



LSC TRANSPORTATION CONSULTANTS, INC.
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MEMORANDUM

DATE: November 17, 2017

TO: Kari Parsons/Gilbert LaForce – El Paso County Planning and Community Development

FROM: Jeffrey C. Hodsdon - LSC Transportation Consultants, Inc.

SUBJECT: Abert Ranch Subdivision
P-17-005 and SP-17-007
Response to Comments Memorandum
LSC #164890

Following are the LSC Transportation Consultants, Inc. responses to the August 4, 2017 El Paso County Development Services Department comments regarding the March 20, 2017 Transportation Memorandum by LSC.

Page 1: Per ECM Table 2-5, minimum centerline radius is 300 ft. Revise or submit a deviation request.

LSC Response: A deviation request is included with this resubmittal.

Page 1: Add PCD File No.: P-17-005 and SP-17-007.

LSC Response: The project numbers have been added.

Page 4: Identify the surfacing (paved?)

LSC Response: This information has been added to the report.

Page 4: Provide a summary for Silver Nell Drive and Albert Drive. The temporary access from Albert Drive to Steppler Road is required. This may need to be the primary access to the lots until the Silver Nell/Albert Drive connection is made. If the Silver Nell/Albert Drive connection is constructed in conjunction with Settlers View Subdivision, then the temporary access will be used as a secondary access for emergency access only. The emergency access will be removed once the Albert Drive/Settlers Ranch Road intersection is constructed.

LSC Response: This information has been added to the report.



Development Services Department
2880 International Circle
Colorado Springs, Colorado 80910

Phone: 719.520.6300
 Fax: 719.520.6695
 Website www.elpasoco.com

**DEVIATION REVIEW
 AND DECISION FORM**

Procedure # R-FM-051-07
 Issue Date: 12/31/07
 Revision Issued: 00/00/00

DSD FILE NO.:

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General Property Information:

Address of Subject Property (Street Number/Name): 0 Stepler Road
 Tax Schedule ID(s) #: 6100000464
 Legal Description of Property: SE4NE4NE4 & NE4SE4NE4 SEC 23-11-66 & S2NW4NW4 SEC 24-11-66
 Subdivision or Project Name: Abert Ranch

Section of ECM from Which Deviation is Sought: Section 2.3.2 Design Standards by Functional Classification
 Specific Criteria from Which a Deviation is Sought: Table 2-5 Minimum centerline curve radius for a Rural Local roadway (300').

Proposed Nature and Extent of Deviation: The applicant is requesting a deviation to allow a 270-foot centerline curve radius for the proposed Abert Ranch Drive north of Silver Nell Drive (proposed).

Reason for the Requested Deviation: The deviation is needed given the topography and to allow for a connection to Silver Nell Drive to the west (proposed) and the planned future connection to Settlers Ranch Road to the south.

Applicant Information:

Applicant: Hannigan & Associates Email Address: hannigan.and.assoc@gmail.com
 Applicant is: Owner Consultant Contractor
 Mailing Address: 19360 Spring Valley Road Monument State: CO Postal Code: 80132
 Telephone Number: 719-481-8292 Fax Number: 481-9071

Engineer Information:

Engineer: Jeffrey C. Hodsdon, P.E., PTOE Email Address: jeff@lsctrans.com
 Company Name: LSC Transportation Consultants, Inc.
 Mailing Address: 545 E Pikes Peak Ave. Suite 210 Col. Springs State: CO Postal Code: 80903
 Registration Number: 31684 State of Registration: Colorado
 Telephone Number: (719) 633-2868 Fax Number: (719) 633-5430

Explanation of Request (Attached diagrams, figures and other documentation to clarify request):

Section of ECM from Which Deviation is Sought: Section 2.3.2 Design Standards by Functional Classification
 Specific Criteria from Which a Deviation is Sought: Table 2-5 Minimum centerline curve radius for a Rural Local roadway (300').

Proposed Nature and Extent of Deviation: The applicant is requesting a deviation to allow a 270-foot centerline curve radius for the proposed Abert Ranch Drive north of Silver Nell Drive (proposed). Please refer to attached exhibit.

Reason for the Requested Deviation: The deviation is needed given the topography and to allow for a connection to Silver Nell Drive to the west (proposed) and the planned future connection to Settlers Ranch Road to the south.

Comparison of Proposed Deviation to ECM Standard: Proposed centerline radius is 270 feet. The standard is 300 feet (minimum).

Applicable Regional or National Standards used as Basis: The ECM minimum radii for Urban Local and Urban Local Low Volume roadways are 200 feet and 100 feet respectively.

El Paso County Procedures Manual
 Procedure # R-FM-051-07
 Issue Date: 12/31/07
 Revision Issued: 00/00/00

Application Consideration:

CHECK IF APPLICATION MEETS CRITERIA FOR CONSIDERATION

JUSTIFICATION

- The ECM standard is inapplicable to a particular situation.
- Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship on the applicant, and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.

The deviation is needed given the topography on the site and to allow for the planned future connection to Settlers Ranch Road to the south. This parcel is adjacent to Stepler Road. However, no permanent access to Stepler Road is allowed. Interim access to Silver Nell is needed and the alignment of existing Silver Nell at the Grandview Subdivision/proposed Settlers View Subdivision border affects the street layouts in both the Settlers View subdivision and this subdivision. The planned alignment of Settlers Ranch Road also dictates the Abert Ranch Street layout. The site is bordered on the north with Grandview Subdivision lots.

- A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

If at least one of the criteria listed above is not met, this application for deviation cannot be considered.

Criteria for Approval:

PLEASE EXPLAIN HOW EACH OF THE FOLLOWING CRITERIA HAVE BEEN SATISFIED BY THIS REQUEST

The request for a deviation is not based exclusively on financial considerations.

The deviation is needed given the topography and to allow for a connection to Silver Nell Drive to the west (proposed) and the planned future connection to Settlers Ranch Road to the south.

The deviation will achieve the intended result with a comparable or superior design and quality of improvement.

Given the site/plan-specific conditions, the proposed design with the 270-foot radius will be a comparable design and will be comparable in terms of the quality of improvement. This is due to the length of the street overall, the length on either side of the proposed curve and the anticipated low traffic volumes. The proposed curves are also on a short cul-de-sac street and not a through street.

The deviation will not adversely affect safety or operations.

The proposed centerline radius of 270 feet is 30 feet tighter than the standard 300-foot radius. This will not be problematic because 1) the overall length of the street is short; 2) The street length on either side of the proposed curves is short -- about 300 feet between the beginning of the first horizontal curve just north of Silver Nell Drive (which is shown to meet standards at 300-foot radius) and the planned intersection with Settlers Ranch Road to the south. On the east end of the street, the straight section between the end of the horizontal curve and the center of the cul-de-sac is only 130 feet; and 3) with only traffic generated by seven lots and no through traffic (short cul-de-sac street), the traffic volumes will be low.

The deviation will not adversely affect maintenance and its associated cost.

The deviation will not affect maintenance as the street radius will be able to accommodate County snow plows and other maintenance vehicles.

The deviation will not adversely affect aesthetic appearance.

The deviation will not affect aesthetic appearance as the street will be comparable to the standard.

Owner, Applicant and Engineer Declaration:

El Paso County Procedures Manual
Procedure # R-FM-051-07
Issue Date: 12/31/07
Revision Issued: 00/00/00
DSD File No. _____

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

Signature of owner (or authorized representative)

Date

Signature of applicant (if different from owner)

Date

Signature of Engineer

Date

Engineer's Seal



11/17/17

Review and Recommendation:
APPROVED by the ECM Administrator

Date

This request has been determined to have met the criteria for approval. A deviation from Section _____ of ECM is hereby granted based on the justification provided. Comments:

____ Additional comments or information are attached.

DENIED by the ECM Administrator

Date

This request has been determined not to have met criteria for approval. A deviation from Section _____ of ECM is hereby denied. Comments:

____ Additional comments or information are attached.



Approximate Scale
Scale: NTS

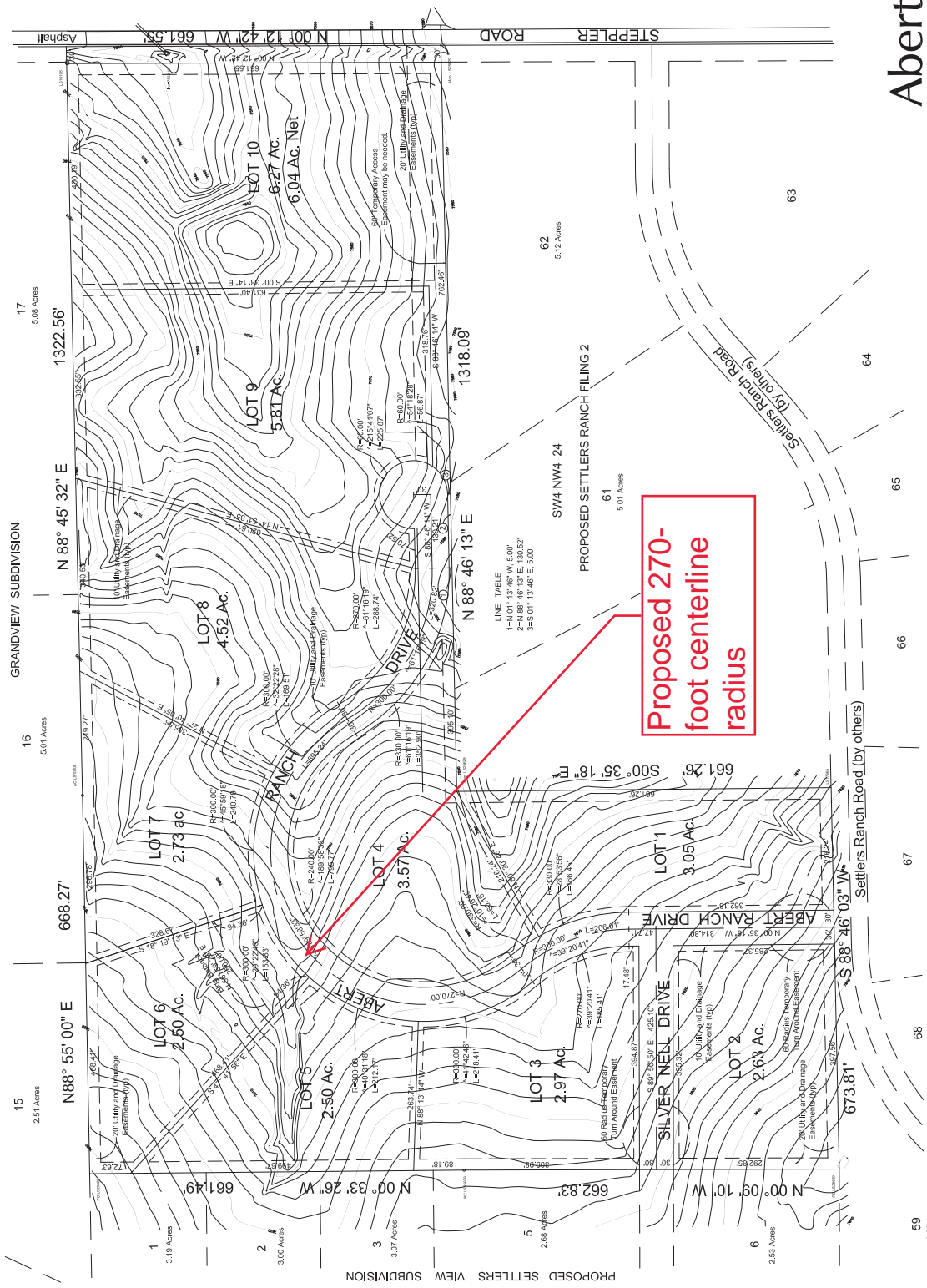


Figure 2
Abert Ranch
Site Plan
 Abert Ranch (LSC #164890)





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Abert Ranch Subdivision
Updated Transportation Memorandum
PCD File Nos.: P-17-005 and SP-17-007
(LSC #164890)
November 17, 2017

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.

Jeffrey C. Hodsdon, P.E., #31684



Date

Developer's Statement

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

Date



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November 17, 2017

Mr. Jerry Hannigan
Jerome W. Hannigan and Associates, Inc.
19360 Spring Valley Road
Monument, CO 80132

RE: Abert Ranch Subdivision
El Paso County, CO
PCD File Nos.: P-17-005 & SP-17-007
Updated Transportation Memorandum
LSC #164890

Dear Jerry:

LSC Transportation Consultants, Inc. has prepared this updated transportation memorandum for the proposed Abert Ranch subdivision. The site is located generally northwest of the intersection of Hodgen Road and Stepler Road in El Paso County, Colorado. The site's location is shown in Figure 1. Site access would be through adjacent subdivisions as the site is not directly adjacent to Stepler Road. This analysis has been prepared in conjunction with the proposed Settlers View subdivision, which is adjacent to Abert Ranch. LSC has prepared a separate traffic report for Settlers View.

REPORT CONTENTS

The report contains the following:

- Existing roadway and traffic conditions in the vicinity of the site, including the intersection lane geometries, traffic controls, posted speed limits, functional classifications, intersection spacing and alignment, etc.
- Existing peak-hour turning movement traffic counts and/or estimates of future background traffic volumes at the intersections of:
 - Stepler Road at Silver Nell Drive
 - Stepler Road at Settler's Ranch Road (future)
- Description of the proposed land use.
- Estimates of the average weekday and peak-hour vehicle-trips to be generated by the site.
- Projected site-generated traffic volumes on roadways and intersections to provide access to the site.
- Analysis of the resulting traffic impacts from the site including the development's relative average daily traffic volume impacts and intersection level of service analysis.
- Findings and recommendations.

LAND USE AND ACCESS

Site Land Use and Access

Abert Ranch is a proposed single-family residential subdivision consisting of 10 lots, each a minimum of 2.5 acres. Primary site access would initially be to Stepler Road via a full-use, temporary access easement to Stepler Road through lots 9 and 10. This access would convert to an emergency-vehicle-only access once the Silver Nell Drive access connection to Stepler through the proposed Settlers View and existing Grandview subdivisions is established. A permanent second access to the south will become available in the future via the proposed future extension of Settlers Ranch Road to Stepler Road once constructed by the developer of Settlers Ranch. Once the permanent second access via Settlers Ranch Road is established, the temporary access to Stepler through lots 9 and 10 would be removed and the temporary access easement would expire.

Adjacent Subdivisions – Existing and Proposed

Settlers View

Settlers View is a proposed single-family residential subdivision consisting of 14 lots, each a minimum of 2.5 acres. The location of the site is shown in Figure 1. Figure 1 also shows the proposed adjacent Abert Ranch site. The existing Grandview subdivision is located to the north of the Settlers View and Abert Ranch sites and the eastern portion of Settlers Ranch is located to the south. The Settlers View site plan/subdivision plat is shown in Appendix Figure 1.

Settlers Ranch

Settlers Ranch is located south and southeast of the site. Filing 1 to the southeast has been developed. The Settlers Ranch Road extension to Stepler Road will be added with future Filing 2. This future road connection will provide secondary access to both Abert Ranch and this site (via the proposed Abert Ranch subdivision roads).

Grandview

Grandview is located to the north of the Settlers View and Abert Ranch sites. It is partially developed, but Silver Nell Drive through Grandview has been completed and provides access to Stepler Road. Silver Nell Drive will provide the initial access to both the Settlers View and Abert Ranch subdivisions.

EXISTING ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

Major roadways in the vicinity of the site are summarized below:

State Highway (SH) 83 extends from Colorado Springs north to Parker and areas of southeast Denver. In the vicinity of the site, SH 83 is classified as a Regional Highway (R-A). At this location, SH 83 is a two-lane rural highway with two- to four-foot shoulders and a speed limit of 60 miles per hour (mph). The intersection with Hodgen Road is signalized.

Hodgen Road is a two-lane paved Rural Minor Arterial that extends west from the intersection of Roller Coaster Road/Baptist Road to Eastonville Road. The speed limit on Hodgen Road is generally 55 mph east of SH 83.

Walker Road/SH 105 - Highway 105 west of SH 83 is a Principal Arterial, while Walker Road east of SH 83 is a Collector roadway. Both are currently two-lane roadways, but the *Major Transportation Corridors Plan (MTCP)* shows a future four-lane cross section on SH 105 west of SH 83. The intersection with SH 83 is unsignalized.

Stepler Road is currently a 2014 inventory document as a Collector. Stepler Road is a 40-foot-wide paved road between that point. The posted speed limit is 35 mph.

Silver Nell Drive is a proposed paved Rural Local roadway within the proposed Abert Ranch subdivision. Silver Nell Drive is 40 feet wide. Silver Nell Drive intersects into the proposed Abert Ranch Drive.

Abert Ranch Drive is a proposed paved Rural Local roadway within the proposed Abert Ranch subdivision. The roadway is shown to extend north from the planned Settlers Ranch Road through a planned intersection with the future extension of Silver Nell Drive to its planned terminus as a cul-de-sac.

Traffic Volumes

Turning movement counts were conducted on Tuesday, August 30, 2016 from 4:00 to 6:00 p.m. and on September 1, 2016 from 6:30 to 8:30 a.m. at the intersection of Stepler Road at Silver Nell Drive. Count reports are attached. Based on these count data, existing morning and evening weekday peak-hour traffic volumes at this intersection are shown in Figure 3. Estimates of the average daily traffic volumes on Stepler Road based on these peak-hour counts are also shown in Figure 3.

Level of Service

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 1 shows the level of service delay ranges for signalized and unsignalized intersections.

The temporary access from Albert Drive to Stepler Road is required. This may need to be the primary access to the lots until the Silver Nell/Albert Drive connection is made. If the Silver Nell/Albert Drive connection is constructed in conjunction with Settlers View Subdivision, then the temporary access will be used as a secondary access for emergency access only. The emergency access will be removed once the Albert Drive/Settlers Ranch Road intersection is constructed.
Unresolved. Add a narrative regarding the temporary emergency access and timing for removal. Who is responsible for maintenance in the interim?

Table 1: Intersection Levels of Service Delay Ranges

Level of Service	Signalized Intersections		Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	V/C ⁽¹⁾	Average Control Delay (seconds per vehicle) ⁽²⁾
A	10.0 sec or less	less than 0.60	10.0 sec or less
B	10.1-20.0 sec	0.60-0.69	10.1-15.0 sec
C	20.1-35.0 sec	0.70-0.79	15.1-25.0 sec
D	35.1-55.0 sec	0.80-0.89	25.1-35.0 sec
E	55.1-80.0 sec	0.90-0.99	35.1-50.0 sec
F	80.1 sec or more	1.00 and greater	50.1 sec or more

(1) Source: *Transportation Research Circular 212*
(2) 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.

The intersection of Stepler Road at Silver Nell Drive has been analyzed in Synchro to determine the current level of service using the unsignalized method of analysis procedures from the *Highway Capacity Manual, 2010 Edition*. The level of service is “A.”

TRIP GENERATION

Estimates of the vehicle-trips projected to be generated by Abert Ranch have been made using the nationally published trip generation rates from *Trip Generation, 9th Edition, 2012* by the Institute of Transportation Engineers (ITE). Land use code 210 – Single-Family Detached Housing was categorized using the *Trip Generation Manual, 9th Edition, 2012* by the Institute of Transportation Engineers (ITE) and used for trip generation estimates. The proposed Abert Ranch subdivision is projected to generate about 95 total vehicle-trips on the average weekday during a 24-hour period, with about half entering the site and half exiting the site during the evening peak hour. The peak-hour trip generation is also summarized. A detailed trip generation estimate for the development, including ITE rates for the proposed land use, is presented in Table 6 (attached).

Trip Distribution and Assignment

Distribution of the site-generated vehicle-trips to the study area streets and intersections is a necessary component in determining the site’s traffic impacts. Figure 4 shows the directional distribution estimate for the site-generated trips. The figure shows the percentages of the site-generated vehicle-trips projected to be oriented to and from the site’s major approaches. Estimates were based on the following factors: the proposed land use and access plan, the area street system, and anticipated area future development.

Site-Generated Traffic

When the directional distribution percentages (from Figure 4) were applied to the trip generation estimates (from Table 6), the site-generated traffic volumes on the adjacent streets were determined. Figure 5 shows the projected site-generated traffic volumes.

EXISTING VS. EXISTING PLUS SITE-GENERATED TRAFFIC/LOS

Traffic Volumes

Figure 7 shows the sum of the existing weekday traffic volumes (from Figure 3) and site-generated weekday traffic volumes (from Figure 4). The existing plus site-generated trips identify the site’s short-term traffic impacts assuming buildout of all three aforementioned subdivisions. Appendix Figure 2 shows the projected background traffic generated by Settlers View.

Levels of Service

Morning Peak Hour

All approaches at the intersection of Stepler Road at Silver Nell Drive currently operate at and are projected to remain at LOS A during the morning peak hour upon site buildout. A summary of projected 2040 background plus site-generated LOS and control delays during the morning peak hour is shown in Table 2.

Table 2: Projected Peak-Hour LOS and Control Delays by Intersection (2016 a.m.)

Intersection	Traffic Control*	Scenario	NBL	EBL
LOS				
Stepler Road @ Silver Nell Dr	TWSC	Existing	A	A
		Existing + Site (short-term)	A	A
Control Delay (seconds)				
Stepler Road @ Silver Nell Dr	TWSC	Existing	7.3	8.5
		Existing + Site (short-term)	7.3	8.6
* TWSC = two-way stop-sign control				

Evening Peak Hour

All approaches at the intersection of Stepler Road at Silver Nell Drive currently operate at and are projected to remain at LOS A during the evening peak hour upon site buildout. A summary of projected 2040 background plus site-generated LOS and control delays during the morning peak hour is shown in Table 3.

Table 3: Projected Peak-Hour LOS and Control Delays by Intersection (2016 p.m.)

Intersection	Traffic Control*	Scenario	NBL	EBL
LOS				
Stepler Road @ Silver Nell Dr	TWSC	Existing	A	A
		Existing + Site (short-term)	A	A
Control Delay (seconds)				
Stepler Road @ Silver Nell Dr	TWSC	Existing	7.3	8.4
		Existing + Site (short-term)	7.3	8.5

* TWSC = two-way stop-sign control

2040 BACKGROUND VS. 2040 TOTAL TRAFFIC/LOS

Traffic Volumes

Figure 8 shows the projected 2040 background traffic volumes based on existing turning movement counts (from Figure 3), the historic growth rate, and projected future development. Projected 2040 background plus site-generated weekday traffic volumes are shown in Figure 9. Appendix Figure 3 shows the long-term site-generated traffic volumes for the Abert Ranch and Settlers View subdivisions combined.

Levels of Service

Morning Peak Hour

All approaches at the intersections of Stepler Road/Silver Nell Drive and Stepler Road/Settlers Ranch Road are projected to operate at LOS A during the 2040 morning peak hour with and without considering site-generated trips. A summary of projected 2040 background plus site-generated LOS and control delays during the morning peak hour is shown in Table 4.

Table 4: Projected Peak-Hour LOS and Control Delays by Intersection (2040 a.m.)

Intersection	Traffic Control*	Scenario	NBL	EBL
LOS				
Stepler Road @ Silver Nell Dr	TWSC	2040 Background	A	A
		2040 Background + Site	A	A
Stepler Road @ Settler's Ranch Rd	TWSC	2040 Background	A	A
		2040 Background + Site	A	A
Control Delay (seconds)				
Stepler Road @ Silver Nell Dr	TWSC	2040 Background	7.3	8.5
		2040 Background + Site	7.3	8.6
Stepler Road @ Settlers Ranch Rd	TWSC	2040 Background	7.3	8.7
		2040 Background + Site	7.3	8.7

* TWSC = two-way stop-sign control

Evening Peak Hour

All approaches at the intersections of Stepler Road/Silver Nell Drive and Stepler Road/Settlers Ranch Road are projected to operate at LOS A during the 2040 morning peak hour with and without considering site-generated trips. A summary of projected 2040 background plus site-generated LOS and control delays during the evening peak hour is shown in Table 5.

Table 5: Projected Peak-Hour LOS and Control Delays by Intersection (2040 p.m.)

Intersection	Traffic Control*	Scenario	NBL	EBL
LOS				
Stepler Road @ Silver Nell Dr	TWSC	2040 Background	A	A
		2040 Background + Site	A	A
Stepler Road @ Settler's Ranch Rd	TWSC	2040 Background	A	A
		2040 Background + Site	A	A
Control Delay (seconds)				
Stepler Road @ Silver Nell Dr	TWSC	2040 Background	7.3	8.6
		2040 Background + Site	7.3	8.6
Stepler Road @ Settler's Ranch Rd	TWSC	2040 Background	7.3	8.6
		2040 Background + Site	7.3	8.7
* TWSC = two-way stop-sign control				

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

The proposed Abert Ranch subdivision is projected to generate about 95 new vehicle-trips on the average weekday with about half entering and half exiting the site. The projected morning **peak-hour** trip generation for the site (total “driveway” trips) is two entering and six exiting trips. The projected evening **peak-hour** trip generation for the site (total “driveway” trips) is six entering and four exiting trips.

Level of Service Analysis

All levels of service at the intersections analyzed are projected to be “A.” Please refer to the Level of Service sections above for detailed findings and results of the intersection level of service analysis.

Auxiliary Turn Lanes

Neither Silver Nell/Stepler nor Settlers Ranch Road/Stepler will exceed *Engineering Criteria Manual* thresholds requiring auxiliary left- and right-turn lanes.

Street Classification

The streets within this proposed subdivision should be classified as Rural Local streets.

Secondary Access Phasing

This report contains a description of the phasing of secondary access. Please refer to the Site Land Use and Access section of this report for details.

County Road Improvement Fee Program

This project will need to participate in the County Road Improvement Fee Program.

* * *

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By 

Jeffrey C. Hodsdon, P.E., PTOE
Principal

JCH:JAB:bjwb

Enclosures: Table 6
Figure 1 - Figure 9
Appendix Figure 1 - Appendix Figure 3
Traffic Count Reports
Level of Service Reports

Table 6: Trip Generation Estimate and Comparison

Lots	ITE Land Use Code	Land Use Description	Value	Units	Trip Generation Rates ⁽¹⁾					Total Trips Generated					
					Average Weekday Traffic	A.M.		P.M.		Average Weekday Traffic	A.M.		P.M.		
						In	Out	In	Out		In	Out	In	Out	
Abert Ranch Only															
1-10	210	Single-Family Detached Housing	10	DU ⁽²⁾	9.52	0.19	0.56	0.63	0.37	95	2	6	6	4	
Settler's View Only															
1-14	210	Single-Family Detached Housing	14	DU	9.52	0.19	0.56	0.63	0.37	133	3	8	9	5	
Total										228	5	14	15	9	

(1) Source: "Trip Generation, 9th Edition, 2012" by the Institute of Transportation Engineers (ITE)

(2) DU = dwelling units

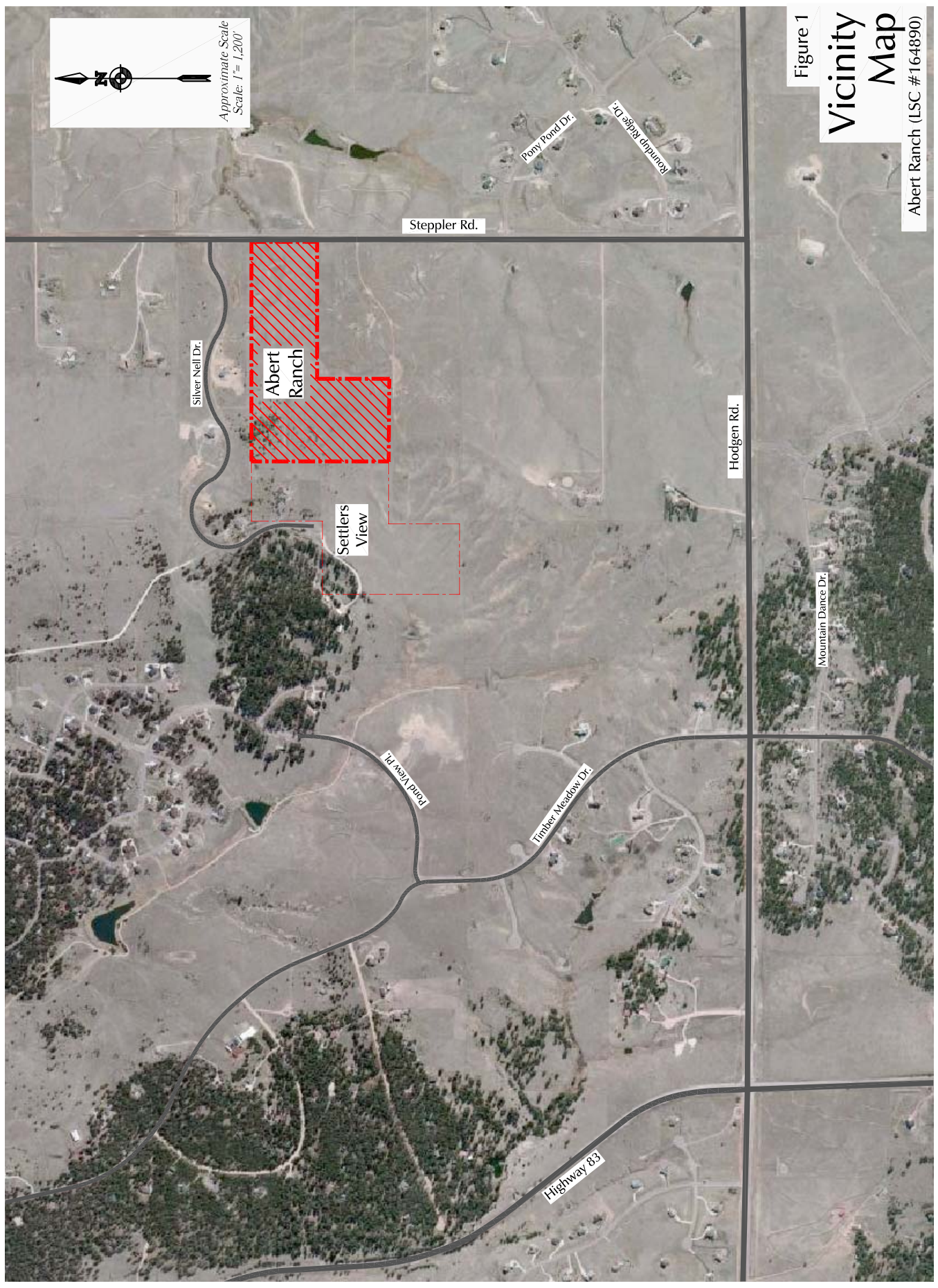
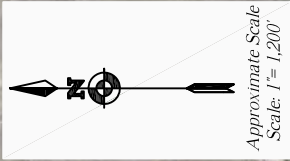


Figure 1
Vicinity Map
Abert Ranch (LSC #164890)



Approximate Scale
Scale: NTS

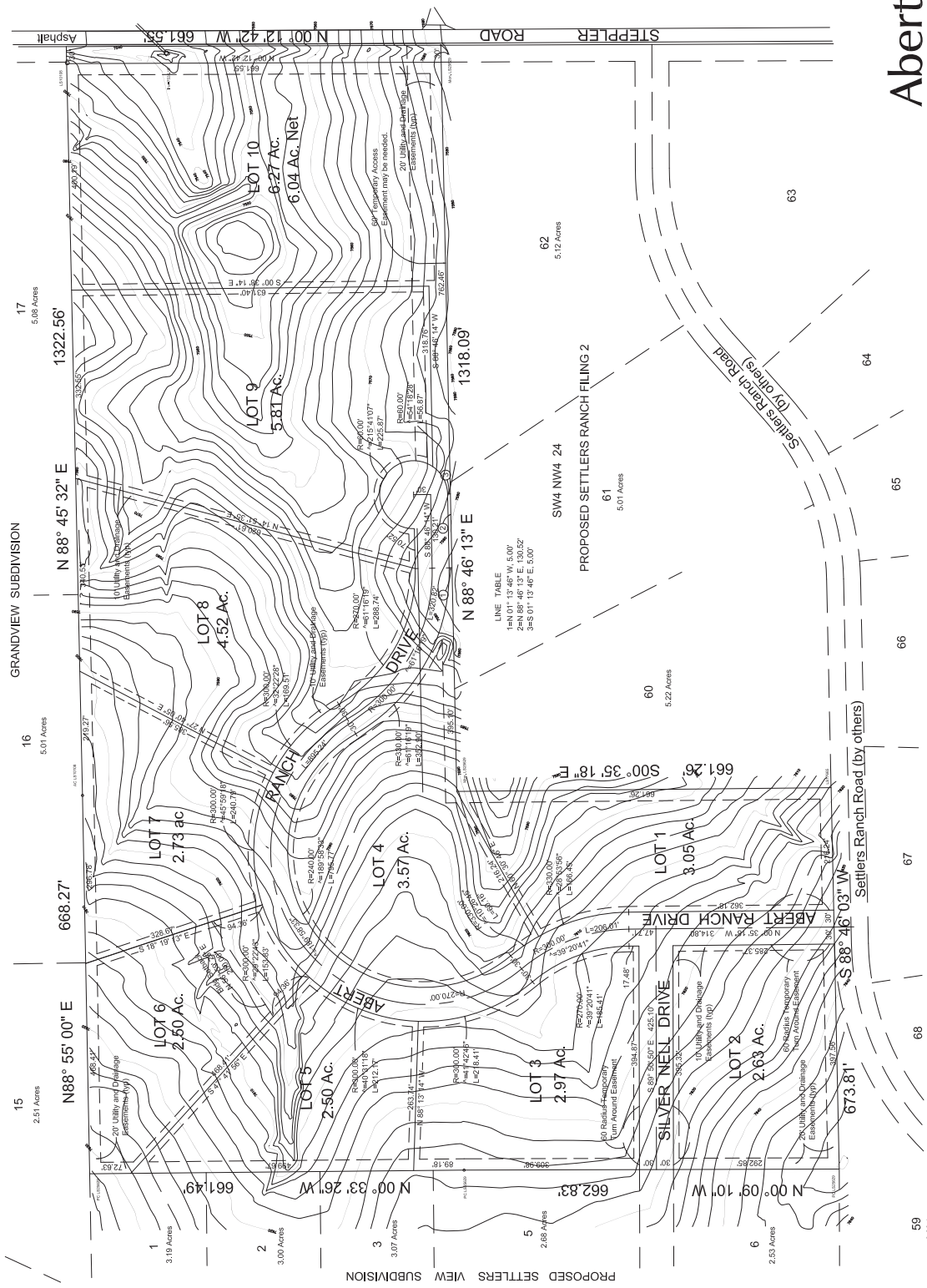
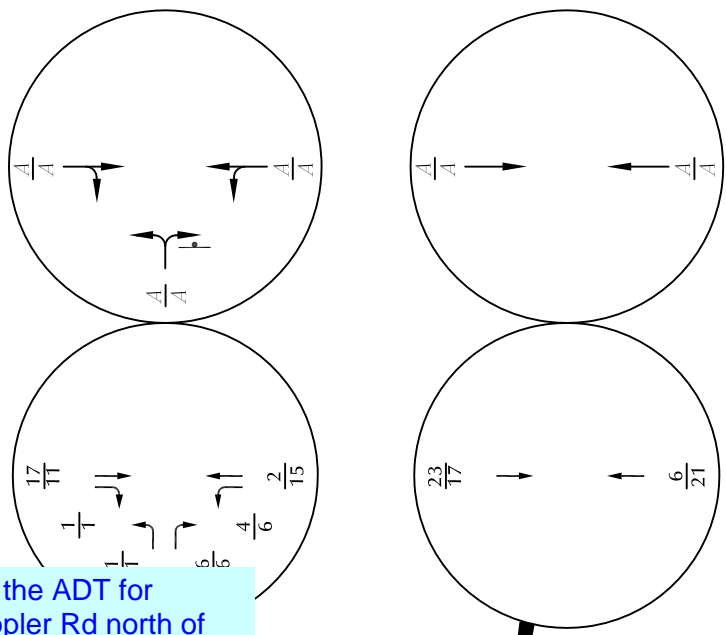
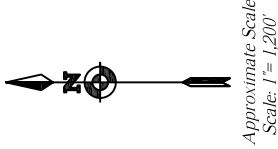
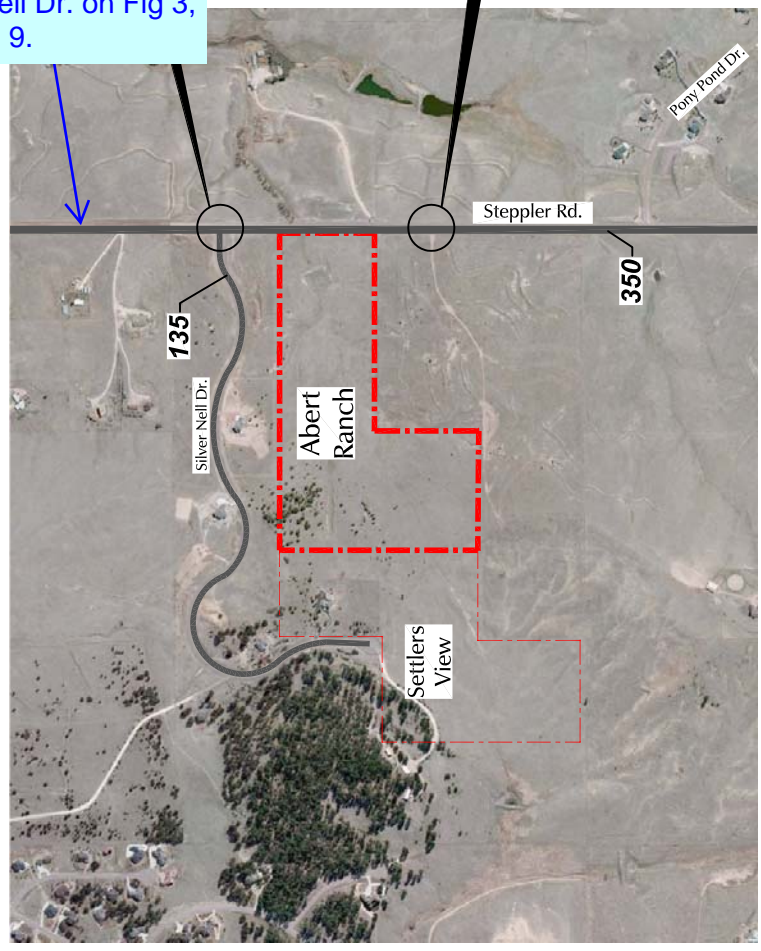


Figure 2
Abert Ranch
Site Plan
 Abert Ranch (LSC #164890)





Add the ADT for Steppler Rd north of Silver Nell Dr. on Fig 3, 7, 8 and 9.



LEGEND:

† = Stop Sign

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 PM Weekday Peak-Hour Traffic (vehicles per hour)

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

XXX = Average Weekday Traffic (vehicles per day)
 Estimates by LSC

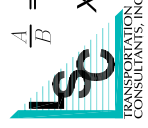


Figure 3

Existing Traffic, Lane Geometry, Traffic Control & Level of Service

Abert Ranch (LSC #164890)

Based on Counts by LSC January 2017

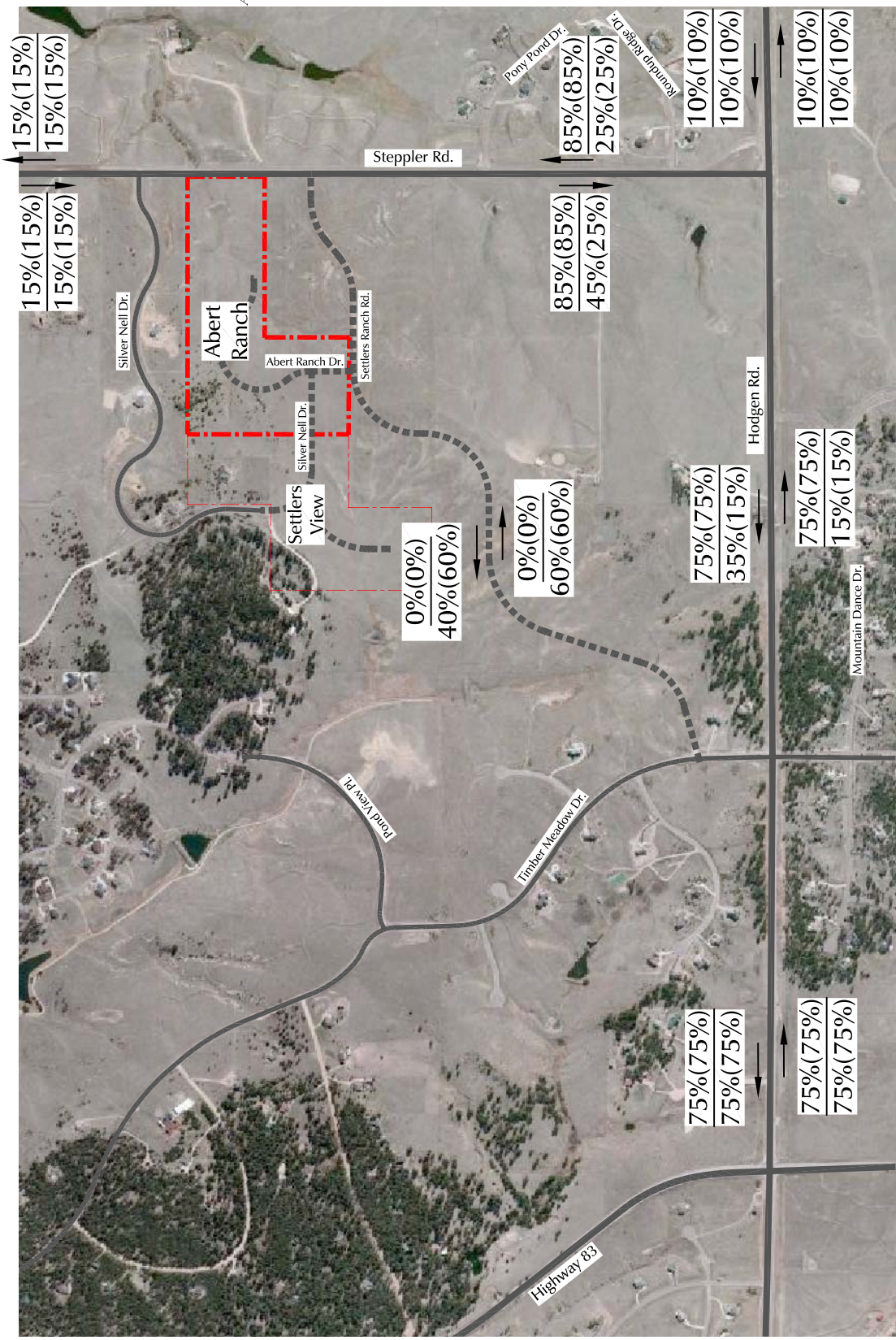
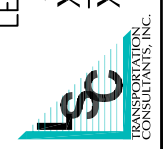


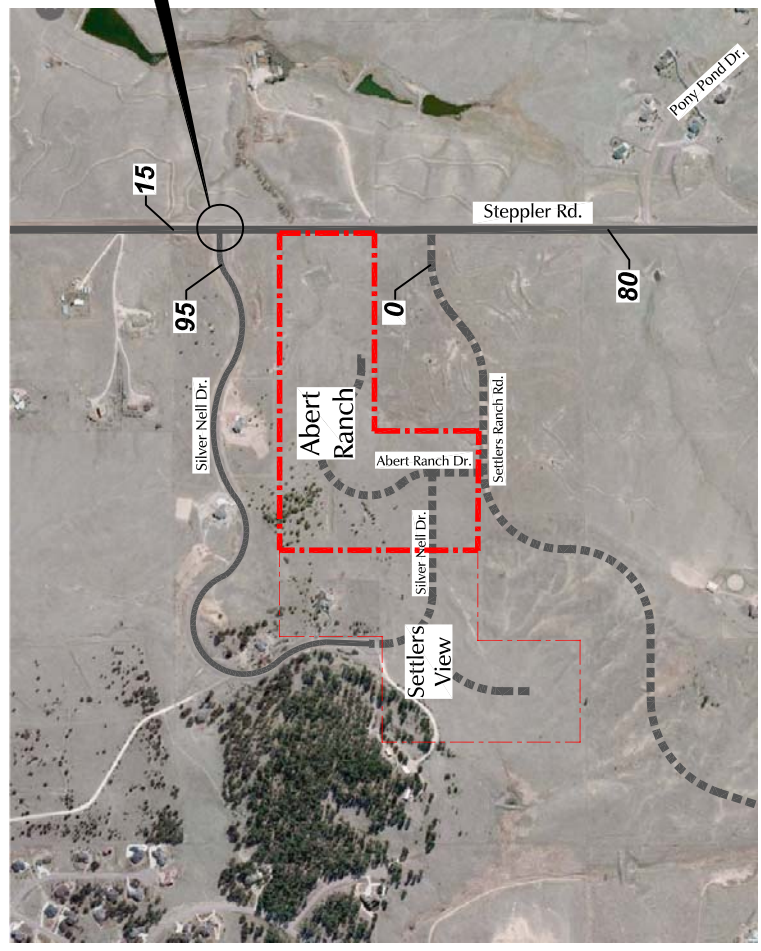
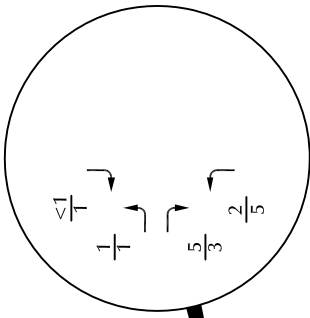
Figure 4
**Directional Distribution
of Site-Generated Traffic**
Abert Ranch (LSC #164890)

LEGEND:
 $\overleftarrow{X\%(X\%)}$ = Short-Term Directional Distribution AM(PM)
 $\overrightarrow{X\%(X\%)}$ = Long-Term Directional Distribution AM(PM)





Approximate Scale
Scale: 1" = 1,200'



LEGEND:

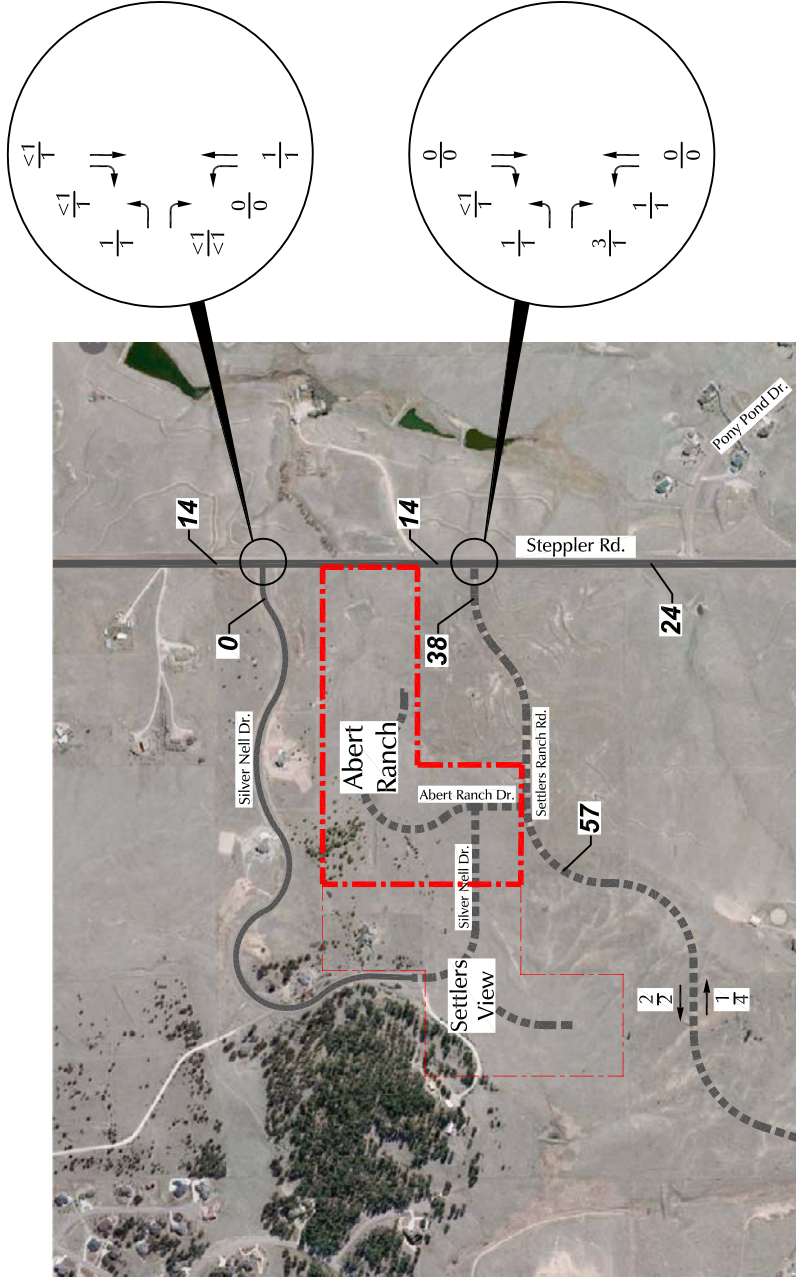
- XX = AM Weekday Peak-Hour Traffic (vehicles per hour)
- XX = PM Weekday Peak-Hour Traffic (vehicles per hour)
- XXX = Average Weekday Traffic (vehicles per day)



Figure 5
**Abert Ranch Short-Term
Assignment of Site-Generated Traffic**
Abert Ranch (LSC #164890)



Approximate Scale
Scale: 1" = 1,200'



LEGEND:

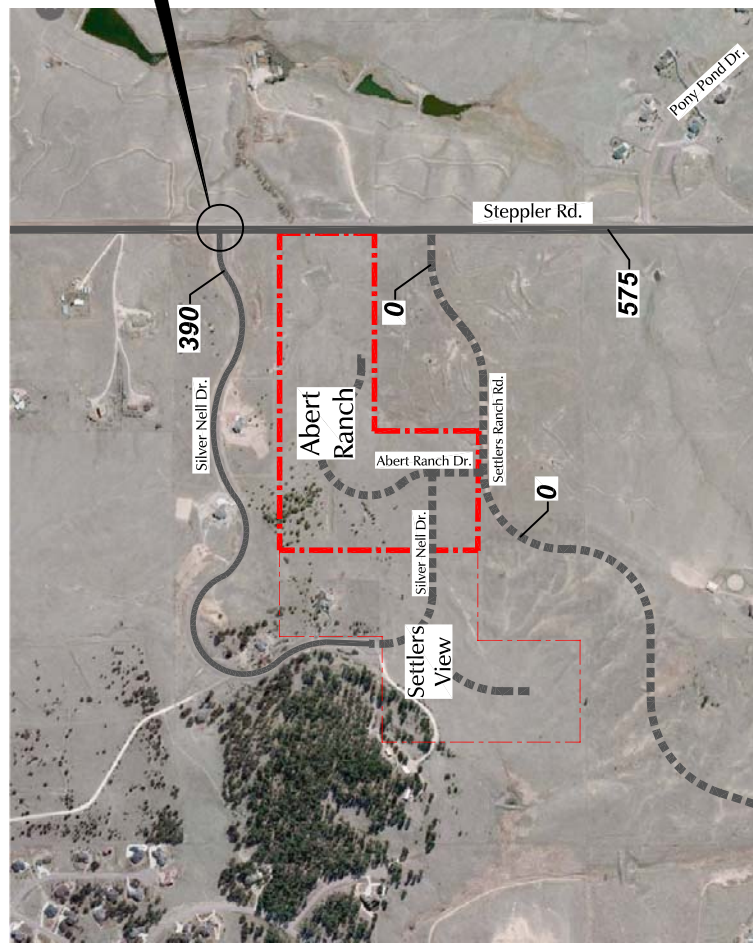
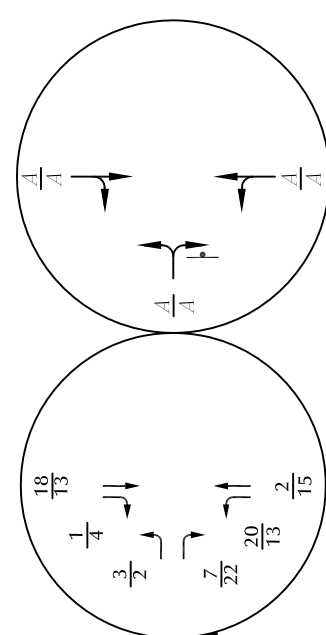
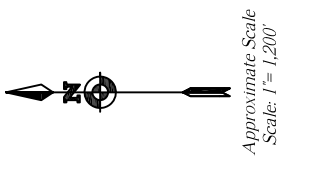
- XX = AM Weekday Peak-Hour Traffic (vehicles per hour)
- XX = PM Weekday Peak-Hour Traffic (vehicles per hour)
- XXX = Average Weekday Traffic (vehicles per day)



Figure 6

Abert Ranch Long-Term Assignment of Site-Generated Traffic

Abert Ranch (LSC #164890)



* Includes buildout of the site plus Settlers View plus Grandview but not Settlers Ranch. Assumes Settlers Ranch Road not built adjacent to Abert Ranch east of Abert Ranch.

LEGEND:

- ⊥ = Stop Sign
- $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
PM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
PM Individual Movement Peak-Hour Level of Service
- XXX = Average Weekday Traffic (vehicles per day)

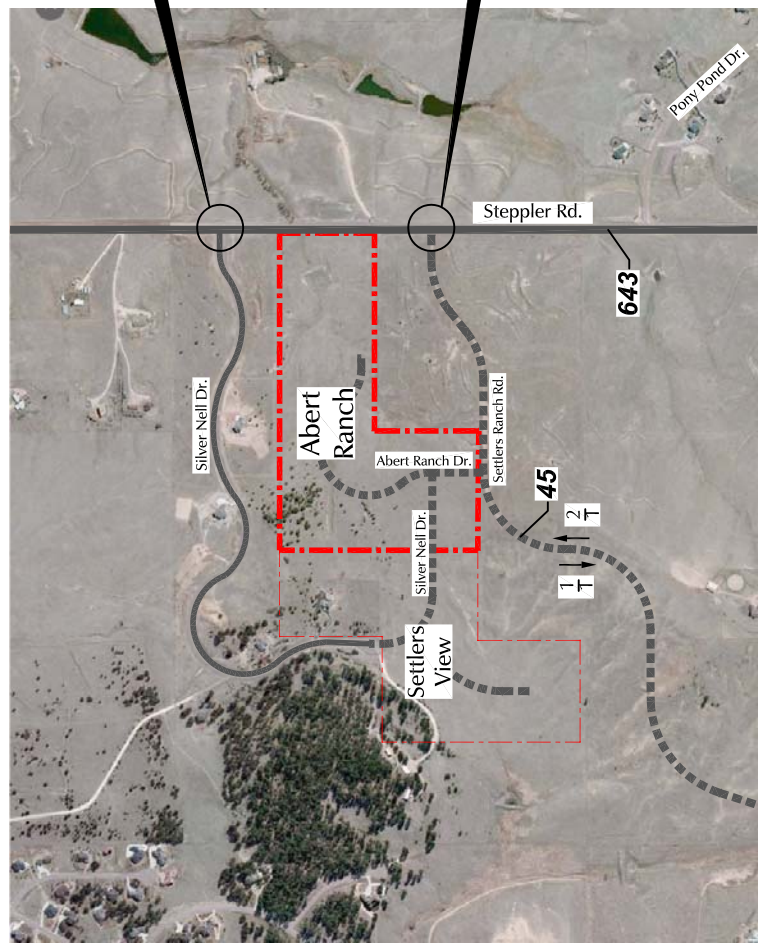
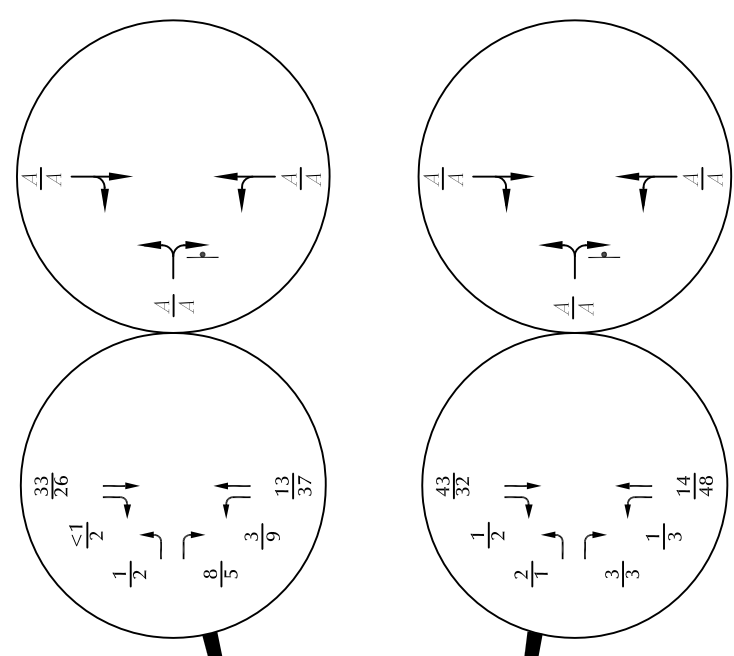
Figure 7

Short-Term Total Traffic*, Lane Geometry, Traffic Control & Level of Service

Abert Ranch (LSC #164890)



Approximate Scale
Scale: 1" = 1,200'



* Not including Settlers Ranch or Abert Ranch.

LEGEND:

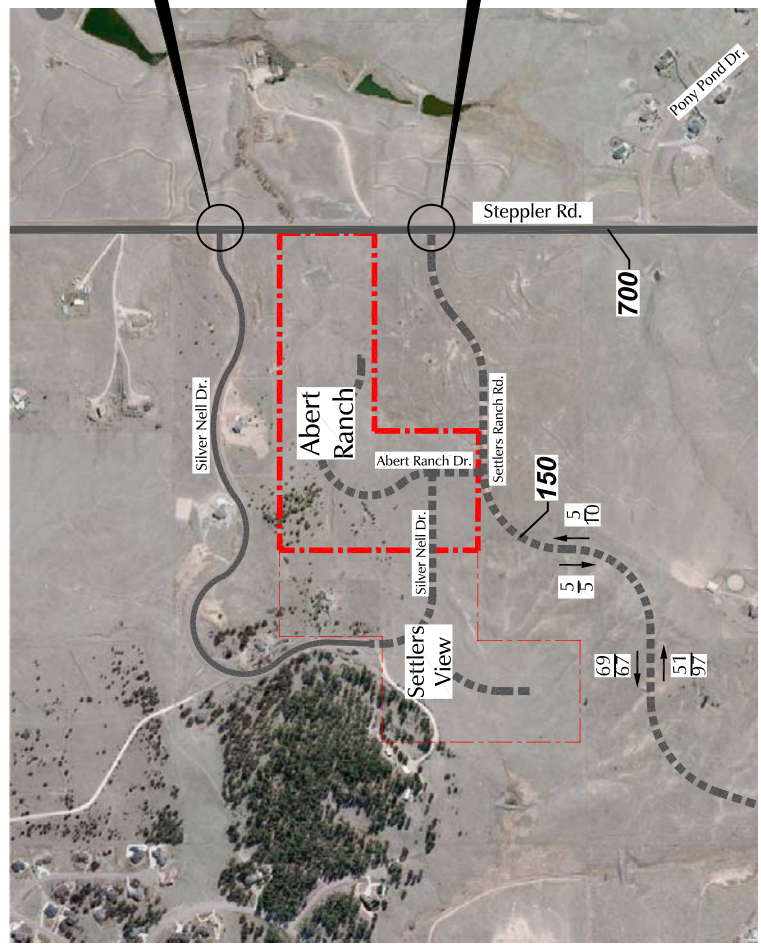
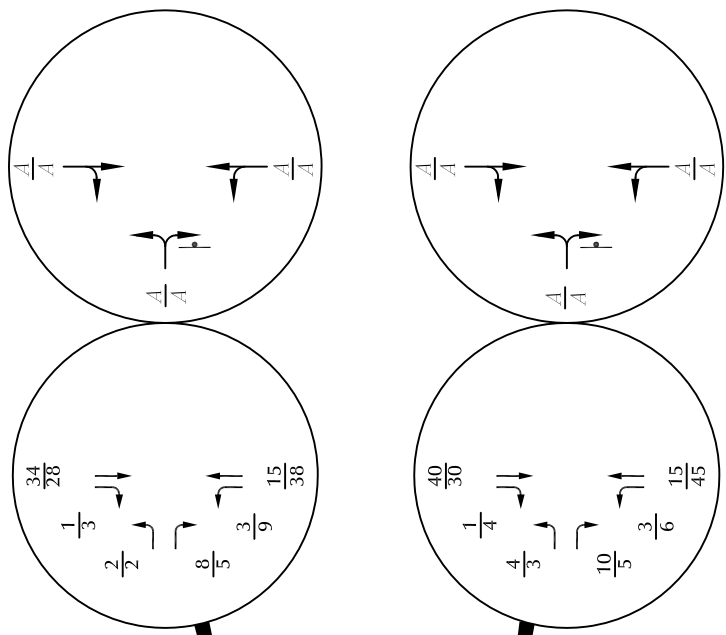
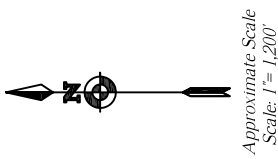
- † = Stop Sign
- $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
PM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
PM Individual Movement Peak-Hour Level of Service
- XXX = Average Weekday Traffic (vehicles per day)

Year 2040 Background Traffic*, Lane Geometry, Traffic Control & Level of Service

Figure 8

Abert Ranch (LSC #164890)





LEGEND:

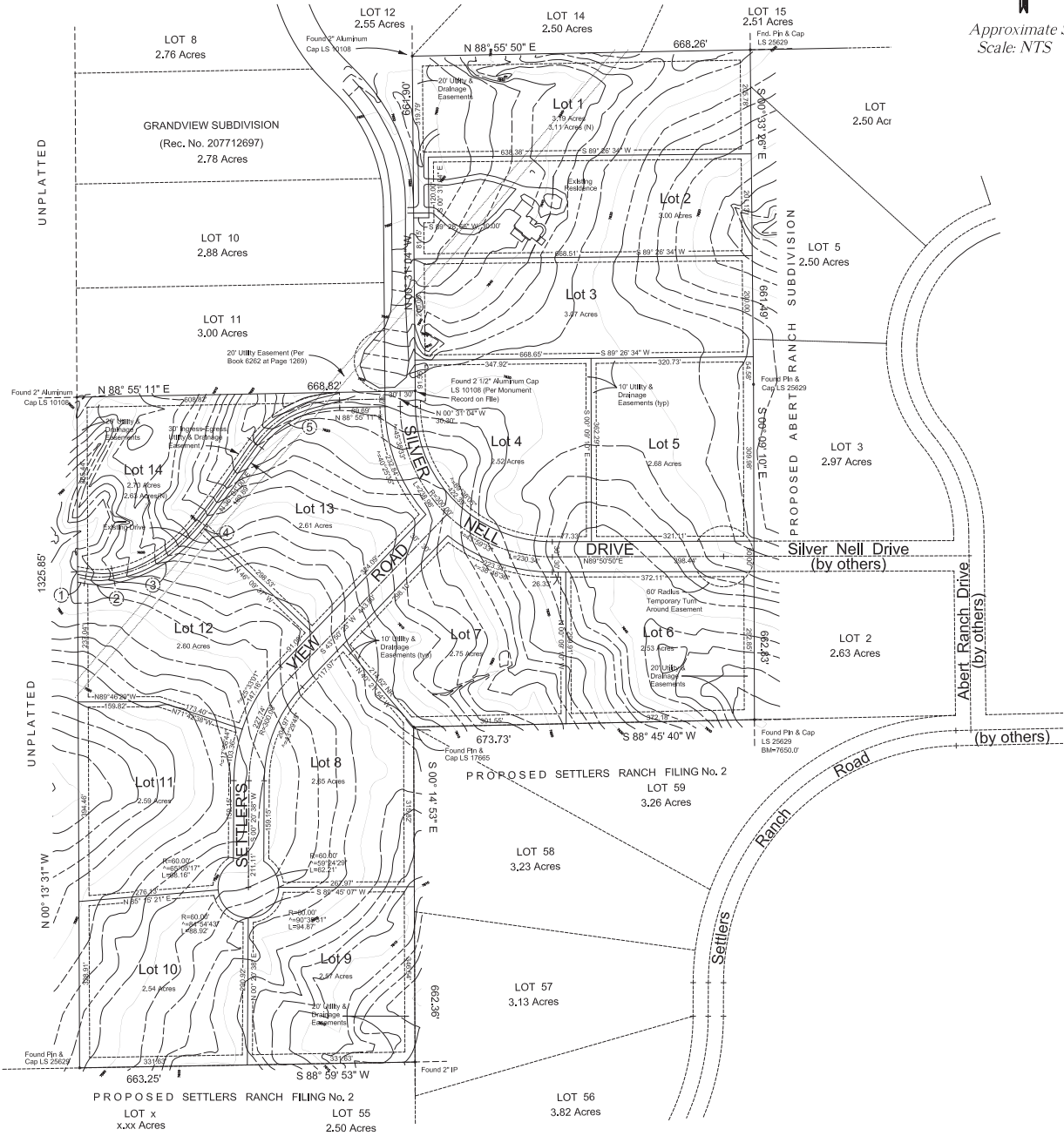
- † = Stop Sign
- $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
- $\frac{A}{B}$ = PM Individual Movement Peak-Hour Level of Service
- XXX = Average Weekday Traffic (vehicles per day)



Figure 9
**Year 2040 Total Traffic, Lane
 Geometry, Traffic Control & Level of Service**
 Abert Ranch (LSC #164890)



Approximate Scale
Scale: NTS

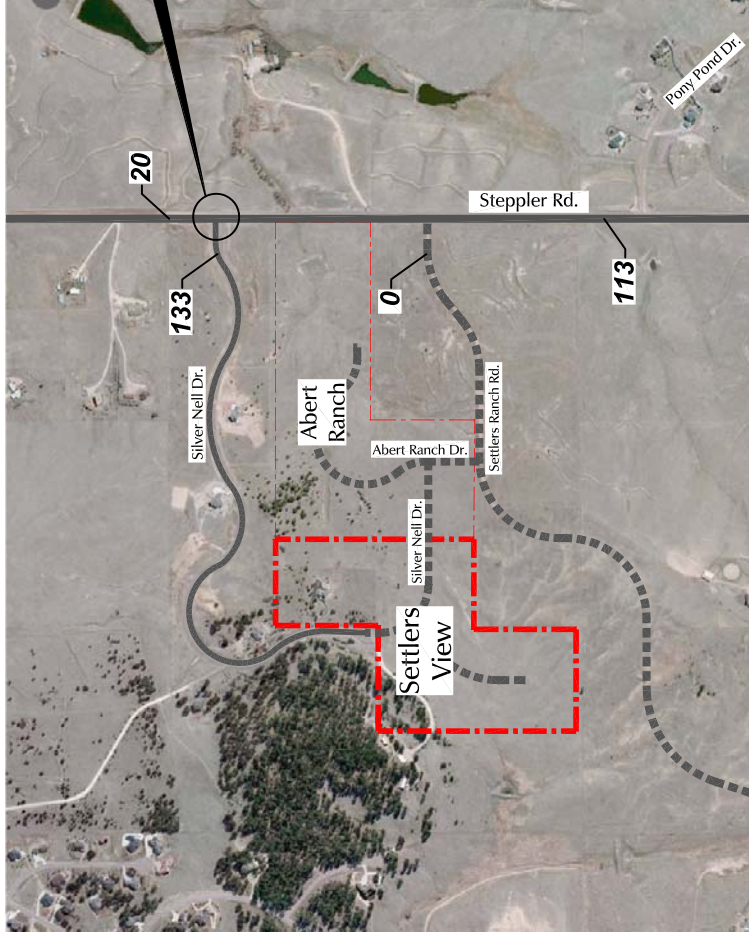
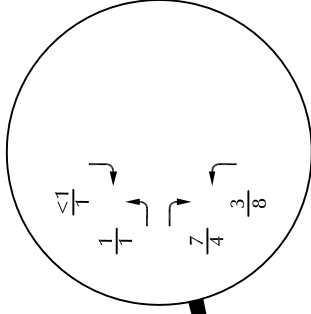


Appendix Figure 1
**Settlers View
Site Plan**
Abert Ranch (LSC #164890)





Approximate Scale
Scale: 1" = 1,200'



Appendix Figure 2

Settlers View Background Traffic

Abert Ranch (LSC #164890)

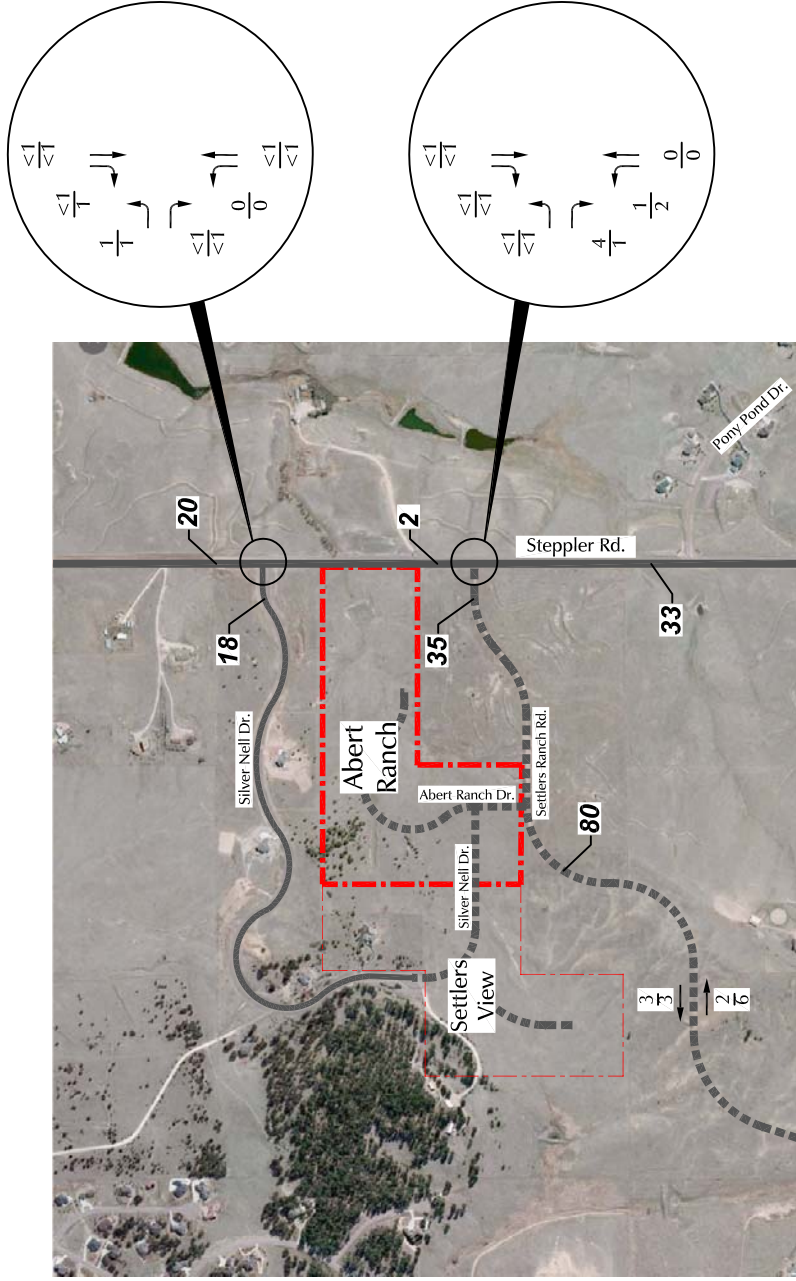
LEGEND:

- XX = AM Weekday Peak-Hour Traffic (vehicles per hour)
- XX = PM Weekday Peak-Hour Traffic (vehicles per hour)
- XXX = Average Weekday Traffic (vehicles per day)





Approximate Scale
Scale: 1" = 1,200'



Appendix Figure 3

Abert Ranch + Settlers View Long-Term Assignment of Site-Generated Traffic

Abert Ranch (LSC #164890)

LEGEND:

- XX = AM Weekday Peak-Hour Traffic (vehicles per hour)
- XX = PM Weekday Peak-Hour Traffic (vehicles per hour)
- XXX = Average Weekday Traffic (vehicles per day)



LSC Transportation Consultants, Inc.

545 E. Pikes Peak Ave., #210

LSC Transportation Consultants, Inc. Colorado Springs, CO 80903 Name : Stepler Rd - Silver Nell Dr AM

(719) 633-2868

Site Code : 00164720

Start Date : 09/01/2016

Page No : 1

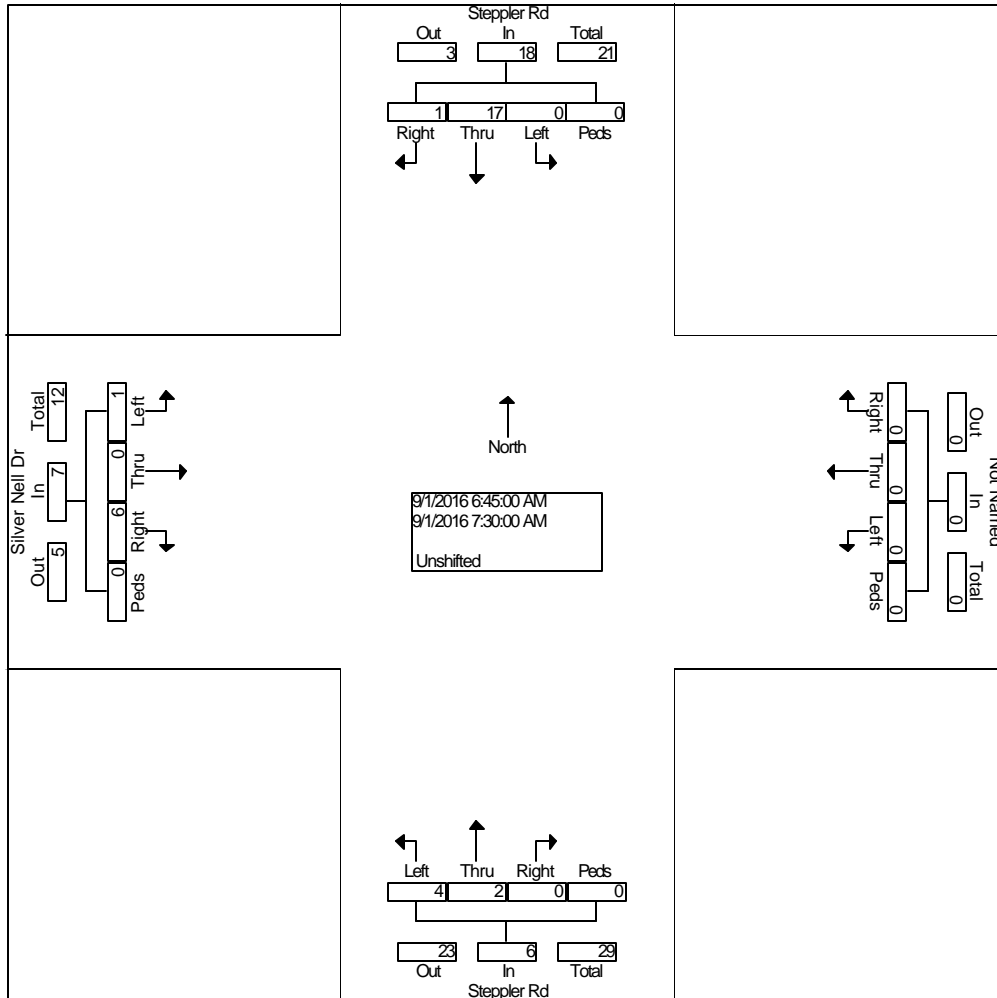
Groups Printed- Unshifted

Start Time	Stepler Rd From North				From East				Stepler Rd From South				Silver Nell Dr From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	4
06:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4
Total	0	4	0	0	0	0	0	0	0	1	0	0	2	0	1	0	8
07:00 AM	1	4	0	0	0	0	0	0	0	1	1	0	2	0	1	0	10
07:15 AM	0	5	0	0	0	0	0	0	0	1	2	0	1	0	0	0	9
07:30 AM	0	5	0	0	0	0	0	0	0	0	1	0	2	0	0	0	8
07:45 AM	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
Total	1	16	0	0	0	0	0	0	0	2	5	0	5	0	1	0	30
08:00 AM	0	0	0	0	0	0	0	0	0	3	1	0	1	0	2	0	7
08:15 AM	0	1	0	0	0	0	0	0	0	4	0	0	1	0	1	0	7
Grand Total	1	21	0	0	0	0	0	0	0	10	6	0	9	0	5	0	52
Apprch %	4.5	95.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	62.5	37.5	0.0	64.3	0.0	35.7	0.0	
Total %	1.9	40.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.2	11.5	0.0	17.3	0.0	9.6	0.0	

LSC Transportation Consultants, Inc.
 545 E. Pikes Peak Ave., #210
 Colorado Springs, CO 80903
 (719) 633-2868

Name : Stepler Rd - Silver Nell Dr AM
 Site Code : 00164720
 Start Date : 09/01/2016
 Page No : 2

Start Time	Stepler Rd From North					From East					Stepler Rd From South					Silver Nell Dr From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	06:45 AM																				
Volume	1	17	0	0	18	0	0	0	0	0	0	2	4	0	6	6	0	1	0	7	31
Percent	5.6	94.4	0.0	0.0		0.0	0.0	0.0	0.0		0.0	33.3	66.7	0.0		85.7	0.0	14.3	0.0		
07:00 Volume	1	4	0	0	5	0	0	0	0	0	0	1	1	0	2	2	0	1	0	3	10
Peak Factor																					
High Int.	07:00 AM																				
Volume	1	4	0	0	5	0	0	0	0	0	0	1	2	0	3	2	0	1	0	3	0.775
Peak Factor	0.90										0.50					0.58					
	0										0					3					



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210

LSC Transportation Consultants, Inc. Colorado Springs, CO 80903
 (719) 633-2868
 Site Name : Stepler Rd - Silver Nell Dr PM
 Site Code : 00164720
 Start Date : 08/30/2016
 Page No : 1

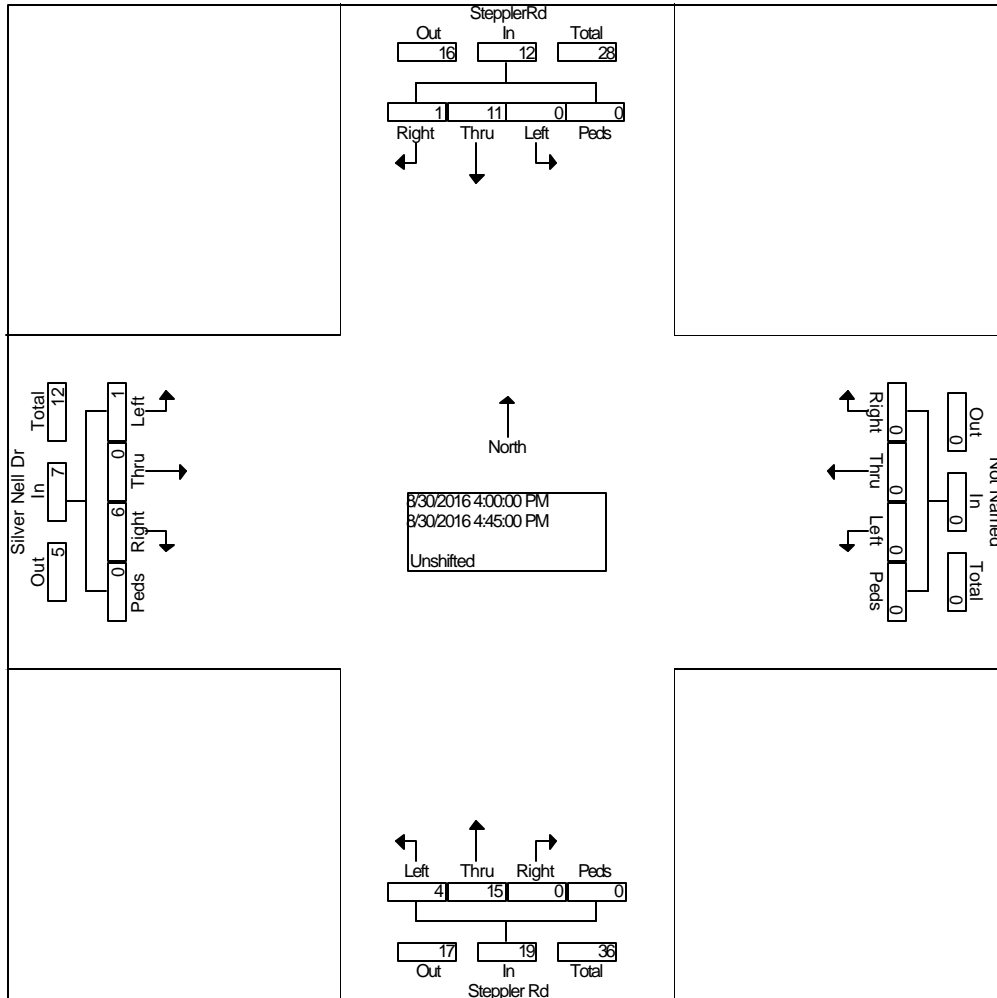
Groups Printed- Unshifted

Start Time	SteplerRd From North				From East				Stepler Rd From South				Silver Nell Dr From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	1	4	0	0	0	0	0	0	0	3	1	0	2	0	0	0	11
04:15 PM	0	1	0	0	0	0	0	0	0	7	1	0	1	0	0	0	10
04:30 PM	0	4	0	0	0	0	0	0	0	2	1	0	2	0	1	0	10
04:45 PM	0	2	0	0	0	0	0	0	0	3	1	0	1	0	0	0	7
Total	1	11	0	0	0	0	0	0	0	15	4	0	6	0	1	0	38
05:00 PM	0	1	0	0	0	0	0	0	0	3	1	0	1	0	1	0	7
05:15 PM	0	3	0	0	0	0	0	0	0	2	3	0	1	0	0	0	9
05:30 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
05:45 PM	0	2	0	0	0	0	0	0	0	3	1	0	1	0	1	0	8
Total	0	6	0	0	0	0	0	0	0	12	5	0	3	0	2	0	28
Grand Total	1	17	0	0	0	0	0	0	0	27	9	0	9	0	3	0	66
Apprch %	5.6	94.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	25.0	0.0	75.0	0.0	25.0	0.0	
Total %	1.5	25.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.9	13.6	0.0	13.6	0.0	4.5	0.0	

LSC Transportation Consultants, Inc.
 545 E. Pikes Peak Ave., #210
 Colorado Springs, CO 80903
 (719) 633-2868

Project Name : Stepler Rd - Silver Nell Dr PM
 Site Code : 00164720
 Start Date : 08/30/2016
 Page No : 2

Start Time	SteplerRd From North					From East					Stepler Rd From South					Silver Nell Dr From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	1	11	0	0	12	0	0	0	0	0	0	15	4	0	19	6	0	1	0	7	38
Percent	8.3	91.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	78.9	21.1	0.0		85.7	0.0	14.3	0.0		
04:00 Volume	1	4	0	0	5	0	0	0	0	0	0	3	1	0	4	2	0	0	0	2	11
Peak Factor																					
High Int.	04:00 PM																				
Volume	1	4	0	0	5	0	0	0	0	0	0	7	1	0	8	2	0	1	0	3	0.864
Peak Factor	0.60										0.59					0.58					
	0										4					3					



Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	6	4	2	17	1
Future Vol, veh/h	1	6	4	2	17	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	7	4	2	18	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	30	19	20	0	-	0
Stage 1	19	-	-	-	-	-
Stage 2	11	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	984	1059	1596	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	981	1059	1596	-	-	-
Mov Cap-2 Maneuver	981	-	-	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	1009	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	4.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1596	-	1047	-	-
HCM Lane V/C Ratio	0.003	-	0.007	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	6	6	15	11	1
Future Vol, veh/h	1	6	6	15	11	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	7	7	16	12	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	41	12	13	0	-	0
Stage 1	12	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	970	1069	1606	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	966	1069	1606	-	-	-
Mov Cap-2 Maneuver	966	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	990	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	2.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1606	-	1053	-	-
HCM Lane V/C Ratio	0.004	-	0.007	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	7	20	2	18	1
Future Vol, veh/h	3	7	20	2	18	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	8	22	2	20	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	66	20	21	0	-	0
Stage 1	20	-	-	-	-	-
Stage 2	46	-	-	-	-	-
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	939	1058	1595	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	926	1058	1595	-	-	-
Mov Cap-2 Maneuver	926	-	-	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	962	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	6.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1595	-	1015	-	-
HCM Lane V/C Ratio	0.014	-	0.011	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	22	13	15	13	4
Future Vol, veh/h	2	22	13	15	13	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	24	14	16	14	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	61	16	18	0	-	0
Stage 1	16	-	-	-	-	-
Stage 2	45	-	-	-	-	-
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	945	1063	1599	-	-	-
Stage 1	1007	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	936	1063	1599	-	-	-
Mov Cap-2 Maneuver	936	-	-	-	-	-
Stage 1	1007	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	1051	-	-
HCM Lane V/C Ratio	0.009	-	0.025	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	8	3	13	33	0
Future Vol, veh/h	1	8	3	13	33	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	9	3	14	36	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	57	36	36	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	21	-	-	-	-	-
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	950	1037	1575	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	948	1037	1575	-	-	-
Mov Cap-2 Maneuver	948	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	1000	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1575	-	1026	-	-
HCM Lane V/C Ratio	0.002	-	0.01	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	3	1	14	43	1
Future Vol, veh/h	2	3	1	14	43	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	3	1	15	47	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	64	47	48	0	-	0
Stage 1	47	-	-	-	-	-
Stage 2	17	-	-	-	-	-
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	942	1022	1559	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	1006	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	941	1022	1559	-	-	-
Mov Cap-2 Maneuver	941	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	1005	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1559	-	988	-	-
HCM Lane V/C Ratio	0.001	-	0.006	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	5	9	37	26	2
Future Vol, veh/h	2	5	9	37	26	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	5	10	40	28	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	89	29	30	0	-	0
Stage 1	29	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	912	1046	1583	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	907	1046	1583	-	-	-
Mov Cap-2 Maneuver	907	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1583	-	1002	-	-
HCM Lane V/C Ratio	0.006	-	0.008	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	3	3	48	32	2
Future Vol, veh/h	1	3	3	48	32	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	3	3	52	35	2




Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	95	36	37	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	59	-	-	-	-	-
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	905	1037	1574	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	903	1037	1574	-	-	-
Mov Cap-2 Maneuver	903	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	962	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1574	-	1000	-	-
HCM Lane V/C Ratio	0.002	-	0.004	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	8	3	15	34	1
Future Vol, veh/h	2	8	3	15	34	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	9	3	16	37	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	60	37	38	0	0
Stage 1	37	-	-	-	-
Stage 2	23	-	-	-	-
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	947	1035	1572	-	-
Stage 1	985	-	-	-	-
Stage 2	1000	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	945	1035	1572	-	-
Mov Cap-2 Maneuver	945	-	-	-	-
Stage 1	985	-	-	-	-
Stage 2	998	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1572	-	1016	-	-
HCM Lane V/C Ratio	0.002	-	0.011	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	10	3	15	40	1
Future Vol, veh/h	4	10	3	15	40	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	11	3	16	43	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	67	44	45	0	-	0
Stage 1	44	-	-	-	-	-
Stage 2	23	-	-	-	-	-
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	938	1026	1563	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	1000	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	936	1026	1563	-	-	-
Mov Cap-2 Maneuver	936	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	998	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1563	-	999	-	-
HCM Lane V/C Ratio	0.002	-	0.015	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	5	9	38	28	3
Future Vol, veh/h	2	5	9	38	28	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	5	10	41	30	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	93	32	34	0	-	0
Stage 1	32	-	-	-	-	-
Stage 2	61	-	-	-	-	-
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	907	1042	1578	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	962	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	902	1042	1578	-	-	-
Mov Cap-2 Maneuver	902	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1578	-	998	-	-
HCM Lane V/C Ratio	0.006	-	0.008	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	5	6	45	30	4
Future Vol, veh/h	3	5	6	45	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	5	7	49	33	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	97	35	37	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	62	-	-	-	-	-
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	902	1038	1574	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	897	1038	1574	-	-	-
Mov Cap-2 Maneuver	897	-	-	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1574	-	980	-	-
HCM Lane V/C Ratio	0.004	-	0.009	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-