LSC TRANSPORTATION CONSULTANTS, INC.
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Colorado Springs, CO 80903
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FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: http://www.lsctrans.com

River Bend Crossing
Traffic Impact and Access Analysis
(LSC #184140)
August 2, 2018

Traffic Engineer's Statement

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

Developer's Statement

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

_____ _____
Date

Add PCD File No. P189, SP187, SF1844, & SF1843

Summary of Comments on LSC Responses to EPC TIS Redline Comments.pdf

Page: 1

Number: 1 Author: Daniel Torres Subject: Text Box Date: 1/7/2019 12:26:53 PM -07'00'

Add PCD File No. P189, SP187, SF1844, & SF1843

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 9:43:16 AM

done

SITE LAND USE AND ACCESS

The Fountain Valley Shopping Center is located within the city limits of Fountain and the residential development site is located outside the city limits in unincorporated El Paso County.

The Fountain Valley Shopping Center, located west of US 85-87 and Main Street, includes about 83,000 square feet of floor space including a discount store, inline retail, a bowling alley, and a restaurant. The site is planned to be razed and redeveloped for new retail uses with a total of 61,407 square feet of floor space. The proposed site plan is shown in Figure 2. The existing full-movement signalized access to US 85-87 (aligning with Main Street) and two existing access points to Southmoor Drive are planned to remain. A 15,625-square-foot parcel located northwest of the intersection of US 85-87 and Main Street is not included in this development. The existing gas station with convenience market located on this parcel is under different ownership and is not part of this site or redevelopment. A right-in/right-out-only access point for the gas station to US 85-87 just north of Main Street is also outside the property boundary of this site.

A 53-acre parcel located adjacent to and southwest of the Fountain Valley Shopping Center is planned to be developed with 225 lots for single-family homes. The residential development would have access to the signalized intersection of US 85-87/Main Street via a new collector street that will extend through the redeveloped commercial parcel. An additional full-movement site access is proposed to Southmoor Drive about 925 feet south of US 85-87.

Provide specific classification of the new street per ECM nomenclature. 1

EXISTING ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The roadways in the study area are shown on Figure 1 and are described below.

- **US Highway 85-87** is a major north/south route serving Fountain Valley. Adjacent to the site US 85-87 has two through lanes in each direction and a posted speed limit of 50 miles per hour (mph). US 85-87 is classified by the Colorado Department of Transportation as a Rural Highway (NR-B) south of Main Street and a Non-Rural Principal Highway (NR-A) north of Main Street. The intersection of US 85-87 is currently signal controlled.

- **Southmoor Drive** forms a loop on the west side of SH 85-87 from just north of Mesa Ridge Parkway to just south of Main Street. This is an El Paso County Roadway from US Highway 85-87 to Lovitt Lane. South of Lovitt Lane, it is a City of Fountain street. Access to this site would be to the El Paso County-owned section. The El Paso County roadway inventory identifies Southmoor Drive as an Urban Collector (FC-17). Fountain classifies Southmoor Drive as a two-lane Community Collector. The north intersection of Southmoor Drive and US 85-87 is a "three-quarter-movement" intersection and is restricted to left-in/right-in/right-out only. The eastbound approach to the state highway is Stop-sign controlled. The posted speed limit is 30 mph.

Page: 3

Number: 1 Author: Daniel Torres Subject: Callout Date: 1/9/2019 8:15:22 AM -07'00'

Provide specific classification of the new street per ECM nomenclature.

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 1:17:45 PM

See pg 8 comment should this be a City of Fountain classification (Community Collector) or El Paso County (Urban Non-Residential Collector)?

Provide an exhibit of the sight distance for the two existing commercial access and the proposed intersection on Southmoor Dr.. 1

State the site distance length and whether they meet the ECM criteria. 2

T DISTANCE

The existing shopping center access points along Southmoor Drive are proposed to remain for the shopping center redevelopment. The intersection sight distance "triangles," or the area along Southmoor Drive, including the area east of a line extending straight north to the edge of the state highway from a point at the north access 13 feet back from the west edge of the Southmoor Drive, should be kept free of landscaping, signs, and other obstructions.

The proposed residential street access point to Southmoor Drive would meet El Paso County sight distance criteria. This access would be located on the outside of the horizontal curve.

State the sight distance length per the ECM criteria 3

Existing Traffic Conditions

Figure 3 shows the morning and afternoon peak-hour traffic volumes at the intersections of US 85-87/ Main, US 85-87/Southmoor and the existing east Fountain Valley Shopping Center access to Southmoor Drive based on counts conducted by LSC in February 2018. All movements from both site access points to Southmoor Drive were counted as a single intersection. The traffic count reports are attached.

Provide a more detailed explanation for why it's counted as a single intersection and how this translate to the figures provided which still shows traffic values for both access points. 4

Existing Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or 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
Intersection Levels of Service Delay Ranges

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

(1) Source: *Transportation Research Circular 212*
(2) For unsignalized intersections if V/C ratio is greater than 1.0 the level of service is LOS F regardless of the projected average control delay per vehicle.

Page: 4

Number: 1 Author: dsdlaforce Subject: Text Box Date: 1/9/2019 4:18:34 PM -07'00'

Provide an exhibit of the sight distance for the two existing commercial access and the proposed intersection on Southmoor Dr..

Author: Kirstin Subject: Sticky Note Date: 4/29/2019 11:28:47 AM

A sight distance analysis of the proposed new access point for the commercial development has been included in the updated TIS. Analysis of the residential access will be included in a future TIS for the residential development only.

Number: 2 Author: Daniel Torres Subject: Callout Date: 1/7/2019 4:05:24 PM -07'00'

State the site distance length and whether they meet the ECM criteria.

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 11:18:53 AM

KDF/Matt to update with new plan

Author: Kirstin Subject: Sticky Note Date: 4/29/2019 11:29:05 AM

done

Number: 3 Author: Daniel Torres Subject: Callout Date: 1/7/2019 4:02:02 PM -07'00'

State the sight distance length per the ECM criteria

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 11:19:03 AM

done

Number: 4 Author: dsdlaforce Subject: Callout Date: 1/9/2019 4:47:01 PM -07'00'

Provide a more detailed explanation for why it's counted as a single intersection and how this translate to the figures provided which still shows traffic values for both access points.

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 1:18:33 PM

As the existing buildings/land uses are planned to be razed the primary purpose of counting the site access points was to determine the through traffic volume on Southmoor and to estimate "cut-through" traffic traveling between Southmoor and the traffic signal at Main/ US-85-87 through the site. As most of the traffic volume was intended to be removed or rerouted through the analysis process it was determined that it was not necessary to separate which of the two access points vehicles used as long as the direction of travel was determined.

1 Provide further explanation. Current site allows access to the gas station via the commercial development. Is the intent to completely isolate this site? However based on the current layout it seems the proposed redevelopment appears to provide parking and access for the gas station.

Traffic from the gas station should be included with the redevelopment.

The signalized intersection of US 85-87 was analyzed to determine the existing levels of service using Synchro. The intersection of US 85-87/Southmoor and the Fountain Valley Shopping Center access intersections were analyzed using the unsignalized intersection method of analysis procedures found in the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. Figure 3 shows the existing level of service analysis results. The level of service (LOS) reports are attached.

All movements at the signalized intersection of US 85-87 are currently operating at LOS D or better during the morning and afternoon peak hours.

All movements at the three-quarter movement intersection of US 85-87/Southmoor are currently operating at LOS C or better during the morning and afternoon peak hours.

2 Explain the relevance of this statement.

TRIP GENERATION

Estimates of the traffic volumes expected to be generated by the site were made using the nationally published trip generation rates found in *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Table 2 shows the trip generation estimates.

The shopping center will not be a new "greenfield" development, rather redevelopment of an existing shopping center. The overall net decrease in building square footage is 21,593. The following trip generation estimate for the shopping center redevelopment represents the post-redevelopment trip generation with current trips generated removed. Note: the gas station outparcel is not a part of this project.

The total number of vehicle-trips generated by the land uses has been reduced to account for the internal vehicle-trips made within the site between land uses, without use of the external streets surrounding the site. Table 2 shows the number of internal trips assumed for each land use. The internal trip reduction is an estimate by LSC based on National Highway Cooperative Highway Research Program (NCHRP) Report 684 Enhancing Internal Trip Capture Estimation for Mixed-Use Developments. The results of the spreadsheet model are attached.

The total number of vehicle-trips generated has also been reduced to take into account the "pass-by"" phenomena. A pass-by trip is made by a motorist who would already be on the adjacent roadways regardless of the proposed development, but who stops in at the site while passing by. The motorist would then continue on his or her way to a final destination in the original direction. The pass-by percentages shown on Table 2 are from the *Trip Generation Handbook - An ITE Proposed Recommended Practice, 3rd Edition, 2014* by ITE.

The shopping center/non-residential portion of the site is projected to generate about 2,880 non-pass-by, external 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 and 8:30 a.m., about 173 vehicles would enter and 127 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 190 vehicles would enter and 184 vehicles would exit the site.

Page: 5

Number: 1 Author: dsdlaforce Subject: Callout Date: 1/14/2019 5:35:22 PM -07'00'

Provide further explanation. Current site allows access to the gas station via the commercial development. Is the intent to completely isolate this site? However based on the current layout it seems the proposed redevelopment appears to provide parking and access for the gas station.Traffic from the gas station should be included with the redevelopment.

Author: jchodsdon Subject: Sticky Note Date: 8/19/2019 1:12:05 PM

The updated TIS includes estimates of existing gas station traffic at the intersection of SH 85-87/Main

Number: 2 Author: Daniel Torres Subject: Callout Date: 1/9/2019 6:17:12 PM -07'00'

Explain the relevance of this statement.

Author: Kirstin Subject: Sticky Note Date: 9/6/2019 7:32:37 AM

This was simply added to note that this is not a "greenfield" development, rather a redevelopment of an existing shopping center.

The residential portion of the site is projected to generate about 2,018 new external 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 40 vehicles would enter and 119 vehicles would exit the site. During the afternoon peak hour about 133 vehicles would enter and 78 vehicles would exit the site.

TRIP DISTRIBUTION AND ASSIGNMENT

The estimated directional distribution of the site-generated traffic volumes on the adjacent roadways is an important factor in determining the site's traffic impacts. Figure 4 shows the directional distribution estimates for the primary site-generated traffic. Figure 4 shows separate estimates for the residential and retail portions of the site. The estimates have been based on the following factors: the site land uses; the site location; the street and roadway system serving the site; and the existing/ projected traffic volumes.

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1 The pass-by trips were assigned based in large part on the magnitude and direction of the existing and projected background traffic volumes on the adjacent roadways.

When the distribution percentages (from Figure 4) were applied to the trip generation estimates (from Table 2), the site-generated traffic volumes on the area roadways were determined. Figures 5 and 6 show the site-generated traffic volumes for the residential and retail portions of the site, respectively.

BASELINE (BACKGROUND) TRAFFIC

Baseline traffic is the traffic estimated to be on the adjacent roadways and at adjacent intersections without the proposed development's trip generation of site-generated traffic volumes. Background traffic includes the through traffic and the traffic generated by nearby developments, but assumes zero traffic generated by the site. The baseline traffic volumes also 2 do not include any traffic estimated to be currently 3 generated by land uses within the existing Fountain Valley Shopping Center that are planned to be razed.

The residential subdivision plan includes a "stub" for a potential future street connection to the adjacent property to the west. However, as it is our understanding that the adjacent property will not be developed. Future background traffic from this property has not been included in this report.

Figure 7a shows the estimated short-term baseline traffic volumes. The short-term baseline traffic volumes are based on the existing traffic volumes shown in Figure 3 4 with traffic estimated to be currently generated by land uses within the existing Fountain Valley Shopping Center that are planned to be razed/removed.

Figure 7b shows the lane geometry, traffic control, and level of service at the key intersections based on the short-term baseline volumes.

Figure 8a shows the estimated 2040 baseline traffic volumes. These volumes are based on the short-term baseline traffic volumes shown in Figure 7a plus additional growth of through traffic on the

Page: 6

Number: 1 Author: dsdlaforce Subject: Callout Date: 1/10/2019 11:07:05 AM -07'00'

Clarify the last sentence. This seems to contradict the second paragraph below and figure 7a which shows trips in/out of Fountain Valley Shopping Center.Provide a more detailed explanation on the method used to exclude traffic going in/out of the shopping center.

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 1:59:25 PM

done

Number: 2 Author: dsdlaforce Subject: Highlight Date: 1/10/2019 11:05:34 AM -07'00'

do not include any traffic

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 1:59:33 PM

part of above comment

Number: 3 Author: dsdlaforce Subject: Highlight Date: 1/10/2019 11:05:49 AM -07'00'

generated by land uses within the existing Fountain Valley Shopping Center

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 1:59:37 PM

part of above comment

Number: 4 Author: dsdlaforce Subject: Highlight Date: 1/10/2019 11:06:02 AM -07'00'

with traffic estimated to be currently generated by land uses within the existing Fountain Valley Shopping Center

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 1:59:40 PM

part of above comment

US 85-87/Southmoor

All movements at the three-quarter movement (left-in/right-in/right-out-only) intersection of US 85-87/Southmoor are projected to operate at LOS C or better during the peak hours based on the projected short-term and 2040 total traffic volumes.

Site Access Points

The site access points to Southmoor Drive are projected to operate at LOS B or better for all movements as two-way, Stop-sign-controlled intersections based on the projected short-term and 2040 total traffic volumes.

QUEUING ANALYSIS

A queuing analysis was performed using Synchro/SimTraffic to determine if the proposed laneage for the main access to US 85-87 will be sufficient to accommodate the projected queues based on the total traffic volumes. The 2040 total afternoon peak-hour traffic volumes were entered into the Synchro model. The simulation was run five times and the results were averaged. The queueing reports are attached.

Based on the projected 2040 total traffic volumes, the projected maximum eastbound left-turn queue at the main access approaching US 85-87 is about 129 feet long. This queue could be accommodated by the proposed laneage.

The projected maximum northbound left-turn queue on US 85-87 is about 105 feet long. The existing northbound left-turn lane at this intersection is about 335 feet long. Based on the criteria contained in The Colorado State Highway Access Code for a roadway with a classification of NR-B and a posted speed limit greater than 40 mph, the required turn lane length for the northbound left-turn lane would be 320 feet plus a 180-foot taper.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

- The retail portion of the site is projected to generate about 2,880 new external 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 173 vehicles would enter and 127 vehicles would exit the site. During the afternoon peak hour about 190 vehicles would enter and 184 vehicles would exit the site. The shopping center will not be a new "greenfield" development, rather redevelopment of an existing shopping center. The overall net decrease in building square footage is 21,593. This trip generation estimate for the shopping center redevelopment represents the post-redevelopment trip generation with current trips generated removed. Note: the gas station outparcel is not a part of this project.

1 Update the sentence by identifying the proposed laneage. Also expand on the geometry shown versus the engineering criteria for the required storage, bay taper and lane length for the given road classification. The proposed configuration does not appear to meet total length per the County's ECM criteria. Ultimately this section is within the City of Fountain and subject to their rules and regulations.

Page: 8

Number: 1 Author: dsdlaforce Subject: Callout Date: 1/10/2019 2:26:36 PM -07'00'

Update the sentence by identifying the proposed laneage. Also expand on the geometry shown versus the engineering criteria for the required storage, bay taper and lane length for the given road classification. The proposed configuration does not appear to meet total length per the County's ECM criteria. Ultimately this section is within the City of Fountain and subject to their rules and regulations.

Author: Kirstin Subject: Sticky Note Date: 4/29/2019 11:30:27 AM

STILL NEED

- The residential portion of the site is projected to generate about 2,018 new external 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 40 vehicles would enter and 119 vehicles would exit the site. During the afternoon peak hour about 133 vehicles would enter and 78 vehicles would exit the site.

Projected Levels of Service

- All movements at the signalized intersection of US 85-87 are projected to operate at LOS D or better during the peak hours based on the projected short-term and 2040 total traffic volumes.

- All movements at the three-quarter movement (left-in/right-in/right-out only) intersection of US 85-87/Southmoor are projected to operate at LOS C or better during the peak hours based on the projected short-term and 2040 total traffic volumes.

- The site access points to Southmoor Drive are projected to operate at a satisfactory level of service for all movements as two-way Stop-sign-controlled intersections based on the projected short-term and 2040 total traffic volumes.

Access Permitting

Since no trigger points were proposed staff assumes all improvements proposed will be required with the first filing. 1

- The proposed residential site access on Southmoor Drive will require El Paso County approval.

- CDOT will require the submittal of a Colorado State Highway Access Permit Applications for the main access at the US Highway 85-87 intersection. They may also require the submittal of an application for the intersection of Southmoor Drive/US Highway 85-87.

Recommendations

to be included in the final plat(s). Need to provide the CD and construct. If to be phased with each final plat based on warrants then need to include info. 2

- Southmoor Drive should be improved to an El Paso County-standard Urban Collector street adjacent to the site.

Non residential 3

- A short southbound right-turn bay should be added on Southmoor Drive approaching the north site access point.

- Figure 11 shows the proposed laneage for the main access to the shopping center and the residential development.

- Signal modifications may be needed to the existing traffic signal at the intersection of US 85-87/ Main Street to accommodate the recommended modifications to the site access (west leg). CDOT will likely require a signal modification plan as part of the terms and conditions of the State Highway Access Permit. CDOT will also likely require the submittal of design plans for the west leg intersection improvements. These will likely need to be approved by CDOT prior to issuance of a Notice-to-Proceed (NTP).

Identify the required deceleration and storage length per the ECM criteria. Given the current location there does not seem to be sufficient space. The north site access should be removed to accommodate the required right turn lane.

State that these improvements are not reimbursable under the current MTCP plan.

Page: 9

Number: 1 Author: dsdlaforce Subject: Callout Date: 1/10/2019 11:03:55 AM -07'00'

Since no trigger points were proposed staff assumes all improvements proposed will be required with the first filing.

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 2:17:15 PM

ask client?

Number: 2 Author: dsdruiz Subject: Cloud+ Date: 1/7/2019 10:33:54 AM -07'00'

to be included in the final plat(s). Need to provide the CD and construct. If to be phased with each final plat based on warrants then need to include info.

Author: Kirstin Subject: Sticky Note Date: 9/6/2019 7:27:34 AM

Comment Noted.

Number: 3 Author: Daniel Torres Subject: Callout Date: 1/9/2019 6:26:36 PM -07'00'

Non residential

Author: Kirstin Subject: Sticky Note Date: 4/25/2019 2:19:17 PM

done

Number: 4 Author: dsdlaforce Subject: Callout Date: 1/10/2019 9:26:20 AM -07'00'

Identify the required deceleration and storage length per the ECM criteria. Given the current location there does not seem to be sufficient space. The north site access should be removed to accommodate the required right turn lane.State that these improvements are not reimbursable under the current MTCP plan.

Author: Kirstin Subject: Sticky Note Date: 4/27/2019 12:22:41 PM

existing access points closed with current plan

Provide a road classification exhibit. Provide a recommended roadway classification for Main Street within the commercial area. 1

Elaborate. What is the recommendation relating to this statement? 2

- There are existing northbound left-turns lane on US 85-87 approaching Southmoor Drive and Main Street. These lanes meet the criteria contained in The Colorado State Highway Access Code based on a classification of NR-B with a posted speed limit greater than 40 mph.

- There are existing continuous right-turn acceleration/deceleration lanes on US 85-87 between the right-in/right-out access just north of Main Street to Mesa Ridge Parkway.

- There is an existing 70-foot right-turn deceleration lane on US 85-87 approaching the right-in/right-out access just north of Main Street. Based on criteria contained in The Colorado State Highway Access Code this lane should be extended to 350 feet plus a 150-foot taper.

- The streets within the residential subdivision should be classified as El Paso County Urban Local streets. 3

Current ten-mil PID fee is $1221 per single family dwelling unit. Update accordingly.

Roadway Improvement Fee Program

- The residential portion of the project will be required to participate in the El Paso County Road Improvement Fee Program. They will join the ten-mil PID. The ten-mil PID building permit fee portion associated with this option is $923 per single-family dwelling unit. Based on 225 lots, the total building permit fee would be $207,675.

* * * * *

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

to be submitted to EPC CAO separately for hearing. Need to place note on plat indicating the PID. 4

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Kirstin Day Ferrin, P.E.
Senior Transportation Engineer

JCH:KDF:bjwb

Enclosures: Table 2
Figures 1-11
Spreadsheet Model Results
Traffic Count Reports
Level of Service Reports

5

- Provide pedestrian route analysis since the residential subdivision is within 2 miles of a school to include continuity and adequacy of pedestrian/bicycle facilities to the school.

- State whether the MTCP or other approved corridor study calls for the construction of improvements in the immediate area.

- If applicable, list other studies in the area of interest within the past 5 years. State whether the current study is consistent with those studies and explain any discrepancies. If there are none then state as such.

- If applicable, list all deviations from the ECM the applicant will me making.

Page: 10

Number: 1 Author: dsdlaforce Subject: Callout Date: 1/9/2019 5:15:03 PM -07'00'

Provide a road classification exhibit. Provide a recommended roadway classification for Main Street within the commercial area.

Author: Kirstin Subject: Sticky Note Date: 4/29/2019 11:31:36 AM

an exhibit has been included in the updated TIS

Number: 2 Author: dsdlaforce Subject: Callout Date: 1/9/2019 5:10:46 PM -07'00'

Elaborate. What is the recommendation relating to this statement?

Author: Kirstin Subject: Sticky Note Date: 4/29/2019 11:31:53 AM

The recommendation has been clarified in the updated TIS

Number: 3 Author: Daniel Torres Subject: Callout Date: 1/8/2019 9:30:13 AM -07'00'

Current ten-mil PID fee is $1221 per single family dwelling unit. Update accordingly.

Author: Kirstin Subject: Sticky Note Date: 4/29/2019 11:32:40 AM

The residential development including Road Improvement Fees will be included in a separate TIS

Number: 4 Author: dsdruiz Subject: Cloud+ Date: 1/7/2019 10:35:05 AM -07'00'

to be submitted to EPC CAO separately for hearing. Need to place note on plat indicating the PID.

Author: Kirstin Subject: Sticky Note Date: 9/6/2019 7:28:26 AM

Comment noted.

Number: 5 Author: dsdlaforce Subject: Text Box Date: 1/10/2019 11:02:07 AM -07'00'

- Provide pedestrian route analysis since the residential subdivision is within 2 miles of a school to include continuity and adequacy of pedestrian/bicycle facilities to the school.- State whether the MTCP or other approved corridor study calls for the construction of improvements in the immediate area.- If applicable, list other studies in the area of interest within the past 5 years. State whether the current study is consistent with those studies and explain any discrepancies. If there are none then state as such.- If applicable, list all deviations from the ECM the applicant will me making.

Author: Kirstin Subject: Sticky Note Date: 9/6/2019 7:29:23 AM

These elements have been included in the updated TIS.

Table 2
Trip Generation Estimate
River Bend Crossing

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates [1] Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Total Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Internal Trips Generated[2] Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	External Trips Generated Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Pass-By Trips [3]	New External Trips Generated Average Weekday Traffic
820	Shopping Center	53.14 KSF[4]	73.60	2.08	1.28	3.07	3.33	3,911	111	68	163	177	660	12	9	29	28	3,251	99	59	134	149	34%	2,146
934	Fast-Food Restaurant with Drive-Through Window	2.667 KSF	470.95	20.50	19.69	16.99	15.68	1,256	55	53	45	42	333	7	6	16	19	923	48	47	29	23	50%	462
932	High-Turnover (Sit-Down) Restaurant	5.6 KSF	112.18	5.47	4.47	6.06	3.71	628	31	25	34	21	148	4	3	8	9	480	27	22	26	12	43%	274
	Total Trip Generation Estimate for the Retail Portion of the Development							**5,795**	**196**	**145**	**243**	**240**	**1,141**	**23**	**18**	**53**	**56**	**4,654**	**173**	**127**	**190**	**184**		**2,882**
210	Single Family Detached Housing	225 DU[5]	9.44	0.19	0.56	0.62	0.37	2,124	42	125	140	82	106	2	6	7	4	2,018	40	119	133	78	0%	2,018
					Total Trip Generation Estimate			**7,919**	**237**	**270**	**383**	**322**	**1,247**	**25**	**24**	**60**	**60**	**6,672**	**212**	**246**	**323**	**262**		**4,900**

Notes:
(1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)
(2) See attached NCHRP 684 Internal Trip Capture Estimate Tool Sheets
(3) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice, Second Edition June 2004" by ITE
(4) KSF = one thousand square feet of floor space
(5) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.

The narrative indicates that the 3rd edition, 2014 handbook was used. Update accordingly.

1

Page: 11

Number: 1 Author: Daniel Torres Subject: Callout Date: 1/7/2019 3:56:02 PM -07'00'

The narrative indicates that the 3rd edition, 2014 handbook was used. Update accordingly.

Author: Kirstin Subject: Sticky Note Date: 4/27/2019 12:23:41 PM

updated

Approximate Scale
Scale: 1"= 2,000'

Figure 4

Directional Distribution of Site-Generated Traffic

River Bend Crossing (LSC #184140)

LEGEND:

$$\frac{XX\%}{XX\%} = \frac{\text{Residential Percent Directional Distribution}}{\text{Commercial Percent Directional Distribution}}$$

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Number: 1 Author: dsdlaforce Subject: Callout Date: 1/9/2019 2:06:30 PM -07'00'

This seems too low given there is an Elementary School and High School to the east.

Author: Kirstin Subject: Sticky Note Date: 4/27/2019 12:24:06 PM

the distribution has been revised as requested

Number: 2 Author: dsdlaforce Subject: Callout Date: 1/9/2019 3:55:49 PM -07'00'

Identify the % distribution for the Main St entrance going to/coming from the south .

Author: Kirstin Subject: Sticky Note Date: 4/27/2019 12:23:47 PM

done

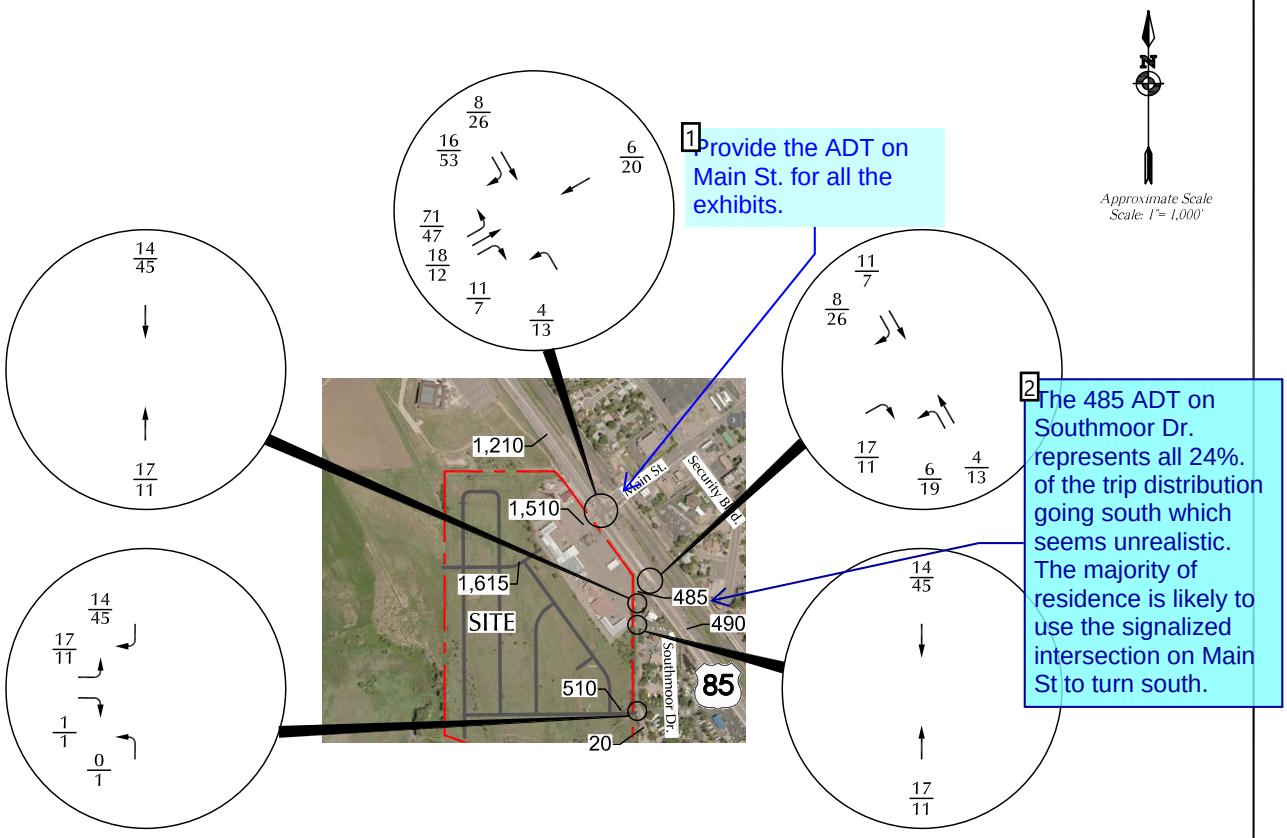

Figure 5

Assignment of Residential Site-Generated Traffic

River Bend Crossing (LSC #184140)

LEGEND:

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

X,XXX= Average Daily Traffic (vehicles per day)

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Number: 1 Author: Daniel Torres Subject: Callout Date: 1/10/2019 8:56:36 AM -07'00'

Provide the ADT on Main St. for all the exhibits.

Author: Kirstin Subject: Sticky Note Date: 4/27/2019 12:24:14 PM

done

Number: 2 Author: dsdlaforce Subject: Callout Date: 1/9/2019 12:23:51 PM -07'00'

The 485 ADT on Southmoor Dr. represents all 24%. of the trip distribution going south which seems unrealistic. The majority of residence is likely to use the signalized intersection on Main St to turn south.

Author: Kirstin Subject: Sticky Note Date: 9/5/2019 5:09:17 PM

The trip assignment has been updated based on this comment and the updated site plan.

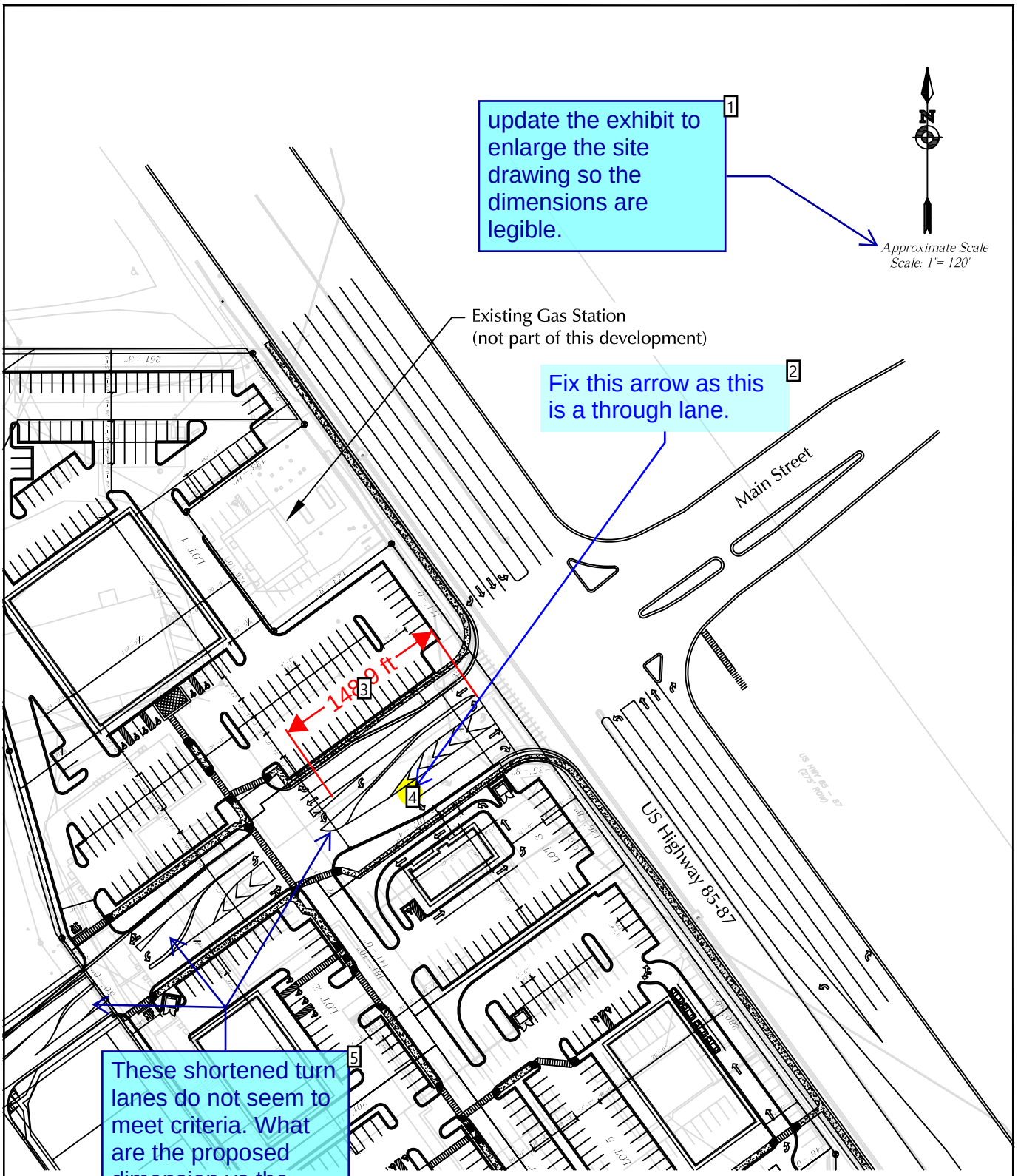

Figure 11

Proposed Main Access Laneage

River Bend Crossing (LSC #184140)

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Number: 1 Author: dsdlaforce Subject: Callout Date: 1/9/2019 4:56:58 PM -07'00'

update the exhibit to enlarge the site drawing so the dimensions are legible.

Author: Kirstin Subject: Sticky Note Date: 4/29/2019 11:33:30 AM

The exhibit has been updated as requested

Number: 2 Author: Daniel Torres Subject: Callout Date: 1/7/2019 5:59:43 PM -07'00'

Fix this arrow as this is a through lane.

Author: Kirstin Subject: Sticky Note Date: 4/29/2019 11:33:40 AM

done

Number: 3 Author: dsdlaforce Subject: Length Measurement Date: 1/9/2019 4:08:54 PM -07'00'

148.9 ft

Author: jchodsdon Subject: Sticky Note Date: 9/6/2019 7:29:59 AM

Dimensions have been included in the updated TIS.

Number: 4 Author: Daniel Torres Subject: Highlight Date: 1/7/2019 5:59:13 PM -07'00'

Number: 5 Author: dsdlaforce Subject: Callout Date: 1/9/2019 5:05:53 PM -07'00'

These shortened turn lanes do not seem to meet criteria. What are the proposed dimension vs the requirements in the ECM. It seems that the south east most intersection must be closed.

Author: jchodsdon Subject: Sticky Note Date: 9/5/2019 5:05:57 PM

LSC Response: The project team has met with the City of Fountain to discuss this laneage. The laneage has been updated based on that meeting and coordination with CDOT.