

The Glen at Widefield Filing No. 12

Transportation Memorandum

Prepared for:
Mr. J. Ryan Watson
Widefield Investment Group
3 Widefield Boulevard
Colorado Springs, CO 80911

MAY 23, 2022




LSC Transportation Consultants
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LSC #S214610



LSC Responses to TIS Redline Comments

Page: 1

 Number: 1 Author: jchodsdon Subject: Sticky Note Date: 10/20/2022 5:55:22 PM
LSC Responses to EPC TIS Redline comments

RECENT AREA TRAFFIC STUDIES

Appendix Table 1 includes a list of other recent traffic studies conducted by LSC in the vicinity of the site.

LAND USE AND ACCESS

The most recent Glen at Widefield subdivision filings include Filing No. 10 (40 lots) and Filing No. 11 (103 lots). The currently-proposed Glen at Widefield Filing 12 is planned to contain 79 lots for single-family homes. Filing 12 will be the final filing within the Glen at Widefield East Preliminary Plan Area. Figure 2 shows the location of The Glen at Widefield Filing Nos. 7 through 12.

Access for The Glen at Widefield Filing Nos. 7 through 10 is via the intersection of Spring Glen Drive/Mesa Ridge Parkway and west leg of the intersection of Marksheffel/Peaceful Valley Road. This west leg has an interim restriction to right-in/right-out only. This restriction is planned to remain in place until a traffic signal is warranted and installed at this intersection. This will likely not likely happen until further development occurs east of Marksheffel Road. An additional access to Marksheffel Road aligning with Poa Annua Street is being constructed as part of Filing No. 11.

Interim Full-Movement Intersection – Poa Annua/Marksheffel

The new west leg of the intersection of Marksheffel/Poa Annua, planned as part of the Filing 11 development, will be an interim full-movement intersection. This is to avoid two right-in/right-out restricted intersections on Marksheffel Road north of Mesa Ridge Parkway. This interim full movement would remain until either a connection becomes available through the property to the north to the intersection of Lorson Boulevard/Marksheffel Road via an extension of Spring Glen Drive or a signal becomes warranted and is installed at the Peaceful Valley Road/Marksheffel intersection.

Please also include the following:
or safety or operational problems arise which necessitate proceeding with the right-in-right-out intersection improvements.

1


ROADWAY AND TRAFFIC CONDITIONS

Area Roadways


This is part of the condition of approval for filing 11.

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

Powers Boulevard is a four-lane Expressway extending north from Mesa Ridge Parkway. In the future, Powers Boulevard is planned to be extended south to connect to Interstate 25 (I-25), potentially at Exit 122. In the vicinity of the site, Powers Boulevard has two through lanes in each direction and a posted speed limit of 55 miles per hour (mph). The Colorado Department of Transportation has been collecting escrow funds from the previous Glen at Widefield filings as

 Number: 1 Author: Daniel Torres Subject: Callout Date: 10/19/2022 12:12:38 PM

Please also include the following: or safety or operational problems arise which necessitate proceeding with the right-in-right-out intersection improvements. This is part of the condition of approval for filing 11.

 Author: kdferrin Subject: Sticky Note Date: 10/19/2022 12:09:22 PM
LSC Response: Added as requested

Marksheffel Road/Mesa Ridge Parkway

It is our understanding that the intersection of Marksheffel/Mesa Ridge is planned to be converted to traffic-signal control in the short-term. As a signalized intersection, all movements are projected to operate at LOS D or better during the peak hours, based on the projected short-term total traffic volumes.

Marksheffel Road/Peaceful Valley Road

The west leg of the intersection of Marksheffel/Peaceful Valley has been restricted to right-in/right-out only. All movements are projected to operate at LOS C or better during the peak hours, based on the short-term total traffic volumes following development of the Glen at Widefield Filing No. 12. The plan is for this restriction to remain in place until the intersection is signalized in the future (likely driven by additional background traffic on the east leg).

Marksheffel Road/Poa Annua Street

The new west leg of the intersection of Marksheffel/Poa Annua, planned as part of the Filing 11 development, will be opened with an interim full-movement condition (until a connection becomes available through the Corvalis development to the north to the intersection of Lorson Boulevard/Marksheffel Road (or Fontaine Boulevard) or a signal becomes warranted and is installed at the Peaceful Valley Road/Marksheffel intersection). ← see comment above. ¹

The eastbound approach at this intersection is projected to operate at LOS F during the peak hours, based on the projected short-term total traffic volumes and the **HCM unsignalized method** of analysis. The planned upstream signals at Marksheffel/Mesa Ridge and Marksheffel/Lorson Boulevard will create gaps in northbound and southbound through traffic. The HCM unsignalized method of analysis allows for the effect of an upstream signal. However, the eastbound and westbound delay calculated by the HCM procedures at Poa Annua/Marksheffel may be conservative.

A SimTraffic simulation was run to better analyze the operational effects of upstream planned signal-controlled intersections. The projected Short Term Total peak-hour volumes were entered into the model and the model was run five times. The results were then averaged. The average projected delay for the eastbound approach at the intersection of Poa Annua/Marksheffel was about 28.2 seconds per vehicle during the morning peak hour and 20.5 seconds per vehicle during the afternoon peak hour.

Based on the SimTraffic simulation results and on the Level of Service delay ranges shown in Table 2, this movement would be considered to operate at LOS D during the morning peak hour and LOS C during the afternoon peak hour.

Please also identify the level of service (including glen 12 traffic) should this intersection become a right-in-right-out ²

☰ Number: 1 Author: Daniel Torres Subject: Callout Date: 8/10/2022 11:29:08 AM

[see comment above.](#)

↩ Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:22:05 AM

LSC Response: The added information from the comment above has been added as requested

☰ Number: 2 Author: Daniel Torres Subject: Callout Date: 8/10/2022 11:33:52 AM

[Please also identify the level of service \(including glen 12 traffic\) should this intersection become a right-in-right-out](#)

↩ Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:21:56 AM

LSC Response: The additional information has been added as requested

Table 3 shows the results of the analysis for Marksheffel/Mesa Ridge. As shown in the table, the existing traffic volumes, during seven of the ten hours studied, currently meet the thresholds for the Eight-Hour Vehicular-Volume Traffic-Signal Warrant. Six of the ten hours studied currently meet the Four-Hour Vehicular-Volume Traffic-Signal Warrant. The satisfaction of warrants does not indicate that a signal must be installed. The decision to require a signal to be installed at this location rests with the County. This intersection may be signalized in the short term. It is our understanding that the County intends to convert this intersection to signal control in the short-term future.

Table 4 shows the results of the analysis for Spring Glen/Mesa Ridge for the morning and afternoon peak hours only. As shown in Table 4, the thresholds for a Four-Hour Vehicular Volume Traffic-Signal Warrant are **not** projected to be met, in the short-term based on both the morning and afternoon peak-hour volumes. The thresholds for an Eight-Hour Vehicular-Volume Traffic-Signal Warrant are projected to be met during the projected short-term total afternoon peak hour but not the morning peak hour. However, in order for this warrant to be met, the traffic volumes would have to meet these thresholds during an additional seven hours. As the threshold is just met during the afternoon peak hour, it is unlikely that seven other hours could be found that would meet these thresholds.

Table 5 shows the results of the analysis for Poa Annua/Marksheffel for the morning and afternoon peak hours only. As shown in Table 4, the thresholds for a Four-Hour Vehicular-Volume Traffic-Signal Warrant are projected to be met four of the ten hours analyzed. The thresholds for an Eight-Hour Vehicular-Volume Traffic-Signal Warrant are projected to be met six of the ten hours analyzed. However, in order for this warrant to be met, the traffic volumes would have to meet these thresholds during an additional two hours.

Please state whether or not the warrant is met as done in the above paragraph ¹

Crash Experience

The Colorado State Patrol provided LSC with crash data for the intersection of Marksheffel/Mesa Ridge from 2017 through February 2022. There was one reported crash at this intersection in 2017. No crashes were reported between 2018 and February 2022. In order to meet the criteria for Traffic-Signal Warrant 7 – Crash Experience, there need to be five or more reported crashes of a type susceptible to correction by a traffic-control signal within a 12-month period. Based on the provided crash history data, this warrant is not currently met. A copy of these data is attached for reference.

how about the other intersections along marksheffel and mesa ridge. There was discussion at the previous hearing regarding incidents at the other intersections. Please identify any that have occurred. If none, then please state that. ²

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

- Filing 12 is expected to generate 745 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, about 14 vehicles would enter and 41 vehicles would exit the site. During the afternoon peak hour, about 47 vehicles would enter and 27 vehicles would exit the site.

☰ Number: 1 Author: Daniel Torres Subject: Callout Date: 8/11/2022 9:42:24 AM

Please state whether or not the warrant is met as done in the above paragraph

↩ Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:21:45 AM

LSC Response: The additional information has been added as requested.

☰ Number: 2 Author: Daniel Torres Subject: Callout Date: 8/11/2022 9:18:12 AM

how about the other intersections along marksheffel and mesa ridge. There was discussion at the previous hearing regarding incidents at the other intersections. Please identify any that have occurred. If none, then please state that.

↩ Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:21:38 AM


LSC Response: Additional crash history data has been added to the Roadway and Traffic Conditions section of the updated TIS.

- Mesa Ridge Parkway has been constructed and striped with 10-foot paved shoulders in the vicinity of Spring Glen Drive. Once the full four-lane Principal Arterial section is completed, it is anticipated that the acceleration lane will be implemented at that time. The width for a future westbound right-turn acceleration lane on Mesa Ridge Parkway will become available, as the half-section to be built with the initial Mesa Ridge construction will be sufficiently wide. This has been shown on the Mesa Ridge Parkway design plans.
- A westbound right-turn deceleration lane will be required on Mesa Ridge Parkway at Spring Glen Drive as the east leg of the intersection of Marksheffel/Peaceful Valley has been restricted to right-in/right-out only. Based on a design speed of 50 mph, the prescribed lane length for this lane is 235 feet plus a 200-foot taper. This improvement is planned to be completed as part of The Glen at Widefield Filing No. 10.
- The west leg of the Marksheffel Road / Peaceful Valley Road intersection has been restricted to right-in/right-out only. There is an interim southbound left-turn acceleration lane for westbound to southbound left turning traffic from the east side of the intersection.
- Based on the projected short-term total traffic volumes and the criteria contained in the El Paso County *Engineering Criteria Manual (ECM)* for Minor (or Principal) Arterials, a southbound right-turn deceleration lane is projected to be warranted on Marksheffel Road approaching Peaceful Valley Road. Based on a design speed of 60 mph, the prescribed lane length for this lane would be 290 feet plus a 240-foot taper. This improvement will be installed with the Glen at Widefield Filing No. 11.
- Based on the projected short-term total traffic volumes, the classification of Marksheffel Road as an Expressway, and the criteria contained in the *ECM*, a southbound right-turn deceleration lane is projected to be warranted on Marksheffel Road at Poa Annua Street. Based on a design speed of 60 mph, the prescribed lane length for this lane would be 290 feet plus a 240-foot taper. This improvement will be installed with the Glen at Widefield Filing No. 11.
- Based on the projected short-term total traffic volumes, the classification of Marksheffel Road as an Expressway, and the criteria contained in the *ECM*, an interim northbound left-turn deceleration lane is projected to be warranted on Marksheffel Road at Poa Annua Street (associated with the interim full-movement condition for the west leg of this intersection). Based on a design speed of 60 mph, the prescribed lane length for this lane would be 340 feet plus a 240-foot taper. This improvement can be accomplished through restriping of the center painted median and will be completed with The Glen at Widefield Filing No. 11.
- Based on the projected short-term total traffic volumes, the classification of Marksheffel Road as an Expressway, and the criteria contained in the *ECM*, a southbound right-turn

This was not approved with Filing 11 and would not be supported by staff. Please remove.

 Number: 1 Author: Daniel Torres Subject: Callout Date: 8/11/2022 9:27:14 AM

This was not approved with Filing 11 and would not be supported by staff. Please remove.

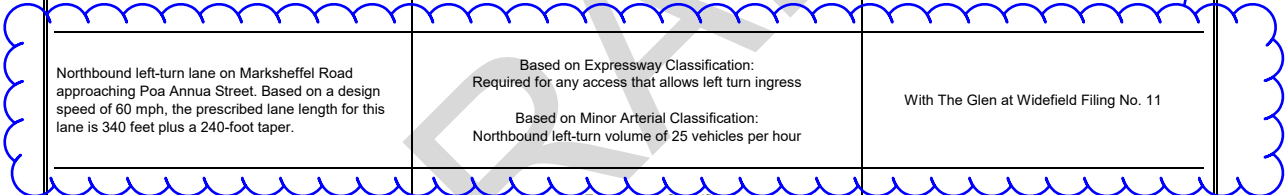
 Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:21:28 AM

LSC Response: The recommendation to restripe Marksheffel Road has been removed from the updated TIS.

Table 6
Recommended Short-Term Improvements
The Glen at Widefield Filing No. 12

Description	Trigger	Timing
Westbound right-turn deceleration Lane on Mesa Ridge Parkway approaching Spring Glen Drive	Eastbound right-turn volume of 25 vehicles per hour	With The Glen at Widefield Filing No. 10
Westbound right-turn acceleration lane on Mesa Ridge Parkway at Spring Glen Drive	Southbound right-turn volume of 50 vehicles per hour (Existing southbound right-turn volume is 68 vehicles per hour)	Once the full four-lane Principal Arterial section is completed, it is anticipated that the acceleration lane will be implemented at that time. The width for a future westbound right-turn acceleration lane on Mesa Ridge Parkway will become available as the half-section to be built with the initial Mesa Ridge construction will be sufficiently wide. This has been shown on the Mesa Ridge Parkway design plans
Convert the intersection of Marksheffel Road/Mesa Ridge Parkway to traffic signal control	When Traffic Signal Warrants are Met	Anticipated in the short term
Construct the west leg of Poa Annua	With The Glen at Widefield Filing No. 11	With The Glen at Widefield Filing No. 11
Northbound left-turn lane on Marksheffel Road approaching Poa Annua Street. Based on a design speed of 60 mph, the prescribed lane length for this lane is 340 feet plus a 240-foot taper.	Based on Expressway Classification: Required for any access that allows left turn ingress Based on Minor Arterial Classification: Northbound left-turn volume of 25 vehicles per hour	With The Glen at Widefield Filing No. 11
Southbound right-turn deceleration lane on Marksheffel Road approaching Poa Annua Street. Based on a design speed of 60 mph, the prescribed lane length for this deceleration lane is 290 feet plus a 240-foot taper.	Based on Expressway Classification: Southbound right-turn volume of 10 vehicles per hour Based on Minor Arterial Classification: Southbound right-turn volume of 50 vehicles per hour	With The Glen at Widefield Filing No. 11
Southbound right-turn acceleration lane on Marksheffel Road at Poa Annua	Based on Expressway Classification: Eastbound right-turn volume of 10 vehicles per hour Based on Minor Arterial Classification: Generally not required	LSC recommends right-of-way be reserved for this improvement to be constructed if/when Marksheffel Road is upgraded to an Expressway cross section
Southbound right-turn deceleration lane on Marksheffel Road approaching Peaceful Valley Road. Based on a design speed of 60 mph, the prescribed lane length for this deceleration lane is 290 feet plus a 240-foot taper.	Based on Expressway Classification: Southbound right-turn volume of 10 vehicles per hour Based on Minor Arterial Classification: Southbound right-turn volume of 50 vehicles per hour	With The Glen at Widefield Filing No. 11
Southbound right-turn acceleration lane on Marksheffel Road at Peaceful Valley Road	Based on Expressway Classification: Eastbound right-turn volume of 10 vehicles per hour Based on Minor Arterial Classification: Generally not required	LSC recommends right-of-way be reserved for this improvement to be constructed if/when Marksheffel Road is upgraded to an Expressway cross section
Mesa Ridge Parkway should be widened approaching Powers Boulevard to provide dual westbound left-turn lanes. Based on the queueing analysis, dual 475-foot left turn lanes (plus transition taper) would be adequate to accommodate the projected queues. Deceleration distance would not be necessary, as Powers/Mesa Ridge is a T-intersection. New redirect tapers would be required east of the dual left turn lanes to transition to the existing cross section. The taper ratio should be 45:1.	Once the westbound left-turn queue regularly exceeds the length of the existing single left-turn lane	With The Glen at Widefield Filing No. 10

see comment above and revise accordingly. 1



Number: 1 Author: Daniel Torres Subject: Cloud+ Date: 8/11/2022 9:36:22 AM

[see comment above and revise accordingly.](#)

Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:21:20 AM

LSC Response: This line has been removed from the "Recommended Short-Term Improvements" table in the updated TIS

Table 7
Glen East Preliminar Plan CDOT Access Permit and Escrow Analysis
Mesa Ridge & Powers (SH 21)
The Glen at Widefield Filings 12

Subdivisions Currently Proposed			Currently Proposed Separate Access Permits and Escrow Amounts per Access Permit			
Subdivision Name	Number of Lots	Status	Portion of total Escrow of \$103,960	Access Permits	Access Permit Escrow Amt.	Escrow to be deposited in Account with CDOT
Filing 7	148	Recorded	\$26,648	Permit No. 216057	\$26,648	Completed
Filing 8	101	Recorded	\$18,166	Permit No. 218055	\$18,166	Completed
Filing 9	107	Platted	\$19,065	Permit No. 218056	\$19,065	Completed
Filing 10	40	Plat Approved - not recorded	\$7,222	Application to be submitted soon	\$7,222	Prior to issuance of NTP
Filing 11	103	Pending	\$18,596	Application to be submitted soon	\$18,596	Prior to issuance of NTP
Filing 12	79	Pending	\$14,263	Application to be submitted soon	\$14,263	Prior to issuance of NTP
					\$103,960.00	

Source: LSC Transportation Consultants, Inc.

Sep-21

Please update this table as filing 10 has already been recorded. Please update the access permits section also as necessary.

Number: 1 Author: Daniel Torres Subject: Callout Date: 8/11/2022 9:38:24 AM

Please update this table as filing 10 has already been recorded. Please update the access permits section also as necessary.


 Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:21:08 AM
LSC Response: Revised as requested

Table 8
Glen East Preliminary Plan County Intersection Escrow Analysis
Mesa Ridge Parkway & Spring Glen Drive Intersection
The Glen at Widefield Filing 12

Subdivisions Currently Proposed			Signal Escrow Amounts
Subdivision Name	Number of Lots	Status	Portion of Total Escrow of \$33,750
Filing 7	148	Platted	\$8,875
Filing 8	101	Platted	\$6,057
Filing 9	107	Platted	\$6,189
Filing 10	40	Plat Approved - not recorded	\$2,276
Filing 11	103	Pending	\$5,859
Filing 12	79	Pending	\$4,494
			\$33,750
<i>Source: LSC Transportation Consultants, Inc.</i>			<i>Sep-21</i>

see comment above ¹

DRAFT

 Number: 1 Author: Daniel Torres Subject: Callout Date: 8/11/2022 9:38:47 AM

[see comment above](#)


 Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:20:52 AM
LSC Response: The table has been updated

Table 9
Glen East Preliminary Plan County Intersection Escrow Analysis
Peaceful Valley Road & Marksheffel Road Intersection
The Glen at Widefield Filing 12


Subdivisions Currently Proposed			Signal Escrow Amounts
Subdivision Name	Number of Lots	Status	Portion of Total Escrow of \$36,250
Filing 7	148	Platted	Deferred to Fil 8
Filing 8	101	Platted	\$15,615
Filing 9	107	Platted	\$6,648
Filing 10	40	Plat Approved - not recorded	\$2,521
Filing 11	103	Pending	\$6,489
Filing 12	79	Pending	\$4,977
			\$36,250
Note: The escrow amount for Filing 8 includes the deferred amount for Filing 7			
Source: LSC Transportation Consultants, Inc.			Sep-21

see comment above ¹

DRAFT

 Number: 1 Author: Daniel Torres Subject: Callout Date: 8/11/2022 9:39:03 AM

[see comment above](#)

 Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:20:45 AM
LSC Response: The table has been updated

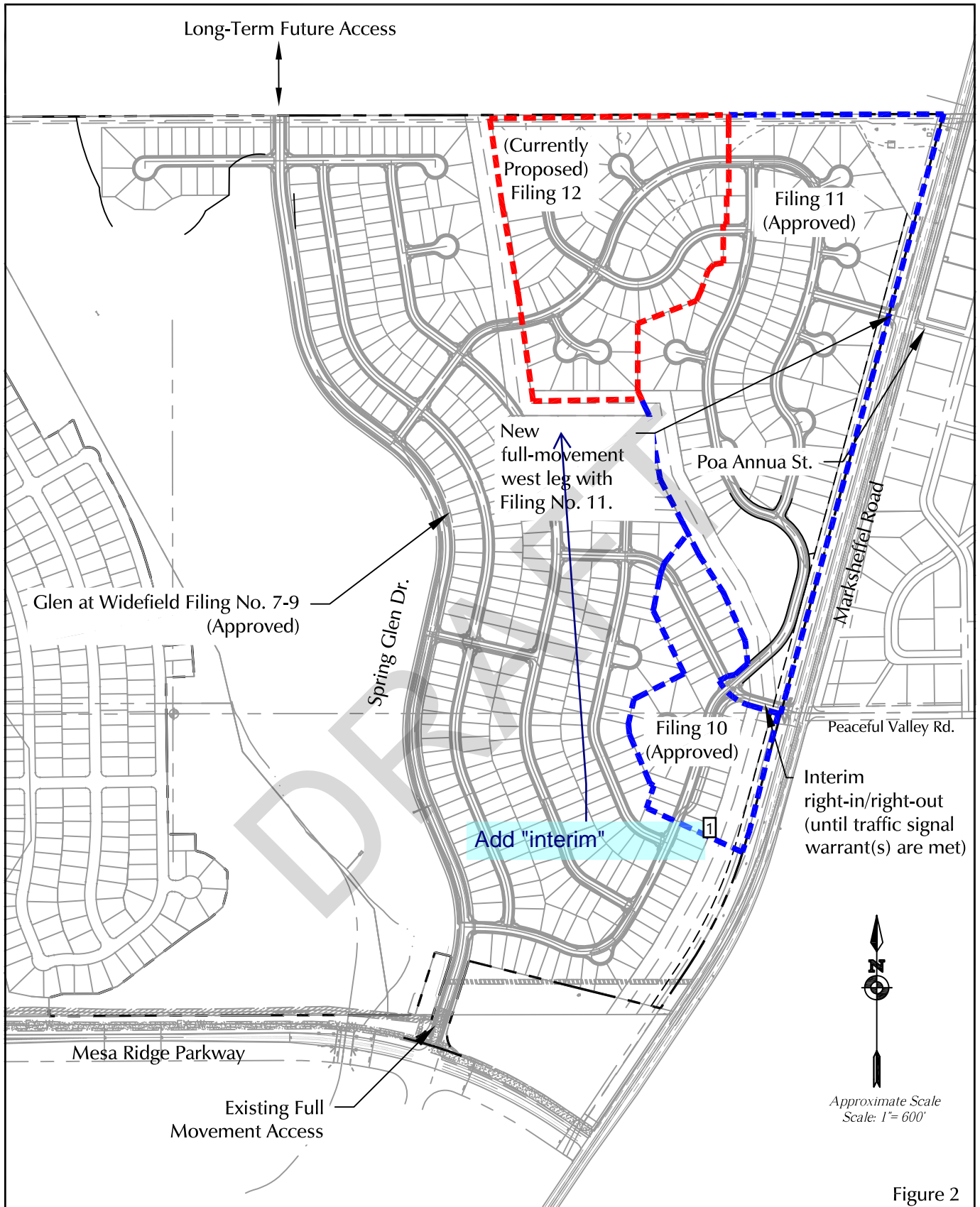



Figure 2
Site Plan

The Glen at Widefield Fil. 12 (LSC #S214610)

Number: 1 Author: Daniel Torres Subject: Callout Date: 8/11/2022 9:40:12 AM

Add "interim"

 Author: kdferrin Subject: Sticky Note Date: 10/21/2022 8:20:33 AM
LSC Response: Revised as requested
