Ranch Road/Black Forest Road intersection. It is important to note that while the development of the subdivision will add trips to Old Ranch Road, the project will provide a benefit with the removal of two existing access points to Black Forest Road.

FUTURE TOTAL TRAFFIC VOLUMES

Short-Term (Existing-Plus-Site-Generated) Traffic Volumes

Figure 7 shows the estimated short-term total traffic (existing traffic plus the projected new development ("build") traffic volumes from Figure 6). These volumes assume Old Ranch Road prior to a possible future extension to Milam Road.

2043 Projected Background Traffic Volumes

Figure 8 shows the estimated long-term background traffic volumes. These volumes assume Old Ranch Road prior to a possible future extension to Milam Road. Future background traffic volumes are based, in part, on projections contained in the *Black Forest Road Widening Project Traffic Impact Study* – November 2019 (AECOM) – Prepared for the City of Colorado Springs. These volumes also include potential additional trips from the Koinonia Ranch Subdivision and one additional vacant lot along Old Ranch Road.

2043 Projected Total Traffic Volumes

Figure 9 shows the estimated long-term total traffic (2043 background traffic (Figure 8) plus the projected new site-generated traffic volumes (from Figure 6). These volumes assume Old Ranch Road **prior to** a possible future extension to Milam Road.

LEVEL OF SERVICE ANALYSIS

The following intersections have been analyzed to determine the projected intersection levels of service for short- and long-term traffic scenarios for the AM and PM peak-hour time periods:

- Black Forest Road/Old Ranch Road
- Old Ranch Road/proposed site access

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 shows the level of service delay ranges for signalized and unsignalized intersections. Figures 4 and 8 show the LOS for existing and 2043 background conditions, respectively, and Figure 7 and Figure 9 provide the levels of service for the projected post-development ("build")/total traffic scenarios.

Table 2: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	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.

Old Ranch Road/Site Access

The site access intersection has been analyzed to determine the projected control delay and corresponding levels of service for turning movements. The level of service would be "A" in the short- and long-term scenarios.

Old Ranch Road/Black Forest Road

The Old Ranch Road/Black Forest Road intersection is projected to operate at LOS B or better in the short term and LOS C or better based on the long-term scenario shown in Figure 9.

OLD RANCH ROAD FUTURE PROJECTED VOLUMES AND "LINK LOS"

As mentioned previously, there is not a current County project planned to connect the two segments of Old Ranch Road. Prior to this connection, all site-generated traffic, as well as all traffic generated by parcels accessing Old Ranch Road, will use the Old Ranch Road/Black Forest intersection. Note: These estimated area buildout volumes are included in the volumes shown in Figure 9.

The attached **Appendix Figure 1** shows the combined total projected new traffic on Old Ranch Road (prior to a possible future connection from Milam Road). This estimate includes total traffic for 10 new lots on Old Ranch Road: 5 lots within Koinonia Ranch, 4 lots for Nabulsi-Abushaban Subdivision, and development of an additional currently-undeveloped residential lot.

The projected buildout of the current Old Ranch Road "travel shed" area (total ADT adjacent to and just east of the site is anticipated to result in the design ADT of a Rural Gravel Roadway (200 vpd) being exceeded. Based on estimated ADT (based on ITE trip-generation rates) just west of Black Forest Road, both the background traffic (estimated) and post-development (site "build") ADT would be about 275 vpd (over 200 vpd, but less than 300 vpd). This is based on ITE trip generation for ten single-family homes to the east with access to Old Ranch between the site and Black Forest Road (about 100 background trips generated).

The applicant would prefer Old Ranch Road to remain a gravel roadway. However, the projected ADT on the east portion near Black Forest Road is projected to exceed 200 vpd (but would be less than 300vpd). Staff review comments on this report indicate: *"Please identify the fair share portion of paving that will be required for this subdivision. Calculate potential escrow alternative for paving as well. Provide the amount of paving required."* Add statement that escrow amount is detailed later in report.

The **new** development traffic (i.e., trips generated by the three **new** parcels created) estimated to be generated by this project is estimated to be 28 vpd. For the segment between Black Forest Road and the proposed subdivision access, the total projected ADT is estimated to be 275 vpd. This project's percentage of the total on this segment would be 10 percent. This project would add negligible trips to existing Old Ranch Road west of the site.

AUXILIARY TURN LANE NEEDS ANALYSIS

No additional auxiliary lanes are necessary with this proposed development.

As shown, all parcels with access to Old Ranch Road, including the proposed development, are projected to generate less than the *ECM* threshold for Principal Arterials of 25 southbound right-turning vehicles (9 PM total projected) and less than *ECM* threshold for Principal Arterials of 10 northbound left-turning vehicles (7 PM total projected) at the intersection of Old Ranch Road/Black Forest Road during the peak hours (Note: The thresholds quoted above are based on the recently adopted *2024 MTCP 2045 Roadway Plan*.

This indicates that with the current configuration of Old Ranch Road, no thresholds for auxiliary lanes would be met at the intersection of Old Ranch Road/Black Forest Road, with or without the proposed development. As indicated above, three years of crash history were analyzed at the intersection of Old Ranch Road/Black Forest Road. Only one crash was recorded during the study period, which was a rear-end crash that did not result in any injuries.

MTCP ROADWAY IMPROVEMENTS

The ***2024 MTCP*** shows Black Forest Road between Old Ranch Road and Shoup Road as a road widening project – *MTCP* ID 482.

The ***2024 MTCP*** identifies the following with respect to the inclusion of road improvement for purposes of determining the overall fee program cost of improvements: *"Those road segments that currently carry more than 300 ADT (and/or more than 500 ADT in 2045) were flagged for gravel road upgrades."* Old Ranch Road is not shown flagged for a gravel road upgrade.

INTERNAL STREET CLASSIFICATIONS

The proposed subdivision road is proposed to be a private, gravel roadway.

MULTI-MODAL AND PEDESTRIAN/BIKE TRANSPORTATION

The El Paso County Parks Master Plan (referenced in the 2024 MTCP) Trails Master Plan *Map 12 shows* proposed bicycle routes along Burgess Road to the north and Briargate Parkway to the south. Also, the area south and east of the Old Ranch Road/Black Forest Road intersection is called out as an area (on Figure 33) for ***targeted sidewalk gap analysis***.

PEDESTRIAN AND BICYCLE ACCOMMODATION

There are currently no sidewalks, bike lanes, or trails in the vicinity of the site. The subdivision road will be a rural gravel road and sidewalks are not required.

COUNTY ROAD IMPROVEMENT FEE PROGRAM

This subdivision will be required to participate in the Countywide Road Impact Fee program. The applicant has selected the "opt-out" option. The fee obligation per residential dwelling unit will be payable at the time of the building permit. This fee amount per dwelling unit is $3,830.00. Based on three (3) new homes, the total "full fee," payable at platting or building permit would be $11,490. Note: program fees are subject to change.

REIMBURSABLE MTCP IMPROVEMENTS

Old Ranch Road is shown as a "Collector" on the *MTCP* and could potentially be added to the *MTCP* reimbursable project list in the future (potentially, as part of the current update to the MTCP). There may be opportunity for fee program credit (based on roadway unit costs and pro-rated based on percent of total escrow contributed) if Old Ranch Road, instead of being paving to a 24-foot-wide "unimproved" roadway, were to be upgraded to a County standard Rural Major Collector roadway. Any eligibility of Old Ranch Road and potential credit would need to be brought before the EPC Roadway Impact Fee Program Advisory Committee for review and approval.

A potentially reimbursable improvement project directly adjacent to the site is the Black Forest Road rural upgrade – *MTCP* project *MTCP* ID 482.. Any ROW dedication as part of this subdivision may be eligible for credit. Any eligibility and potential credit would need to be brought before the EPC Roadway Impact Fee Program Advisory Committee for review and approval.

- The ***2024 DRAFT MTCP*** shows Black Forest Road between Old Ranch Road and Shoup Road as a road widening project – *MTCP* ID 482

DEVIATIONS

A deviation request for the subdivision's private road is included in the application. Please refer to the revised deviation form submitted for details.

FINDINGS AND CONCLUSIONS

Trip Generation

- The development is expected to generate approximately 38 new vehicle trips on the average weekday, with approximately 4 trips occurring during the morning peak hour and 6 trips during the evening peak hour.
- The **net new** daily trip generation by three newly-created lots, with three new single-family homes, would be 28 trips per day.

Auxiliary Turn Lanes

- No additional auxiliary lanes are required for the proposed development.

Intersection Levels of Service

- Please refer to the "Level of Service" section above for detailed LOS analysis results for individual turning movements and approaches at the studied intersections, during both peak hours through the 2043 horizon year.

Access and Internal Street Classification

- The subdivision access is proposed to a new access intersection Old Ranch Road. Note: The proposed subdivision would **remove** two existing access points from Black Forest Road. This would be a benefit to the County with respect to access management/*ECM* access criteria for this Minor Arterial roadway.
- The proposed subdivision road is proposed to be a private, gravel roadway.

Old Ranch Road

- Based on estimated ADT (based on ITE trip generation rates) just west of Black Forest Road (between Black Forest Road and the proposed subdivision roadway intersection) both the background traffic (estimated) and post-development (site "build") ADT would be about 275 vpd (over 200 vpd, which is the ECM design ADT for a gravel road, but less than 300 vpd). Note: From the MTCP Page 58 (Gravel Road Upgrades): *Those road segments that currently carry more than 300 ADT (and/or more than 500 ADT in 2045) were flagged for gravel road upgrades.* Granted the ECM sets the design ADT criteria, while this MTCP analysis has been used to determine MTCP 2045 projects for fee program costs and roadway improvement "eligibility" for credit/reimbursement.

- Staff review comments on this report indicate: "*Please identify the fair share portion of paving that will be required for this subdivision. Calculate potential escrow alternative for paving as well. Provide the amount of paving required*."

    - This project's percentage of the total future projected ADT on this segment (between Black Forest Road and the proposed subdivision roadway intersection) would be **10 percent**. This project would add negligible trips to existing Old Ranch Road west of the site.
    - The estimated **total** cost of road paving the segment of road between Black Forest Road and the proposed subdivision roadway intersection would be $102,157.
    - Ten percent of this amount would be $10,216.
    - LSC recommends that a "sunset date" (for example, seven years in the future) be established for the escrow amount given to the County for the applicant's pro-rata share of future roadway paving such that the escrow amount would be returned to

Escrows have a set time frame already, which is 20 years. County is not amendable to a shortened time window.

the applicant if 1) no additional escrow is collected from other projects, and 2) the roadway is not paved.

Roadway Impact Fee Program

Please refer to the report sections above for estimated fee program amounts and potential for fee program credit.

* * * * *

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

Enclosures: Table 1
Figure 1 - Figure 9
Appendix Figure 1
Traffic Count Reports
Synchro LOS Reports

Table 1: Trip Generation Estimate

Land Use Code	Land Use Description	Trip Generation Units [2]	Trip Generation Rates [1]					Total Trips Generated				
			Average Weekday	Morning Peak Hour		Afternoon Peak Hour		Average Weekday	Morning Peak Hour		Afternoon Peak Hour	
			Traffic	In	Out	In	Out	Traffic	In	Out	In	Out
210	Single Family Detached Housing - Existing	1 DU	9.43	0.18	0.53	0.59	0.35	9	0	1	1	0
210	Single Family Detached Housing - Proposed (Net New)	3 DU	9.43	0.18	0.53	0.59	0.35	28	1	2	2	1
							Total	**38**	**1**	**2**	**2**	**1**

Notes:

(1) Source: "Trip Generation, 11th Edition, 2021" by the Institute of Transportation Engineers (ITE)

(2) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.

Nov-23

Table 1

TRANSPORTATION
CONSULTANTS, INC.

Table 2

Trip Generation Estimate

Ventana Estates Subdivision (Ventana Filing No. 2)

Land Use Code	Land Use Description	Value	Trip Generation Units [2]	Trip Generation Rates [1] Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Total Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out
Revised Plan Land Uses													
210	Single Family Housing	170	DU	9.43	0.18	0.53	0.59	0.35	1,603	30	89	101	59
220	Multi-Family Housing (Low Rise)	92	DU	6.74	0.10	0.30	0.32	0.19	620	9	28	30	17
	Total	262	DU						2,223	39	117	130	76
July 3, 2023 TIS Trip Generation Estimate													
210 & 220	Single and Multi-Family Housing	260	DU						1,971	38	108	124	73
Change in Trip Generation									**252**	**1**	**9**	**6**	**3**

Notes:

(1) Source: "Trip Generation, 11th Edition, 2021" by the Institute of Transportation Engineers (ITE)

(2) DU = dwelling unit

7/14/2024

Table 1: Trip Generation Estimate

Land Use Code	Land Use Description	Trip Generation Units [2]	Trip Generation Rates [1]					Total Trips Generated				
			Average Weekday	Morning Peak Hour		Afternoon Peak Hour		Average Weekday	Morning Peak Hour		Afternoon Peak Hour	
			Traffic	In	Out	In	Out	Traffic	In	Out	In	Out
210	Single Family Detached Housing - Existing	1 DU	9.43	0.18	0.53	0.59	0.35	9	0	1	1	0
210	Single Family Detached Housing - Proposed (Net New)	3 DU	9.43	0.18	0.53	0.59	0.35	28	1	2	2	1
							Total	**38**	**1**	**2**	**2**	**1**

Notes:

(1) Source: "Trip Generation, 11th Edition, 2021" by the Institute of Transportation Engineers (ITE)

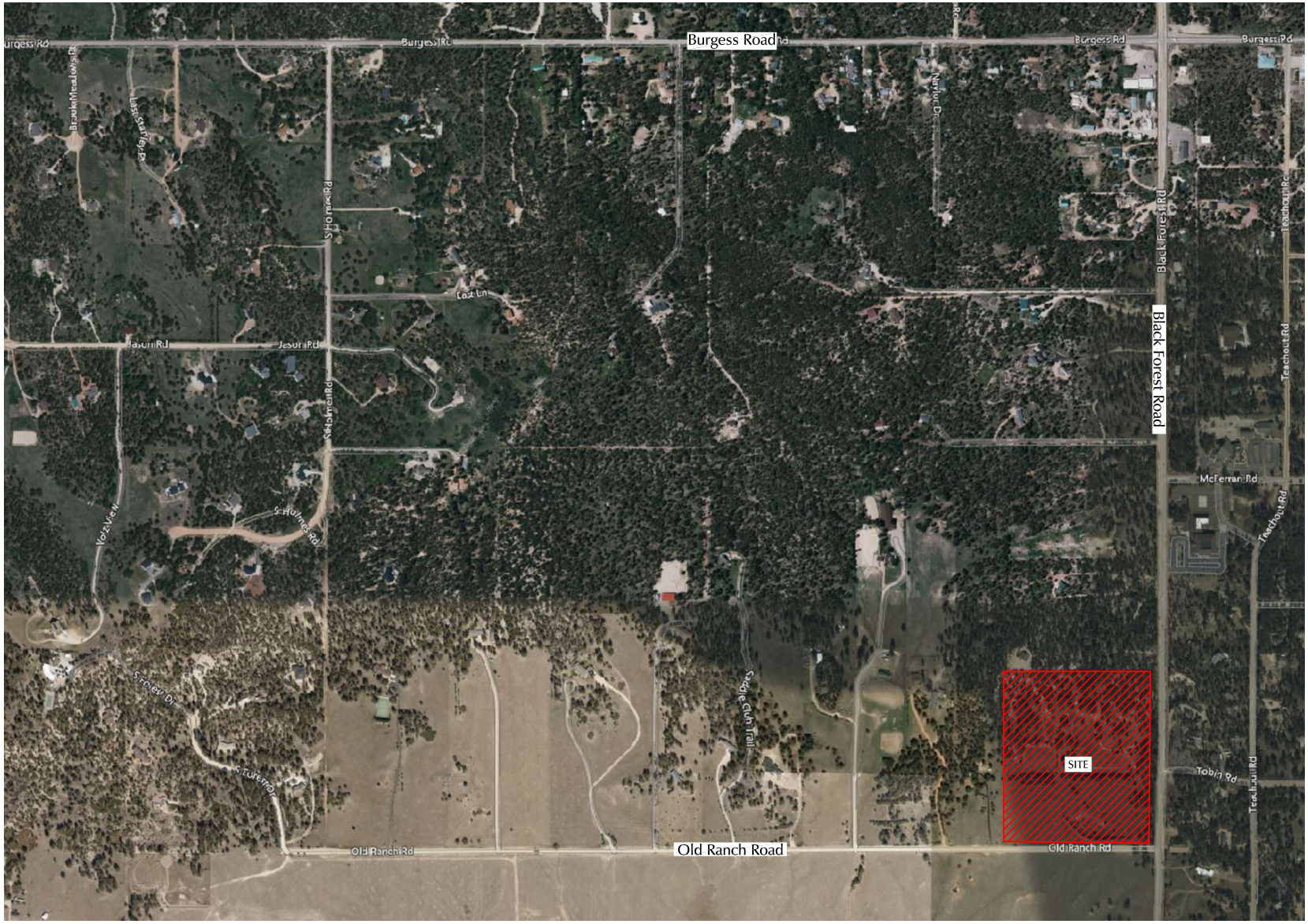
(2) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.

Nov-23

Figures 1-9

TRANSPORTATION
CONSULTANTS, INC.



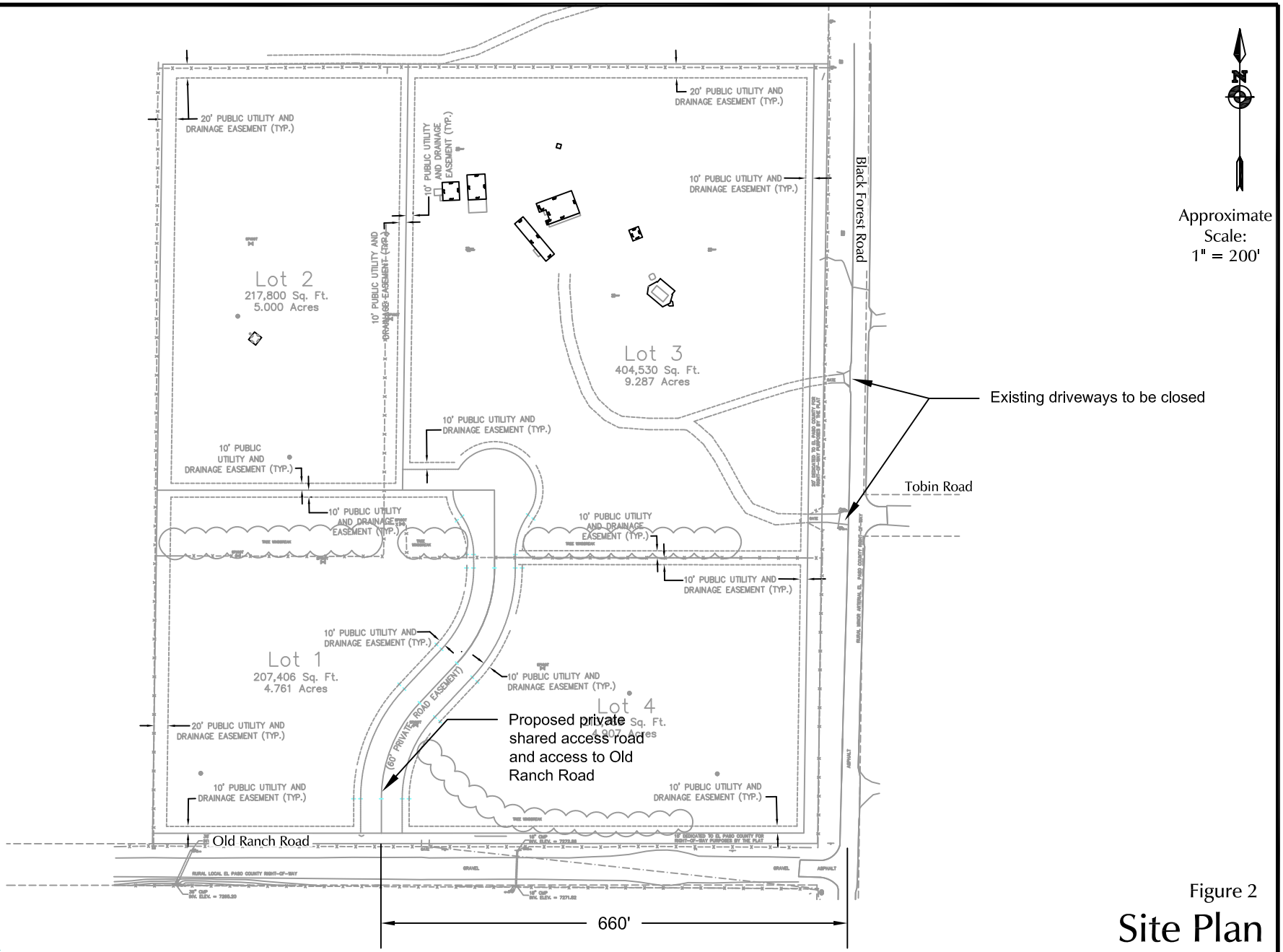
N

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 1

Vicinity Map

Nabulsi-Abushaban Subdivision (LSC# S224340)

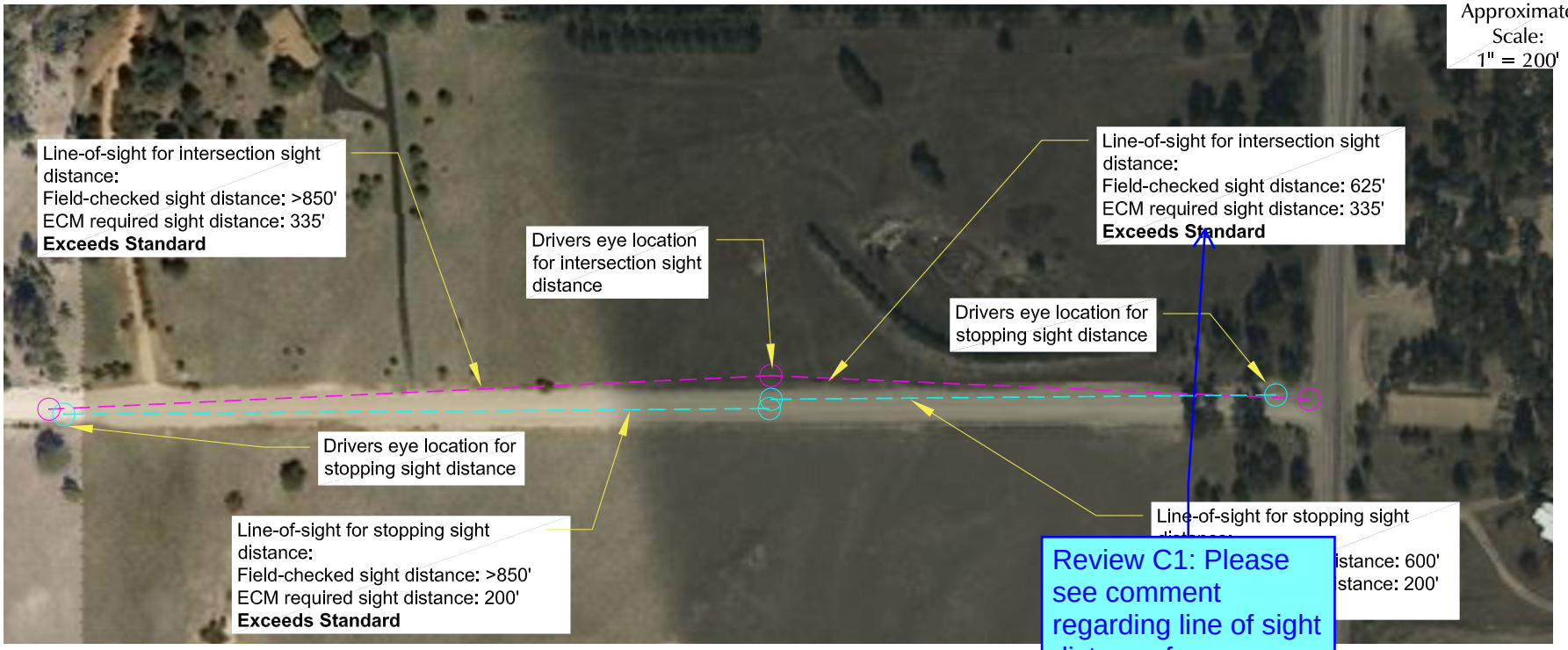


TRANSPORTATION CONSULTANTS, INC.

Figure 2

Site Plan

Nabulsi-Abushaban Subdivision (LSC# S224340)



N

Approximate Scale: 1" = 200'

Design Speed used in this evaluation: 3

ECM Criteria (Section 2.3.6):
Intersection Sight Distance: ECM Table
Stopping Sight Distance: ECM Table 2-1

LEGEND:

- Field-checked lines-of-sight for intersection sight distance
- Field-checked lines-of-sight for stopping sight distance

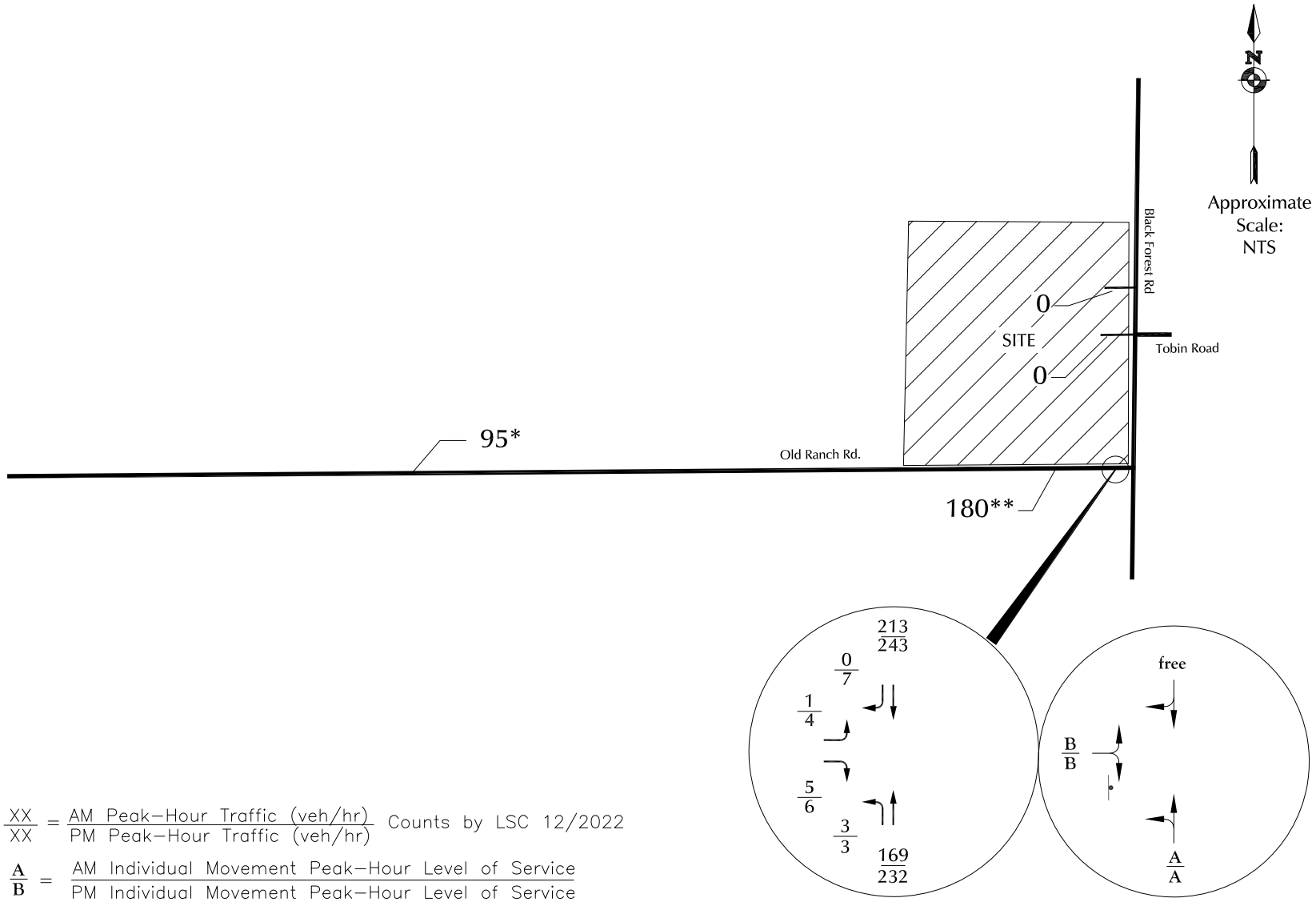
Review C1: Please see comment regarding line of sight distance for intersection and stopping sight distance and revise accordingly.
Review C2: Unresolved. Per ECM, sight distance for design speed 23mph is 155ft. Please revise.

Figure 3

Estimated e Evaluation

ubdivision (LSC# S224340)

LSC TRANSPORTATION CONSULTANTS, INC.



LEGEND: $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$ Counts by LSC 12/2022

$\frac{A}{B} = \frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$

XXX = Average Weekday Traffic (vehicles per day)

*Estimated by LSC (at a point about 3,300' west of Black Forest Road

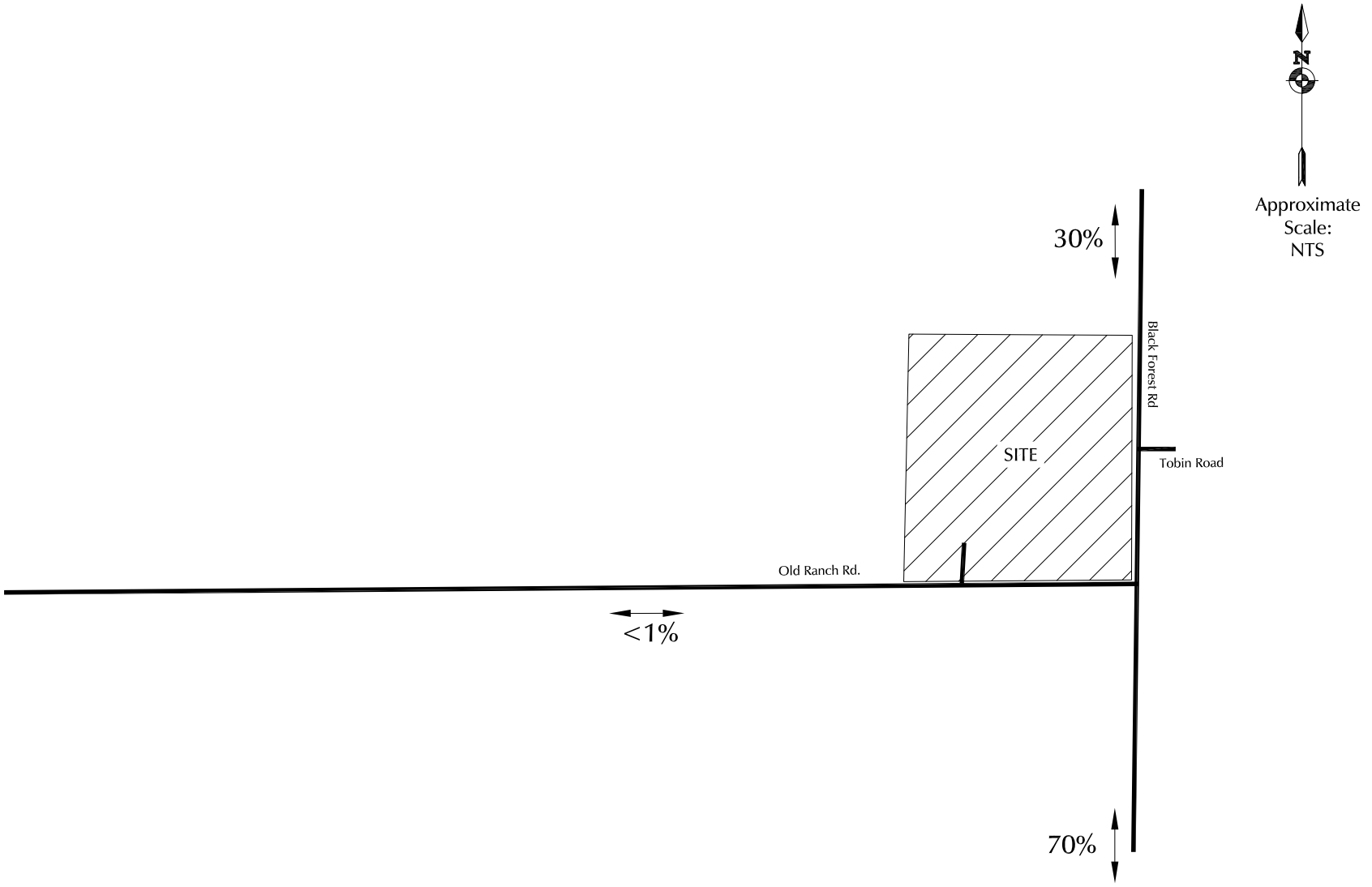
**Based on counts by LSC

TRANSPORTATION CONSULTANTS, INC.

Figure 4

Existing Traffic Conditions

Nabulsi-Abushaban Subdivision (LSC# S224340)



LEGEND:

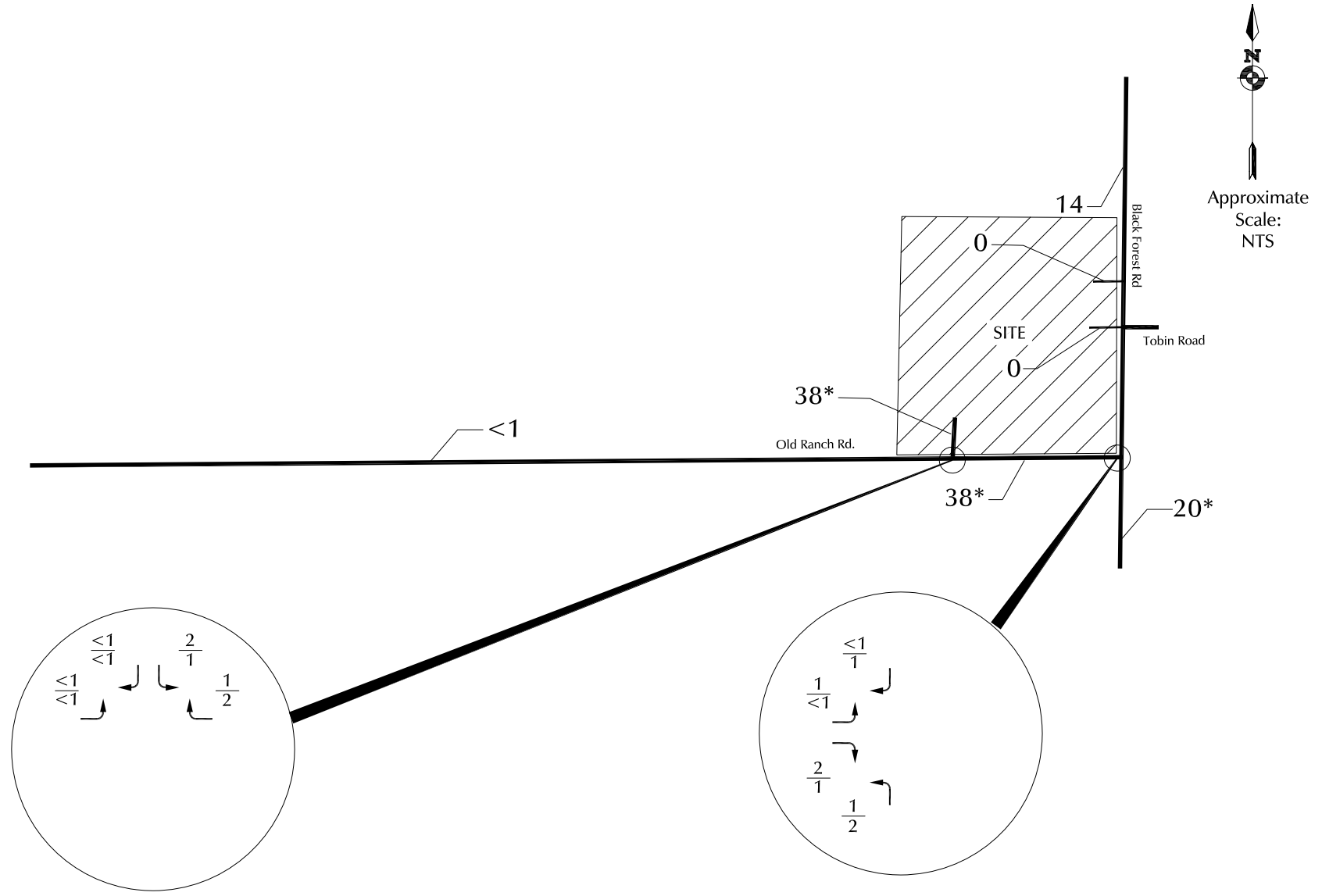
35% = Percent Directional Distribution

TRANSPORTATION CONSULTANTS, INC.

Figure 5

Trip Distribution Estimate

Nabulsi-Abushaban Subdivision (LSC# S224340)



LEGEND: $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$

XXX = Average Weekday Traffic (vehicles per day)

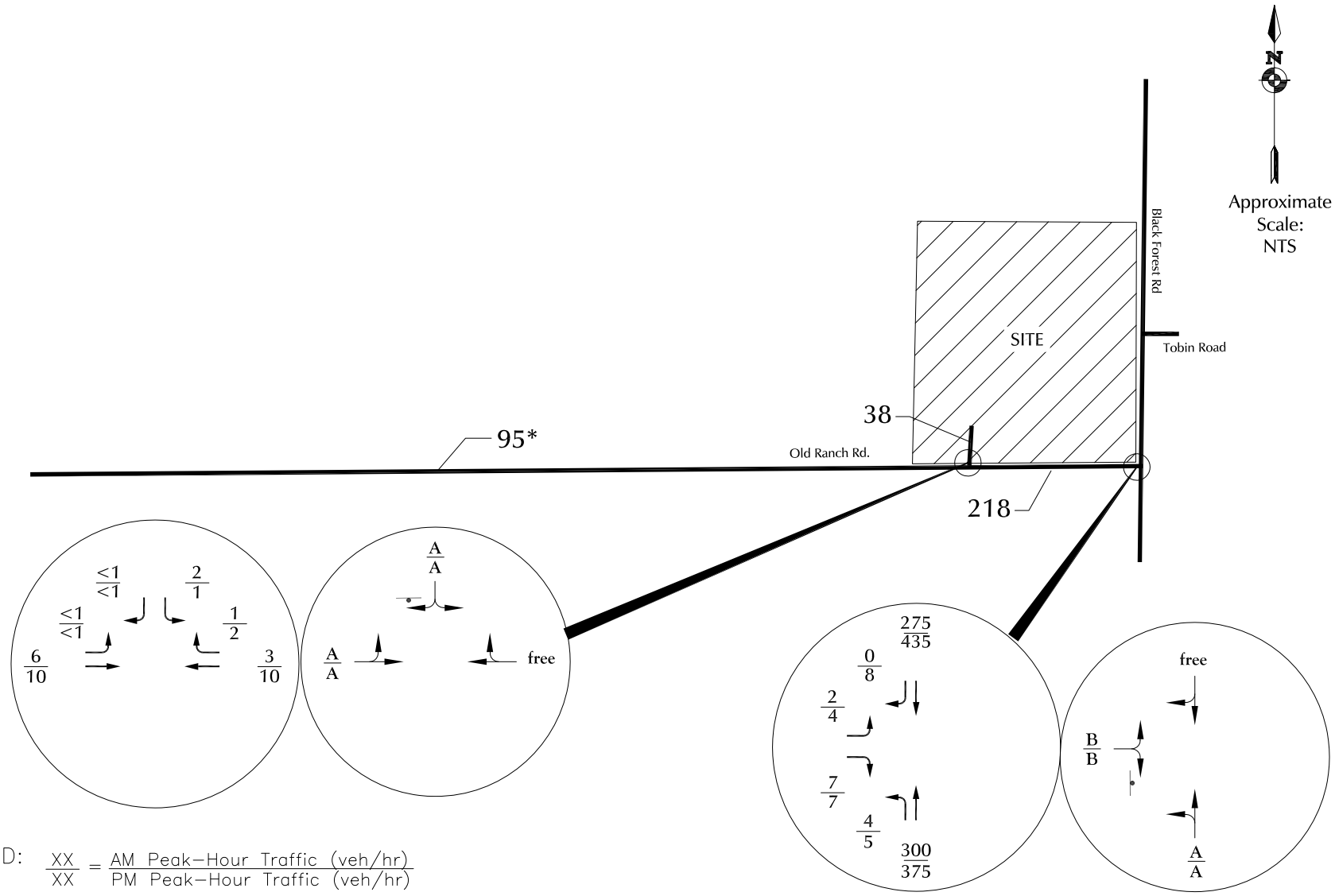
*Trips added by 4 lots - trips from 3 new lots plus the one existing home (with access relocation to Old Ranch Road)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 6

Site-Generated Traffic

Nabulsi-Abushaban Subdivision (LSC# S224340)



LEGEND: $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$

$\frac{A}{B} = \frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$

XXX = Average Weekday Traffic (vehicles per day)

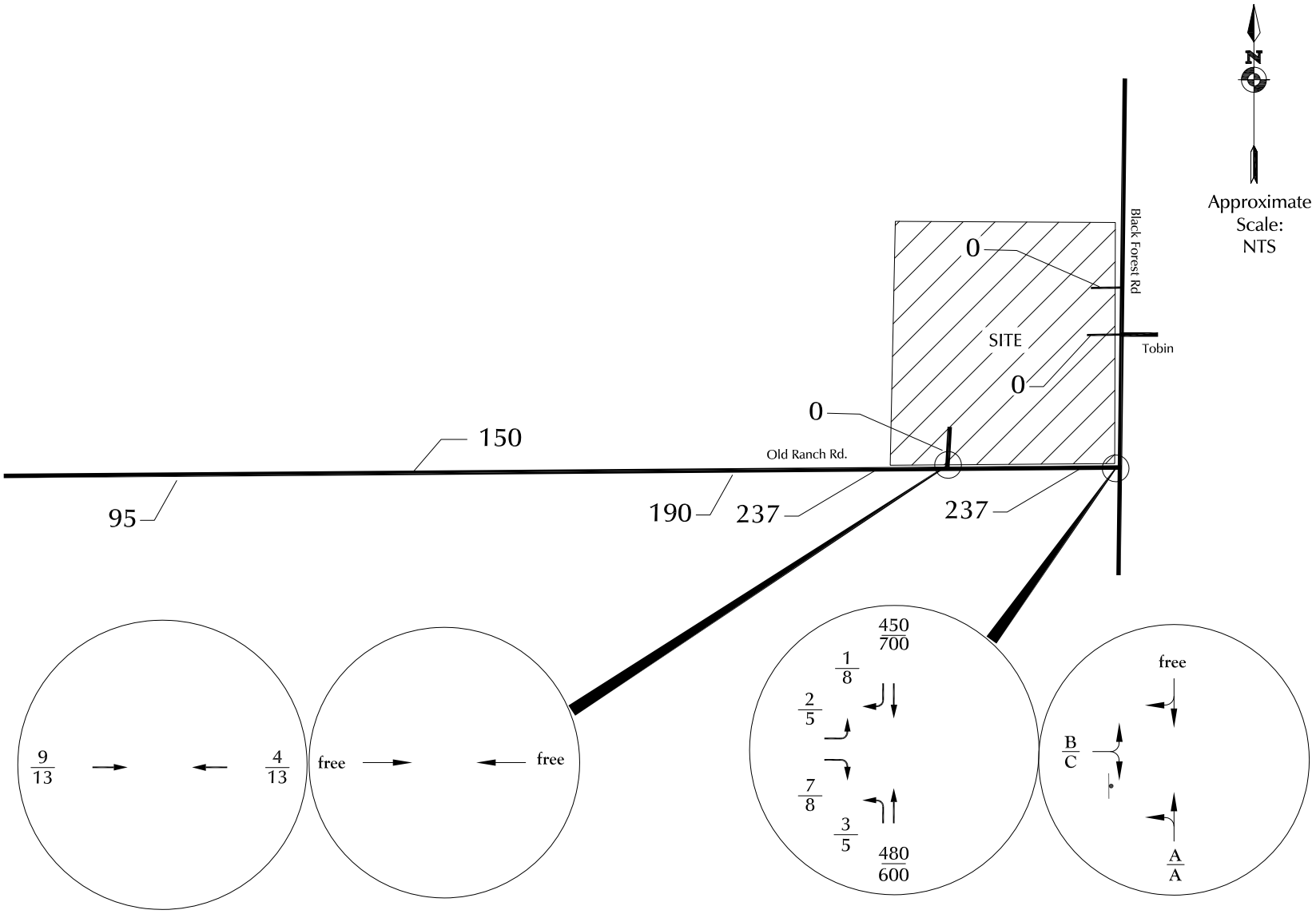
*At a point about 3,300' west of Black Forest Road

Figure 7

Short-Term Total Traffic Conditions

Nabulsi-Abushaban Subdivision (LSC# S224340)

LSC TRANSPORTATION CONSULTANTS, INC.



LEGEND: $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$

$\frac{A}{B} = \frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$

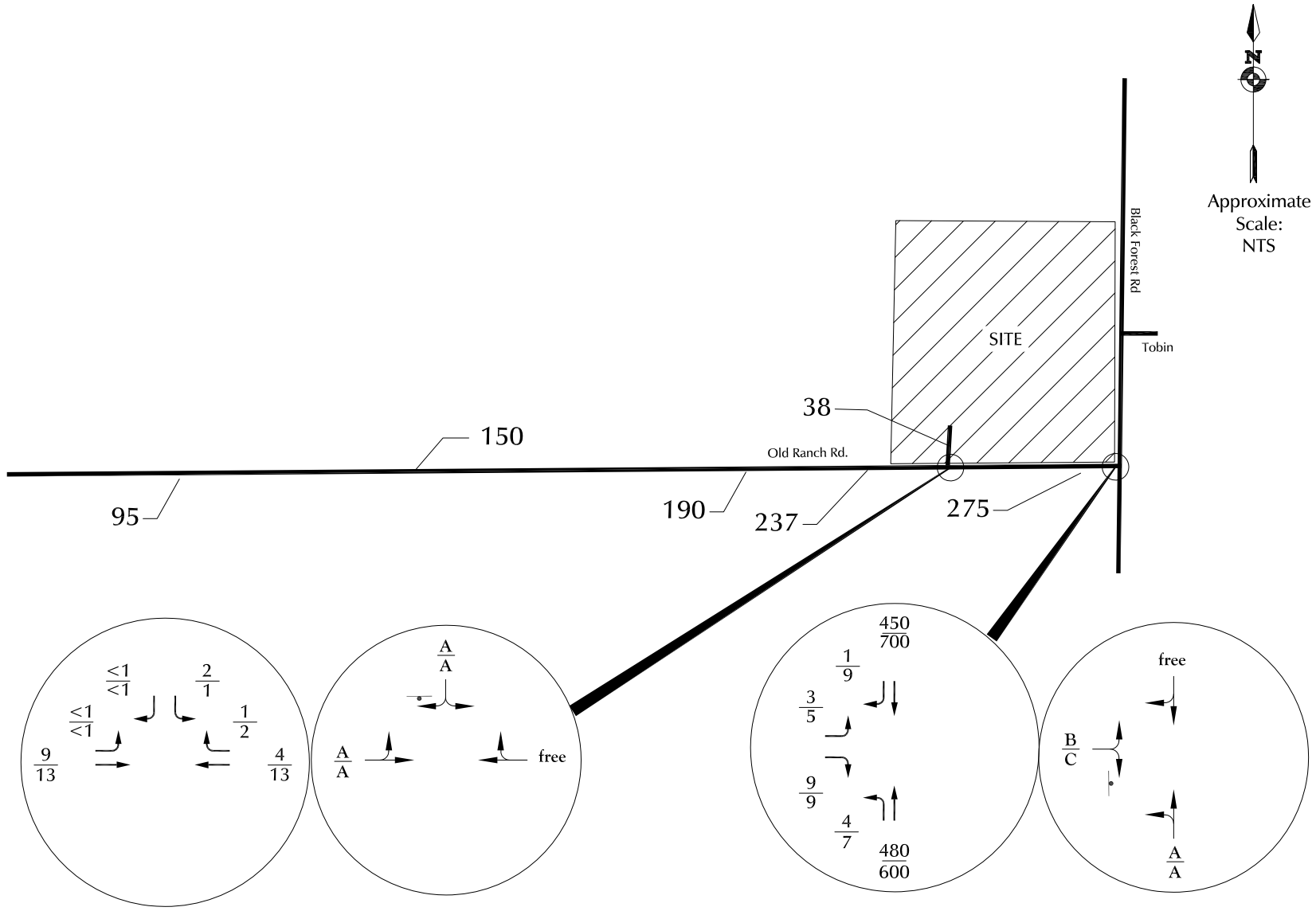
XXX = Average Weekday Traffic (vehicles per day)

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 8

2043 Background Traffic Conditions

Nabulsi-Abushaban Subdivision (LSC# S224340)



LEGEND: $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$

$\frac{A}{B} = \frac{\text{AM Individual Movement Peak-Hour Level of Service}}{\text{PM Individual Movement Peak-Hour Level of Service}}$

XXX = Average Weekday Traffic (vehicles per day)

LSC TRANSPORTATION CONSULTANTS, INC.

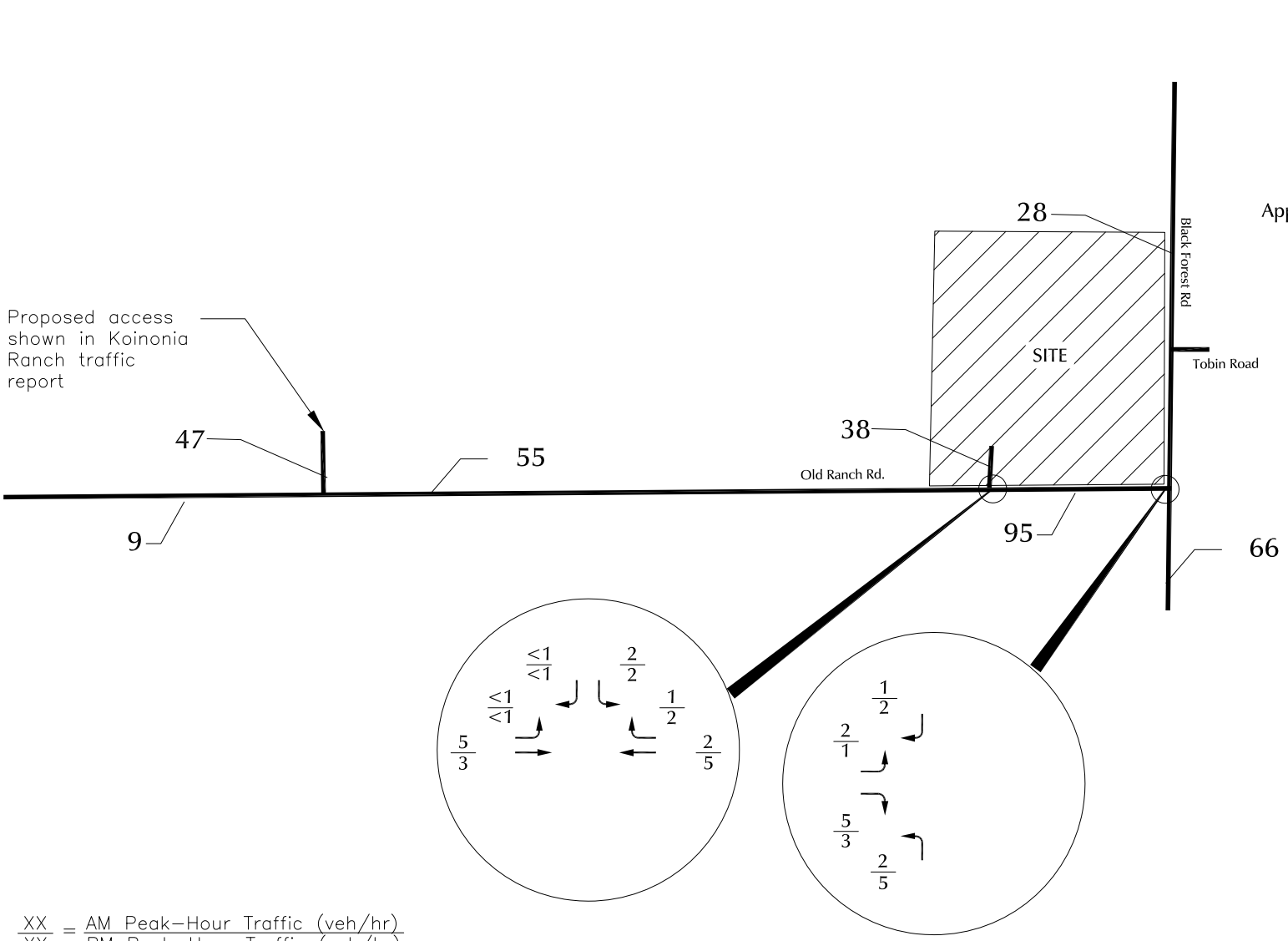
Figure 9

2043 Total Traffic Conditions

Nabulsi-Abushaban Subdivision (LSC# S224340)

Appendix Figure 1

TRANSPORTATION
CONSULTANTS, INC.



LEGEND: $\frac{XX}{XX} = \frac{\text{AM Peak-Hour Traffic (veh/hr)}}{\text{PM Peak-Hour Traffic (veh/hr)}}$

XXX = Average Weekday Traffic (vehicles per day)

Note: Represents total traffic for 10 new lots on Old Ranch Rd (5 lots from Koinonia Ranch, 4 lots from Black Forest Subdivision, and 1 additional vacant lot).

TRANSPORTATION CONSULTANTS, INC.

Appendix Figure 1

Total Projected New Traffic

Nabulsi-Abushaban Subdivision (LSC# S224340)

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 : black forest rd - old ranch rd am
Site Code : 0S24340
Start Date : 6/22/2022
Page No : 1

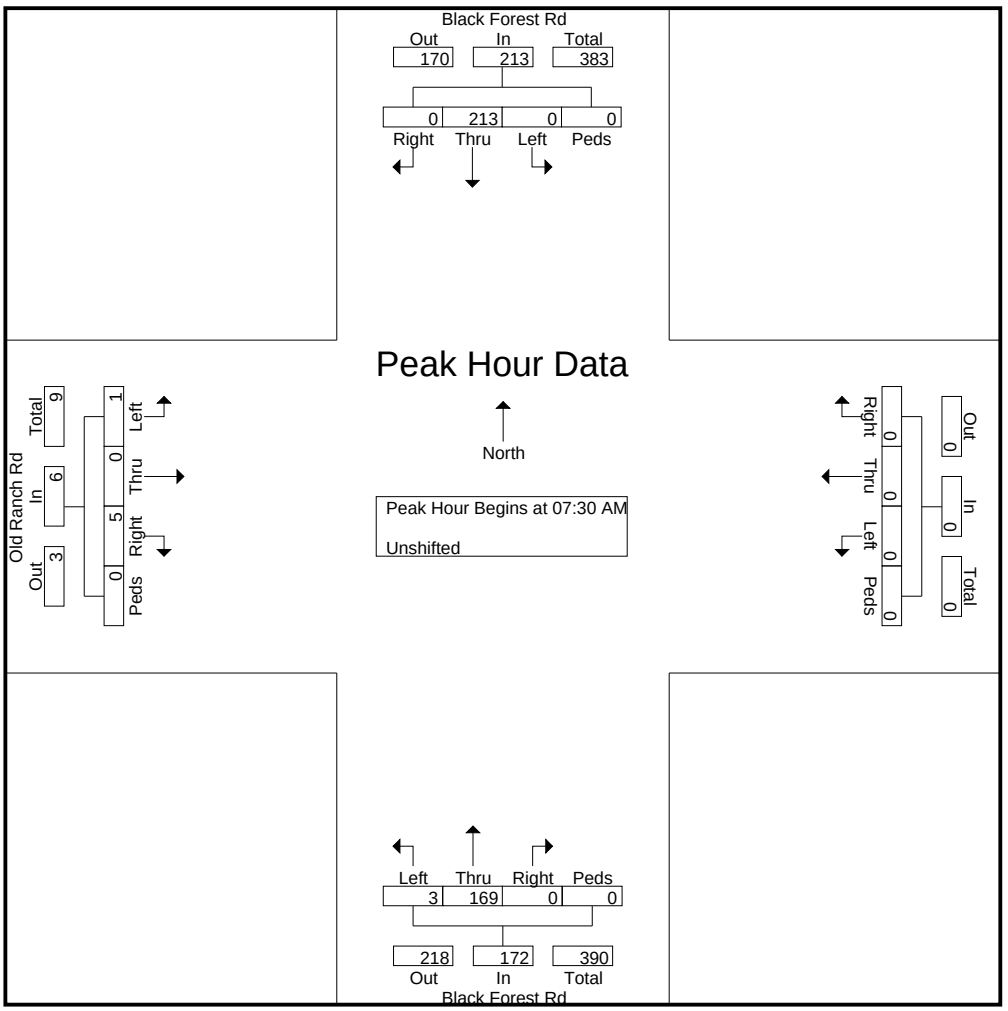
Groups Printed- Unshifted

	Black Forest Rd Southbound					Westbound					Black Forest Rd Northbound					Old Ranch Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	0	15	0	0	15	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	23
06:35 AM	0	11	0	0	11	0	0	0	0	0	0	8	0	0	8	2	0	0	0	2	21
06:40 AM	0	11	0	0	11	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	19
06:45 AM	0	9	0	0	9	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	15
06:50 AM	0	16	0	0	16	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	22
06:55 AM	0	16	0	0	16	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	24
Total	0	78	0	0	78	0	0	0	0	0	0	44	0	0	44	2	0	0	0	2	124
07:00 AM	0	11	0	0	11	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	25
07:05 AM	0	10	0	0	10	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	14
07:10 AM	0	9	0	0	9	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	23
07:15 AM	0	16	0	0	16	0	0	0	0	0	0	10	1	0	11	1	0	0	0	1	28
07:20 AM	0	18	0	0	18	0	0	0	0	0	0	11	0	0	11	1	0	0	0	1	30
07:25 AM	0	8	0	0	8	0	0	0	0	0	0	12	0	0	12	2	0	0	0	2	22
07:30 AM	0	17	0	0	17	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	26
07:35 AM	0	19	0	0	19	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	30
07:40 AM	0	15	0	0	15	0	0	0	0	0	0	9	0	0	9	1	0	0	0	1	25
07:45 AM	0	22	0	0	22	0	0	0	0	0	0	16	0	0	16	1	0	0	0	1	39
07:50 AM	0	19	0	0	19	0	0	0	0	0	0	19	0	0	19	0	0	1	0	1	39
07:55 AM	0	16	0	0	16	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	29
Total	0	180	0	0	180	0	0	0	0	0	0	142	1	0	143	6	0	1	0	7	330
08:00 AM	0	12	0	0	12	0	0	0	0	0	0	18	1	0	19	0	0	0	0	0	31
08:05 AM	0	16	0	0	16	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	24
08:10 AM	0	14	0	0	14	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	37
08:15 AM	0	30	0	0	30	0	0	0	0	0	0	14	0	0	14	1	0	0	0	1	45
08:20 AM	0	18	0	0	18	0	0	0	0	0	0	14	0	0	14	2	0	0	0	2	34
08:25 AM	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	32
Grand Total	0	363	0	0	363	0	0	0	0	0	0	278	4	0	282	11	0	1	0	12	657
Apprch %	0	100	0	0		0	0	0	0		0	98.6	1.4	0		91.7	0	8.3	0		
Total %	0	55.3	0	0	55.3	0	0	0	0	0	0	42.3	0.6	0	42.9	1.7	0	0.2	0	1.8	

LSC Transportation Consultants, Inc.
2504 E. Pikes Peak Ave, Suite 304
Colorado Springs, CO 80909
719-633-2868

File Name : black forest rd - old ranch rd am
Site Code : 0S24340
Start Date : 6/22/2022
Page No : 2

	Black Forest Rd Southbound					Westbound					Black Forest Rd Northbound					Old Ranch Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	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 07:30 AM																					
07:30 AM	0	17	0	0	17	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	26
07:35 AM	0	19	0	0	19	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	30
07:40 AM	0	15	0	0	15	0	0	0	0	0	0	9	0	0	9	1	0	0	0	1	25
07:45 AM	0	22	0	0	22	0	0	0	0	0	0	16	0	0	16	1	0	0	0	1	39
07:50 AM	0	19	0	0	19	0	0	0	0	0	0	19	0	0	19	0	0	**1**	0	1	39
07:55 AM	0	16	0	0	16	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	29
08:00 AM	0	12	0	0	12	0	0	0	0	0	0	18	1	0	19	0	0	0	0	0	31
08:05 AM	0	16	0	0	16	0	0	0	0	0	0	6	**2**	0	8	0	0	0	0	0	24
08:10 AM	0	14	0	0	14	0	0	0	0	0	0	**23**	0	0	**23**	0	0	0	0	0	37
08:15 AM	0	**30**	0	0	**30**	0	0	0	0	0	0	14	0	0	14	1	0	0	0	1	**45**
08:20 AM	0	18	0	0	18	0	0	0	0	0	0	14	0	0	14	**2**	0	0	0	**2**	34
08:25 AM	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	32
Total Volume	0	213	0	0	213	0	0	0	0	0	0	169	3	0	172	5	0	1	0	6	391
% App. Total	0	100	0	0		0	0	0	0		0	98.3	1.7	0		83.3	0	16.7	0		
PHF	.000	.592	.000	.000	.592	.000	.000	.000	.000	.000	.000	.612	.125	.000	.623	.208	.000	.083	.000	.250	.724



LSC Transportation Consultants, Inc.
2504 E. Pikes Peak Ave, Suite 304
Colorado Springs, CO 80909
719-633-2868

File Name : Black Forest Rd - Old Ranch Rd PM
Site Code : S224340
Start Date : 6/16/2022
Page No : 1

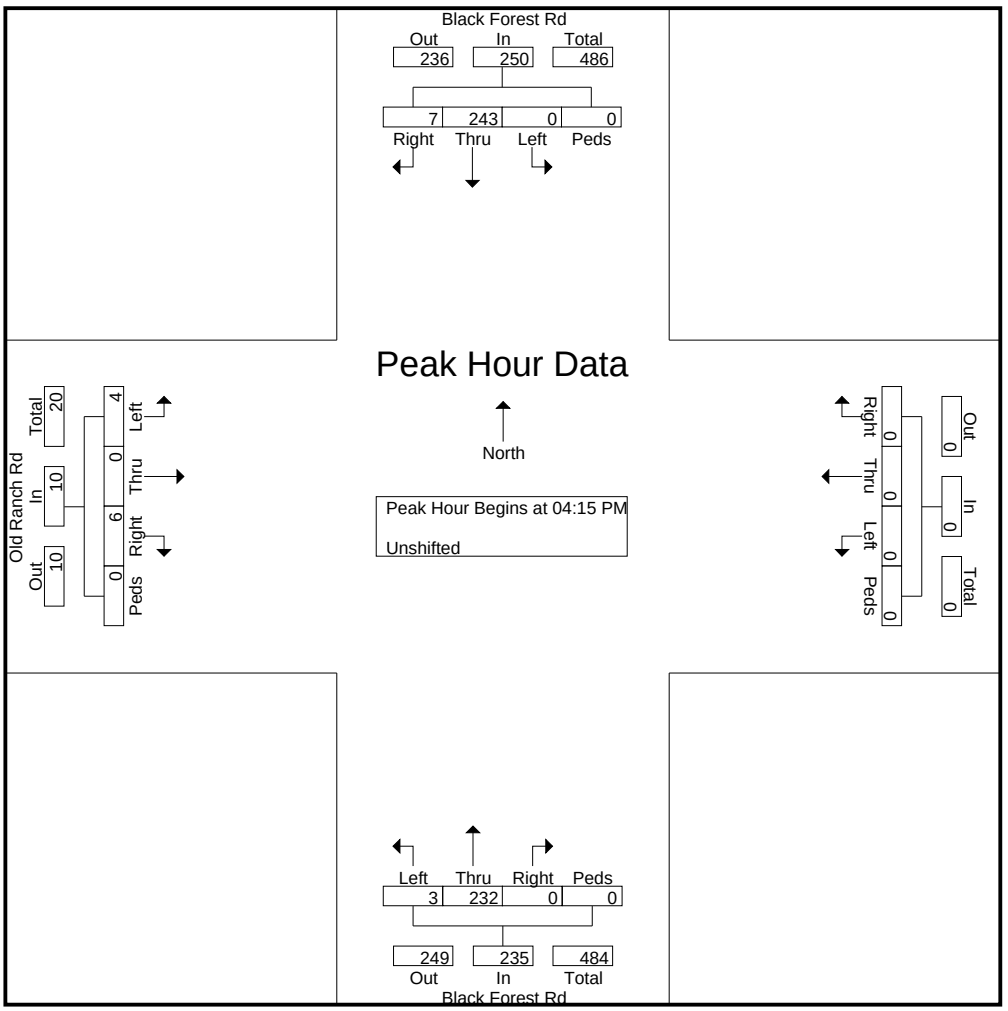
Groups Printed- Unshifted

	Black Forest Rd Southbound					Westbound					Black Forest Rd Northbound					Old Ranch Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	12	0	0	12	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	30
04:05 PM	2	12	0	0	14	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	38
04:10 PM	0	25	0	0	25	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	39
04:15 PM	1	26	0	0	27	0	0	0	0	0	0	17	1	0	18	0	0	0	0	0	45
04:20 PM	1	14	0	0	15	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	32
04:25 PM	0	16	0	0	16	0	0	0	0	0	0	17	0	0	17	1	0	0	0	1	34
04:30 PM	0	24	0	0	24	0	0	0	0	0	0	16	0	0	16	1	0	0	0	1	41
04:35 PM	2	25	0	0	27	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	45
04:40 PM	1	23	0	0	24	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	44
04:45 PM	1	26	0	0	27	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	45
04:50 PM	0	12	0	0	12	0	0	0	0	0	0	18	1	0	19	1	0	0	0	1	32
04:55 PM	0	23	0	0	23	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	45
Total	8	238	0	0	246	0	0	0	0	0	0	219	2	0	221	3	0	0	0	3	470
05:00 PM	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	1	0	1	0	2	34
05:05 PM	1	20	0	0	21	0	0	0	0	0	0	26	1	0	27	2	0	3	0	5	53
05:10 PM	0	19	0	0	19	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	45
05:15 PM	0	13	0	0	13	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	28
05:20 PM	1	18	0	0	19	0	0	0	0	0	0	19	0	0	19	0	0	1	0	1	39
05:25 PM	0	17	0	0	17	0	0	0	0	0	0	13	0	0	13	1	0	0	0	1	31
05:30 PM	0	20	0	0	20	0	0	0	0	0	0	13	2	0	15	2	0	0	0	2	37
05:35 PM	0	22	0	0	22	0	0	0	0	0	0	27	1	0	28	0	0	1	0	1	51
05:40 PM	0	21	0	0	21	0	0	0	0	0	0	27	1	0	28	0	0	0	0	0	49
05:45 PM	0	9	0	0	9	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	26
05:50 PM	0	24	0	0	24	0	0	0	0	0	0	14	1	0	15	0	0	0	0	0	39
05:55 PM	0	11	0	0	11	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	29
Total	2	209	0	0	211	0	0	0	0	0	0	232	6	0	238	6	0	6	0	12	461
Grand Total	10	447	0	0	457	0	0	0	0	0	0	451	8	0	459	9	0	6	0	15	931
Apprch %	2.2	97.8	0	0		0	0	0	0		0	98.3	1.7	0		60	0	40	0		
Total %	1.1	48	0	0	49.1	0	0	0	0	0	0	48.4	0.9	0	49.3	1	0	0.6	0	1.6	

LSC Transportation Consultants, Inc.
2504 E. Pikes Peak Ave, Suite 304
Colorado Springs, CO 80909
719-633-2868

File Name : Black Forest Rd - Old Ranch Rd PM
Site Code : S224340
Start Date : 6/16/2022
Page No : 2

	Black Forest Rd Southbound					Westbound					Black Forest Rd Northbound					Old Ranch Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:55 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	1	**26**	0	0	**27**	0	0	0	0	0	0	17	**1**	0	18	0	0	0	0	0	45
04:20 PM	1	14	0	0	15	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	32
04:25 PM	0	16	0	0	16	0	0	0	0	0	0	17	0	0	17	1	0	0	0	1	34
04:30 PM	0	24	0	0	24	0	0	0	0	0	0	16	0	0	16	1	0	0	0	1	41
04:35 PM	**2**	25	0	0	27	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	45
04:40 PM	1	23	0	0	24	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	44
04:45 PM	1	26	0	0	27	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	45
04:50 PM	0	12	0	0	12	0	0	0	0	0	0	18	1	0	19	1	0	0	0	1	32
04:55 PM	0	23	0	0	23	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	45
05:00 PM	0	15	0	0	15	0	0	0	0	0	0	17	0	0	17	1	0	1	0	2	34
05:05 PM	1	20	0	0	21	0	0	0	0	0	0	**26**	1	0	**27**	**2**	0	**3**	0	**5**	**53**
05:10 PM	0	19	0	0	19	0	0	0	0	0	0	26	0	0	26	0	0	0	0	0	45
Total Volume	7	243	0	0	250	0	0	0	0	0	0	232	3	0	235	6	0	4	0	10	495
% App. Total	2.8	97.2	0	0		0	0	0	0		0	98.7	1.3	0		60	0	40	0		
PHF	.292	.779	.000	.000	.772	.000	.000	.000	.000	.000	.000	.744	.250	.000	.725	.250	.000	.111	.000	.167	.778



LSC Transportation Consultants, Inc.

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

File Name : Old Ranch Rd AM V 10-19-22
Site Code : 224340__
Start Date : 10/19/2022
Page No : 1

Groups Printed- Class 1

	Southbound					Old Ranch Rd Westbound					Northbound					Old Ranch Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
*** BREAK ***																					
07:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	6	0	0	6	7
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
08:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
08:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
08:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	7	0	0	7	13
09:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
09:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
09:45	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
Total	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	11
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
10:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6	0	0	6	8
10:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8	0	0	8	12
*** BREAK ***																					
11:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
11:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
11:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	7
12:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
12:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
12:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8	0	0	8	12
13:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
13:15	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
Grand Total	0	0	0	0	0	0	32	0	0	32	0	0	0	0	0	0	45	0	0	45	77
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	41.6	0	0	41.6	0	0	0	0	0	0	58.4	0	0	58.4	

LSC Transportation Consultants, Inc.

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

File Name : Old Ranch Rd PM combo
Site Code : 224340__
Start Date : 11/12/2022
Page No : 1

Groups Printed- Class 1

	Southbound					Old Ranch Rd Westbound					Northbound					Old Ranch Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
13:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
14:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
14:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
14:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
14:45	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	6	0	0	6	14
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
15:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
15:30	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
15:45	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	4	0	0	4	12
16:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
16:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
16:30	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	1	0	0	1	7
16:45	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
Total	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	7	0	0	7	22
17:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
17:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
17:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
17:45	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
Total	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	8	0	0	8	17
18:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
*** BREAK ***																					
18:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
18:45	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	0	7	0	0	7	0	0	0	0	0	0	3	0	0	3	10
19:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
19:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
19:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
19:45	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	0	8	0	0	8	0	0	0	0	0	0	3	0	0	3	11
20:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
20:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
20:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
20:45	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	3	0	0	3	9
*** BREAK ***																					
21:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1

*** BREAK ***

LSC Transportation Consultants, Inc.

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

File Name : Old Ranch Rd PM combo
Site Code : 224340__
Start Date : 11/12/2022
Page No : 2

Groups Printed- Class 1

	Southbound					Old Ranch Rd Westbound					Northbound					Old Ranch Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
23:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Grand Total	0	0	0	0	0	0	64	0	0	64	0	0	0	0	0	0	34	0	0	34	98
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	65.3	0	0	65.3	0	0	0	0	0	0	34.7	0	0	34.7	

Old Ranch Road Hourly Traffic Data and Calculated ADT				
Hourly Interval		Link Volume		Total
Start	End	WB	EB	
00:00	01:00	0	0	0
01:00	02:00	0	0	0
02:00	03:00	0	0	0
03:00	04:00	0	0	0
04:00	05:00	0	0	0
05:00	06:00	0	0	0
06:00	07:00	0	4	4
07:00	08:00	1	6	7
08:00	09:00	6	7	13
09:00	10:00	6	5	11
10:00	11:00	4	8	12
11:00	12:00	5	2	7
12:00	13:00	4	8	12
13:00	14:00	6	5	11
14:00	15:00	**8**	**6**	14
15:00	16:00	**8**	**4**	12
16:00	17:00	10	6	16
17:00	18:00	10	8	17
18:00	19:00	**7**	**3**	10
19:00	20:00	**8**	**3**	11
20:00	21:00	6	3	9
21:00	22:00	2	0	2
22:00	23:00	0	0	0
23:00	00:00	2	0	2
			Sum	**171**
			ADT w/Adj. (veh/day)	**180**

Level of Service Reports

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	5	3	169	213	0
Future Vol, veh/h	1	5	3	169	213	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	78	78	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	6	3	194	245	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	445	245	245	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	200	-	-	-	-	-
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	571	794	1321	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	569	794	1321	-	-	-
Mov Cap-2 Maneuver	569	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	834	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1321	-	745	-	-
HCM Lane V/C Ratio	0.003	-	0.01	-	-
HCM Control Delay (s)	7.7	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	6	3	232	243	7
Future Vol, veh/h	4	6	3	232	243	7
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	78	78	87	87	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	8	3	267	264	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	541	268	272	0	-	0
Stage 1	268	-	-	-	-	-
Stage 2	273	-	-	-	-	-
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	502	771	1291	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	773	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	500	771	1291	-	-	-
Mov Cap-2 Maneuver	500	-	-	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	773	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1291	-	634	-	-
HCM Lane V/C Ratio	0.003	-	0.02	-	-
HCM Control Delay (s)	7.8	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	7	4	300	275	0
Future Vol, veh/h	2	7	4	300	275	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	78	78	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	9	4	326	299	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	633	299	299	0	-	0
Stage 1	299	-	-	-	-	-
Stage 2	334	-	-	-	-	-
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	444	741	1262	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	442	741	1262	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1262	-	644	-	-
HCM Lane V/C Ratio	0.003	-	0.018	-	-
HCM Control Delay (s)	7.9	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	3	1	2	0
Future Vol, veh/h	0	6	3	1	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	0	8	4	1	3	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	5	0	-	0	13	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	8	-
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	1616	-	-	-	1006	1078
Stage 1	-	-	-	-	1018	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1616	-	-	-	1006	1078
Mov Cap-2 Maneuver	-	-	-	-	1006	-
Stage 1	-	-	-	-	1018	-
Stage 2	-	-	-	-	1015	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1616	-	-	-	1006
HCM Lane V/C Ratio	-	-	-	-	0.003
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	7	5	375	435	8
Future Vol, veh/h	5	7	5	375	435	8
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	78	78	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	9	5	408	473	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	896	478	482	0	-	0
Stage 1	478	-	-	-	-	-
Stage 2	418	-	-	-	-	-
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	311	587	1081	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	309	587	1081	-	-	-
Mov Cap-2 Maneuver	309	-	-	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	664	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1081	-	427	-	-
HCM Lane V/C Ratio	0.005	-	0.036	-	-
HCM Control Delay (s)	8.3	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	10	10	2	1	0
Future Vol, veh/h	0	10	10	2	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	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	13	3	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	16	0	-	0	28	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	13	-
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	1602	-	-	-	987	1065
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1010	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1602	-	-	-	987	1065
Mov Cap-2 Maneuver	-	-	-	-	987	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1010	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1602	-	-	-	987
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	7	4	480	450	1
Future Vol, veh/h	2	7	4	480	450	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	9	4	522	489	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1020	490	490	0	-	0
Stage 1	490	-	-	-	-	-
Stage 2	530	-	-	-	-	-
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	262	578	1073	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	261	578	1073	-	-	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	613	-	-	-	-	-
Stage 2	590	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1073	-	455	-	-
HCM Lane V/C Ratio	0.004	-	0.025	-	-
HCM Control Delay (s)	8.4	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	8	6	600	700	8
Future Vol, veh/h	4	8	6	600	700	8
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	78	78	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	10	6	645	753	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1415	758	762	0	-	0
Stage 1	758	-	-	-	-	-
Stage 2	657	-	-	-	-	-
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	151	407	850	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	149	407	850	-	-	-
Mov Cap-2 Maneuver	149	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	516	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	850	-	258	-	-
HCM Lane V/C Ratio	0.008	-	0.06	-	-
HCM Control Delay (s)	9.3	0	19.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	9	5	480	450	1
Future Vol, veh/h	3	9	5	480	450	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	12	5	522	489	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1022	490	490	0	-	0
Stage 1	490	-	-	-	-	-
Stage 2	532	-	-	-	-	-
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	261	578	1073	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	259	578	1073	-	-	-
Mov Cap-2 Maneuver	259	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	589	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1073	-	442	-	-
HCM Lane V/C Ratio	0.005	-	0.035	-	-
HCM Control Delay (s)	8.4	0	13.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	4	1	2	0
Future Vol, veh/h	0	9	4	1	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	0	12	5	1	3	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	6	0	-	0	18	6
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	12	-
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	1615	-	-	-	1000	1077
Stage 1	-	-	-	-	1017	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1615	-	-	-	1000	1077
Mov Cap-2 Maneuver	-	-	-	-	1000	-
Stage 1	-	-	-	-	1017	-
Stage 2	-	-	-	-	1011	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1615	-	-	-	1000
HCM Lane V/C Ratio	-	-	-	-	0.003
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	9	8	600	700	9
Future Vol, veh/h	5	9	8	600	700	9
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	78	78	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	12	9	645	753	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1421	758	763	0	-	0
Stage 1	758	-	-	-	-	-
Stage 2	663	-	-	-	-	-
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	150	407	850	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	147	407	850	-	-	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.6	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	850	-	249	-	-
HCM Lane V/C Ratio	0.01	-	0.072	-	-
HCM Control Delay (s)	9.3	0	20.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	13	2	1	0
Future Vol, veh/h	0	13	13	2	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	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	17	3	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	20	0	-	0	36	19
Stage 1	-	-	-	-	19	-
Stage 2	-	-	-	-	17	-
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	1596	-	-	-	977	1059
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1596	-	-	-	977	1059
Mov Cap-2 Maneuver	-	-	-	-	977	-
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	1006	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1596	-	-	-	977
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

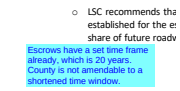
V2_Traffic Impact Study.pdf Markup Summary

Callout (1)

Subject: Callout
Page Label: 24
Author: HaoVo
Date: 10/31/2024 1:11:50 PM
Status:
Color:
Layer:
Space:

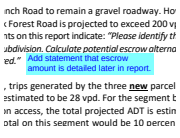
Review C1: Please see comment regarding line of sight distance for intersection and stopping sight distance and revise accordingly.
Review C2: Unresolved. Per ECM, sight distance for design speed 23mph is 155ft. Please revise.

Text Box (2)



Subject: Text Box
Page Label: 15
Author: CDurham
Date: 11/12/2024 2:41:07 PM
Status:
Color:
Layer:
Space:

Escrows have a set time frame already, which is 20 years. County is not amendable to a shortened time window.



Subject: Text Box
Page Label: 12
Author: CDurham
Date: 11/12/2024 2:39:24 PM
Status:
Color:
Layer:
Space:

Add statement that escrow amount is detailed later in report.