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November 7, 2018

Mr. Bill Guman, RLA, ASLA  
William Guman & Associates, Ltd.  
731 North Weber Street, Suite 10  
Colorado Springs, CO 80903

RE: Judge Orr RV Park  
El Paso County, CO  
PPR-16-040  
Letter of Amendment - UPDATED  
LSC #164650

Dear Mr. Guman,

LSC Transportation Consultants, Inc. has prepared this updated Letter of Amendment to the previously completed traffic report for Meadowlake Commons (prepared by Springs Engineers in 2008 when the property was zoned to PUD). This report addresses the proposed Judge Orr RV Park to be located northeast of the intersection of Judge Orr Road and Cessna Drive in El Paso County, Colorado. The proposed RV park and storage site is a forty-acre portion of the former Meadowlake Commons PUD site.

## **REPORT CONTENTS**

The report contains the following:

- Existing street and traffic conditions adjacent to the site including intersection lane geometries, traffic controls, posted speed limits, street classifications, etc.
- Existing peak-hour turning movement traffic counts at the intersection of Judge Orr Road/Cessna Drive and estimates of future background traffic volumes.
- Description of the proposed land uses.
- Estimates of the average weekday and peak-hour vehicle-trips to be generated by the site.
- Assigned site-generated projected traffic volumes to and the access point intersection.
- Resulting traffic impacts from the site.
- Findings and recommendations.

## LAND USE AND ACCESS

The proposed Judge Orr RV Park site is located northeast of the intersection of Judge Orr Road and Cessna Drive in El Paso County, Colorado. US Highway 24 intersects with Judge Orr Road approximately 0.4 miles west of the proposed site. The 39.9-acre RV park development is planned to contain 120 recreational vehicle camp sites at buildout. RV/vehicle storage is also proposed. Figure 1 provides a visual of the site relative to the nearby roadway network.

Access is proposed to Judge Orr Road via two new access driveways, one which would align with the existing Cessna Drive/Judge Orr Road intersection and the second (emergency access only) located approximately 1,000 feet to the east. No apparent sight distance restrictions at the proposed site access points were evident at the time of the field visit.

The PUD Commercial development to the west will share access to Judge Orr Road (aligning with Cessna Drive) with this RV park site.

Proposed site land uses were categorized using the *Trip Generation Manual, 10<sup>th</sup> Edition, 2017* by the Institute of Transportation Engineers (ITE). The following ITE land use codes were used for trip generation estimates for the proposed site:

- Mini Warehouse – 151
- Campground/RV Park – 416
- RV/Vehicle Storage – (No ITE category) Trip generation rates developed by LSC based on actual 2018 counts at area RV storage facilities.

A diagram of the site relative to the remainder of the former overall Meadowlake Commons PUD is attached in Figure 2. Also attached is a phasing exhibit.

## ROAD AND TRAFFIC CONDITIONS

### Area Roads

Figure 1 shows the roads in the vicinity of the site. The major roads are identified below followed by a brief description of each:

**US Highway 24** extends northeast from Colorado Springs through unincorporated El Paso County and is classified as a four-lane Expressway in the *El Paso County 2040 Major Transportation Corridors Plan (MTCP)*. The intersection of US 24/Judge Orr Road is signalized, with protected-permitted left-turn phases for eastbound left-turning vehicles on US 24. Both the eastbound and westbound approaches on Judge Orr Road are single-lane approaches with split phasing.

**Judge Orr Road** is currently classified as a two-lane Minor Arterial in El Paso County's 2040 *MTCP*. The preserved corridors plan shows a four-lane minor arterial. Judge Orr Road extends west approximately 0.7 miles to the intersection of Eastonville Road/Meridian Ranch Boulevard, and

east to North Davenport Road. There are currently no turn lanes at existing driveways along Judge Orr Road within the study area limits. Adjacent to the site, the posted speed limit is 45 mph.

**Cessna Drive** is the two-lane entrance to Meadow Lake Airport. The Cessna Drive intersection with Judge Orr Road is Stop-sign controlled.

**Future East-West Road along the North Property Line:** The site plan shows a future road easement to accommodate a future east-west roadway as depicted on the Stapleton Corridor Plan (attached for reference). This road is shown to extend from the future US Highway 24 frontage Road to parcel number 4233000015 which is just over one-half mile to the east. The intent is to provide access and circulation to properties within the area bounded by US Highway 24, Curtis Road, and Judge Orr Road. This road and others were identified as needed due to the access control plans for US Highway 24 and Stapleton Drive.

### Traffic Volumes

Turning movement counts were conducted from 4:00 to 6:00 p.m. on Tuesday, August 11, 2016 and from 6:30 to 8:30 a.m. on Tuesday, August 16, 2016 at the intersection of Judge Orr Road/Cessna Drive. Existing evening weekday peak-hour traffic volumes at this intersection are shown in Figure 3. Count reports are attached. Figure 3 also shows the estimates of average daily traffic volumes on Judge Orr Road (based on factored peak-hour counts).

Expand narrative for Cessna Drive (proposed). Explain this is a proposed access with the intent by the applicant convert/dedicate to El Paso County as a public roadway.

### TRIP GENERATION

Estimates of the vehicle-trips projected to be generated by the proposed development have been made using the nationally published trip generation rates from *Trip Generation, 9<sup>th</sup> Edition, 2012* by the Institute of Transportation Engineers (ITE). Land use category/code 814 – Variety Store and corresponding trip generation rates from the *Trip Generation Manual, 9<sup>th</sup> Edition, 2012* by the Institute of Transportation Engineers (ITE) have been used to develop the trip generation estimates.

### Driveway Trips

Table 1 presents a summary of the estimated site trip generation for Phase 1 and site buildout. The detailed trip generation estimate for the development, including ITE rates for the proposed land use, is presented in Table 6.

**Table 1: Estimated Site Vehicle-Trip Generation**

<b>Analysis Period</b>	<b>In</b>	<b>Out</b>	<b>Total</b>
<b>Phase 1</b>			
A.M. Peak Hour	13	12	25
P.M. Peak Hour	18	17	35
Daily 24-Hour	71	71	142
<b>Buildout</b>			
A.M. Peak Hour	18	22	40
P.M. Peak Hour	30	24	54
Daily 24-Hour	110	110	219

### **Phase 1**

Only 48 of the 120 planned campground sites are scheduled to be developed for Phase 1. All 431 proposed RV/vehicle storage spaces and 77 mini warehouse storage units are scheduled to be constructed during Phase 1. During Phase 1 only, the proposed site is projected to generate about 142 total vehicle-trips on the average weekday during a 24-hour period. During the morning peak hour, approximately 13 vehicles would enter and 12 vehicles would exit the site. During the evening peak hour, approximately 18 vehicles would enter and 17 vehicles would exit the site.

### **Buildout (Phases 1 and 2)**

During the long-term buildout analysis period, the remaining 72 of the 120 total planned campground sites will have been constructed. All 431 proposed RV/vehicle storage spaces and 77 mini warehouse storage units are scheduled to have already been constructed during Phase 1. During the long-term buildout phase, the proposed site is projected to generate about 219 total vehicle-trips on the average weekday during a 24-hour period. During the morning peak hour, approximately 18 vehicles would enter and 22 vehicles would exit the site. During the evening peak hour, approximately 30 vehicles would enter and 24 vehicles would exit the site.

## **TRIP GENERATION COMPARISON**

### **Previously Approved Land Use**

Judge Orr RV Park is located in the 39.9-acre southeast portion of the previously approved Meadowlake Commons Zoning and Conceptual Plan (ZCP), which was approved on September 21, 2010. The southeast portion of the concept plan, which will be replaced by the RV park, showed 18.71 acres of proposed retail/office land use and 3.81 acres of proposed retail/restaurant land use.

**Trip Generation Estimate and Comparison**

The previously completed traffic report (prepared by Springs Engineers in 2008 when the property was zoned to PUD) contained vehicle-trip estimates for the entire Meadowlake Commons development. In order to provide an accurate trip generation comparison between the previously approved land uses and the proposed RV park, only trips generated from the 39.9-acre southeast portion of the Meadowlake Commons ZCP were considered. Springs Engineers estimated that the previous retail/office and retail/restaurant land uses would generate 6,331 vehicle-trips on an average weekday, with 142 total trips during the morning peak hour and 550 total trips during the afternoon peak hour. Table 2 compares the change in trip generation estimates from the previously-approved site plan with estimates for Phase 1 and after long-term site buildout.

**Table 2: Change in Trip Generation Estimates by Site Plan**

Scenario	Avg Weekday Traffic	A.M.			P.M.		
		In	Out	Total	In	Out	Total
<b>Phase 1</b>							
Previously-Approved Land Use	6331	89	53	142	264	286	550
Phase 1	142	13	12	25	18	17	35
<b>Change in Trip Generation</b>	<b>-6189</b>	<b>-76</b>	<b>-41</b>	<b>-117</b>	<b>-246</b>	<b>-269</b>	<b>-515</b>
<b>Buildout</b>							
Previously-Approved Land Use	6331	89	53	142	264	286	550
Buildout	219	18	22	40	30	24	54
<b>Change in Trip Generation</b>	<b>-6112</b>	<b>-71</b>	<b>-31</b>	<b>-102</b>	<b>-234</b>	<b>-262</b>	<b>-496</b>

**Phase 1**

During the morning peak hour of Phase 1, approximately 76 and 41 fewer vehicles are projected to enter and exit the site compared the previously approved site plan. About 246 and 269 fewer vehicles are projected to enter and exit the site during the evening peak hour, respectively, based on the most recently approved site layout. The site is expected to generate about 6,189 fewer daily vehicle-trips during Phase 1 than the estimate of 6,331 “new” trips for the land uses shown on the approved Meadowlake Commons ZCP for the southeast 39.9-acre parcel. A detailed summary of this trip generation comparison is attached in Table 6.

**Buildout (Phases 1 and 2)**

During the morning peak hour after site buildout, approximately 71 and 31 fewer vehicles are projected to enter and exit the site, respectively, compared to the previously approved site plan. Approximately 2,341 and 262 fewer vehicles would enter and exit the site, respectively, upon total site buildout than were estimated based on the existing and approved land uses. The site is expected to generate about 6,112 fewer daily vehicle-trips during Phase 1 than the estimate of 6,331 “new” non-pass-by trips for the land uses shown on the approved Meadowlake Commons ZCP for the southeast 39.9-acre parcel.

## **TRIP DISTRIBUTION AND ASSIGNMENT**

### **Trip Directional Distribution**

An estimate of the directional distribution of site-generated vehicle-trips to the study area roads and intersections is a necessary component in determining the site's traffic impacts. The directional distribution estimate for the site-generated trips is shown on both Figure 4 and Figure 5. The figures show 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: existing area development, the area roadway system, and the site's proposed land use.

### **Phase 1**

Phase 1 site-generated traffic volumes at the intersection of the proposed site access intersection with Judge Orr/Cessna have been calculated by applying the directional distribution percentages estimated by LSC (from Figure 4) to the trip generation estimates (from Table 1). Figure 4 shows the projected Phase 1 site-generated traffic volumes for the weekday afternoon and evening peak hours.

### **Buildout**

Long-term site-generated traffic volumes at the intersection of the proposed site access intersection with Judge Orr/Cessna have been calculated by applying the directional distribution percentages estimated by LSC (from Figure 5) to the trip generation estimates (from Table 1). Figure 5 shows the projected buildout site-generated traffic volumes for the weekday afternoon and evening peak hours.

## **SHORT TERM TRAFFIC PROJECTIONS**

Figure 6 shows the sum of the existing 2017 traffic volumes (from Figure 3) and Phase 1 site-generated peak-hour traffic volumes (shown in Figure 4). These volumes represent the projected short-term total traffic following Phase 1.

Figure 7 shows projected short-term background traffic. These volumes represent estimated 2020 traffic assuming a three-percent-per-year annual growth rate. These volumes assume no development yet completed on the adjacent PUD site.

Figure 8 shows the sum of the projected short-term background traffic volumes (from Figure 7) and buildout (Phases 1 and 2) site-generated peak-hour traffic volumes (shown in Figure 5). These volumes represent the projected short-term total traffic following site buildout completion of Phases 1 and 2 but prior to any development on the adjacent PUD site to the west.

**2040 LONG-TERM TOTAL TRAFFIC**

Figure 9 shows the sum of projected 2040 background traffic volumes and buildout site-generated peak-hour traffic volumes (shown in Figure 5). These volumes represent the projected long-term total traffic including Phases 1 and 2 of the site-generated traffic. The 2040 background/baseline through traffic volumes on Judge Orr Road are based on approximately a three-percent-per-year annual growth rate. The background traffic includes preliminary estimates of traffic to be generated by the adjacent PUD commercial/business park site and an estimate of other traffic generated by potential future development to the north and east of this site. A copy of the preliminary trip generation estimate for the adjacent PUD commercial site is attached for reference.

The Stapleton Corridor study preferred access control concept was used as the basis for the area future road system. The area background traffic estimates indicate a rough estimate of approximately 6,000 vehicles per day on the north/south access road north of Cessna Drive (along the west side of the site). This volume may vary considerably depending on area land uses, trip generation intensity, timing of development, and actual road connections.

**LEVEL OF SERVICE ANALYSIS**

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

**Table 3: Intersection Levels of Service Delay Ranges**

Level of Service	Signalized Intersections		Unsignalized Intersections
	Average Control Delay (seconds/vehicle)	V/C <sup>(1)</sup>	Average Control Delay (seconds/vehicle) <sup>(2)</sup>
A	≤ 10.0	< 0.60	≤ 10.0
B	10.1 – 20.0	0.60 – 0.69	10.1 – 15.0
C	20.1 – 35.0	0.70 – 0.79	15.1 – 25.0
D	35.1 – 55.0	0.80 – 0.89	25.1 – 35.0
E	55.1 – 80.0	0.90 – 0.99	35.1 – 50.0
F	≥ 80.1	≥ 1.00	≥ 50.1

(1)Source: *Transportation Research Circular 212*  
 (2)For unsignalized intersections, if V/C is > 1.00, then LOS is LOS F regardless of the projected average control delay per vehicle.

The proposed access intersection on Judge Orr Drive has been analyzed to determine the projected control delay and corresponding levels of service and for the key turning movements.

As the intersection is/will be two-way Stop-sign controlled (TWSC), traffic on the southbound and northbound approaches incur delay given the Stop-sign control.

### Morning Peak Hour

A summary of current and projected 2040 traffic conditions during the morning peak hour—both with and without considering site-generated traffic—is shown in Table 4. LOS and control delays during the morning peak hour are shown in this table. Detailed Synchro reports are attached.

**Table 4: Level of Service Comparison by Scenario (Morning Peak)**

Analysis Period	EB*	SB L/R
<b>LOS</b>		
2017 Existing	-	-
2017 Existing + Site (Phase 1)	A	A
2040 Background	A	F
2040 Background + Site (Buildout)	A	F
* Phase 1 - Shared EB left/through/right turn lane Buildout - Separate EB left turn lane		

The eastbound left-turning movement at the proposed site access intersection with Judge Orr currently operates at LOS A and is projected to remain at LOS A for all short- and long-term morning peak-hour traffic conditions, with or without development.

The southbound left-turning movement currently operates at LOS A but is projected to operate at LOS F during the long-term morning peak-hour, with or without this development (background and total volumes). Despite the LOS F projection, the volume-to-capacity (v/c) ratio for this turning movement is projected to be no higher than 0.57 during the long term, regardless of site buildout.

### Evening Peak Hour

A summary of current and projected 2040 background traffic conditions during the evening peak hour—both with and without considering site-generated traffic—is shown in Table 5. LOS and control delays during the weekday evening peak hour are shown in this table. Detailed Synchro reports are attached.

The applicant's intent is to eventually convert this proposed Cessna Dr as a public road.

1. Provide an explanation regarding (v/c). Is there a corresponding LOS to (v/c) for unsignalized? You may want to include that on Table 3.
2. With the LOS F for long term projection, discuss what steps can be taken to bring the intersection to a satisfactory level since the applicant is planning to eventually convert Cessna Dr to a public road and dedicate to the County. The LOS will need to be resolved with the TIS of the adjacent property's PUD application.



**Table 5: Level of Service Comparison by Scenario (Weekday P.M. Peak)**

Analysis Period	EB*	SB L/R
<b>LOS</b>		
2017 Existing	-	-
2017 Existing + Site (Phase 1)	A	A
2040 Background	A	E
2040 Background + Site (Buildout)	A	F
* Phase 1 - Shared EB left/through/right-turn lane Buildout - Separate EB left-turn lane		

The eastbound left- and southbound left-turning movements at this intersection are projected to operate at LOS A for all short-term evening traffic conditions upon site buildout. During the long term, the eastbound left-turning movement is projected to remain at LOS A, with or without development. The southbound left-turning movement is projected to operate at LOS E or worse during the long-term evening peak hour, with or without site buildout. However, the v/c ratio for the southbound approach is projected to be no worse than 0.60 in either scenario.

**PROPOSED ENTRY ROAD INFRASTRUCTURE**

The entry drive shown on the site plan would extend north from the existing Judge Orr Road/Cessna Drive intersection and would serve as the access to this site as well as the commercial PUD site immediately adjacent to the west. As requested by staff, this report contains estimates of potential future traffic volumes that may be generated by area parcels to the north and east if this north/south access road is added to the roadway plan shown on the Stapleton Corridor Study. Estimates by LSC as described in the Background Traffic section indicate volumes in the Urban Collector range of ADT. Figure 10 shows the proposed lane configuration of this street with Phase 1 of the RV Park only. Figure 11 shows the proposed lane configuration for the long term including the buildout of the adjacent PUD. This long-term lane configuration accounts for future Judge Orr widening as indicated by the 2040 MTCP.

**QUEUING ANALYSIS**

A queuing analysis was performed using Synchro/SimTraffic for the planned north/south access road between Judge Orr Road and the south access to the RV park. The 2040 total morning and afternoon peak-hour traffic volumes were entered into the Synchro model. The simulation was run five times. The queuing reports are attached.

Based on the projected 2020 total traffic volumes, the projected maximum southbound left-turn queue approaching Judge Orr Road is 106 feet and the maximum northbound left-turn queue approaching the site access point is 53 feet. These queues could be accommodated if the north/south street is configured as shown in Figure 11. Please refer Table 6 below.

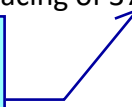
**Table 6:  
 Auxiliary Turn Lane Analysis  
 Comparison of ECM-Standard Component Lengths to Proposed  
 & Queuing Analysis Results**

Comparison Items	Judge Orr Road/ Cessna Dr.			Cessna Dr./RV Park Access (east) /Future PUD Access (west)
	SB LT	SB TH	SB RT	NB Left Turn
<b>Comparison of ECM-Standard Turn Lane Elements to Proposed</b>				
<b>Taper Lengths (ft)</b>				
ECM Standard (ft)	160	--	160	160
Proposed Lengths (ft)	60	--	60	60
Difference from ECM Standard (ft)	-100	--	-100	-100
<b>Deceleration Lengths (ft)</b>				
ECM Standard (ft)	155	--	155	155
Proposed Lengths (ft)	25	--	0	0
Difference from ECM Standard (ft)	-130	--	-155	-155
<b>Stacking Distances (ft)</b>				
ECM Standard (ft)	100	--	300	200
Proposed Lengths (ft)	100		170	75
Difference from ECM Standard (ft)	0		-130	-125
<b>SimTraffic Queuing Results</b>				
<b>Queuing (AM Peak Hour)**</b>				
Maximum Queue (ft)	106		72	53
Upstream Block Time (%)	0%		0%	0%
Storage Block Time (%)	0%		0%	0%
<b>Queuing (PM Peak Hour)**</b>				
Maximum Queue (ft)	103		131	31
Upstream Block Time (%)	0%		0%	0%
Storage Block Time (%)	1%		0%	0%
* Represents the distance between the intersections. ** These are ECM-standard Urban Collector values. ***Maximum queues reported in SimTraffic analysis are shown. ECM Table 2-26 shows general values for bay taper lengths for 12' lanes by design speed.				

**INTERSECTION SIGHT DISTANCE ANALYSIS**

Figure 12 presents an analysis of the intersection sight distance at the proposed RV Park access. ECM Table 2-35 indicates an entering sight distance requirement of 455 feet for an access where single unit trucks are the design vehicle. The proposed spacing of 374 feet would be short of the

Double check. Fig. 10 & 11 both noted 274. Update one or the other to match.



455-foot spacing by 81 feet assuming the sight distance line of sight to the center of the Judge/Orr Cessna intersection. This is based on a 35-mph roadway (Urban Collector). The sight distance analysis in Figure 12 demonstrates acceptable intersection and stopping sight distance for the access. The entering sight distance required is shorter when considering the slower speed of vehicles turning left and right from Judge Orr Road. Also, the line of sight for northbound vehicles from the south side of Judge Orr is greater than 355 feet. Also, the northbound approach at Judge Orr is a Stop condition - therefore, the 35-mph posted speed is not likely to be reached at the time the arriving vehicle is seen by the motorist at the access.

Note: There would be adequate stopping sight distance- 250' per ECM table 2-33 and 305' per AASHTO.

#### **DEVIATIONS INCLUDED WITH THIS SUBMITTAL**

- Intersection spacing along an Urban Collector
- Auxiliary turn lane lengths on an Urban Collector

#### **FINDINGS AND CONCLUSIONS**

- Significantly fewer vehicle-trips would be generated by the proposed Judge Orr RV Park than if the site were developed per the approved Zoning Conceptual Plan.
- The eastbound left-turning movement at the site access/Cessna Drive intersection is projected to continue to operate at a satisfactory level of service based on the projected existing plus site-generated and 2040 total traffic volumes.
- The southbound left-turning movement is projected to operate at LOS E or worse during all long-term traffic scenarios, with or without site buildout. However, the volume-to-capacity for the southbound approach is not projected to exceed 0.60 during any of those long-term scenarios.
- LSC recommends an **Urban Collector** roadway classification for the proposed Cessna Road extension to the north of Judge Orr Road. This proposed roadway is projected to have the potential to carry traffic volumes in the Urban Collector ADT range. The intent is for the applicant to dedicate this road to the County when subdividing this and the adjacent property to the west. For the County to accept this road it must be built to county standards. The spacing of the first proposed intersection north of Judge Orr Road is proposed to be 374 feet north of Judge Orr Road (centerline spacing). As this spacing is less than the ECM prescribed spacing of 660 feet, a deviation has been prepared and submitted. This RV park access will be the east leg of this future intersection, and the future west leg will extend west into the PUD commercial site. The applicant will be required to submit street construction plans for the street and cul-de-sac being constructed with this application.

For clarity use ECM Nomenclature (Urban Non-Residential Collector).

- Figures 10 and 11 show the proposed short- and long-term laneage plans for the extension of Cessna Drive north from Judge Orr Road to the RV park access intersection (and future access into the PUD commercial site to the west). The vehicle queuing analysis indicates that the lane lengths proposed will be able to accommodate the estimated future buildout traffic (shown in Figure 11 of the area north of Judge Orr Road. However, as the lanes do not meet ECM standard lengths, a deviation has been prepared and submitted for these turn lane lengths.
- Based on the buildout trip generation and traffic analysis included in this report, the *Engineering Criteria Manual* threshold for an eastbound left-turn lane on Judge Orr Road would be met. However, although this report includes a Phase 1 analysis for the storage plus 48 RV campsites. The requirement for the eastbound left-turn lane would not be triggered with the first phase. Once the first phase is completed and after the RV park and storage facility open, actual traffic data could be collected. Based upon actual trip generation and turning movement data, the future need for a left-turn lane at buildout could be reevaluated.
- This project will be required to participate in the El Paso County Road Improvement Fee Program. For the RV park land use, the most applicable established fee program land use category is Hotel/Motel. However, ITE peak-hour trip generation rates used in this report reflect lower peak-hour trip generation per unit when compared to ITE peak-hour rates for Hotel/Motel. Per fee program guidelines, an independent study would be needed to utilize a land use category/unit rate other than those shown in the "Road Impact Fee Schedule."

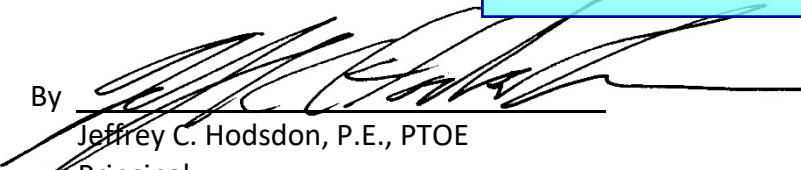
\* \* \* \*

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 11 – 12  
Preliminary Trip Generation Estimate for the PUD Commercial  
Traffic Count Reports  
Level of Service Reports  
Queuing Reports  
Site Plan Exhibit

Per comments on the Site Plan, include a recommendation for a required offset between the northern access gate and the road to ensure queue to enter does not block traffic on the main road.

**Table 6: Detailed Trip Generation Estimate**

ITE		Value	Units	Trip Generation Rates <sup>(1)</sup>				Driveway Trips Generated					
				Avg Weekday Traffic	A.M.		P.M.		Avg Weekday Traffic	A.M.		P.M.	
Code	Description			In	Out	In	Out	In	Out	In	Out		
<b>Previously-Approved Land Use (Meadowlake Commons ZCP)</b>													
820	Shopping Center	148.27	KSF	42.70	0.60	0.36	1.78	1.93	6331	89	53	264	286
<b>Phase 1</b>													
416	Campground/RV Park	48	Occupied Campsites	1.06	0.08	0.13	0.18	0.09	51	4	6	8	5
---	RV/Vehicle Storage	3.879	Hundred Occupied Spaces	20.00	2.28	1.37	1.98	2.81	78	9	5	8	11
151	Mini Warehouse	0.77	Hundred Storage Units	17.96	0.71	0.68	2.07	2.07	14	1	1	2	2
<b>Total</b>								<b>142</b>	<b>13</b>	<b>12</b>	<b>18</b>	<b>17</b>	
<b>Buildout</b>													
416	Campground/RV Park	120	Occupied Campsites	1.06	0.08	0.13	0.18	0.09	127	9	16	21	11
---	RV/Vehicle Storage	3.879	Hundred Occupied Spaces	20.00	2.28	1.37	1.98	2.81	78	9	5	8	11
151	Mini Warehouse	0.77	Hundred Storage Units	17.96	0.71	0.68	2.07	2.07	14	1	1	2	2
<b>Total</b>								<b>219</b>	<b>18</b>	<b>22</b>	<b>30</b>	<b>24</b>	
<b>Change in Trip Generation</b>													
								Phase 1	<b>-6189</b>	<b>-76</b>	<b>-41</b>	<b>-246</b>	<b>-269</b>
								Site Buildout	<b>-6113</b>	<b>-71</b>	<b>-31</b>	<b>-234</b>	<b>-262</b>

(1) Source: *Trip Generation, 10<sup>th</sup> Edition, 2017* by the Institute of Transportation Engineers (ITE)



Approximate Scale  
Scale: 1" = 2,000'

Figure 1  
**Vicinity  
Map**

Honeywood RV Park (LSC #164650)

Note: Future intersection Judge Orr/Frontage Rd./Blue Gill (realigned shown at 650' east of the Judge Orr/US 24 intersection on the current PEL study. Change to prior US 24 access management plan has not yet been adopted.

Approximate Scale  
Scale: 1" = 600'

Remaining portion of the original Meadowlake Commons Sketch Plan site;  
Current application: Commercial PUD site (LSC #174540)

ROW for east-west future roadway along the N. side of the site

SITE:  
Proposed RV Park (39.9 acres)

RV Park & Storage  
West Site Full  
Movement Access

East Site Access-  
Emergency Only

Cessna Drive

Judge Orr Road

700'


1,000'

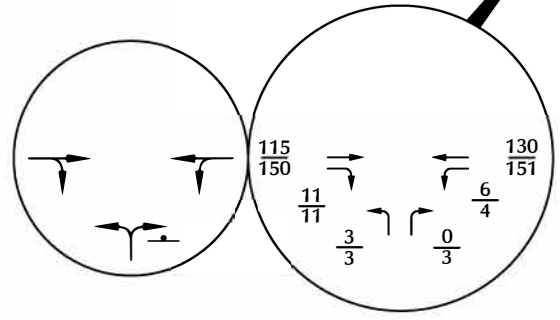


Figure 2  
Site  
Plan

Honeywood RV Park (LSC #164650)



  
 Approximate Scale  
 Scale: 1" = 2,000'



LEGEND:

 = Stop Sign

$\frac{26}{31}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)  
 PM Weekday Peak-Hour Traffic (vehicles per hour)


 500 = Average Weekday Traffic (vehicles per day)  
 TRANSPORTATION CONSULTANTS, INC.

Figure 3

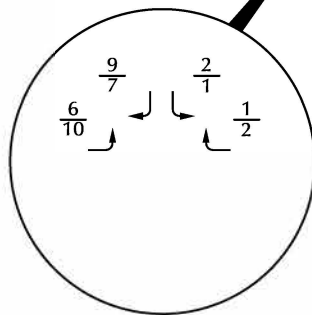
# Existing Traffic, Lane Geometry and Traffic Control

Honeywood RV Park (LSC #164650)





Approximate Scale  
Scale: 1" = 2,000'



LEGEND:

$\frac{26}{31}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)  
 $\frac{31}{500}$  = PM Weekday Peak-Hour Traffic (vehicles per hour)  
 500 = Average Weekday Traffic (vehicles per day)

$\frac{65\%}{\longleftrightarrow}$  = Percent Directional Distribution


# Directional Distribution and Assignment of Phase 1 Site-Generated Traffic

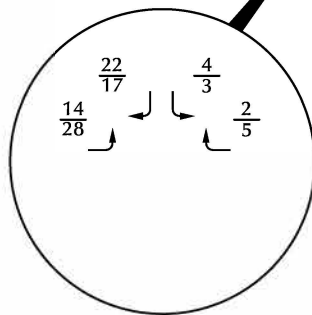
Figure 4

Honeywood RV Park (LSC #164650)






  
 Approximate Scale  
 Scale: 1" = 2,000'



LEGEND:

$\frac{26}{31}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)  
 $\frac{31}{500}$  = PM Weekday Peak-Hour Traffic (vehicles per hour)  
 500 = Average Weekday Traffic (vehicles per day)


 $\frac{65\%}{\longleftrightarrow}$  = Percent Directional Distribution

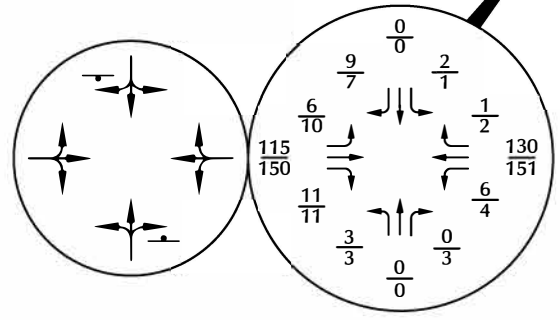
# Directional Distribution and Assignment of Buildout Site-Generated Traffic

Honeywood RV Park (LSC #164650)

Figure 5



  
 Approximate Scale  
 Scale: 1" = 2,000'



LEGEND:


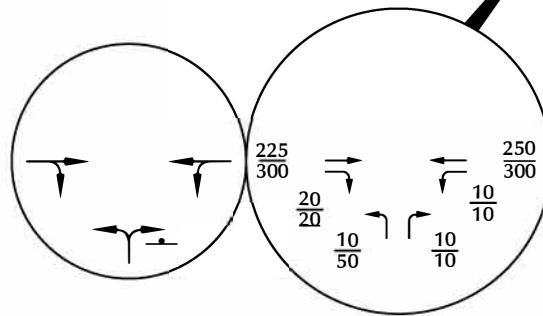
-  = Stop Sign
- $\frac{26}{31}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)  
 PM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{500}{500}$  = Average Weekday Traffic (vehicles per day)



Figure 6  
**Existing plus Phase 1 Site-Generated  
 Traffic, Lane Geometry and Traffic Control**  
 Honeywood RV Park (LSC #164650)



Approximate Scale  
Scale: 1" = 2,000'



LEGEND:

⊥ = Stop Sign

$\frac{26}{31}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)  
 $\frac{31}{26}$  = PM Weekday Peak-Hour Traffic (vehicles per hour)

**LSC** 500 = Average Weekday Traffic (vehicles per day)

Note: Represents 3%/year growth rate



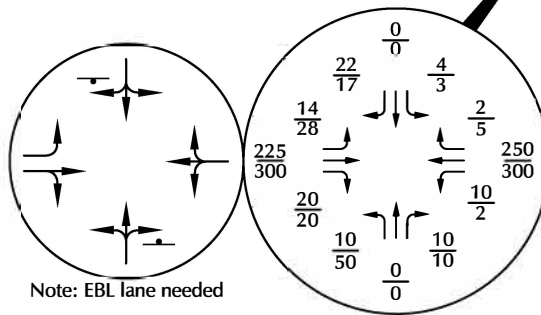
Figure 7

# Short-Term Background Traffic, Lane Geometry and Traffic Control

Honeywood RV Park (LSC #164650)



Approximate Scale  
Scale: 1" = 2,000'



LEGEND:

⊥ = Stop Sign

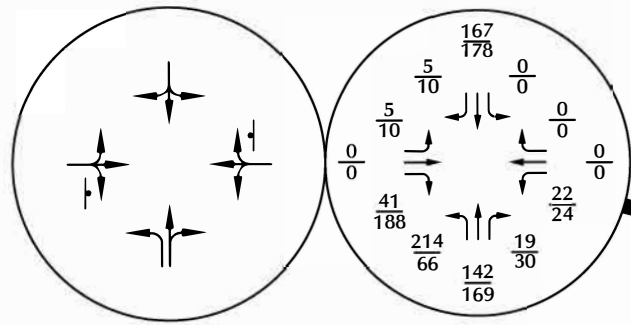
$\frac{26}{31}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)  
 $\frac{31}{26}$  = PM Weekday Peak-Hour Traffic (vehicles per hour)

**LSC** 500 = Average Weekday Traffic (vehicles per day)

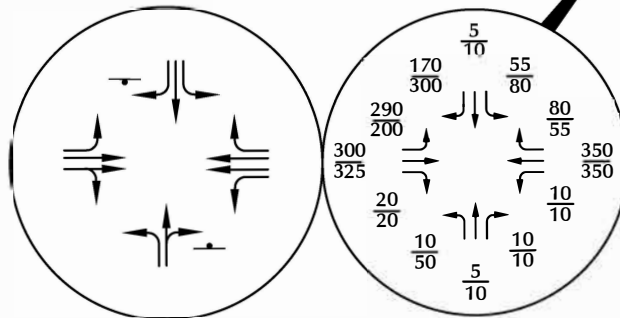
Figure 8

# Short-term Background + Site Buildout Traffic Lane Geometry Traffic Control

Honeywood RV Park (LSC #164650)



Approximate Scale  
Scale: 1" = 2,000'



Note: EBL lane needed

LEGEND:

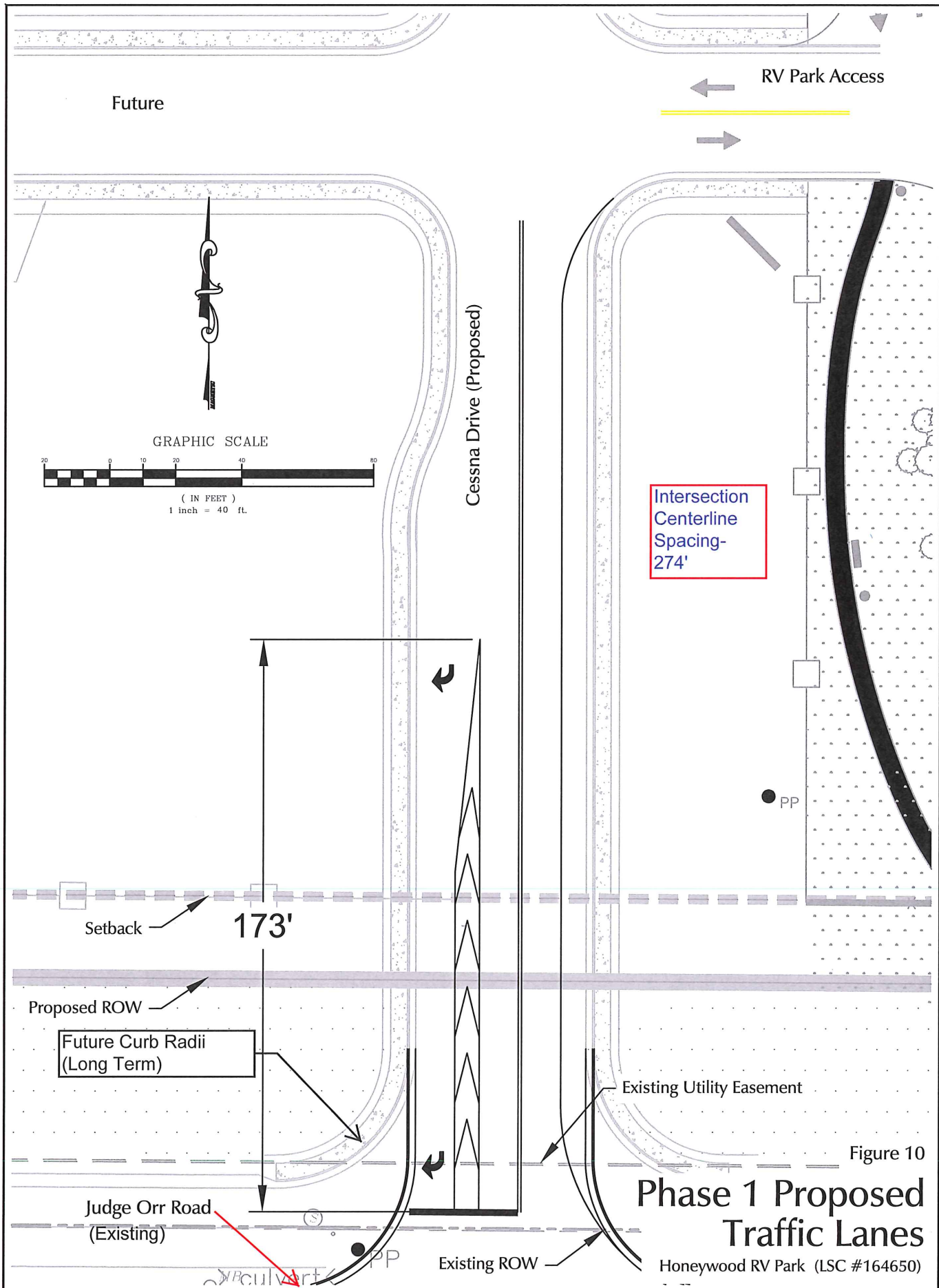
- ┆ = Stop Sign
- $\frac{26}{31}$  = AM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{31}{26}$  = PM Weekday Peak-Hour Traffic (vehicles per hour)
- 500 = Average Weekday Traffic (vehicles per day)

# Year 2040 Background + Site Buildout Traffic Lane Geometry Traffic Control

Honeywood RV Park (LSC #164650)



Figure 9



Intersection  
Centerline  
Spacing-  
274'

173'

Future Curb Radii  
(Long Term)

Judge Orr Road  
(Existing)

Figure 10  
**Phase 1 Proposed  
Traffic Lanes**

Honeywood RV Park (LSC #164650)

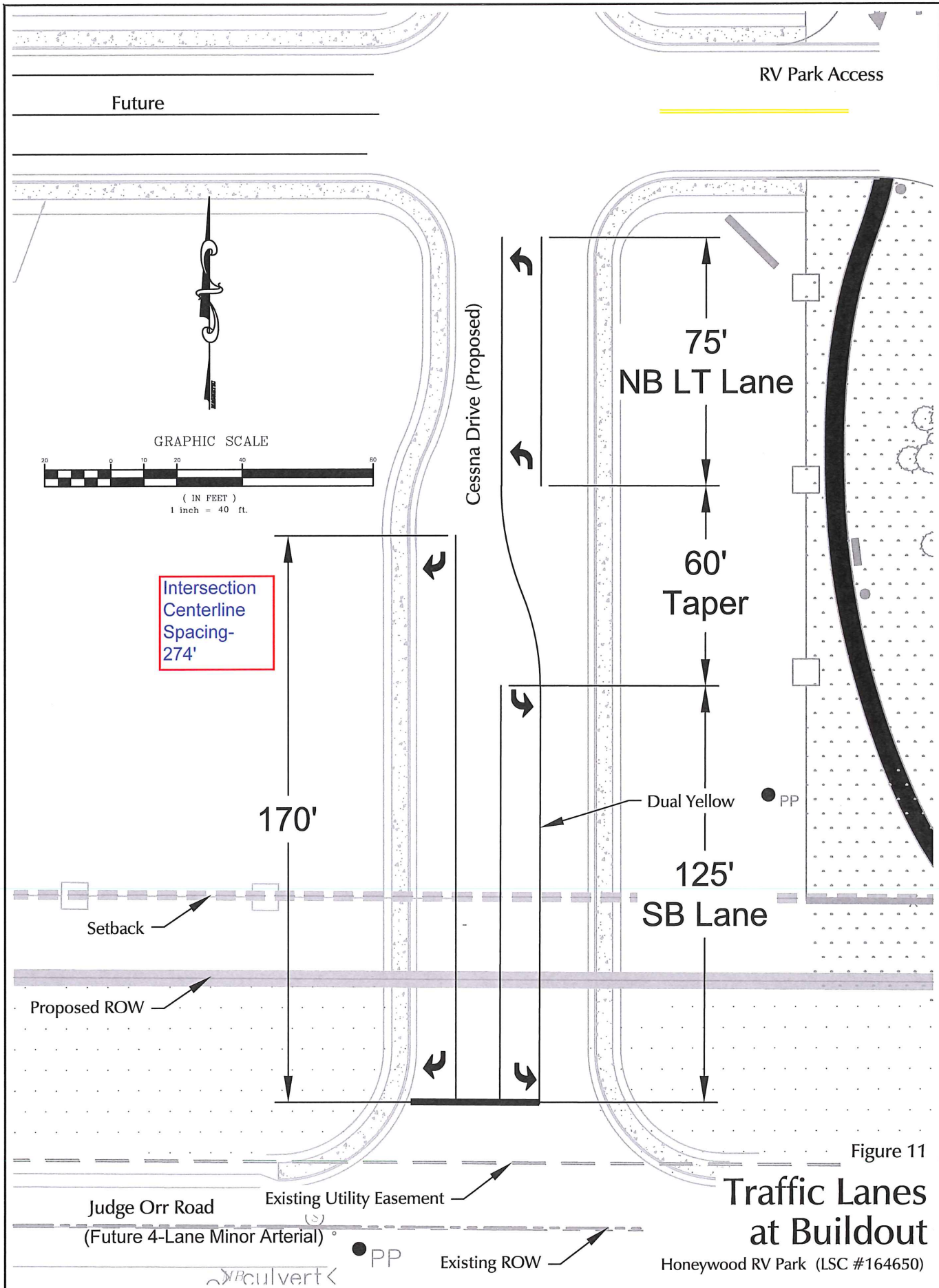


Figure 11

# Traffic Lanes at Buildout

Honeywood RV Park (LSC #164650)





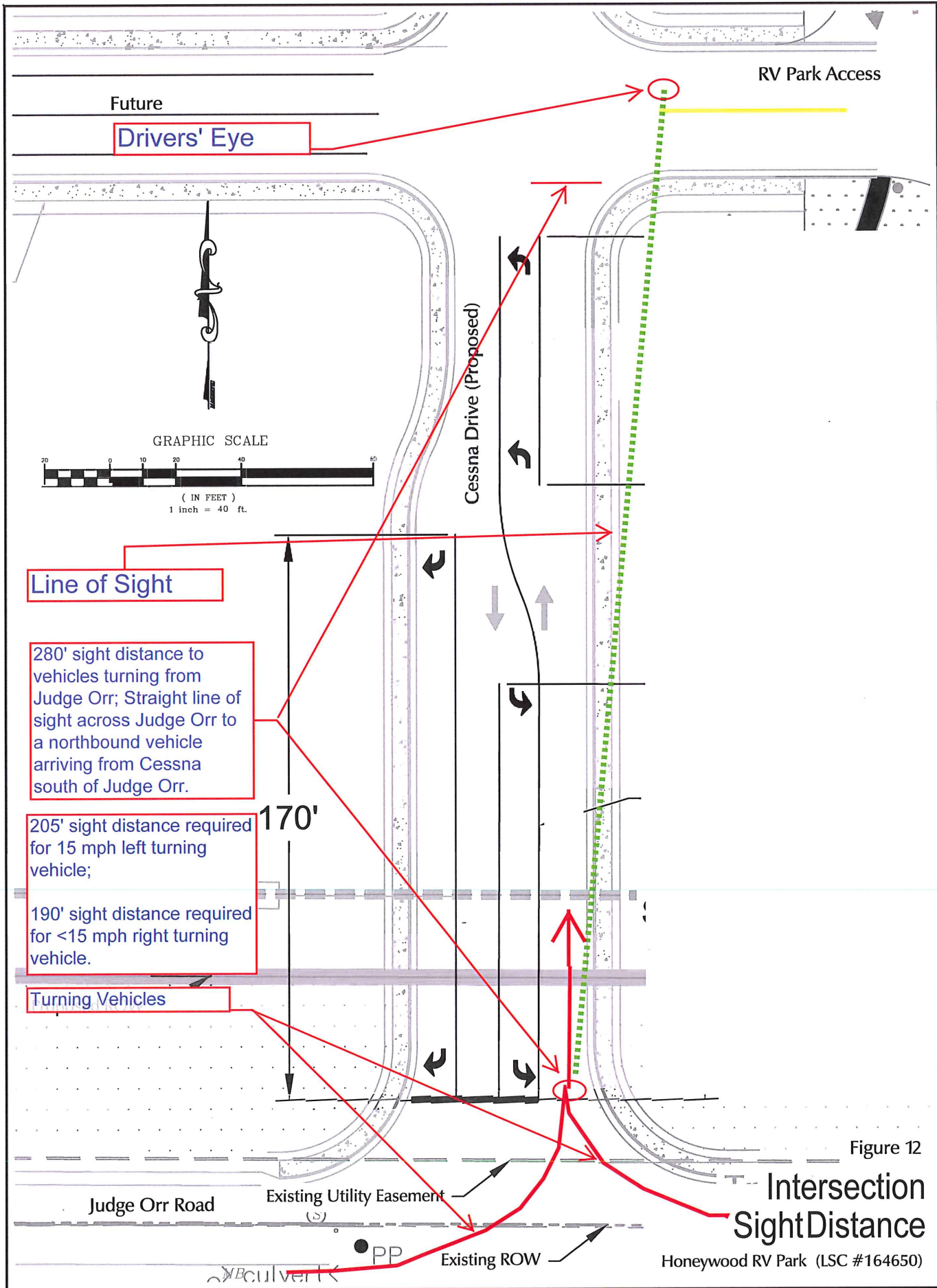


Figure 12

# Intersection Sight Distance

Honeywood RV Park (LSC #164650)

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

LSC Transportation Consultants, Inc. Site Name : Judge Orr Rd - Cessna Dr AM  
 Site Code : 00164650  
 Start Date : 08/16/2016  
 Page No : 1

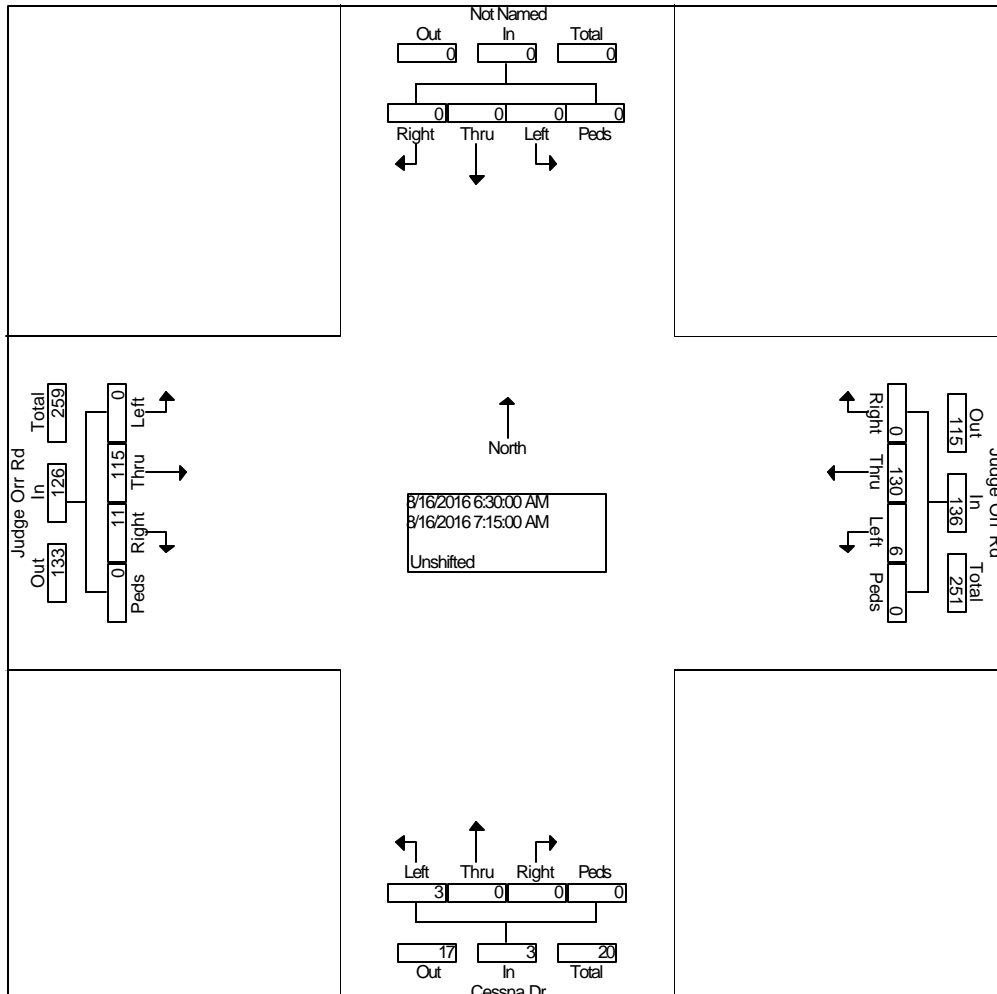
Groups Printed- Unshifted

Start Time	From North				Judge Orr Rd From East				Cessna Dr From South				Judge Orr Rd 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	0	0	0	0	26	1	0	0	0	1	0	2	24	0	0	54
06:45 AM	0	0	0	0	0	30	2	0	0	0	0	0	4	28	0	0	64
Total	0	0	0	0	0	56	3	0	0	0	1	0	6	52	0	0	118
07:00 AM	0	0	0	0	0	26	2	0	0	0	2	0	1	32	0	0	63
07:15 AM	0	0	0	0	0	48	1	0	0	0	0	0	4	31	0	0	84
07:30 AM	0	0	0	0	0	29	0	0	0	0	0	0	4	21	0	0	54
07:45 AM	0	0	0	0	0	32	2	0	0	0	3	0	4	14	0	0	55
Total	0	0	0	0	0	135	5	0	0	0	5	0	13	98	0	0	256
08:00 AM	0	0	0	0	0	29	1	0	0	0	3	0	8	21	0	0	62
08:15 AM	0	0	0	0	0	33	0	0	0	0	3	0	7	20	0	0	63
Grand Total	0	0	0	0	0	253	9	0	0	0	12	0	34	191	0	0	499
Apprch %	0.0	0.0	0.0	0.0	0.0	96.6	3.4	0.0	0.0	0.0	100.0	0.0	15.1	84.9	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	50.7	1.8	0.0	0.0	0.0	2.4	0.0	6.8	38.3	0.0	0.0	

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

Project Name : Judge Orr Rd - Cessna Dr AM  
 Site Code : 00164650  
 Start Date : 08/16/2016  
 Page No : 2

Start Time	From North					Judge Orr Rd From East					Cessna Dr From South					Judge Orr Rd 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	06:30 AM																				
Volume	0	0	0	0	0	0	130	6	0	136	0	0	3	0	3	11	115	0	0	126	265
Percent	0.0	0.0	0.0	0.0		0.0	95.6	4.4	0.0		0.0	0.0	10.0	0.0		8.7	91.3	0.0	0.0		
07:15 Volume	0	0	0	0	0	0	48	1	0	49	0	0	0	0	0	4	31	0	0	35	84
Peak Factor																					
High Int.	6:15:00 AM					07:15 AM					07:00 AM					07:15 AM					
Volume	0	0	0	0	0	0	48	1	0	49	0	0	2	0	2	4	31	0	0	35	
Peak Factor						0.69					0.37					0.90					
						4					5					0					



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

LSC Transportation Consultants, Inc. Colorado Springs, CO 80908  
 Site Name : Judge Orr Rd - Cessna Dr PM  
 Site Code : 00164650  
 Start Date : 08/11/2016  
 Page No : 1

Groups Printed- Unshifted

Start Time	From North				Judge Orr Rd From East				Cessna Dr From South				Judge Orr Rd 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	0	0	0	0	0	31	0	0	0	0	4	0	7	35	0	0	77
04:15 PM	0	0	0	0	0	38	2	0	0	0	6	0	1	31	0	0	78
04:30 PM	0	0	0	0	0	47	0	0	2	0	7	0	1	29	0	0	86
04:45 PM	0	0	0	0	0	41	0	0	0	0	13	0	5	39	0	0	98
Total	0	0	0	0	0	157	2	0	2	0	30	0	14	134	0	0	339
05:00 PM	0	0	0	0	0	25	2	0	1	0	13	0	4	39	0	0	84
05:15 PM	0	0	0	0	0	32	1	0	1	0	2	0	3	38	0	0	77
05:30 PM	0	0	0	0	0	23	0	0	0	0	4	0	5	37	0	0	69
05:45 PM	0	0	0	0	0	20	0	0	2	0	5	0	5	35	0	0	67
Total	0	0	0	0	0	100	3	0	4	0	24	0	17	149	0	0	297
Grand Total	0	0	0	0	0	257	5	0	6	0	54	0	31	283	0	0	636
Apprch %	0.0	0.0	0.0	0.0	0.0	98.1	1.9	0.0	10.0	0.0	90.0	0.0	9.9	90.1	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	40.4	0.8	0.0	0.9	0.0	8.5	0.0	4.9	44.5	0.0	0.0	

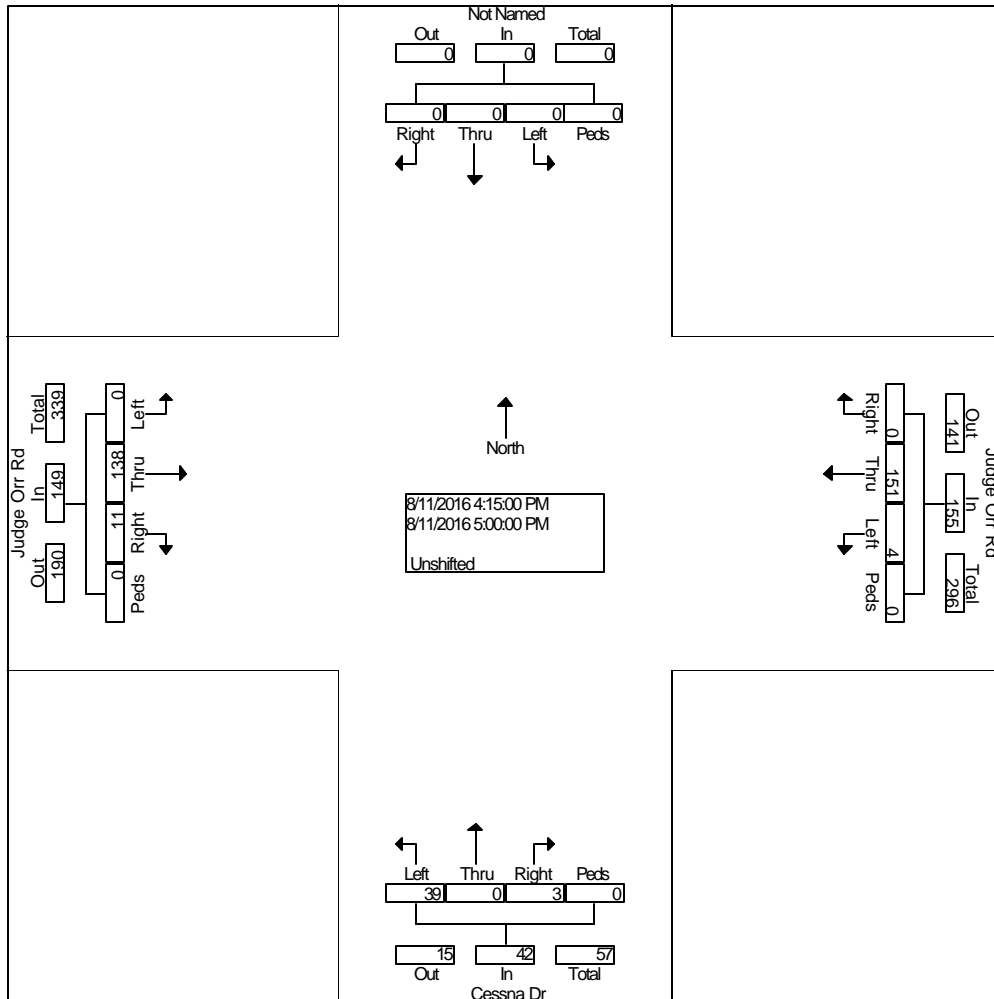
LSC Transportation Consultants, Inc.  
 545 E. Pikes Peak Ave., #210  
 Colorado Springs, CO 80903  
 (719) 633-2868

Site Name : Judge Orr Rd - Cessna Dr PM  
 Site Code : 00164650  
 Start Date : 08/11/2016  
 Page No : 2

Start Time	From North					Judge Orr Rd From East					Cessna Dr From South					Judge Orr Rd 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	04:15 PM																				
Volume	0	0	0	0	0	0	15	4	0	155	3	0	39	0	42	11	13	0	0	149	346
Percent	0.0	0.0	0.0	0.0		0.0	97.	2.6	0.0		7.1	0.0	92.	0.0		7.4	92.	0.0	0.0		
							4						9				6				
04:45 Volume	0	0	0	0	0	0	41	0	0	41	0	0	13	0	13	5	39	0	0	44	98
Peak Factor																					0.883
High Int.	3:45:00 PM					04:30 PM					05:00 PM					04:45 PM					
Volume	0	0	0	0	0	0	47	0	0	47	1	0	13	0	14	5	39	0	0	44	
Peak Factor						0.82					0.75					0.84					
						4					0					7					



**Intersection**

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	105	11	6	150	0	3	0	0	0	0	0
Future Vol, veh/h	0	105	11	6	150	0	3	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	90	90	69	69	92	92	92	92	92	92	92
Heavy Vehicles, %	20	2	2	2	2	20	2	2	2	20	2	20
Mvmt Flow	0	117	12	9	217	0	3	0	0	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	217	0	0	129
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.3	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.38	-	-	2.218
Pot Cap-1 Maneuver	253	-	-	1457
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	253	-	-	1457
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	11.1	0
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	594	1253	-	-	1457	-	-	-
HCM Lane V/C Ratio	0.005	-	-	-	0.006	-	-	-
HCM Control Delay (s)	11.1	0	-	-	7.5	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

**Intersection**

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	150	11	4	145	0	3	0	3	0	0	0
Future Vol, veh/h	0	150	11	4	145	0	3	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	85	85	95	95	92	81	92	81	92	92	92
Heavy Vehicles, %	20	2	2	2	2	20	2	2	2	20	2	20
Mvmt Flow	0	176	13	4	153	0	4	0	4	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	153	0	0	189
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.3	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.38	-	-	2.218
Pot Cap-1 Maneuver	325	-	-	1385
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	325	-	-	1385
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	10.1	0
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)		713	1325	-	-	1385	-	-
HCM Lane V/C Ratio		0.01	-	-	-	0.003	-	-
HCM Control Delay (s)		10.1	0	-	-	7.6	0	0
HCM Lane LOS		B	A	-	-	A	A	-
HCM 95th %tile Q(veh)		0	0	-	-	0	-	-

**Intersection**

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	105	11	6	130	2	3	0	0	2	0	10
Future Vol, veh/h	11	105	11	6	130	2	3	0	0	2	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	90	90	69	69	92	92	92	92	92	92	92
Heavy Vehicles, %	20	2	2	2	2	20	2	2	2	20	2	20
Mvmt Flow	12	117	12	9	188	2	3	0	0	2	0	11

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	190	0	0	129
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.3	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.38	-	-	2.218
Pot Cap-1 Maneuver	283	-	-	1457
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	283	-	-	1457
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.3	11.2	9.9
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)		581	1283	-	-	1457	-	754
HCM Lane V/C Ratio		0.006	0.009	-	-	0.006	-	0.017
HCM Control Delay (s)		11.2	7.8	0	-	7.5	0	9.9
HCM Lane LOS		B	A	A	-	A	A	A
HCM 95th %tile Q(veh)		0	0	-	-	0	-	0.1



Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	150	11	4	100	3	3	0	3	3	0	14
Future Vol, veh/h	15	150	11	4	100	3	3	0	3	3	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	85	85	95	95	92	81	92	81	92	92	92
Heavy Vehicles, %	20	2	2	2	2	20	2	2	2	20	2	20
Mvmt Flow	16	176	13	4	105	3	4	0	4	3	0	15

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	108	0	0	189
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.3	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.38	-	-	2.218
Pot Cap-1 Maneuver	378	-	-	1385
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	378	-	-	1385
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	10.2	9.5
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)		706	1378	-	-	1385	-	820
HCM Lane V/C Ratio		0.01	0.012	-	-	0.003	-	0.023
HCM Control Delay (s)		10.2	7.6	0	-	7.6	0	9.5
HCM Lane LOS		B	A	A	-	A	A	A
HCM 95th %tile Q(veh)		0	0	-	-	0	-	0.1

**Intersection**

Int Delay, s/veh 0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	110	11	4	160	0	3	0	0	0	0	0
Future Vol, veh/h	0	110	11	4	160	0	3	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	90	90	69	69	92	92	92	92	92	92	92
Heavy Vehicles, %	20	2	2	2	2	20	2	2	2	20	2	20
Mvmt Flow	0	122	12	6	232	0	3	0	0	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	232	0	0	134
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.3	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.38	-	-	2.218
Pot Cap-1 Maneuver	237	-	-	1451
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	237	-	-	1451
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	11.2	0
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	583	1237	-	-	1451	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	0.004	-	-	-
HCM Control Delay (s)	11.2	0	-	-	7.5	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

**Intersection**

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	160	11	4	155	0	3	0	3	0	0	0
Future Vol, veh/h	0	160	11	4	155	0	3	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	85	85	95	95	92	81	92	81	92	92	92
Heavy Vehicles, %	20	2	2	2	2	20	2	2	2	20	2	20
Mvmt Flow	0	188	13	4	163	0	4	0	4	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	163	0	0	201
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.3	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.38	-	-	2.218
Pot Cap-1 Maneuver	1313	-	-	1371
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1313	-	-	1371
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	10.2	0
HCM LOS			B	A

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	694	1313	-	-	1371	-	-	-
HCM Lane V/C Ratio	0.011	-	-	-	-0.003	-	-	-
HCM Control Delay (s)	10.2	0	-	-	7.6	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

**Intersection**

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	16	110	11	6	160	3	3	0	0	3	0	19
Future Vol, veh/h	16	110	11	6	160	3	3	0	0	3	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	90	90	69	69	92	92	92	92	92	92	92
Heavy Vehicles, %	20	2	2	2	2	20	2	2	2	20	2	20
Mvmt Flow	17	122	12	9	232	3	3	0	0	3	0	21

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	235	0	0	134
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.3	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.38	-	-	2.218
Pot Cap-1 Maneuver	233	-	-	1451
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	233	-	-	1451
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	0.3	12	10.2
HCM LOS			B	B

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)		517	1233	-	-	1451	-	715
HCM Lane V/C Ratio		0.006	0.014	-	-	0.006	-	0.033
HCM Control Delay (s)		12	8	-	-	7.5	0	10.2
HCM Lane LOS		B	A	-	-	A	A	B
HCM 95th %tile Q(veh)		0	0	-	-	0	-	0.1

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	25	160	11	4	155	5	0	0	3	4	0	20
Future Vol, veh/h	25	160	11	4	155	5	0	0	3	4	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	- None		-	- None		-	- None		-	- None	
Storage Length	300	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	85	85	95	95	92	81	92	81	92	92	92
Heavy Vehicles, %	20	2	2	2	2	20	2	2	2	20	2	20
Mvmt Flow	27	188	13	4	163	5	0	0	4	4	0	22

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	168	0	0	201
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.3	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.38	-	-	2.218
Pot Cap-1 Maneuver	308	-	-	1371
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	308	-	-	1371
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	0.2	9.3	10
HCM LOS			A	B

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	846	1308	-	-	1371	-	-	750
HCM Lane V/C Ratio	0.004	0.021	-	-	0.003	-	-	0.035
HCM Control Delay (s)	9.3	7.8	-	-	7.6	0	-	10
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.1

**Intersection**

Int Delay, s/veh 6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗	↖	↖	↖	↖	↖	↖	↖
Traffic Vol, veh/h	275	300	20	10	350	75	10	5	10	50	5	150
Future Vol, veh/h	275	300	20	10	350	75	10	5	10	50	5	150
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	385	-	-	285	-	235	0	-	-	125	-	170
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	0
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	289	316	21	11	368	79	11	5	11	53	5	158

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	447	0	0	337
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	110	-	-	1219
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	110	-	-	1219
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.3	0.2	29.9	22.3
HCM LOS			D	C

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	101	254	1110	-	-	1219	-	-	120	117	827
HCM Lane V/C Ratio	0.104	0.062	0.261	-	-	0.009	-	-	0.439	0.045	0.191
HCM Control Delay (s)	44.7	20.1	9.4	-	-	8	-	-	56.6	37.2	10.4
HCM Lane LOS	E	C	A	-	-	A	-	-	F	E	B
HCM 95th %tile Q(veh)	0.3	0.2	1	-	-	0	-	-	1.9	0.1	0.7

**Intersection**

Int Delay, s/veh 8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕	↖	↖	↕		↖	↕	↖
Traffic Vol, veh/h	175	325	20	10	350	50	50	10	10	75	10	275
Future Vol, veh/h	175	325	20	10	350	50	50	10	10	75	10	275
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	385	-	-	285	-	235	0	-	-	125	-	170
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	0
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	184	342	21	11	368	53	53	11	11	79	11	289

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	421	0	0	363
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	135	-	-	1192
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	135	-	-	1192
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	0.2	46.5	18
HCM LOS			E	C

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	119	268	1135	-	-	1192	-	-	180	170	827
HCM Lane V/C Ratio	0.442	0.079	0.162	-	-	0.009	-	-	0.439	0.062	0.35
HCM Control Delay (s)	57.3	19.6	8.8	-	-	8	-	-	39.8	27.6	11.7
HCM Lane LOS	F	C	A	-	-	A	-	-	E	D	B
HCM 95th %tile Q(veh)	1.9	0.3	0.6	-	-	0	-	-	2	0.2	1.6

**Intersection**

Int Delay, s/veh 7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕	↖	↖	↕		↖	↕	↖
Traffic Vol, veh/h	290	300	20	10	350	80	10	5	10	55	5	170
Future Vol, veh/h	290	300	20	10	350	80	10	5	10	55	5	170
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	385	-	-	285	-	235	0	-	-	125	-	170
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	0
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	305	316	21	11	368	84	11	5	11	58	5	179

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	452	0	0	337
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	105	-	-	1219
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	105	-	-	1219
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.5	0.2	32.5	25.1
HCM LOS			D	D

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	91	239	1105	-	-	1219	-	-	111	109	827
HCM Lane V/C Ratio	0.116	0.066	0.276	-	-	0.009	-	-	0.522	0.048	0.216
HCM Control Delay (s)	49.7	21.1	9.5	-	-	8	-	-	68.4	39.7	10.6
HCM Lane LOS	E	C	A	-	-	A	-	-	F	E	B
HCM 95th %tile Q(veh)	0.4	0.2	1.1	-	-	0	-	-	2.4	0.1	0.8



**Intersection**

Int Delay, s/veh 9.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕		↘	↕	↘	↘	↕		↘	↕	↘
Traffic Vol, veh/h	200	325	20	10	350	55	50	10	10	80	10	300
Future Vol, veh/h	200	325	20	10	350	55	50	10	10	80	10	300
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	385	-	-	285	-	235	0	-	-	125	-	170
Veh in Median Storage, #	0	-	-	0	-	-	0	-	-	0	-	0
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	211	342	21	11	368	58	53	11	11	84	11	316

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	426	0	0	363
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	130	-	-	1192
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	130	-	-	1192
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	0.2	59	20.3
HCM LOS			F	C

Minor Lane/Major Mvm	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	101	244	1130	-	-	1192	-	-	160	153	827
HCM Lane V/C Ratio	0.521	0.086	0.186	-	-	0.009	-	-	0.526	0.069	0.382
HCM Control Delay (s)	74.2	21.1	8.9	-	-	8	-	-	50.1	30.3	12
HCM Lane LOS	F	C	A	-	-	A	-	-	F	D	B
HCM 95th %tile Q(veh)	2.4	0.3	0.7	-	-	0	-	-	2.6	0.2	1.8

**Appendix Table**  
**Preliminary Trip Generation Estimate**  
**Adjacent Property - Judge Orr Commercial PUD**

Land Use Code	Land Use Description	Area (Acres)	FAR	Trip Generation Units	Trip Generation Rates <sup>(1)</sup>					Total Trips Generated				
					Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour	
						In	Out	In	Out		In	Out	In	Out
<b>Phase 1</b>														
770	Business Park	15.603	0.3	204 KSF <sup>(3)</sup>	12.69	1.16	0.21	0.34	0.97	2,590	238	42	69	197
<b>Buildout</b>														
770	Business Park	26.386	0.3	345 KSF	12.69	1.16	0.21	0.34	0.97	4,380	402	71	117	333
Notes:														
(1) Source: "Trip Generation, 9th Edition, 2012" by the Institute of Transportation Engineers (ITE)														
(2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice, Second Edition June 2004" by ITE														
(3) KSF = thousand square feet of floor space														
Source: LSC Transportation Consultants, Inc.														



**Preferred Access Control Concept**

AERIAL COURTESY OF LHM CORPORATION, DATED MAY 7, 2002

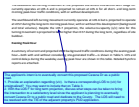
# Markup Summary

dsdlaforce (5)



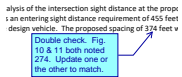
**Subject:** Callout  
**Page Label:** 3  
**Author:** dsdlaforce  
**Date:** 12/3/2018 3:00:25 PM  
**Color:** ■

Expand narrative for Cessna Drive (proposed). Explain this is a proposed access with the intent by the applicant convert/dedicate to El Paso County as a public roadway.



**Subject:** Callout  
**Page Label:** 8  
**Author:** dsdlaforce  
**Date:** 12/3/2018 3:12:49 PM  
**Color:** ■

The applicant's intent is to eventually convert this proposed Cessna Dr as a public road.  
1. Provide an explanation regarding (v/c) for unsignalized? You may want to include that on Table 3.  
2. With the LOS F for long term projection, discuss what steps can be taken to bring the intersection to a satisfactory level since the applicant is planning to eventually convert Cessna Dr to a public road and dedicate to the County. The LOS will need to be resolved with the TIS of the adjacent property's PUD application.



**Subject:** Callout  
**Page Label:** 10  
**Author:** dsdlaforce  
**Date:** 12/3/2018 3:19:23 PM  
**Color:** ■

Double check. Fig. 10 & 11 both noted 274. Update one or the other to match.



**Subject:** Callout  
**Page Label:** 12  
**Author:** dsdlaforce  
**Date:** 12/4/2018 8:32:28 AM  
**Color:** ■

Per comments on the Site Plan, include a recommendation for a required offset between the northern access gate and the road to ensure queue to enter does not block traffic on the main road.



**Subject:** Callout  
**Page Label:** 11  
**Author:** dsdlaforce  
**Date:** 12/6/2018 7:43:13 AM  
**Color:** ■

For clarity use ECM Nomenclature (Urban Non-Residential Collector).

jchodsdon (1)



**Subject:** Line  
**Page Label:** 22  
**Author:** jchodsdon  
**Date:** 11/7/2018 4:51:05 PM  
**Color:** ■

For clarity use ECM Nomenclature (Urban Non-Residential Collector).