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Rolling Hills Ranch at Meridian Ranch  
 Filing No. 2  
 Transportation Memorandum  
 (LSC #194182)  
 \* August 27, 2020

<sup>1</sup> Please add PCD File No. SF2020

Professional Engineer's Statement

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



Developer's Statement

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

L, INC.

Paul Guzman, Vice President

August 28, 2020  
 \_\_\_\_\_  
 Date

\*Revised November 13, 2020

# Summary of Comments on [WORKING COPY] TIS Redlines DEC 2020 - Pages from Traffic Impact Study\_v2 1.pdf

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Page: 1

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 Number: 1      Author: Daniel Torres      Subject: Text Box      Date: 12/18/2020 12:58:06 PM

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[Please add PCD File No. SF2020](#)

 Author: kdferrin      Subject: Sticky Note      Date: 12/29/2020 11:46:17 AM  
LSC Response: Added as requested

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November 13, 2020

Mr. Raul Guzman  
Tech Contractors  
P.O. Box 80036  
San Diego, CA 92138

RE: Rolling Hills Ranch at Meridian Ranch  
Filing No. 2  
El Paso County, CO  
Transportation Memorandum  
LSC #194182

Dear Mr. Guzman,

LSC Transportation Consultants, Inc. has prepared this Transportation Memorandum for Rolling Hills Ranch at Meridian Ranch Filing No. 2. The location of the site is shown in Figure 1. This report is intended as a site-specific, final plat traffic report for the currently proposed filing.

LSC recently completed the Rolling Hills Ranch at Meridian Ranch PUD traffic impact study (TIS), which included Filing Nos. 1, 2, and 3. This report was dated June 29, 2020. The land use and access currently proposed for Filing No. 2 is consistent with the land use and trip generation estimated and evaluated in that report. A copy the PUD TIS has been attached.

## **LAND USE AND ACCESS**

### **Land Use**

The site plan for Rolling Hills Ranch at Meridian Ranch Filing No. 2 is shown in Figure 2. Filing No. 2 is planned to include a total of 244 lots for single family homes.

### **Access**

As part of Rolling Hills Ranch at Meridian Ranch Filing No. 1, a full-movement access is proposed to Sunrise Ridge Drive about 400 feet south of Rex Road. Lambert Road would also be extended north as part of Filing No. 1 to provide access to Filing Nos. 1 and 2. Please refer to the PUD TIS for a sight-distance analysis of the proposed access point to Sunrise Ridge Drive. No additional access is proposed as part of Rolling Hills Ranch at Meridian Ranch Filing No. 2.

### Pedestrian Routes to Schools

Figure 3 of the PUD TIS shows the potential pedestrian routes to schools within two miles of the site and recommendations for new school-crossing locations. In addition to these improvements, “no parking or standing” signs should be installed on Lambert Road in the vicinity of Falcon High School to discourage on-street parking and parent drop-offs.

### ROADWAY AND TRAFFIC CONDITIONS

#### Area Roadways

Please include Londonderry Dr. <sup>1</sup>

The major roadways in the site’s vicinity are shown in Figure 1 and are described below. Copies of the 2016 El Paso County Major Transportation Corridors Plan (MTCP), 2040 Roadway Plan, and 2016 MTCP 2060 Corridor Preservation Plan with the site location identified on them have been attached to this report.

- **Rex Road** extends east from Goodson Road to Pyramid Peak Drive within the Meridian Ranch development. The posted speed limit on Rex Road is 45 miles per hour (mph) between Meridian Road and Mount Gateway Drive and 35 mph east of Mount Gateway Drive. Rex Road will be extended east to Eastonville Road in the intermediate term, as shown on the 2016 MTCP 2040 Roadway Plan, and may ultimately be extended to US Highway 24 (US Hwy 24), as shown on the 2016 MTCP 2060 Corridor Preservation Plan. The extension of Rex Road east of Eastonville Road is in the planning process as part of the Grandview Reserve development, located southeast of the future intersection of Eastonville/Rex. It is anticipated that this roadway segment would be installed prior to 2040. Rex Road is classified as a 4-Lane Minor Arterial roadway by El Paso County. Rex Road was previously shown as a Collector roadway in older versions of the MTCP. A copy of the 2040 MTCP Roadway plan from the *El Paso County 2040 Major Transportation Corridors Plan* adopted October 4, 2011 has been attached.
- Regarding the existing Urban Collector cross section in the vicinity of Pyramid Peak Drive, at the time of application and approval of Meridian Ranch Estates Filing 2, Rex Road was classified as a Collector on the MTCP. It is our understanding that as part of the final plat process for Estates Filing No. 2, the County and GTL Development agreed that the four-lane cross section, built with the initial section of Rex Road east of Meridian, did not need to be carried farther east. As such, an agreement was reached to construct a County-standard Urban Residential Collector cross section.
- **Meridian Road** extends north from South Blaney Road to County Line Road. The posted speed limit on Meridian Road in the vicinity of Rex Road is 55 mph. Meridian Road is shown as a four-lane Principal Arterial south of Rex Road, a four-lane Minor Arterial north of Rex Road, and a two-lane Minor Arterial north of Murphy Road on the El Paso County *Major Transportation Corridors Plan (MTCP)*.


Please include discussion that the applicant will construct a half section of the urban minor arterial east of Sunrise Ridge <sup>2</sup>

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Number: 1 Author: Daniel Torres Subject: Callout Date: 12/18/2020 11:53:26 AM

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Please include Londonderry Dr.

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 11:46:23 AM

LSC Response: A description of Londonderry Dr has been added as requested

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Number: 2 Author: Daniel Torres Subject: Callout Date: 12/17/2020 9:05:30 PM

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Please include discussion that the applicant will construct a half section of the urban minor arterial east of Sunrise Ridge

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 11:46:28 AM

LSC Response: The requested information has been added to the updated report

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- **Eastonville Road** is shown as a two-lane Minor Arterial on the El Paso County *Major Transportation Corridors Plan (MTCP)*. Eastonville Road is a two-lane roadway extending northeast from Meridian Road past Hodgen Road. The posted speed limit on Eastonville Road north of Londonderry Road is 45 mph. The Eastonville Road cross section south of Stapleton Drive is consistent with a two-lane Urban Collector cross section. The section north of Stapleton Drive has been identified as a two-lane Rural Minor Arterial on the MTCP. However, the actual design has yet to be completed and the design could potentially identify a cross section different from the standard ECM Rural Minor Arterial cross section.

### **Existing Traffic Volumes**

Figure 3 shows the existing traffic volumes at the intersection of Meridian Road/Rex Road. These volumes are based on manual intersection turning-movement counts conducted by LSC in March 2019. Figure 3 also shows the traffic volumes at the intersection of Londonderry/Lambert based on manual intersection turning-movement counts conducted by LSC November 2020. The count data sheets are attached for reference.

Note: The traffic counts conducted at the intersection of Londonderry/Lambert in November 2020 were likely significantly impacted by the COVID-19 pandemic. On the date the traffic count was conducted Falcon High School, located on the northeast of the intersection, was operating on a modified learning schedule with only 50 percent of students attending in person. Traffic count data sheets from a count conducted at this intersection in December 2016 are attached for comparison.

### **Existing Levels of Service**

Level of service (LOS) is a quantitative measure of the level of delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A represents control delay of less than 10 seconds for unsignalized and signalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 1 shows the level of service delay ranges.

**Table 1: Level of Service Delay Ranges**

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

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

Figure 3 presents the results of the existing intersection level of service analysis. The levels of service are based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The level of service reports are attached.

The intersection of Rex Road and Meridian Road is currently two-way, stop sign-controlled. The westbound left-turn movement at this intersection is currently operating at LOS F during the morning and afternoon peak hours.

The intersection of Londonderry Drive and Lambert Road is currently two-way, stop-sign controlled. All movements at this intersection are currently operating at LOS B or better during the peak hours. This LOS is based on current November 2020 counts. Please refer to the note in the “Existing Traffic Volumes” section.

Please provide a description of the existing lanes/turn lanes at this intersection. <sup>1</sup>

**SHORT-TERM BACKGROUND TRAFFIC**

Background traffic is the traffic estimated to be on the study area streets without consideration of the proposed development. It includes through traffic and traffic generated by adjacent/nearby developments.

Figure 4 shows the projected background traffic volumes for the short term. These background traffic volumes have been based on the existing traffic volumes (from Figure 3) with a two percent growth rate per year assumed for five years for through traffic on Meridian Road. The existing traffic volumes at the intersection of Lambert/Londonderry were adjusted to account for impacts of the ongoing pandemic. The movements impacted by school related traffic were increased by

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Number: 1 Author: Daniel Torres Subject: Callout Date: 12/18/2020 12:58:46 PM

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Please provide a description of the existing lanes/turn lanes at this intersection.

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 11:46:32 AM

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LSC Response: The requested information has been added to the updated report



75 percent during the morning peak hour and by 10% during the afternoon peak hour. The short-term background traffic volumes also include additional traffic projected to be generated by buildout of residential filings within Meridian Ranch that are either approved or currently under review, including: Meridian Ranch Filing 9; Meridian Ranch Estates; the Estates at Rolling Hills Ranch Filings 1 and 2; and Rolling Hills Ranch at Meridian Ranch Filing No. 1. The short-term background traffic volumes do not include traffic from the Rolling Hills Ranch at Meridian Ranch Filing No. 2.

### **TRIP GENERATION**

The site-generated vehicle-trips were estimated using the nationally published trip generation rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Table 2 of the PUD TIS shows the trip generation estimates for Filing No. 2.

Rolling Hills Ranch at Meridian Ranch Filing No. 2 is expected to generate about 2,303 vehicle trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 a.m. and 8:30 a.m., about 45 vehicles would enter and 135 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 p.m. and 6:15 p.m., about 152 vehicles would enter and 89 vehicles would exit the site.

### **DIRECTIONAL DISTRIBUTION AND ASSIGNMENT**

Figure 5 shows the projected short-term Filing No. 2-generated traffic volumes. These volumes are based on the trip-generation estimate shown in Table 2 of the PUD TIS and the directional-distribution estimate shown in Figure 9 of the PUD TIS.

### **SHORT-TERM TOTAL TRAFFIC**

Figure 6 shows the projected short-term total traffic volumes. The short-term total traffic volumes are the sum of the short-term background traffic volumes (from Figure 4) plus the short-term site-generated traffic volumes from Figure 5.

### **SHORT-TERM PROJECTED LEVELS OF SERVICE**

The intersections of Meridian/Rex and Londonderry/Lambert have been analyzed to determine the projected short-term future levels of service, based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board and Synchro signalized intersection procedures. Figures 4 and 6 show the level of service analysis results. The laneage and traffic control assumed in the analysis are depicted in the figures. The level of service reports are attached.

### Meridian/Rex

The intersection of Meridian/Rex is currently two-way, stop sign controlled. The westbound left turn movement at this intersection is currently operating at a LOS F during the morning and afternoon peak hours. If this intersection were to be converted to traffic signal control all movements are projected to operate at LOS D or better during the peak hours based on the projected short-term total traffic volumes.

2040 total traffic volumes and LOS were not provided for Londonderry/lambert. Please provide.

### Londonderry/Lambert

All movements at the intersection of Londonderry/Lambert are projected to operate at LOS D or better during the peak hours assuming this intersection remains all-way, stop-sign controlled

### 2040 TOTAL TRAFFIC AND PROJECTED LEVELS OF SERVICE

Please refer to the PUD TIS for the 2040-total traffic volumes and level of service analysis.

### SIGNAL WARRANT ANALYSIS

Please refer to the PUD TIS for a detailed discussion of the traffic-signal warrant analysis for the intersection of Meridian Road/Rex Road. As recommended in the PUD TIS, the traffic-signal warrant analysis has been updated, based on traffic projected to be generated by the currently-proposed Rolling Hills Ranch at Meridian Ranch Filing No. 2 traffic. Table 2 shows an updated traffic-signal warrant analysis. The short-term analysis is based on traffic counts conducted by LSC in March 2019 plus estimates of additional traffic projected following buildout of Meridian Ranch Estates Fil No. 3, Meridian Ranch Fil No. 9, The Estates at Rolling Hills Fil Nos. 1 and 2, and Rolling Hills at Meridian Ranch Fil Nos. 1 and 2.

#### Warrant 1, Eight-Hour Vehicular Volume

Four of the eight hours analyzed currently meet the thresholds for an Eight-Hour Vehicular-Volume Warrant, based on Condition A – Minimum Vehicular Volume, and five of the eight hours analyzed currently meet the thresholds, based on Condition B – Interruption of Continuous Traffic.

Four additional hours (for a total of eight hours) are projected to meet the thresholds for Condition A with the addition of traffic projected to be added with the buildout of other approved or currently proposed developments within Meridian Ranch. **Condition A is anticipated to be met in the short term, prior to buildout of Rolling Hills Ranch Filing No. 2.**

Two additional hours (for a total of seven hours) are projected to meet the thresholds for Condition B with the addition of traffic projected to be added with buildout of other approved or currently proposed developments within Meridian Ranch. The eighth hour analyzed is projected

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Number: 1 Author: Daniel Torres Subject: Callout Date: 12/18/2020 12:47:07 PM

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2040 total traffic volumes and LOS were not provided for Londonderry/lambert. Please provide.

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 11:46:36 AM

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LSC Response: Key pages from the Meridian Ranch Sketch Plan 2017 Amendment Traffic Impact Analysis that address the 2040 total traffic volume and LOS for the intersection of Londonderry/Lamber are included with the updated report

to meet the thresholds for Condition B with buildout of the currently proposed Rolling Hills Ranch Filing No. 2. **Condition B of this warrant is anticipated to be met with the addition of Rolling Hills Ranch Filing No 2.**

#### Warrant 2, Four-Hour Vehicular Volume

As shown in Table 2, five of the eight hours analyzed currently meet the thresholds for a Four-Hour Vehicular-Volume Warrant. **This warrant is currently met.**

#### Warrants 3 through 6 and 8 through 9

As discussed in the PUD TIS, the MUTCD traffic-signal warrants 3 through 6 and warrants 8 and 9 are not applicable to the intersection of Meridian/Rex.

#### Warrant 7 Analysis (Crash Experience)

As discussed in the PUD TIS, based on the 2018 crash history, there were a sufficient number of crashes susceptible to correction by a traffic-control signal to meet the criteria for this warrant. As shown in Table 2, the traffic volume thresholds are projected to be met with the addition of traffic generated by Rolling Hills Ranch Filing No. 1. The final item to be met to satisfy this warrant is an "Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency." El Paso County staff has indicated it is unlikely that a traffic signal would be approved at this intersection, based solely on Warrant 7.

It is our understanding that the El Paso County would like additional warrants beyond Warrant 2, Four-Hour Vehicular Volume, to be met prior to approving a traffic signal at the intersection of Meridian/Rex.

#### Recommendation

As a Four-Hour Vehicular-Volume Warrant is currently met and an Eight-Hour Vehicular-Volume Warrant is projected to be met in the short term, LSC recommends proceeding with design plans and obtaining county approval for a traffic signal at the intersection of Meridian/Rex.

#### **REQUIRED IMPROVEMENTS**

An updated list of all improvements in the vicinity of the site is presented in Table 3.

#### **Meridian/Rex**

The following summarizes outcomes of a recent meeting between the applicant and the County Engineer:

- The County will enter into an IGA with the applicant to complete the design and construction of intersection improvements including road alignment and drainage improvements along with a traffic signal design.
- The County will be the lead contact agency for the design and construction.
- The applicant will request the traffic advisory board to add the intersection to the Traffic Impact Program.
- The County Engineer to communicate with Planning and Community Development of the pending agreement.
- Expected design completion during third quarter of 2021.
- Expected completion of construction sometime in 2022.

As indicated in the PUDSP TIS please state whether or not a signal would likely be warranted or close to meeting warrants.

**Londonderry/Lambert** ←

The PUD TIS recommended the intersection of Londonderry/Lambert be monitored to identify any necessary traffic control changes (IE conversion to all-way, stop-sign control then signalization). Since completion of that report this intersection has been converted to all-way, stop-sign control. As all movements are projected to operate at a satisfactory level of service in the short-term based on the existing traffic control, traffic signal warrants based on vehicular volumes were not analyzed.

**Other Improvements**

No other improvements beyond those currently required for Rolling Hills Ranch at Meridian Ranch Filing No. 1 are anticipated with Filing No. 2.

**ROADWAY CLASSIFICATIONS**

Please refer to the PUD TIS for the recommended internal street classifications.

**ROAD IMPROVEMENT FEE PROGRAM**

Rolling Hills Ranch at Meridian Ranch Filing No. 2 will not be required to participate in the Countywide Transportation Improvement Fee Program, as Meridian Ranch is located within the Woodmen Road Metropolitan District.


- Per Resolution 13-041 the fee obligation will change after 12/31/2020. The final plat may be subject to the road impact fee if this final plat is approved after that date.
- Regarding a potential request for Fee Program credit for design and/or installation of new Rex Road segments and the traffic signal at Rex Road/Meridian Road, it is the applicant's responsibility to 1) contact the road impact fee advisory committee to confirm/determine if these are is an eligible intersection improvement for reimbursement under the road impact fee, 2) submit a request for Fee program credit (if applicable). Any credit, if approved, would be per Fee program provisions and is based on program unit costs, not actual costs incurred.

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Number: 1 Author: Daniel Torres Subject: Callout Date: 12/18/2020 12:31:24 PM

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As indicated in the PUDSP TIS please state whether or not a signal would likely be warranted or close to meeting warrants.

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 11:46:42 AM

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LSC Response: The requested information has been added

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

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

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

JCH:KDF:jas

Enclosures: Tables 2-3  
Figures 1-6  
Traffic Count Reports  
Level of Service Reports  
*Rolling Hills Ranch PUD Updated Traffic Impact Study*


# MTCP Maps

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MTCP maps were provided with the attached PUD TIS. This sheet may be removed. <sup>1</sup>




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 Number: 1      Author: Daniel Torres      Subject: Text Box      Date: 12/18/2020 12:57:22 PM

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MTCP maps were provided with the attached PUD TIS. This sheet may be removed.

 Author: kdferrin      Subject: Sticky Note      Date: 12/29/2020 11:46:46 AM  
LSC Response: The maps have been removed as requested

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