



Community Services Planning Department

September 12, 2019

To: Planning Department
Brandy Williams, City Engineer
Arthur Gonzales, CDOT
El Paso County Development Services

Re: Riverbend Crossing Traffic Study
TRAFFIC STUDY

The Applicant for Riverbend Crossing has provided the attached Traffic Report. Please provide a response back to the Planning Department by October 3, 2019. If you have any questions, please contact me at 322-2015 or email kristy@fountaincolorado.org

Kristy Martinez

Kristy Martinez, AICP
City of Fountain Planning Department
116 S. Main Street
Fountain, CO 80817

COMMENTS DUE: October 3, 2019



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Fountain, CO 80817

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LSC TRANSPORTATION CONSULTANTS, INC.
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Colorado Springs, CO 80903
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River Bend Crossing
Traffic Impact and Access Analysis
PCD File No. P189, SP187, SF1844, & SF1843
(LSC #184140)
September 9, 2019

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.

Ah Teth

9/11/19
Date



LSC TRANSPORTATION CONSULTANTS, INC.
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September 9, 2019

Mr. Alan Toth
Avatar Fountain
c/o Avatar Equities
6800 Jericho Turnpike, Suite 120W, #204
Syosset, NY 11791

RE: River Bend Crossing
City of Fountain, Colorado
Updated Traffic Impact and Access Analysis
LSC #184140

Dear Mr. Toth:

LSC Transportation Consultants, Inc. has prepared this updated traffic impact and access analysis for the proposed River Bend Crossing development to be located generally southwest of US Highway (Hwy) 85-87 (US 85-87) and Main Street in the City of Fountain, Colorado. The proposed plan includes the redevelopment of the existing Fountain Valley Shopping Center. Figure 1 shows the site location.

REPORT CONTENTS

The report contains the following:

- The proposed land uses for the site;
- The roadways in the study area including the number of lanes, classifications, posted speed limits, existing and proposed intersection/access spacing, lane geometries, traffic controls, etc.;
- The existing traffic volumes at the intersections of US Hwy 85-87/Main Street and US Hwy 85-87/Southmoor Drive;
- The projected future peak-hour traffic volumes for the site access points and the key area intersections;
- The resulting traffic impacts. The traffic impacts have been quantified by determining the future levels of service at the study-area intersections;
- Findings and recommendations.

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 Hwy 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 61,599 square feet of floor space. The proposed site plan is shown in Figure 2. The existing full-movement signalized access to US Hwy 85-87 (aligning with Main Street) is planned to remain. The two existing access points to Southmoor Drive are planned to be closed and replaced with a single full-movement access about 560 feet southwest of US Hwy 85-87 (centerline to centerline) and about 100 feet northeast of the existing Fountain Valley Senior Center entrance. A 15,625-square-foot parcel located northwest of the intersection of US Hwy 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 Hwy 85-87 just north of Main Street is also outside the property boundary of this site. As required by CDOT, the applicant has updated the site plan to show a vehicular connection to/from this outparcel. This would allow for vehicular access to/from this outparcel if CDOT were to close that parcel's direct access to US Hwy 85/87 in the future.

A 53-acre parcel located adjacent to and southwest of the Fountain Valley Shopping Center is planned to be developed with 221 lots for single-family homes. The residential development would have access to the signalized intersection of US Hwy 85-87/Main Street via a new Community 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 Hwy 85-87 aligning with an existing mobile home park access to the east.

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 Hwy 85-87 has two through lanes in each direction and a posted speed limit of 50 miles per hour (mph). US Hwy 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 Hwy 85-87 is currently signal controlled.
- **Southmoor Drive** forms a loop on the west side of US Hwy 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 Hwy 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.

INTERSECTION ACCESS SIGHT DISTANCE

Figure 3 shows the sight distance requirements at the proposed relocated (and consolidated) full-movement access point for the commercial portion of the development to Southmoor Drive. Based on a posted speed limit of 30 miles per hour, the El Paso County required sight distance for a driveway is 300 feet for passenger cars and pickup trucks, 390 feet for single-unit trucks, and 510 feet for multi-unit trucks. As shown in Figure 3, this access would meet El Paso County sight distance criteria.

Figure 4 shows the sight distance requirements at the proposed residential full-movement intersection to Southmoor Drive. Based on a design speed of 40 miles per hour, the El Paso County required public street intersection sight distance is 445 feet. As shown in Figure 4, this access would meet El Paso County sight distance criteria.

PEDESTRIAN AND BICYCLE ROUTE ANALYSIS

Figure 5 shows a pedestrian and bicycle route analysis for the development. The local elementary, junior high, and high schools which will serve this development are all located east of US Hwy 85-87.

Existing Traffic Conditions

Figure 6 shows the morning and afternoon peak-hour traffic volumes at the intersections of US Hwy 85-87/Main, US Hwy 85-87/Southmoor and the existing east Fountain Valley Shopping Center access to Southmoor Drive based on counts conducted by LSC in February 2018. As the existing commercial site access points to Southmoor Drive are proposed to be closed all movements from both site access points to Southmoor Drive were counted as a single intersection (i.e., the southbound right-turn volumes shown include vehicles that turned right at either the north or south access point). The traffic counts at the access points were used to determine the through traffic volumes on Southmoor Drive at the new access location and to estimate the volume of existing traffic that currently uses the Fountain Valley Shopping Center parking to travel to and from Southmoor Drive to the traffic signal at US Hwy 85-87/Main. The traffic count reports are attached.

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.

Level of Service	Signalized Intersections	Unsignalized Intersections
	Average Control Delay (Seconds per Vehicle)	Average Control Delay (Seconds per Vehicle) ¹
A	≤ 10.0	≤ 10.0
B	10.1 - 20.0	10.1 - 15.0
C	20.1 - 35.0	15.1 - 25.0
D	35.1 - 55.0	25.1 - 35.0
E	55.1 - 80.0	35.1 - 50.0
F	≥ 80.1	≥ 50.1
¹ For unsignalized intersections, if v/c is > 1.00, then LOS is LOS F, regardless of the projected average control delay per vehicle		

The signalized intersection of US Hwy 85-87 was analyzed to determine the existing levels of service using Synchro. The intersection of US Hwy 85-87/Southmoor was analyzed based on the unsignalized intersection method of analysis procedures found in the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. Figure 6 shows the detailed level of service analysis results. The level of service (LOS) reports are attached.

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

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. Table 2 also shows a trip generation estimate for the 53-acre parcel located adjacent to and southwest of the site.

The shopping center will not be a new “greenfield” development, rather redevelopment of an existing shopping center. 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, 2017* by ITE.

The shopping center/non-residential portion of the site is projected to generate about 2,932 non-pass-by, external vehicle-trips on the average weekday, with about half entering and half exiting this portion of 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 212 vehicles would enter and 166 vehicles would exit this portion of the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 p.m. and 6:15 p.m., about 196 vehicles would enter and 190 vehicles would exit this portion of the site.

The residential portion of the site is projected to generate about 1,982 external vehicle-trips on the average weekday, with about half entering and half exiting this portion of 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 39 vehicles would enter and 117 vehicles would exit this portion of the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 p.m. and 6:15 p.m., about 131 vehicles would enter and 77 vehicles would exit this portion of 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 7 shows the directional distribution estimates for the primary site-generated traffic projected to be generated by the shopping center/non-residential portion of the site. The estimates have been based on the following factors: the site land uses; the site location with respect to the nearby residential, employment, commercial, and activity centers; the street and roadway system serving the site; and the existing/projected traffic volumes. The non-passby trip directional distribution reflects the estimated market area of the shopping center with the highest percentage to/from the east on Main Street. This represents a significant number of “rooftops” within a relatively short travel distance. The split to the south on Highway 85 includes traffic from residential areas accessed via Fontaine Boulevard (Widefield), Fountain (via Highway 85), and other commercial areas to the south along Highway 85. The split to the north on Highway 85 accounts for trips from Stratmoor Valley and Stratmoor Hills, plus a much larger number of housing units within a reasonable driving time to the site via South Academy Boulevard and Highway 85. The site is also reasonably close to the South Academy Boulevard interchange to draw some diverted trips. Appendix Figure 1 shows trip path assumptions used to assign the site-generated traffic projected to be generated by the shopping center/non-residential portion of the site by lot and/or tract to each of the access points.

Figure 8 shows the directional distribution estimates for the pass-by site-generated traffic volumes. 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.

Figure 9 shows the directional distribution estimates for the site-generated traffic projected to be generated by the residential portion of the site. The estimates have been based on the following factors: the site land uses; the site location with respect to the nearby schools, employment, commercial, and activity centers; the street and roadway system serving the site; and the existing/projected traffic volumes. The residential distribution reflects the highest trip percentage oriented to/from the north on Highway 85 up to Academy Boulevard which provides road connections to destinations north and west. The percentage to/from Main Street takes into account the Main Street connection up to Hancock Expressway. From Hancock Expressway, there is quick access to Powers Boulevard north. Main Street split also includes area schools and other commercial centers as trip destinations. The splits to the south account for trip destinations in Fountain (including the commercial to the south), Widefield, the south part of Fort Carson (via Highway 16), and Pueblo. Appendix Figure 2 shows trip path assumptions used to assign the site-generated traffic projected to be generated by the residential portion of the site to each of the access points.

When the distribution percentages (from Figures 7 through 9) were applied to the trip generation estimates (from Table 2), the site-generated traffic volumes on the area roadways were determined. Figure 10 shows the site-generated traffic volumes due to development of the shopping center/non-residential portion of the site. Figure 11 shows the projected traffic volumes on the area roadways due to development of the 53-acre residential portion of the site.

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 shopping center/non-residential and residential portions of the site. The baseline traffic volumes also do not include any traffic estimated to be currently generated by land uses within the existing Fountain Valley Shopping Center that are planned to be razed. The baseline traffic volumes include traffic estimated to be generated by the existing gas station located northwest of the intersection of US Hwy 85-87 and Main Street and an estimate of "cut-through" traffic traveling between Southmoor and the traffic signal at Main/US Hwy 85-87 through the site.

Figure 12a shows the estimated short-term baseline traffic volumes. The short-term baseline traffic volumes are based on the existing traffic volumes shown in Figure 6 without traffic estimated to be currently generated by land uses within the existing Fountain Valley Shopping Center that are planned to be razed/removed.

Figure 12b shows the lane geometry, traffic control, and level of service at the key intersections based on the short-term baseline volumes.

Figure 13a shows the estimated 2040 baseline traffic volumes. These volumes are based on the short-term baseline traffic volumes shown in Figure 12a plus additional growth of through traffic on the adjacent streets based on the Colorado Department of Transportation (CDOT) twenty-year growth factor for US Hwy 85-87 adjacent to the site.

Figure 13b shows the lane geometry, traffic control, and level of service at the key intersections based on the 2040 baseline volumes.

TOTAL TRAFFIC

Figure 14a shows the projected short-term total traffic volumes at the site access points and key adjacent intersections. The short-term total traffic volumes are the sum of the short-term baseline traffic volumes from Figure 12a plus the site-generated traffic volumes due to development of the shopping center/non-residential portion of the site (from Figure 10) plus the site-generated traffic estimated to be generated by development of the residential portion of the site (from Figure 11). The volumes shown in Figure 14a represent the short-term impacts of the development.

Figure 14b shows the lane geometry, traffic control, and level of service at the key intersections based on the short-term total volumes.

Figure 15a shows the projected 2040 total traffic volumes at the site access points and key adjacent intersections. The 2040 total traffic volumes are the sum of the 2040 baseline traffic volumes from Figure 13a plus the site-generated traffic volumes due to development of the shopping center/non-residential portion of the site from (Figure 10) plus site-generated traffic estimated to be generated by development of the residential portion of the site (from Figure 11).

Figure 15b shows the lane geometry, traffic control, and level of service at the key intersections based on the 2040 total volumes.

PROJECTED LEVELS OF SERVICE

Intersection Levels of Service

The site access points, and key area intersections were analyzed to determine the projected levels of service for the short-term and 2040 baseline and total traffic volumes. Figures 12b through 15b show the level of service analysis results. The signalized intersection of US Hwy 85-87 was analyzed using Synchro. The intersection of US Hwy 85-87/Southmoor Drive and the site access points to Southmoor Drive were analyzed using the unsignalized/two-way, stop sign-controlled intersection method of analysis procedures found in the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The level of service (LOS) reports are attached.

US 85-87/Main

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

US 85-87/Southmoor

All movements at the three-quarter movement (left-in/right-in/right-out-only) intersection of US Hwy 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 Hwy 85-87 will be sufficient to accommodate the projected queues based on the total traffic volumes. The 2040 total morning and 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. A separate simulation was also run which assumed a signal preemption due to a trail crossing Main Street just east of US Hwy 85-87 during the peak hours. The analysis assumed the railroad crossing gates would be down for four minutes during which only northbound through and left-turning traffic, southbound through and right-turning traffic and eastbound left and right-turning traffic could occur.

Based on the projected 2040 total traffic volumes, the projected maximum eastbound left-turn queue at the main access approaching US Hwy 85-87 during a typical peak hour is about 143 feet long during the morning peak hour and 131 feet long during the afternoon peak hour. If a signal preemption occurs during the peak hour, the projected maximum eastbound left-turn queue is 150 feet during the morning peak hour and 130 feet during the afternoon peak hour. This estimate is likely conservative as the Synchro modeling software only allows for one eastbound left-turn phase during the 240 second preemption time. Figure 16 shows the proposed lane geometry for the proposed Collector street through the site. The projected maximum queue may extend into the painted taper area about two percent of the morning peak hour and one percent of the afternoon peak hour assuming typical traffic signal timings. If a railroad crossing occurs during the morning peak hour, the queue may back into the painted taper area up to nine percent of the peak hour (again, this estimate is likely conservative as the Synchro modeling software only allows for one eastbound left-turn phase during the 240 second preemption time). The queue is not projected to extend into the first interior parking lot access point.

The projected maximum northbound left-turn queue on US Hwy 85-87 is about 262 feet long during the morning peak hour and 109 feet long during the afternoon peak hour. 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.

STREET CLASSIFICATIONS

Figure 17 shows the existing and recommended street classifications in the vicinity of the site.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

- The shopping center/non-residential portion of the site is projected to generate about 2,932 new external vehicle-trips on the average weekday, with about half entering and half exiting this portion of the site during a 24-hour period. During the morning peak hour about 212 vehicles would enter and 166 vehicles would exit this portion of the site. During the afternoon peak hour about 196 vehicles would enter and 190 vehicles would exit this portion of the site. The shopping center will not be a new “greenfield” development, rather redevelopment of an existing shopping center. 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.
- The residential portion of the site is projected to generate about 1,982 external vehicle-trips on the average weekday, with about half entering and half exiting this portion of 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 39 vehicles would enter and 117 vehicles would exit this portion of the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 p.m. and 6:15 p.m., about 131 vehicles would enter and 77 vehicles would exit this portion of the site.

Projected Levels of Service

- All movements at the signalized intersection of US Hwy 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 Hwy 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

- The proposed relocated (and consolidated) site access for the shopping center/non-residential portion of the site on Southmoor Drive will require El Paso County approval.
- 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

- The applicant is planning to upgrade one-half of Southmoor Drive (the project side/west side of the street) to El Paso County-standard Urban Non-Residential Collector cross section adjacent to the site. This improvement is not reimbursable under the current MTCP plan.
- Based on projected 2040 total traffic volumes and the criteria contained in the *El Paso County Engineering Criteria Manual* (ECM) a southbound right-turn deceleration lane would **not** be required on Southmoor Drive approaching the proposed relocated full-movement site access point for the shopping center/non-residential portion of the site and approaching the proposed full-movement intersection for the residential portion of the site.
- Figure 17 shows the proposed laneage for the main access.
- 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).
- There are existing northbound left-turns lane on US Hwy 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 Hwy 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 Hwy 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 applicant has indicated that the pedestrian ramps on the northwest and southwest corners of the intersection of Highway 85/Main Street will meet ADA requirements. The pedestrian crossing distance on the west leg of the intersection is about 106 feet. This translates to a pedestrian clearance time of 30 seconds and a pedestrian interval of 24 seconds. This matches the current pedestrian interval for this leg in use at the intersection.
- Some signal modifications will be necessary including the addition of pedestrian pedestal posts on the northwest and southwest corners of the intersection such that separate push buttons can be provided for each crossing direction. Pedestrian signal heads already exist. Crosswalk markings and stop bars will need to be reinstalled. The mast arm on the signal pole

on the southeast corner of the intersection is 35 feet long. Per CDOT standard plan S-614-40A, a design length of 35 feet can accommodate 3 signal heads – one for the left-turn lane and one for each eastbound through lane. However, the overhead left-turn head may not be permitted as a primary left-turn head due to the lateral alignment. Alternatively, a primary post mounted left-turn head may be added on the island in the northeast corner. The left-turn striping may need to be modified from the concept in order to meet the lateral alignment criteria in the MUTCD. The third option is to install a short mast arm perpendicular to the existing signal pole in the northeast corner island on which a left-turn head could be mounted. The fourth option would be to add an additional signal pole with 25’ mast arm in the northeast corner island. These options could be evaluated in more detail with the preparation of a signal modification plan that could be provided prior to issuance of a Notice-to-Proceed.

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 \$1,221 per single-family dwelling unit. Based on 225 lots, the total building permit fee would be \$269,841.

* * * * *

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Mr. Alan Toth
River Bend Crossing

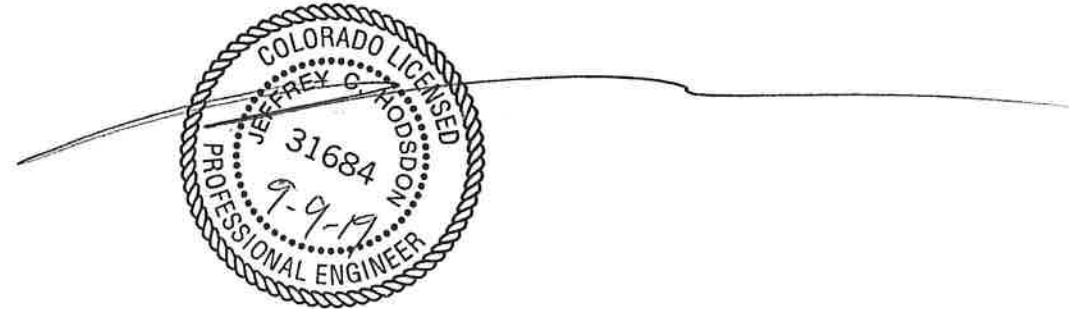
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September 9, 2019
Traffic Impact and Access Analysis

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.



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

JCH:KDF:jas

Enclosures: Table 2
Internal Trip Capture Estimate
Figures 1-14
Appendix Figures 1-2
Traffic Count Reports
Level of Service Reports
Queuing Reports

Table 2
Trip Generation Estimate
River Bend Crossing

Table 2 Trip Generation Estimate River Bend Crossing																									New External Trips Generated	
Tract/ Lot	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾				Total Trips Generated				Internal Trips Generated ⁽²⁾				External Trips Generated				Pass-By Trips ⁽³⁾	Average Weekday Traffic					
				Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Average Weekday Traffic	Morning Peak Hour In	Morning Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out								
					In	Out	In	Out											In			Out	In	Out		
Commercial Trip Generation Estimate			18.33 KSF ⁽⁴⁾	73.73	2.09	1.28	3.08	3.34	1,352	38	23	56	61	272	5	5	12	11	1,080	33	18	44	50	34%	713	
Tract A	820	Shopping Center	0.86 KSF	820.38	45.38	43.61	21.69	15.68	706	39	38	19	19	156	3	2	9	10	550	36	36	10	9	89%	61	
Tract A	937	Coffee/Donut Shop With Drive-Through Window	2.999 KSF	470.95	20.50	19.69	16.99	15.68	1,412	61	59	51	47	320	6	6	16	20	1,092	55	53	35	27	50%	546	
Lot 1	934	Fast-Food Restaurant with Drive-Through Window	7.7 KSF	73.73	2.09	1.28	3.08	3.34	568	16	10	24	26	91	1	1	5	4	477	15	9	19	22	34%	315	
Lot 2	820	Shopping Center	4.9 KSF	112.18	5.47	4.47	6.06	3.71	550	27	22	30	18	106	2	2	6	7	444	25	20	24	11	43%	253	
Tract B	932	High-Turnover (Sit-Down) Restaurant	9.31 KSF	73.73	2.09	1.28	3.08	3.34	686	19	12	29	31	147	3	2	7	6	539	16	10	22	25	34%	356	
Tract B	820	Shopping Center	8.75 KSF	73.73	2.09	1.28	3.08	3.34	645	18	11	27	29	124	2	1	6	6	521	16	10	21	23	34%	344	
Tract C	820	Shopping Center	8.75 KSF	73.73	2.09	1.28	3.08	3.34	645	18	11	27	29	124	2	1	6	6	521	16	10	21	23	34%	344	
Lot 4	820	Shopping Center																								
Total Trip Generation Estimate									6,564	236	186	263	260	1,340	24	20	67	70	5,224	212	166	196	190		2,932	
Residential Development Trip Generation Estimate																										
---	210	Single Family Detached Housing	221 DU ⁽⁶⁾	9.44	0.19	0.56	0.62	0.37	2,086	41	123	138	81	104	2	6	7	4	1,982	39	117	131	77	0%	1,982	

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, Third Edition September 2017" by ITE
 (4) KSF = one thousand square feet of floor space
 (5) DU = dwelling unit
 Source: LSC Transportation Consultants, Inc.

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	River Bend Crossing	Organization:	LSC Transportation Consultants, Inc.		
Project Location:	SH 85-87/Main St	Performed By:	KDF		
Scenario Description:	Buildout	Date:	8/29/2019		
Analysis Year:	2040	Checked By:			
Analysis Period:	AM Street Peak Hour	Date:			

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)					
Land Use	Development Data (For Information Only)		Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Exiting
Office				0	0
Retail				178	68
Restaurant				245	118
Cinema/Entertainment				0	0
Residential				0	0
Hotel				0	0
All Other Land Uses ²				423	186

Table 2-A: Mode Split and Vehicle Occupancy Estimates					
Land Use	Entering Trips		Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit
Office					
Retail					
Restaurant					
Cinema/Entertainment					
Residential					
Hotel					
All Other Land Uses ²					

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)				
Origin (From)	Destination (To)			
	Office	Retail	Restaurant	Residential
Office				Hotel
Retail				
Restaurant				
Cinema/Entertainment				
Residential				
Hotel				

Table 4-A: Internal Person-Trip Origin-Destination Matrix*					
Origin (From)	Destination (To)				
	Office	Retail	Restaurant	Cinema/Entertainment	Residential
Office		0	0	0	0
Retail	0		9	0	0
Restaurant	0	9		0	0
Cinema/Entertainment	0	0	0		0
Residential	0	0	0	0	
Hotel	0	0	0	0	0

Table 5-A: Computations Summary				
	Total	Entering	Exiting	
All Person-Trips	423	237	186	
Internal Capture Percentage	9%	8%	10%	
External Vehicle-Trips ⁵	387	219	168	
External Transit-Trips ⁶	0	0	0	
External Non-Motorized Trips ⁶	0	0	0	

Table 6-A: Internal Trip Capture Percentages by Land Use			
Land Use	Entering Trips	Exiting Trips	
Office	N/A	N/A	
Retail	8%	13%	
Restaurant	7%	8%	
Cinema/Entertainment	N/A	N/A	
Residential	N/A	N/A	
Hotel	N/A	N/A	

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in *ITE Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool				
Project Name:	River Bend Crossing	Organization:	LSC Transportation Consultants, Inc.	
Project Location:	SH 85-87/Main St	Performed By:	KDF	
Scenario Description:	Buildout	Date:	8/26/2019	
Analysis Year:	2040	Checked By:		
Analysis Period:	PM Street Peak Hour	Date:		

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)					
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³	
	ITE LUCs ¹	Quantity	Units	Total	Exiting
Office				0	0
Retail				339	163
Restaurant				183	99
Cinema/Entertainment				0	0
Residential				0	0
Hotel				0	0
All Other Land Uses ²				0	0
				522	262

Table 2-P: Mode Split and Vehicle Occupancy Estimates					
Land Use	Entering Trips			Exiting Trips	
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit
Office					
Retail					
Restaurant					
Cinema/Entertainment					
Residential					
Hotel					
All Other Land Uses ²					

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)				
Origin (From)	Destination (To)			
	Office	Retail	Restaurant	Cinema/Entertainment
Office				
Retail				
Restaurant				
Cinema/Entertainment				
Residential				
Hotel				

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		29	0	0	0
Restaurant	0	34		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	522	262	260
Internal Capture Percentage	24%	24%	24%
External Vehicle-Trips ⁵	396	199	197
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use			
Land Use	Entering Trips	Exiting Trips	
Office	N/A	N/A	
Retail	21%	16%	
Restaurant	29%	40%	
Cinema/Entertainment	N/A	N/A	
Residential	N/A	N/A	
Hotel	N/A	N/A	

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in *ITE Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

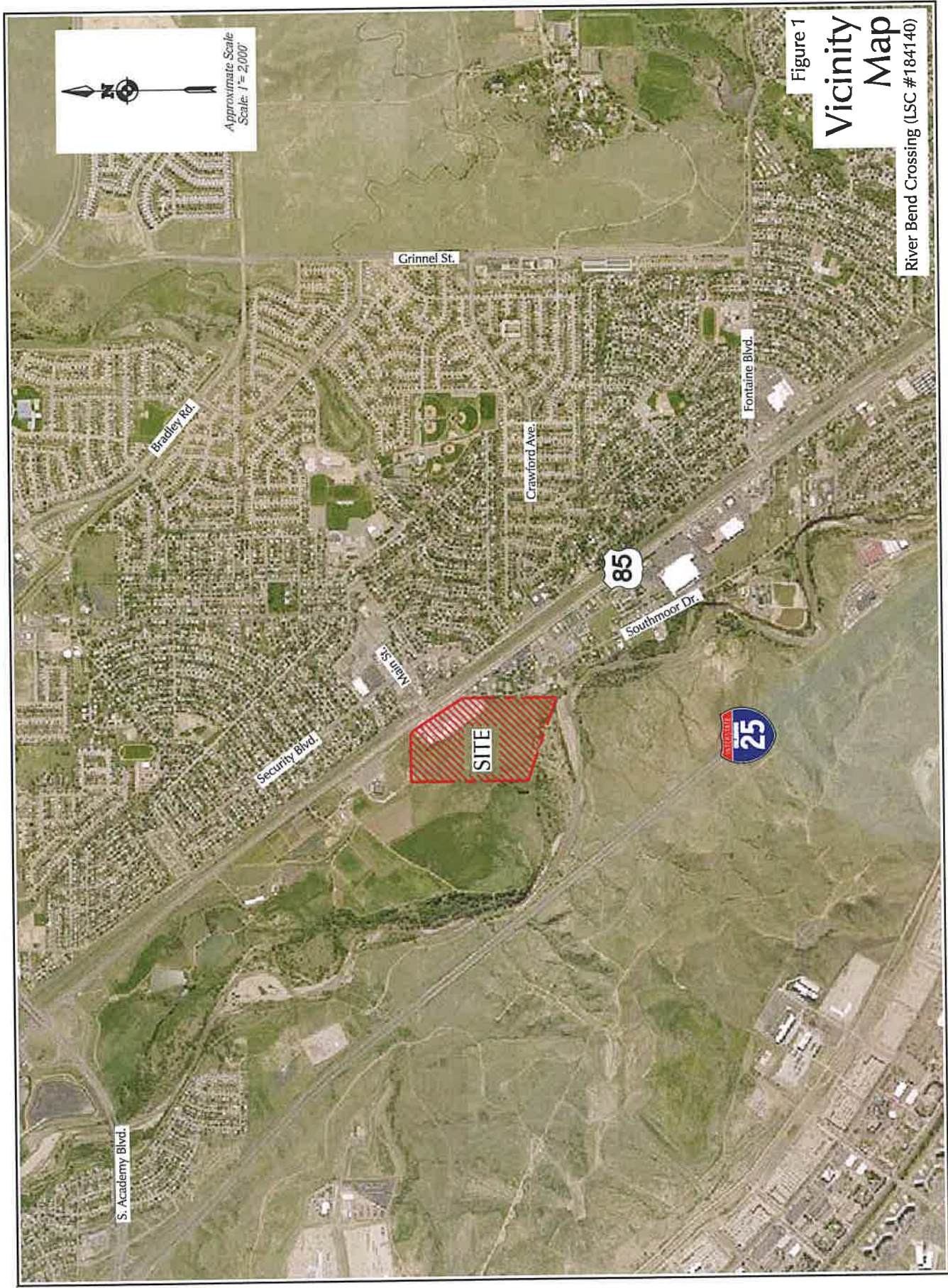


Figure 1
Vicinity
Map
River Bend Crossing (LSC #184140)

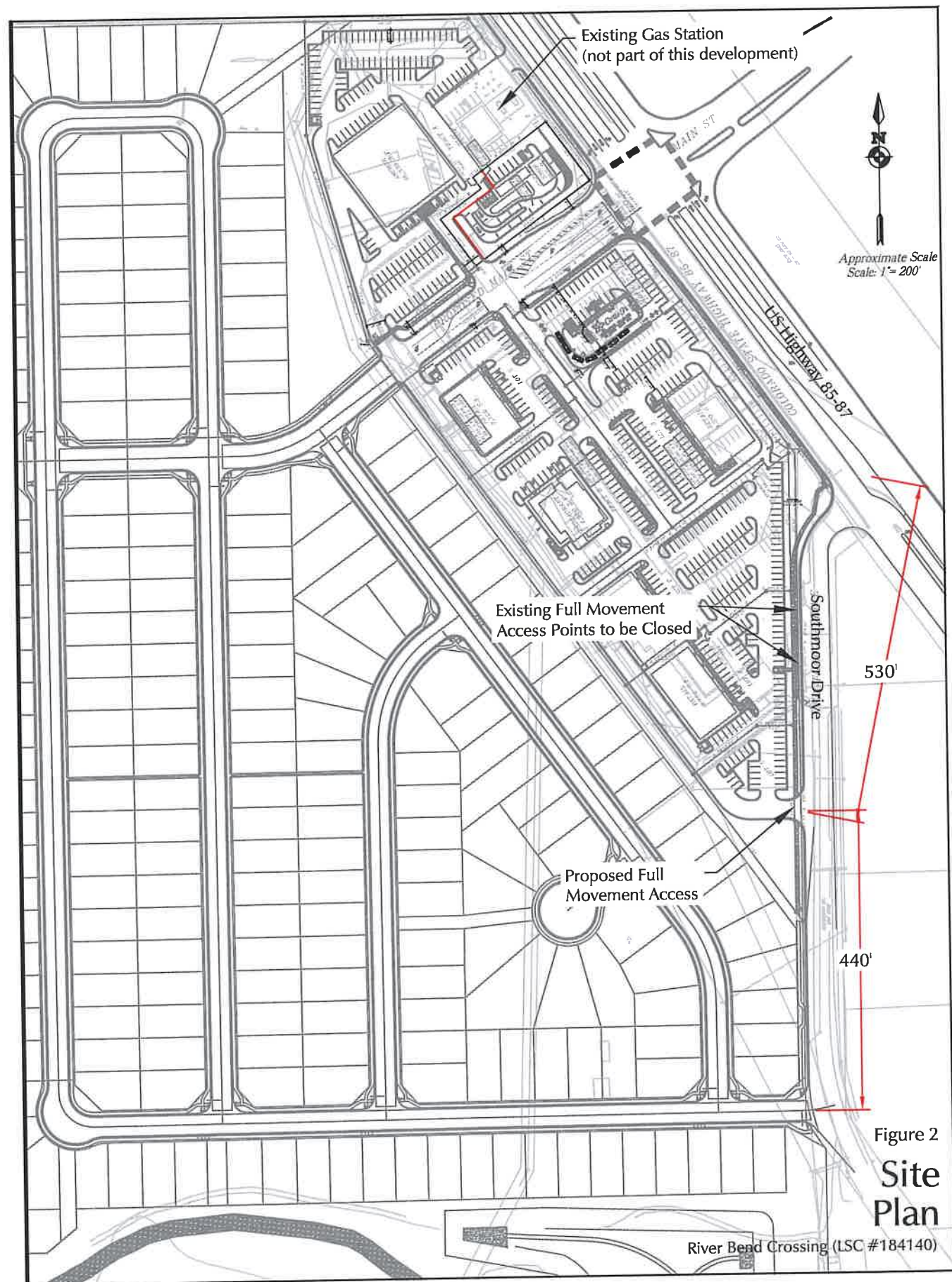
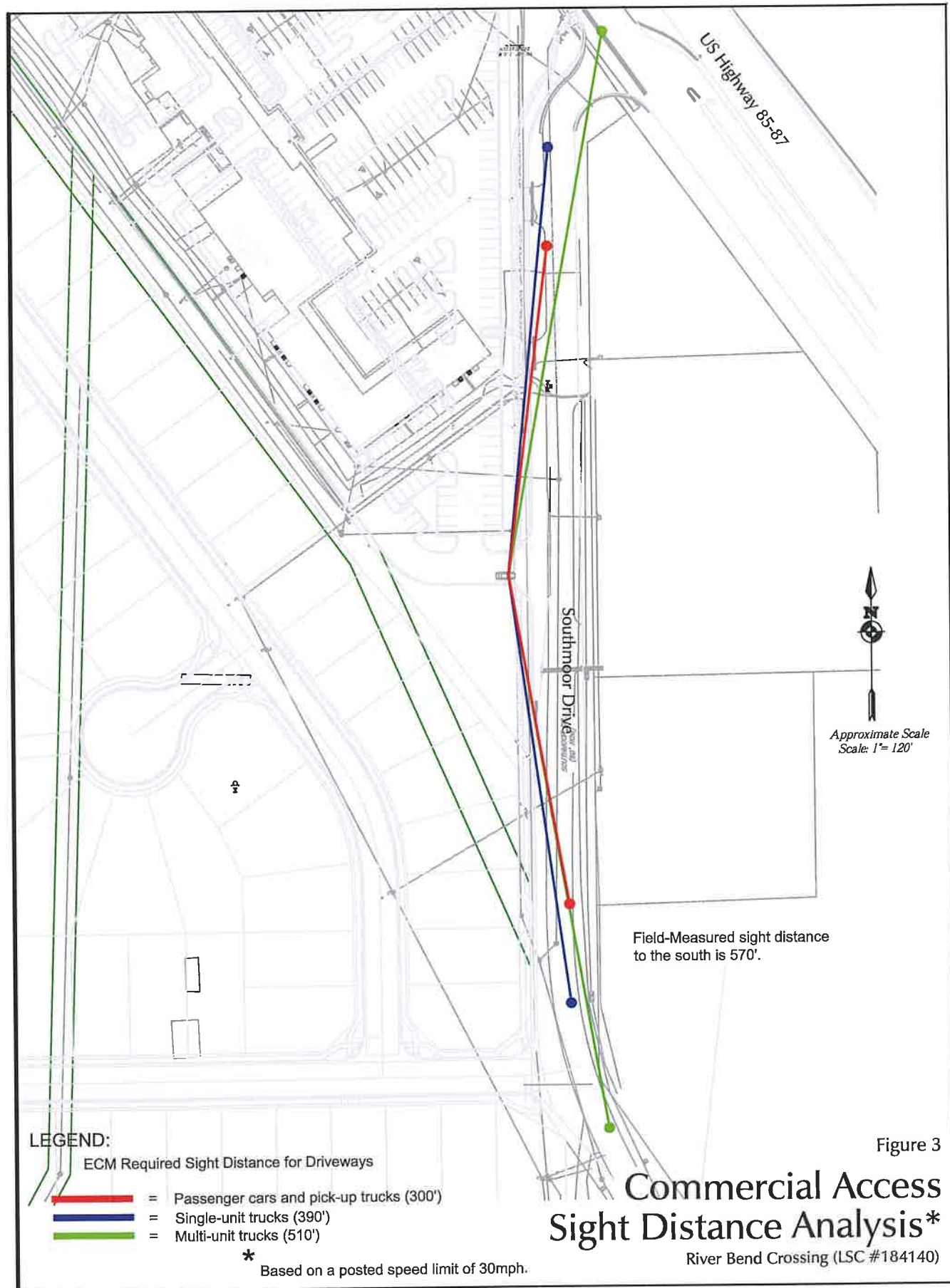


Figure 2
Site
Plan



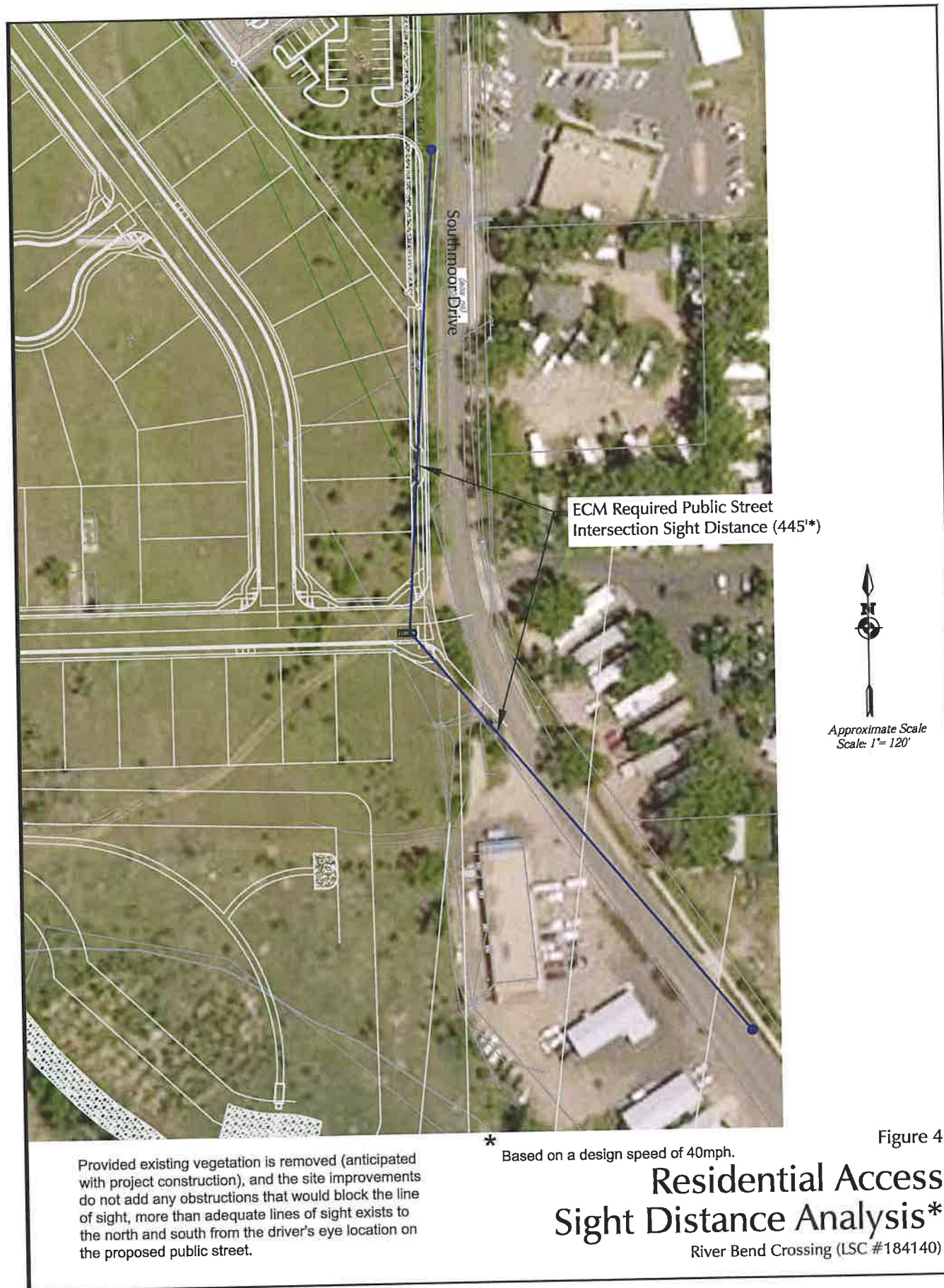
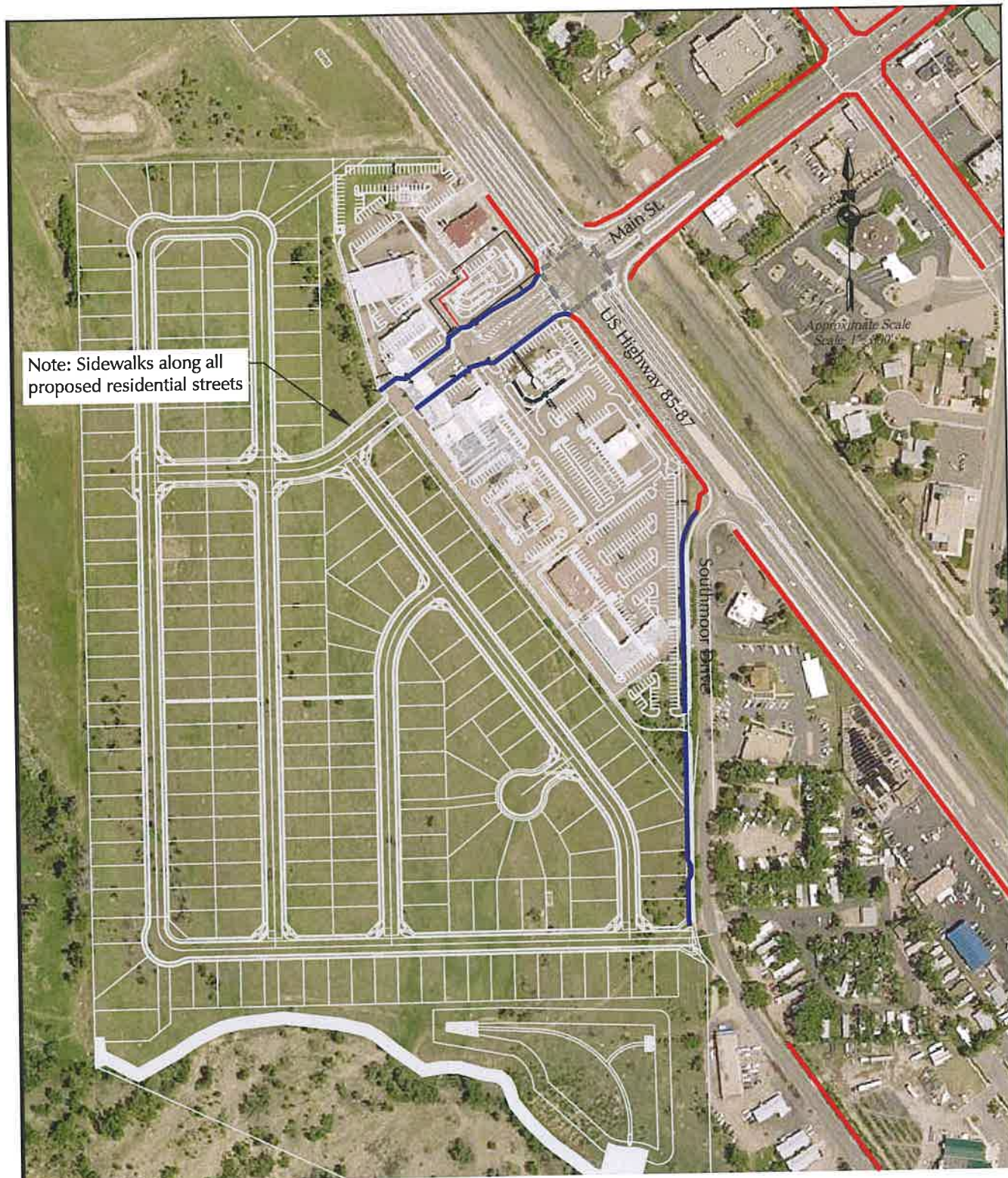


Figure 4



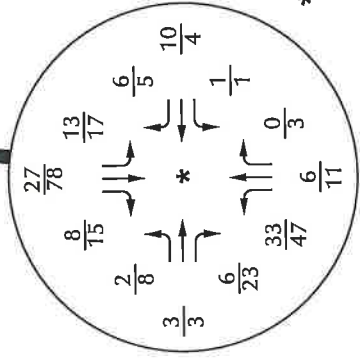
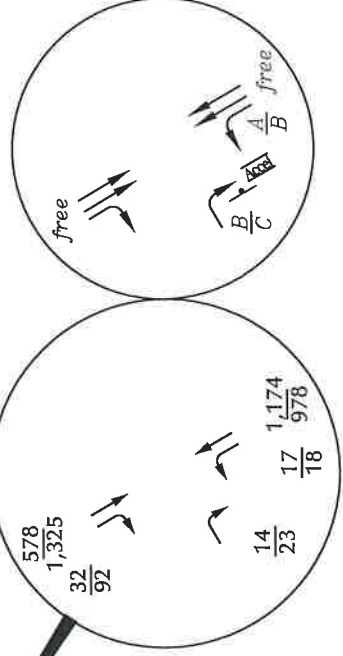
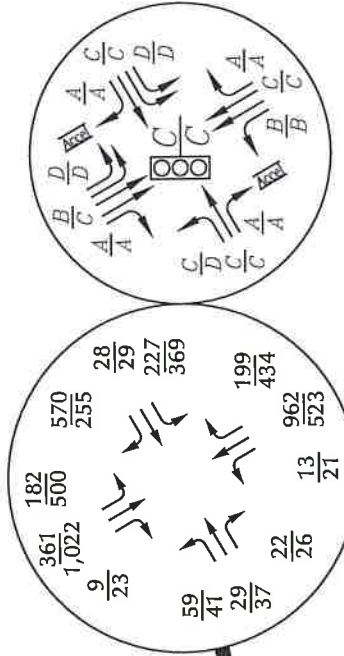
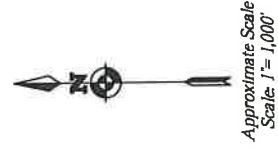
LEGEND:

- = Existing Sidewalk
- = Proposed Sidewalk

Figure 5

Pedestrian Route Analysis

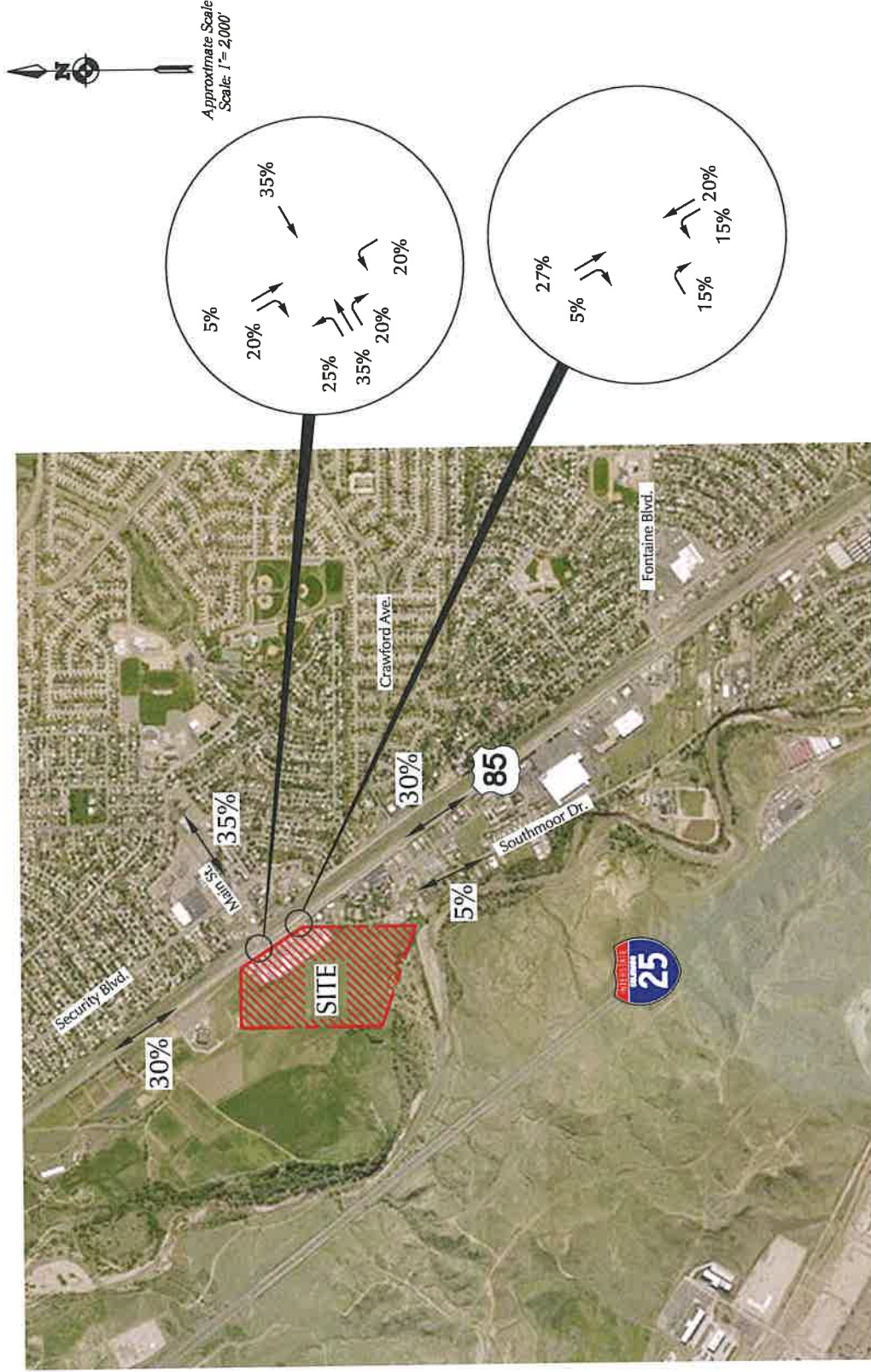
River Bend Crossing (LSC #184140)



* Note: Traffic volumes shown to/from the west leg include vehicles counted at both of the existing Fountain Valley Shopping Center access points to Southmoor Dr

- LEGEND:
- = Stop Sign
 - = Traffic Signal
 - $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 - $\frac{A}{B}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
 - $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
 - $\frac{C}{C}$ = PM Individual Movement Peak-Hour Level of Service
 - $\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service
 - $\frac{C}{C}$ = PM Entire Intersection Peak-Hour Level of Service

Figure 6
Existing Traffic, Lane Geometry,
Traffic Control and Level of Service
River Bend Crossing (LSC #184140)



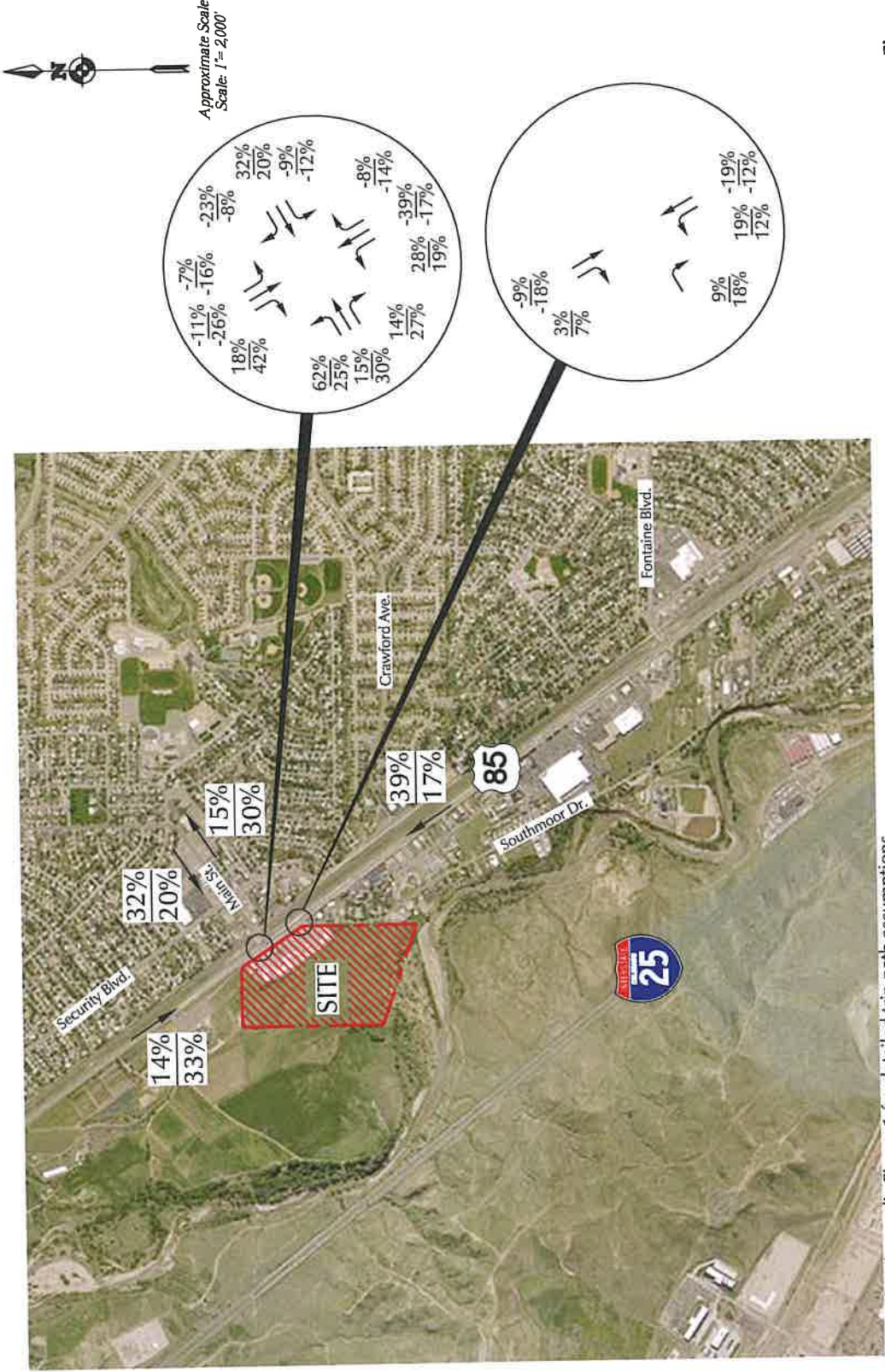
Note: See Appendix Figure 1 for detailed trip path assumptions.

LEGEND:



XX% = Commercial Percent Directional Distribution of Primary Trips
(Note: includes diverted trips from South Academy Boulevard and I-25)

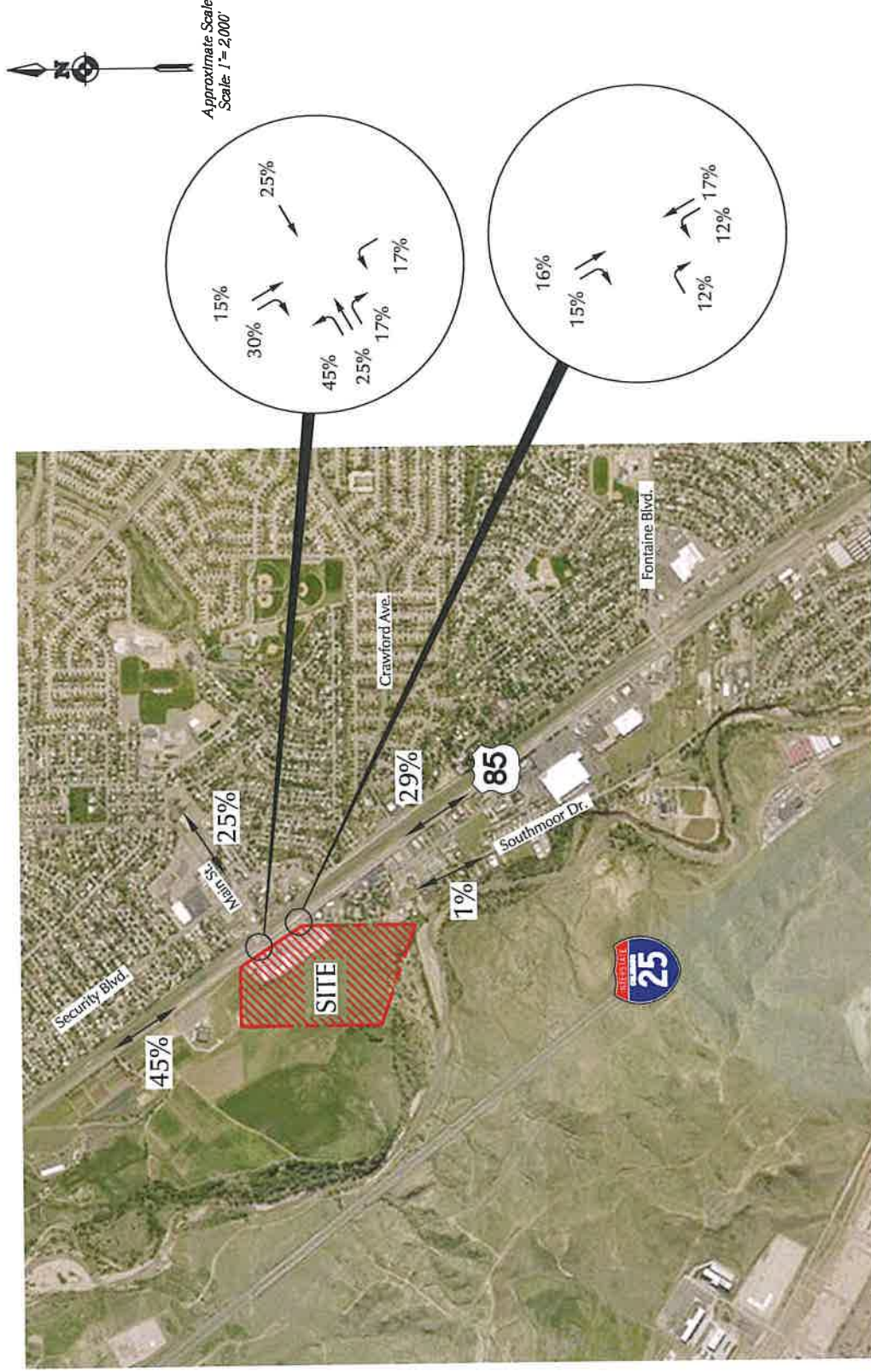
Figure 7
**Directional Distribution of
Primary Commercial Site-Generated Traffic**
River Bend Crossing (LSC #184140)



Note: See Appendix Figure 1 for detailed trip path assumptions.

LEGEND:
 XX%
 XX%
 AM Commercial Percent Directional Distribution
 PM Commercial Percent Directional Distribution

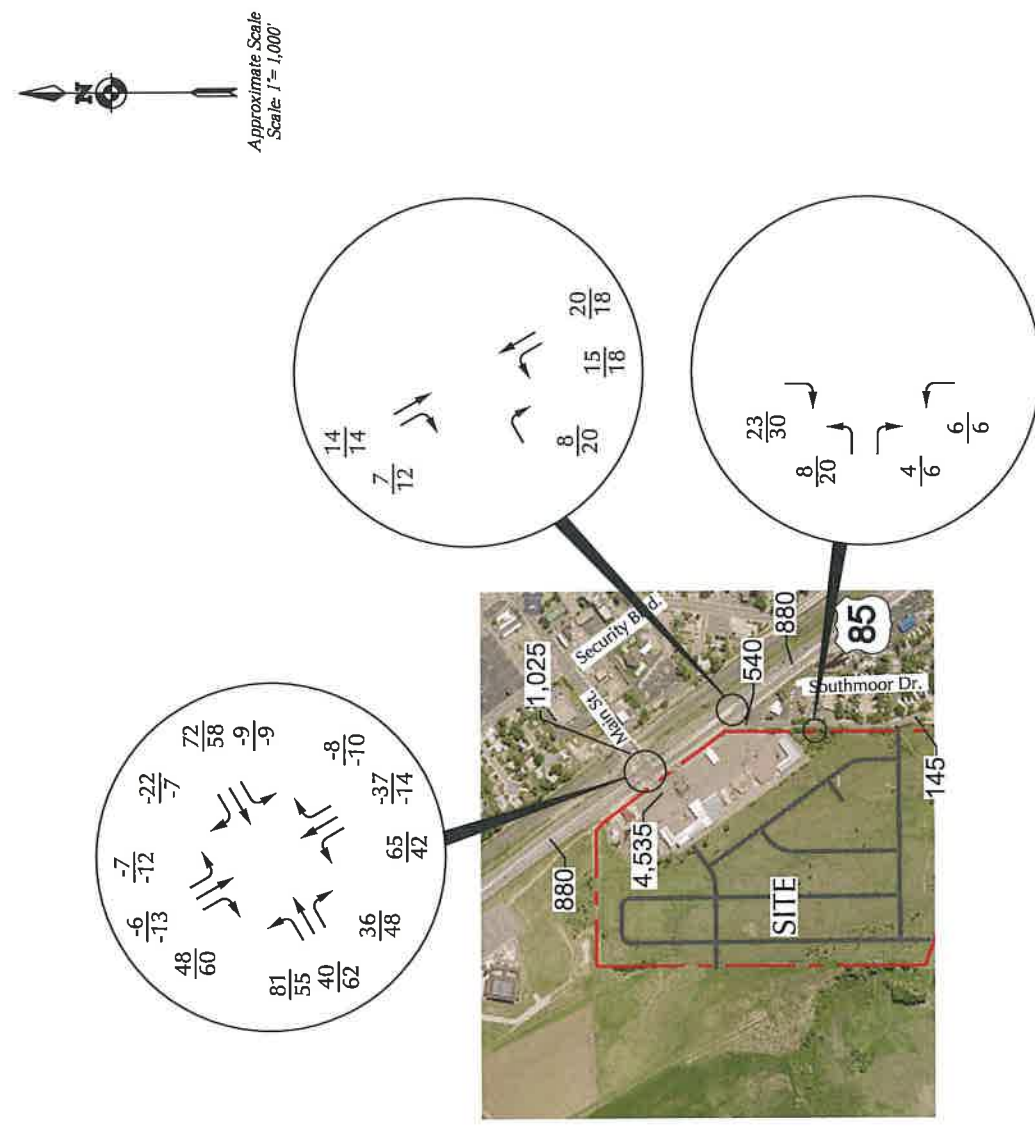
Figure 8
 Directional Distribution of
 Pass-by Commercial Site-Generated Traffic
 River Bend Crossing (LSC #184140)



Note: See Appendix Figure 2 for detailed trip path assumptions.

LEGEND:
 XX% = Residential Percent Directional Distribution

Figure 9
**Directional Distribution
of Residential Site-Generated Traffic**
River Bend Crossing (LSC #184140)

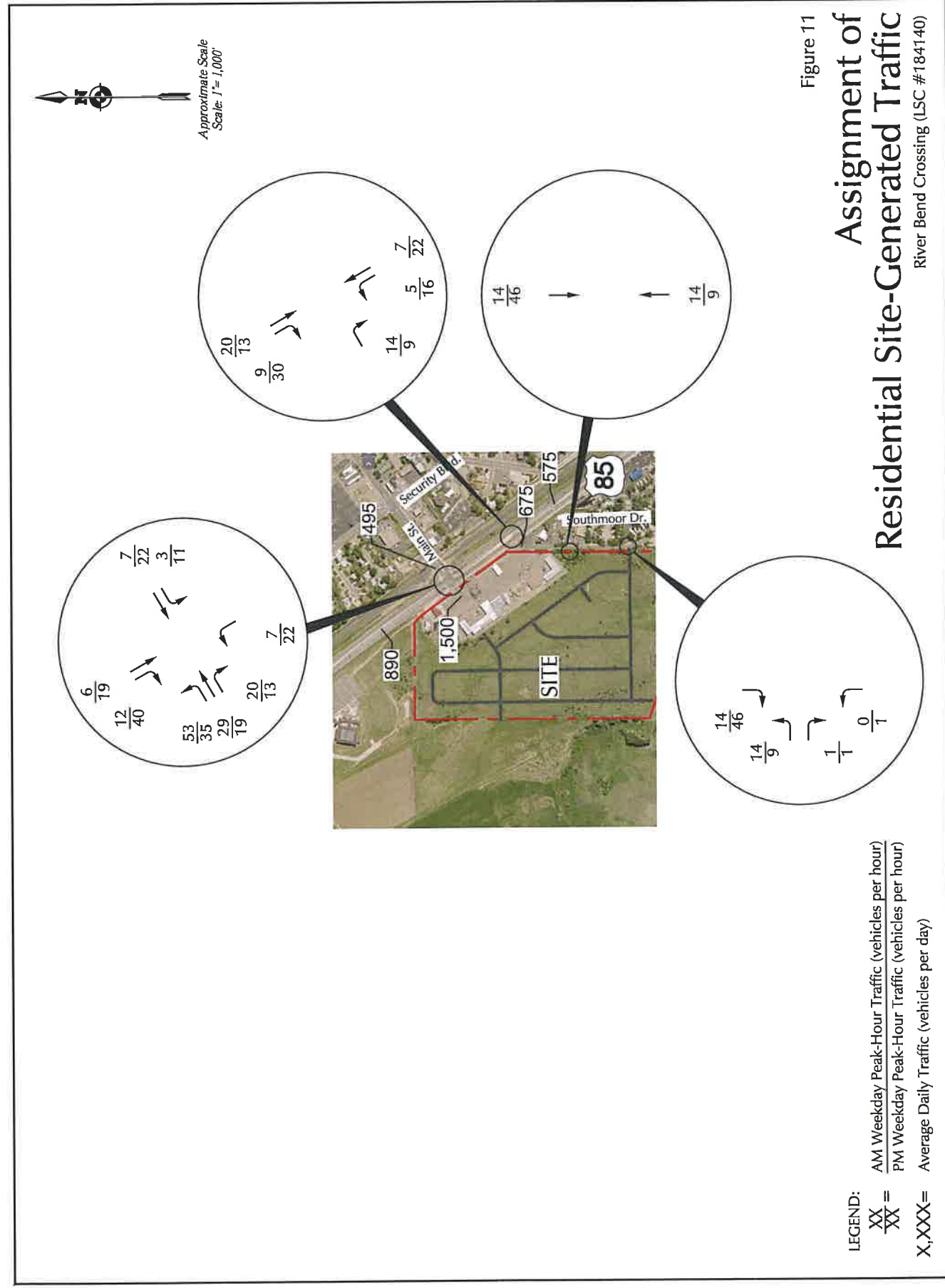


LEGEND:

AM Weekday Peak-Hour Traffic (vehicles per hour)

PM Weekday Peak-Hour Traffic (vehicles per hour)

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



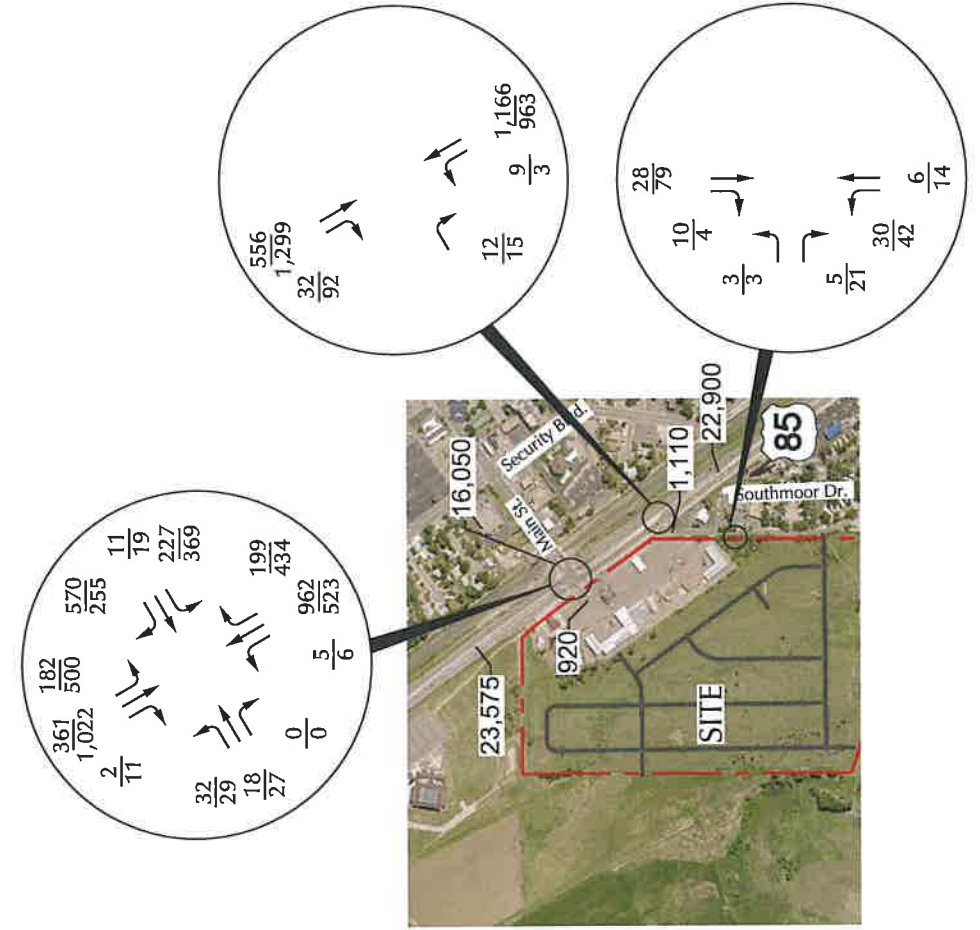
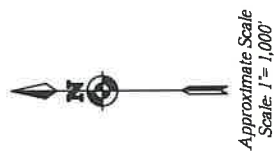
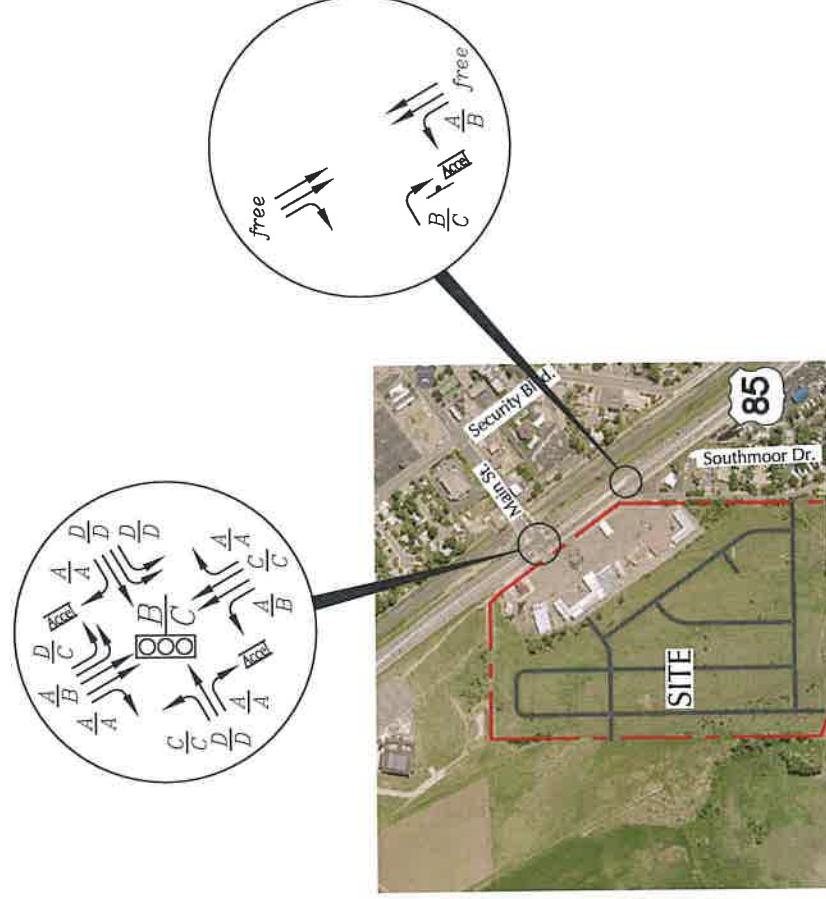
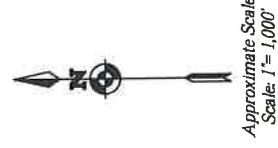


Figure 12a
**Short-Term
Baseline Traffic**
River Bend Crossing (LSC #184140)

LEGEND:
XX = AM Weekday Peak-Hour Traffic (vehicles per hour)
XX = PM Weekday Peak-Hour Traffic (vehicles per hour)
X,XXX = Average Daily Traffic (vehicles per day)



LEGEND:

- ⊥ = Stop Sign
- ⬢ = Traffic Signal
- $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
- $\frac{A}{B}$ = PM Individual Movement Peak-Hour Level of Service
- $\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service
- $\frac{C}{C}$ = PM Entire Intersection Peak-Hour Level of Service

Figure 12b
 Short-Term Baseline Lane Geometry,
 Traffic Control and Level of Service
 River Bend Crossing (LSC #184140)

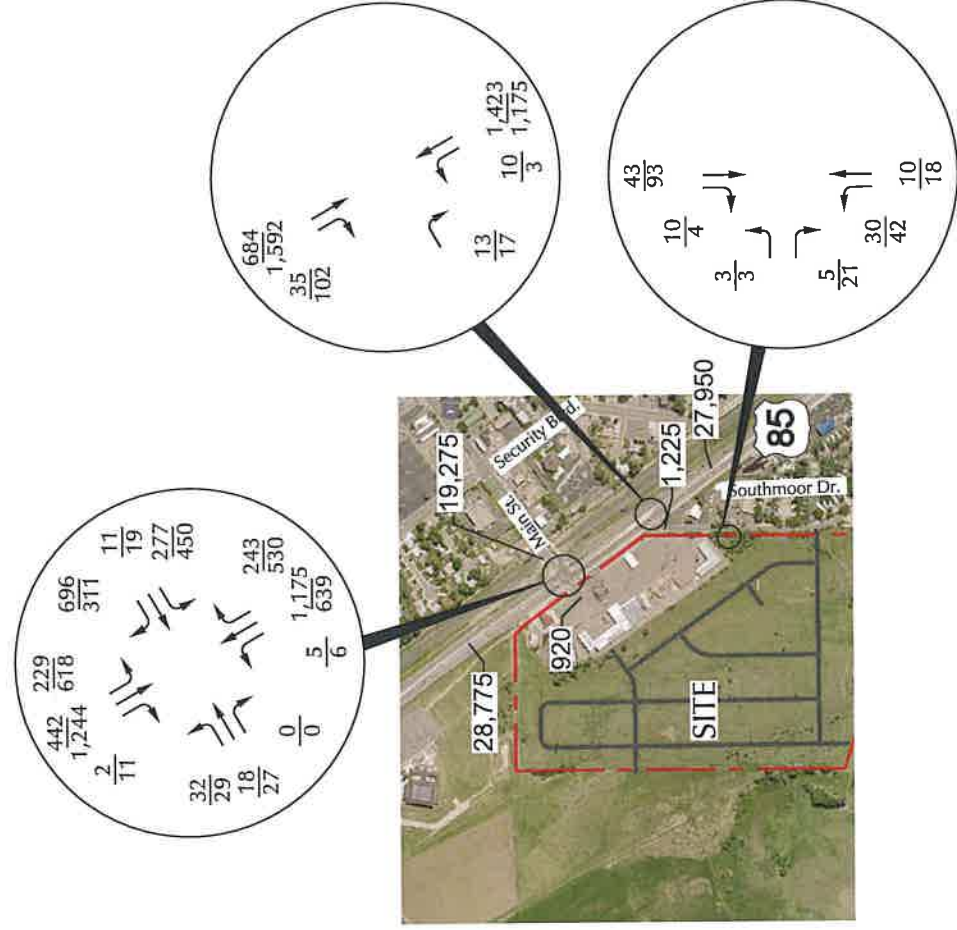
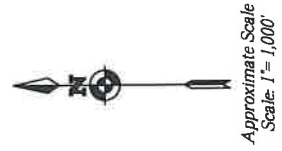
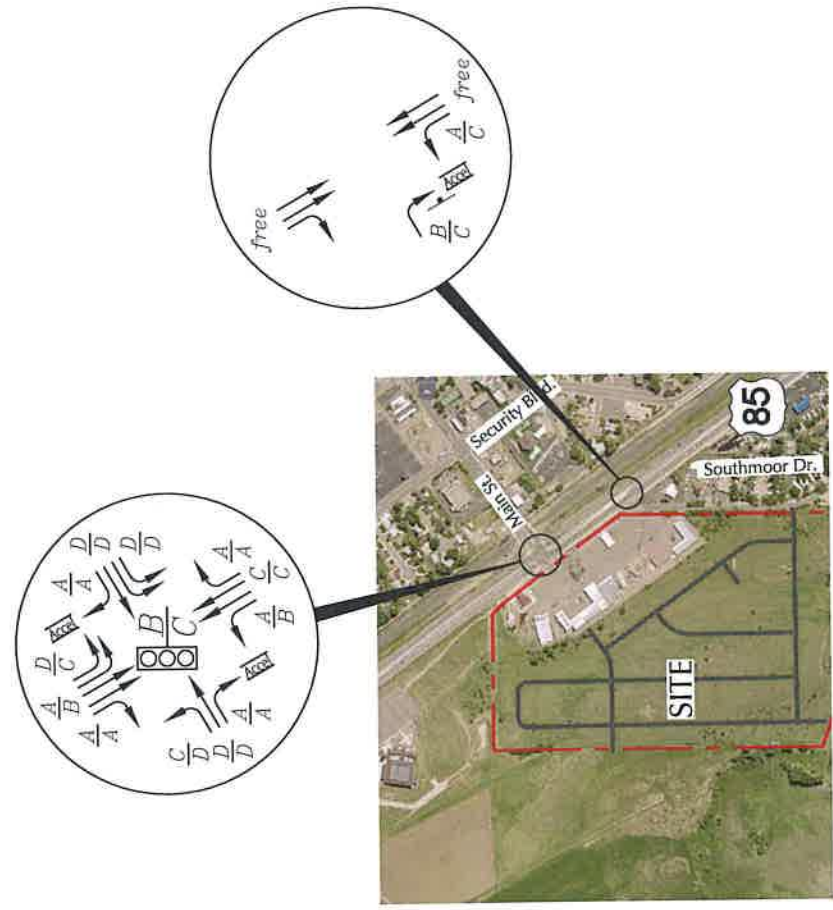


Figure 13a
Year 2040
Baseline Traffic
River Bend Crossing (LSC #184140)

LEGEND:
XX = AM Weekday Peak-Hour Traffic (vehicles per hour)
XX = PM Weekday Peak-Hour Traffic (vehicles per hour)
X,XXX = Average Daily Traffic (vehicles per day)



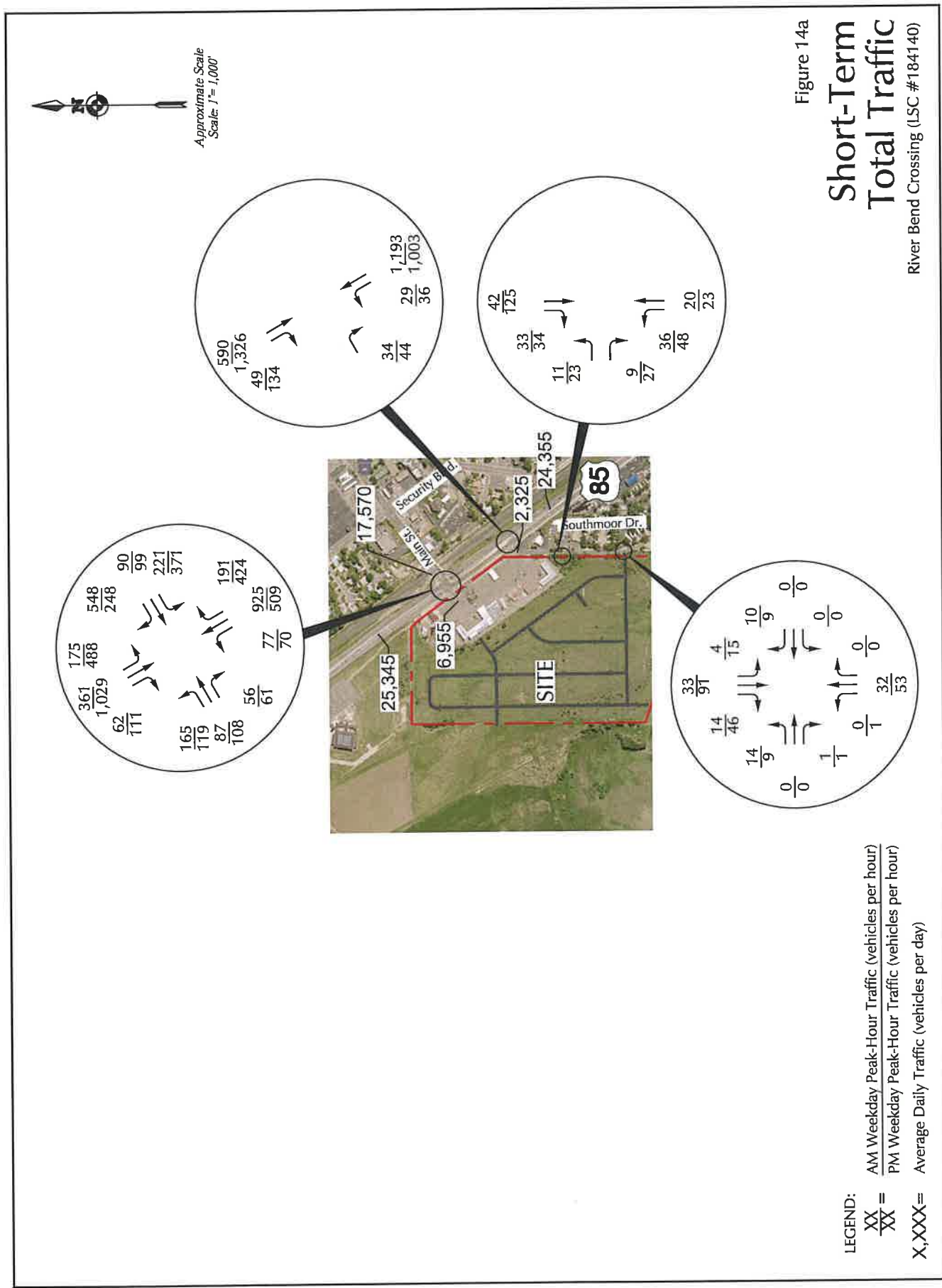
Approximate Scale
Scale 1" = 1,000'

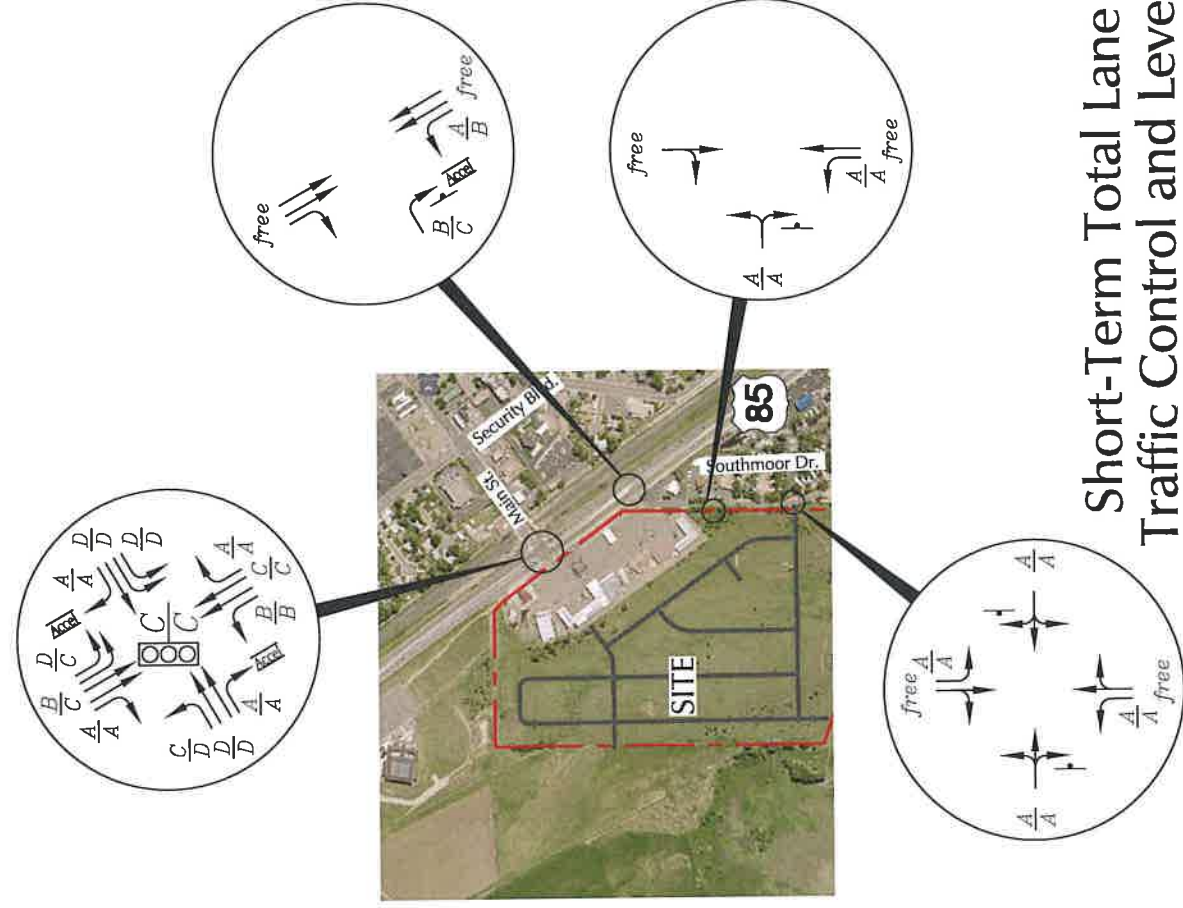


LEGEND:

- Stop Sign
- Traffic Signal
- AM Individual Movement Peak-Hour Level of Service
- PM Individual Movement Peak-Hour Level of Service
- AM Entire Intersection Peak-Hour Level of Service
- PM Entire Intersection Peak-Hour Level of Service

Figure 13b
Year 2040 Baseline Lane Geometry,
Traffic Control and Level of Service
River Bend Crossing (LSC #184140)





LEGEND:



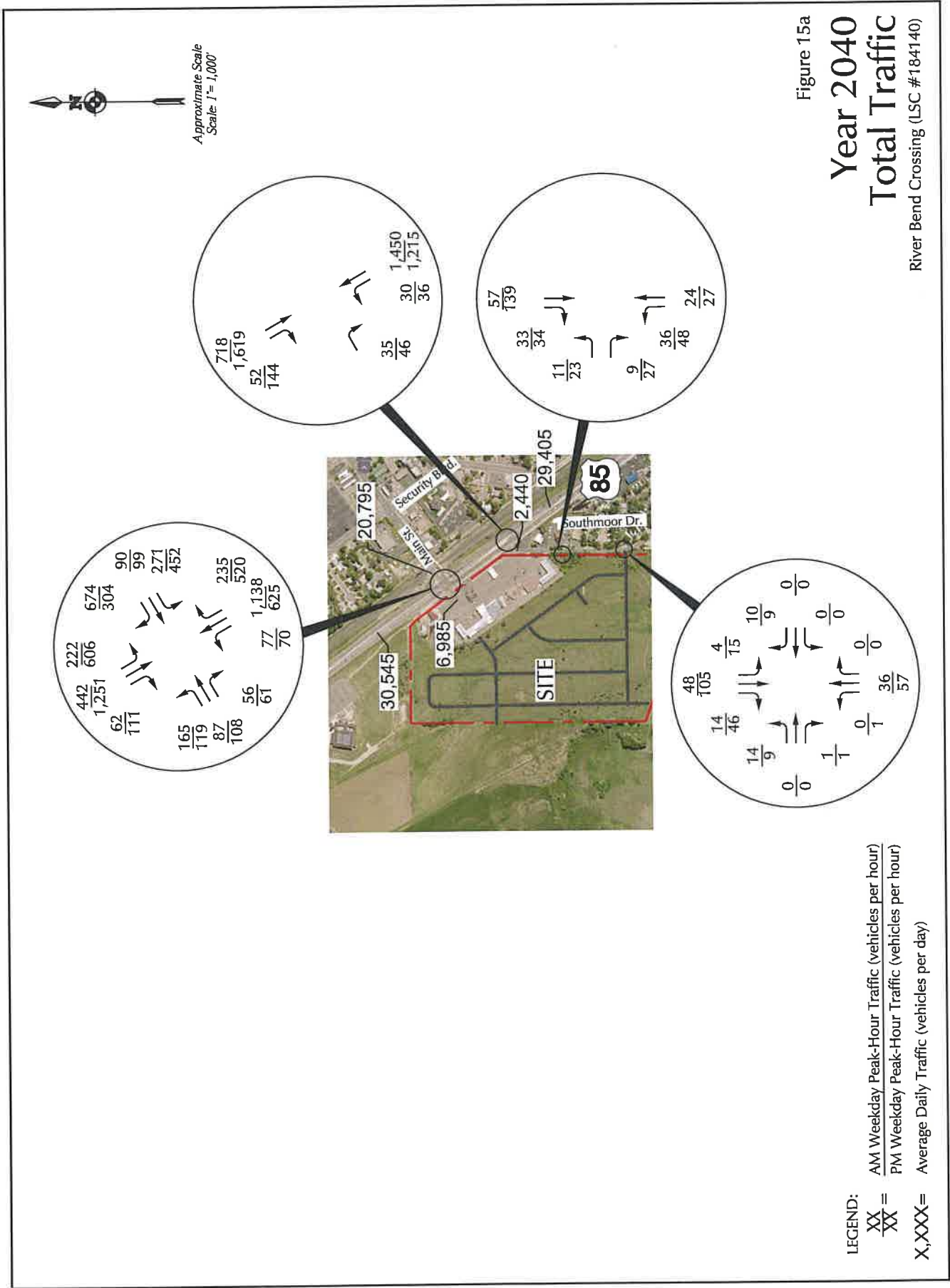
-  = Stop Sign
-  = Traffic Signal
- $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service
- $\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

Figure 14b

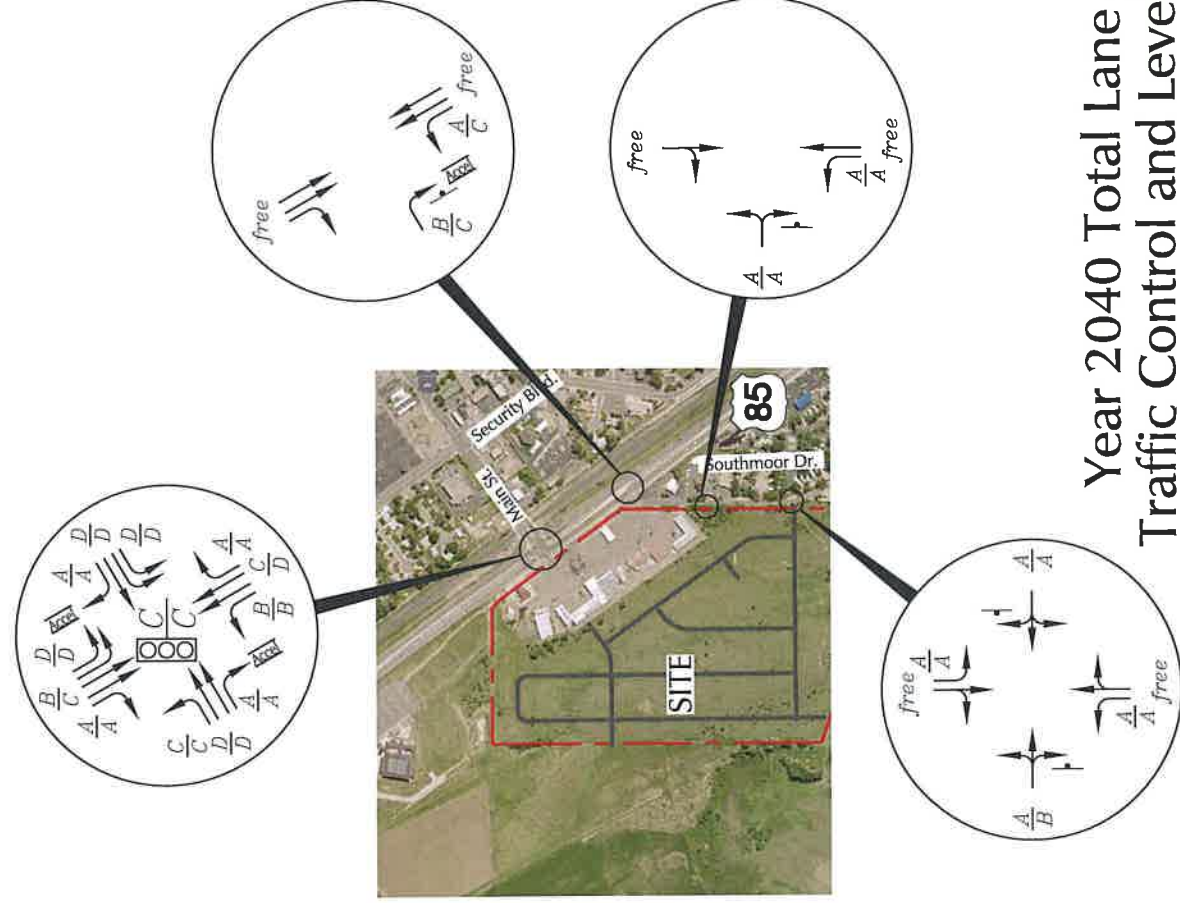
Short-Term Total Lane Geometry, Traffic Control and Level of Service

River Bend Crossing (LSC #184140)





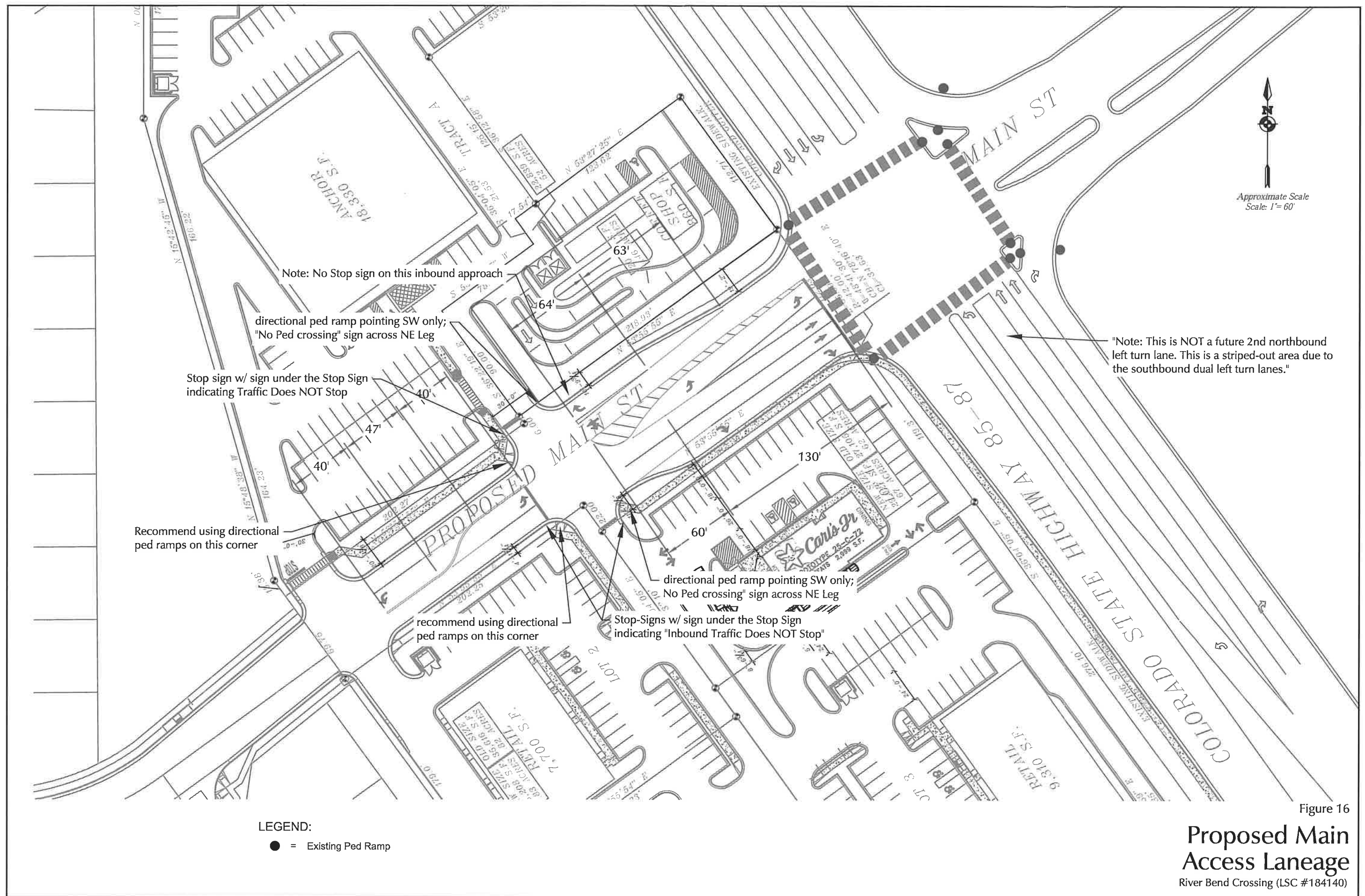
Approximate Scale
Scale: 1" = 1,000'

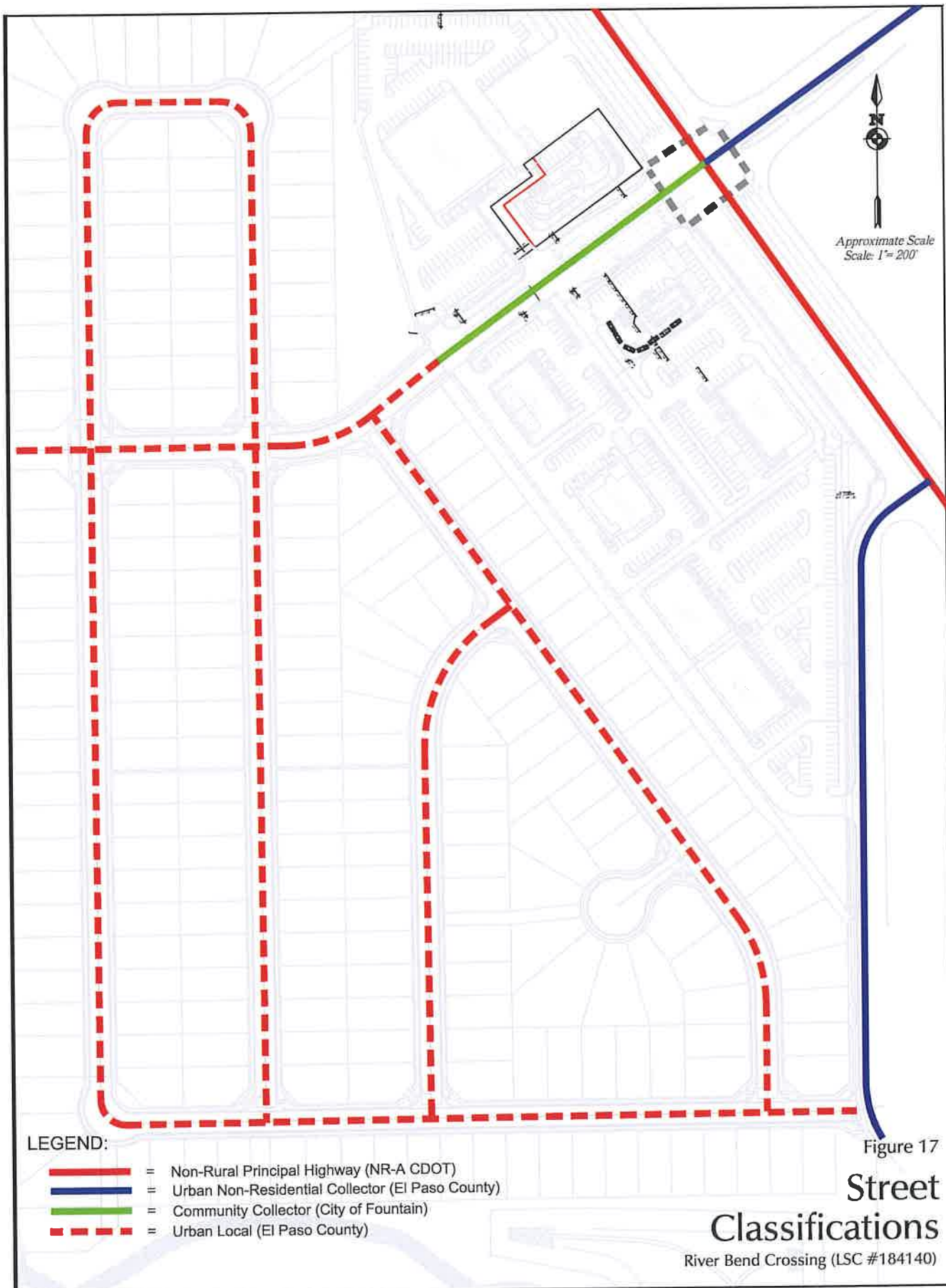


LEGEND:

- = Stop Sign
- = Traffic Signal
- $\frac{A}{A}$ = AM Individual Movement Peak-Hour Level of Service
- $\frac{B}{B}$ = PM Individual Movement Peak-Hour Level of Service
- $\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service
- $\frac{D}{D}$ = PM Entire Intersection Peak-Hour Level of Service

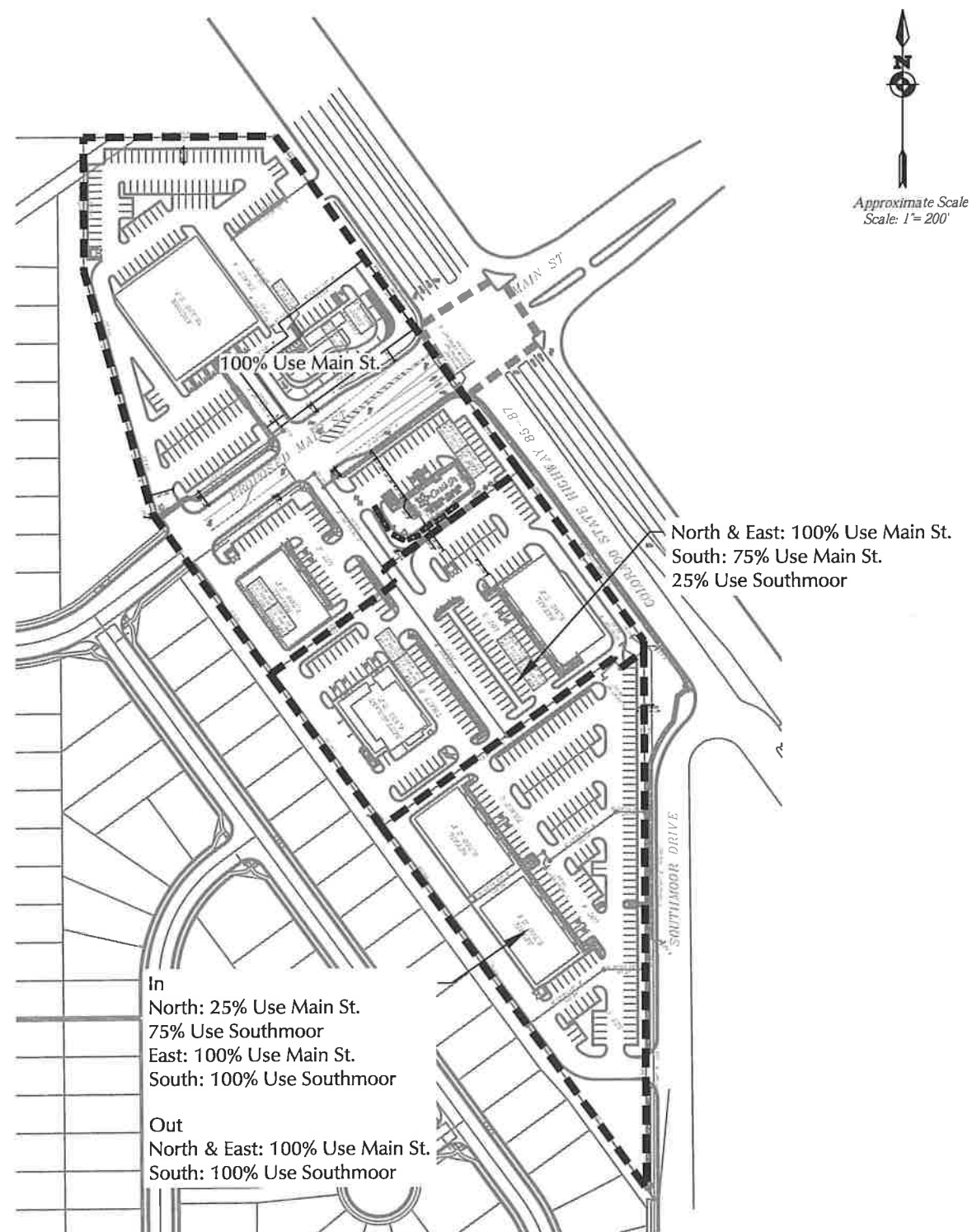
Figure 15b
Year 2040 Total Lane Geometry,
Traffic Control and Level of Service
River Bend Crossing (LSC #184140)



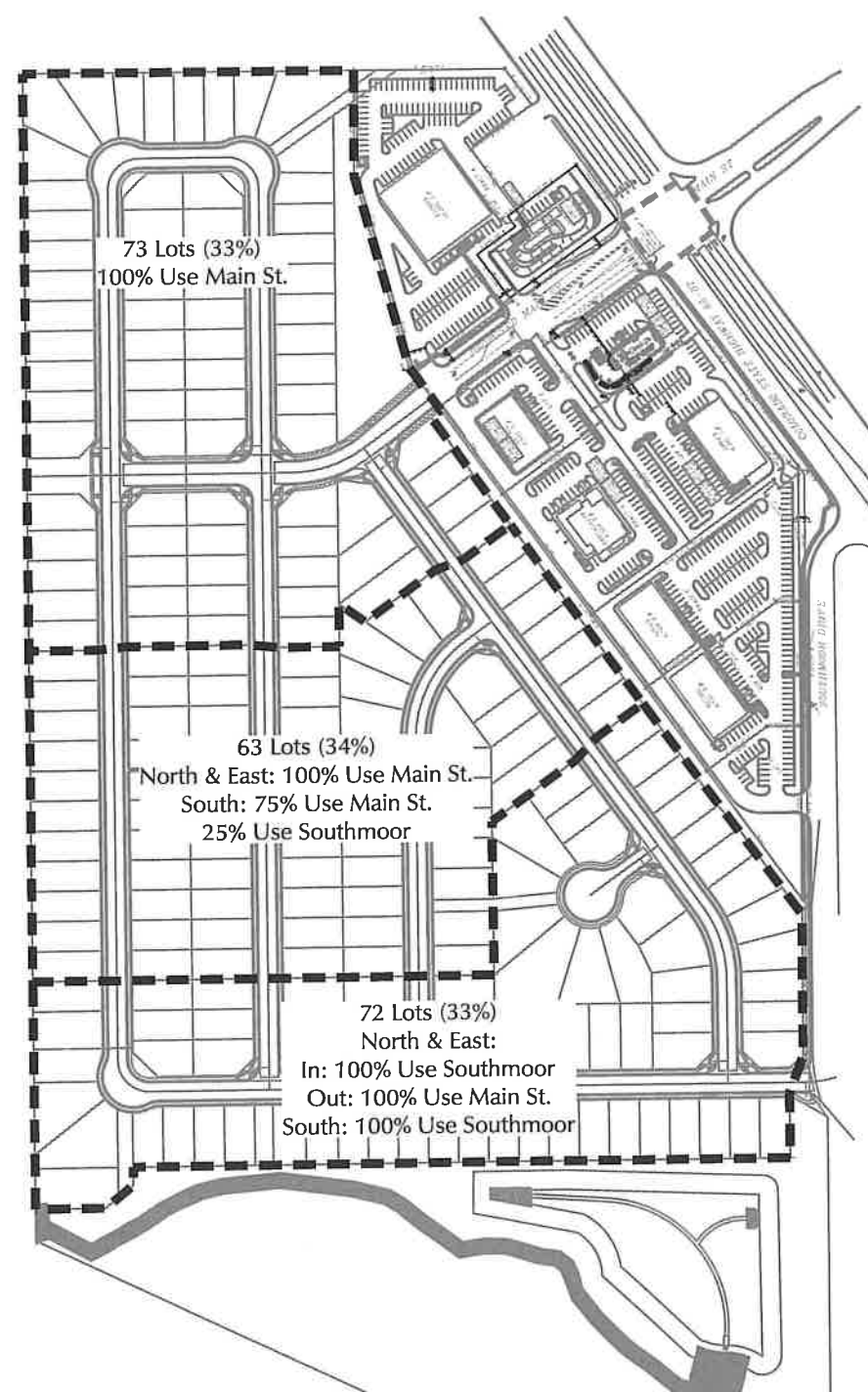


Appendix Figures 1-2





Appendix Figure 1
**Commercial
 Trip Paths**
 River Bend Crossing (LSC #184140)



Approximate Scale
Scale: 1" = 300'

Appendix Figure 2
**Residential
Trip Paths**
River Bend Crossing (LSC #184140)

Traffic Counts



Counts by LSC

LSC Transportation Consultants, Inc.

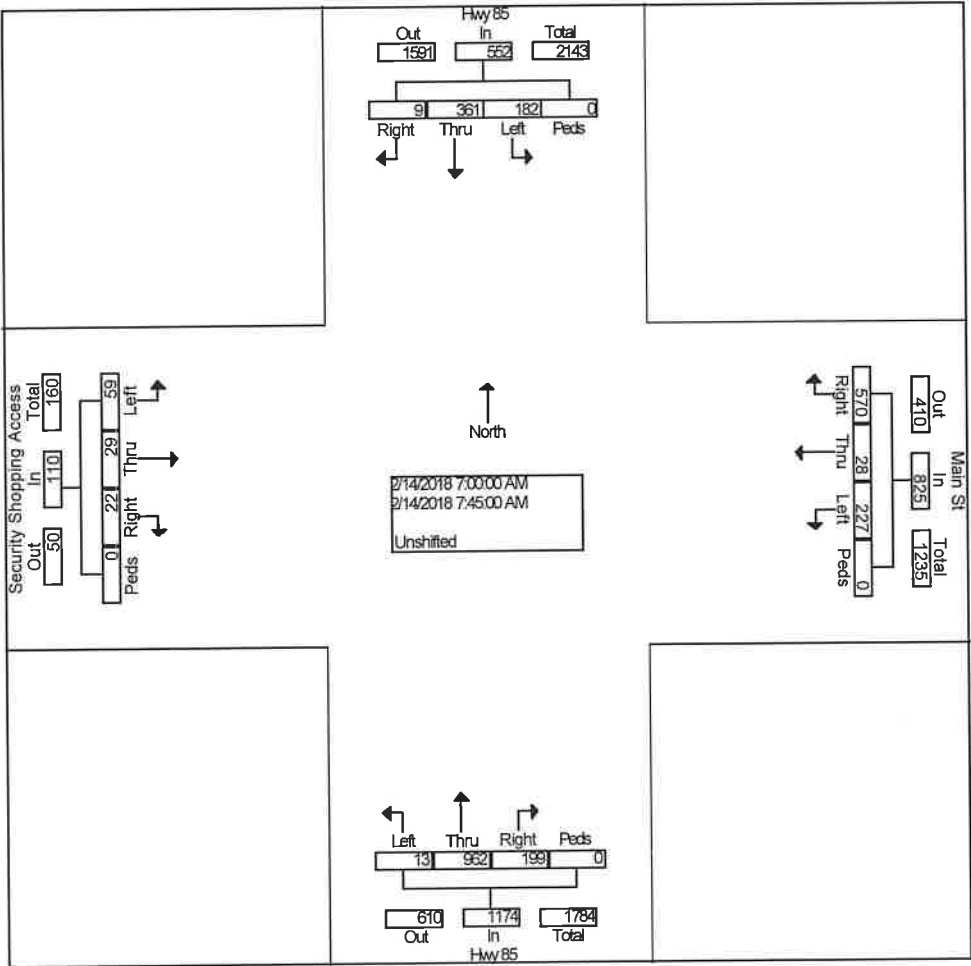
File Name : Hwy 85 - Main St AM
Site Code : 00184140
Start Date : 02/14/2018
Page No : 1

Groups Printed- Unshifted																	
	Hwy 85 From North				Main St From East				Hwy 85 From South				Security Shopping Access From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int Total
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	1	53	21	0	105	6	42	0	29	193	1	0	8	6	13	0	478
06:45 AM	2	80	31	0	94	6	52	0	32	166	1	0	4	3	14	0	485
Total	3	133	52	0	199	12	94	0	61	359	2	0	12	9	27	0	963
07:00 AM	0	79	59	0	125	8	59	0	49	191	4	0	6	9	12	0	601
07:15 AM	2	86	36	0	144	11	57	0	40	257	7	0	8	8	18	0	674
07:30 AM	5	95	43	0	180	3	66	0	58	317	2	0	4	8	20	0	801
07:45 AM	2	101	44	0	121	6	45	0	52	197	0	0	4	4	9	0	585
Total	9	361	182	0	570	28	227	0	199	962	13	0	22	29	59	0	2661
08:00 AM	2	75	43	0	69	5	49	0	41	154	0	0	1	6	6	0	451
08:15 AM	3	98	33	0	94	4	63	0	44	132	2	0	2	8	6	0	489
Grand Total	17	667	310	0	932	49	433	0	345	1607	17	0	37	52	98	0	4564
Apprch %	1.7	67.1	31.2	0.0	65.9	3.5	30.6	0.0	17.5	81.6	0.9	0.0	19.8	27.8	52.4	0.0	
Total %	0.4	14.6	6.8	0.0	20.4	1.1	9.5	0.0	7.6	35.2	0.4	0.0	0.8	1.1	2.1	0.0	

Counts by LSC

File Name : Hwy 85 - Main St AM
Site Code : 00184140
Start Date : 02/14/2018
Page No : 2

	Hwy 85 From North					Main St From East					Hwy 85 From South					Security Shopping Access From West					Int. Total
Start Time	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	Int. Total
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersecti on	07:00 AM																				
Volume	9	36	18	0	552	57	28	22	0	825	19	96	13	0	1174	22	29	59	0	110	2661
Percent	1.6	65.	33.	0.0		69.	3.4	27.	0.0		17.	81.	1.1	0.0		20.	26.	53.	0.0		
		4	0			1		5			0	9				0	4	6			
07:30 Volume	5	95	43	0	143	18	3	66	0	249	58	31	2	0	377	4	8	20	0	32	801
Peak Factor												7									0.831
High Int.	07:45 AM					07:30 AM					07:30 AM					07:15 AM					
Volume	2	10		44	0	147	18	3	66	0	249	58	31	2	0	377	8	8	18	0	34
Peak Factor		1				0.93				0.82		7			0.77					0.80	9
					9					8					9					9	



Counts by LSC

LSC Transportation Consultants, Inc.

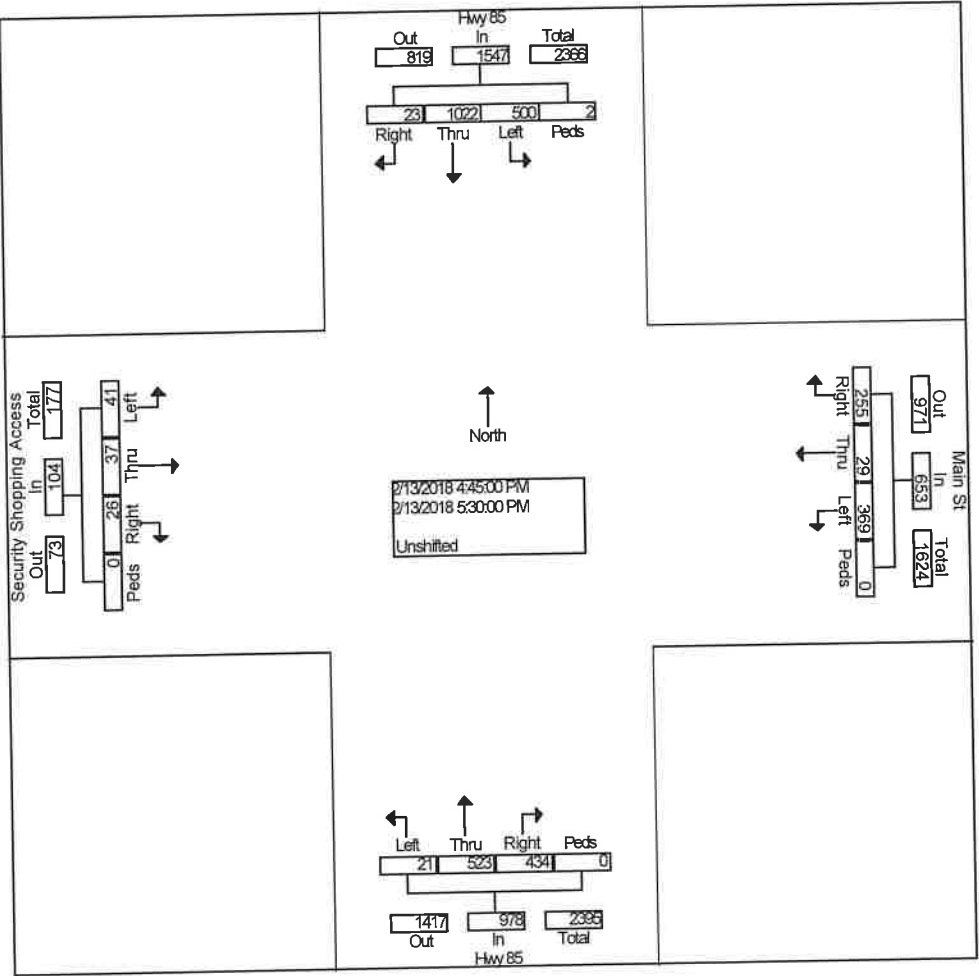
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Page No : 1

Groups Printed- Unshifted																	
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Start Time	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	6	244	115	0	55	2	115	0	81	119	4	0	4	13	12	0	770
04:15 PM	7	220	123	0	45	6	91	0	99	105	4	0	11	8	10	0	729
04:30 PM	3	238	124	0	53	8	109	0	88	132	2	1	3	9	10	0	780
04:45 PM	6	264	134	0	65	6	86	0	115	152	3	0	8	7	9	0	855
Total	22	966	496	0	218	22	401	0	383	508	13	1	26	37	41	0	3134
05:00 PM	8	244	123	0	59	4	74	0	116	126	12	0	3	9	10	0	788
05:15 PM	8	282	119	1	70	7	86	0	109	123	1	0	10	11	13	0	840
05:30 PM	1	232	124	1	61	12	123	0	94	122	5	0	5	10	9	0	799
05:45 PM	4	239	129	1	53	4	110	0	129	123	2	0	6	13	5	0	818
Total	21	997	495	3	243	27	393	0	448	494	20	0	24	43	37	0	3245
Grand Total	43	1963	991	3	461	49	794	0	831	1002	33	1	50	80	78	0	6379
Apprch %	1.4	65.4	33.0	0.1	35.4	3.8	60.9	0.0	44.5	53.7	1.8	0.1	24.0	38.5	37.5	0.0	
Total %	0.7	30.8	15.5	0.0	7.2	0.8	12.4	0.0	13.0	15.7	0.5	0.0	0.8	1.3	1.2	0.0	

Counts by LSC

File Name : Hwy 85 - Main St PM
Site Code : 00184140
Start Date : 02/13/2018
Page No : 2

	Hwy 85 From North					Main St From East					Hwy 85 From South					Security Shopping Access From West					
Start Time	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	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	23	10	50	2	1547	25	29	36	0	653	43	52	21	0	978	26	37	41	0	104	3282
Percent	1.5	66.	32.	0.1		39.	4.4	56.	0.0		44.	53.	2.1	0.0		25.	35.	39.	0.0		
		1	3			1		5			4	5				0	6	4			
04:45 Volume	6	26	13	0	404	65	6	86	0	157	11	15	3	0	270	8	7	9	0	24	855
Peak Factor		4	4								5	2									0.96
High Int.	05:15 PM					05:30 PM					04:45 PM					05:15 PM					
Volume	8	28	11	1	410	61	12	12	0	196	11	15	3	0	270	10	11	13	0	34	
Peak Factor		2	9		0.94			3		0.83	5	2			0.90					0.76	
					3					3					6					5	



LSC Transportation Consultants, Inc.

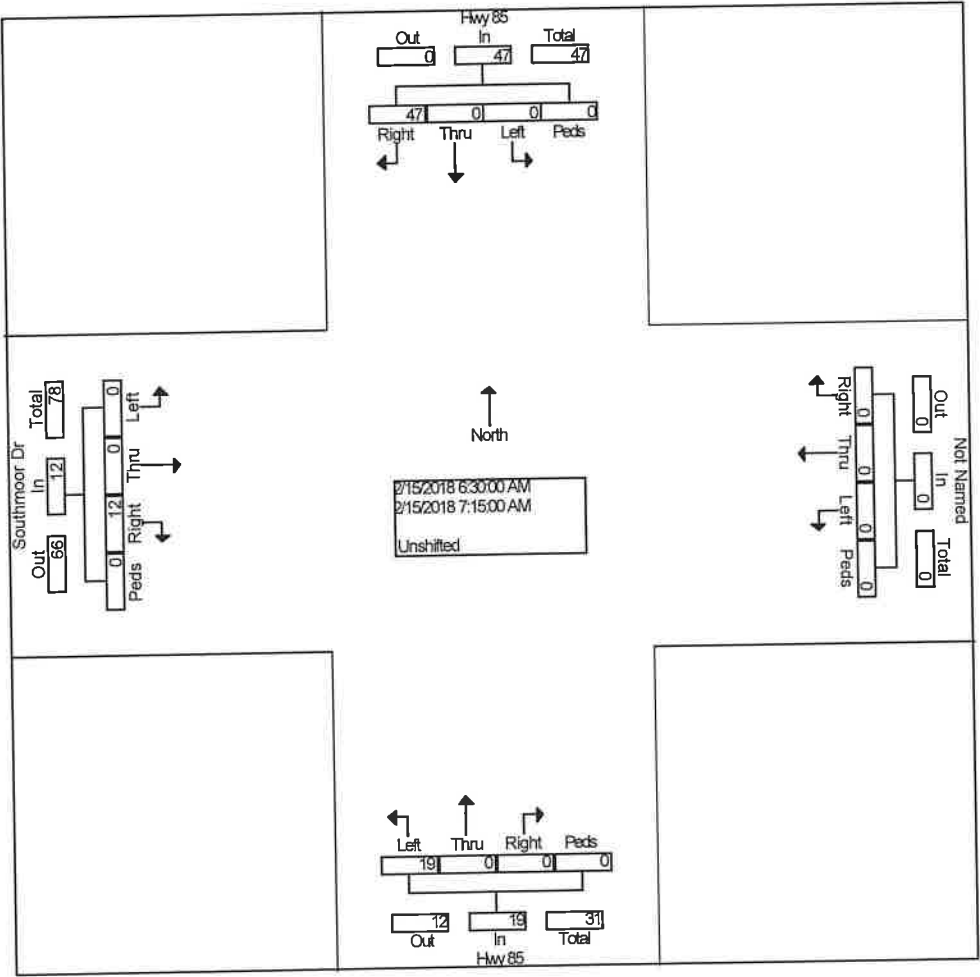
File Name : Hwy 85 - Southmoor Dr AM
Site Code : 00184140
Start Date : 02/15/2018
Page No : 1

Groups Printed- Unshifted																	
	Hwy 85 From North				From East				Hwy 85 From South				Southmoor Dr From West				Int Total
Start Time	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	12	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	20
06:45 AM	17	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	25
Total	29	0	0	0	0	0	0	0	0	0	8	0	8	0	0	0	45
07:00 AM	6	0	0	0	0	0	0	0	0	0	4	0	1	0	0	0	11
07:15 AM	12	0	0	0	0	0	0	0	0	0	7	0	3	0	0	0	22
07:30 AM	8	0	0	0	0	0	0	0	0	0	2	0	6	0	0	0	16
07:45 AM	6	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	14
Total	32	0	0	0	0	0	0	0	0	0	17	0	14	0	0	0	63
08:00 AM	12	0	0	0	0	0	0	0	0	0	5	0	7	0	0	0	24
08:15 AM	7	0	0	0	0	0	0	0	0	0	4	0	3	0	0	0	14
Grand Total	80	0	0	0	0	0	0	0	0	0	34	0	32	0	0	0	146
Apprch %	100. 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100. 0	0.0	100. 0	0.0	0.0	0.0	
Total %	54.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3	0.0	21.9	0.0	0.0	0.0	

Counts by LSC

File Name : Hwy 85 - Southmoor Dr AM
Site Code : 00184140
Start Date : 02/15/2018
Page No : 2

	Hwy 85 From North					From East					Hwy 85 From South					Southmoor Dr From West					
Start Time	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	Int. Total
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersecti on	06:30 AM																				
Volume	47	0	0	0	47	0	0	0	0	0	0	0	19	0	19	12	0	0	0	12	78
Percent	10	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	10	0.0		10	0.0	0.0	0.0		
	0.0												0.0			0.0					
06:45																					
Volume	17	0	0	0	17	0	0	0	0	0	0	0	4	0	4	4	0	0	0	4	25
Peak Factor																					0.78
High Int.	06:45 AM					6:15:00 AM					07:15 AM					06:30 AM					
Volume	17	0	0	0	17	0	0	0	0	0	0	0	7	0	7	4	0	0	0	4	
Peak Factor	0.69										0.67					0.75					
	1										9					0					



Counts by LSC

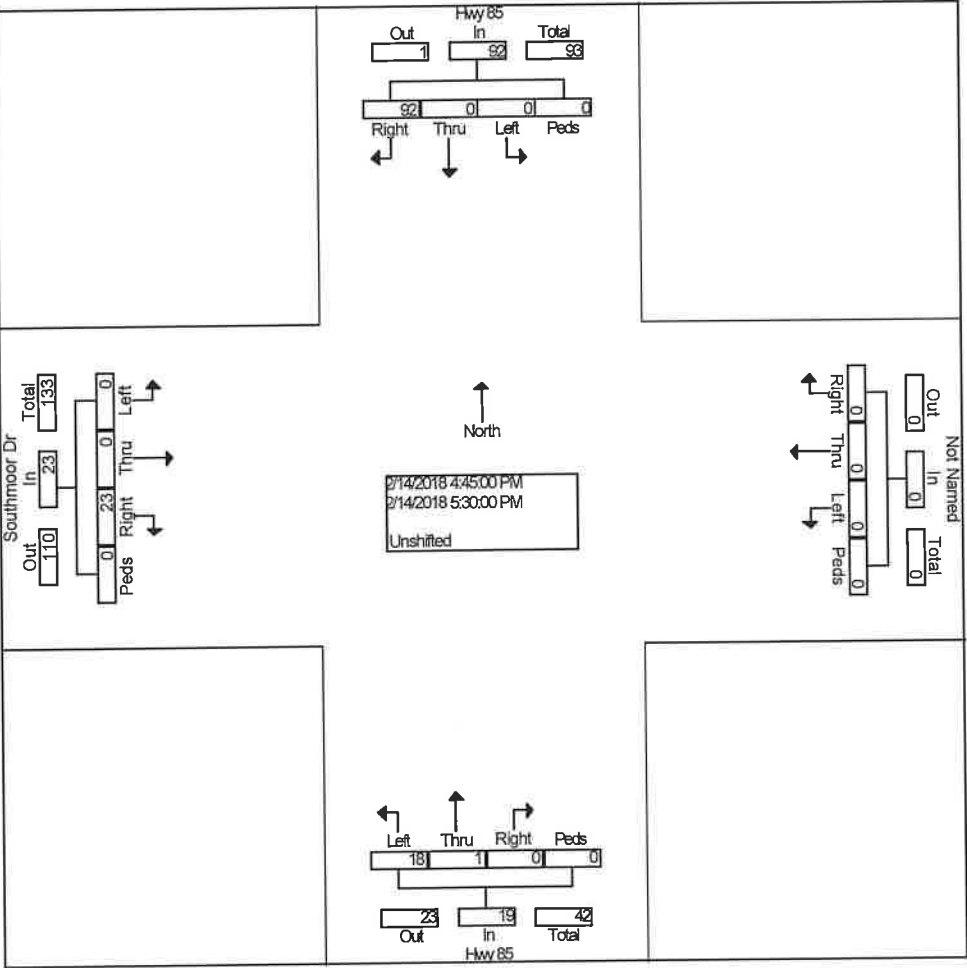
LSC Transportation Consultants, Inc.

File Name : Hwy 85 - Southmoor Dr PM
Site Code : 00184140
Start Date : 02/14/2018
Page No : 1

Groups Printed- Unshifted																
	Hwy 85 From North				From East				Hwy 85 From South				Southmoor Dr From West			
Start Time	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	14	0	0	0	0	0	0	0	0	2	2	0	4	0	0	0
04:15 PM	21	0	0	0	0	0	0	0	0	1	2	0	16	0	0	0
04:30 PM	18	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0
04:45 PM	15	0	0	0	0	0	0	0	0	1	8	0	9	0	0	0
Total	68	0	0	0	0	0	0	0	0	4	15	0	30	0	0	0
05:00 PM	24	0	0	0	0	0	0	0	0	0	5	0	7	0	0	0
05:15 PM	23	0	0	0	0	0	0	0	0	0	2	0	5	0	0	0
05:30 PM	30	0	0	0	0	0	0	0	0	0	3	0	2	0	0	0
05:45 PM	19	0	0	0	0	0	0	0	0	0	4	0	9	0	0	0
Total	96	0	0	0	0	0	0	0	0	0	14	0	23	0	0	0
Grand Total	164	0	0	0	0	0	0	0	0	4	29	0	53	0	0	0
Apprch %	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	87.9	0.0	100.0	0.0	0.0	0.0
Total %	65.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	11.6	0.0	21.2	0.0	0.0	0.0

File Name : Hwy 85 - Southmoor Dr PM
Site Code : 00184140
Start Date : 02/14/2018
Page No : 2

	Hwy 85 From North					From East					Hwy 85 From South					Southmoor Dr From West					
Start Time	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	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersecti on	04:45 PM																				
Volume	92	0	0	0	92	0	0	0	0	0	0	1	18	0	19	23	0	0	0	23	134
Percent	10	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	5.3	94.7	0.0		10	0.0	0.0	0.0		
05:00																					
Volume	24	0	0	0	24	0	0	0	0	0	0	0	5	0	5	7	0	0	0	7	36
Peak Factor																					0.931
High Int.	05:30 PM					3:45:00 PM					04:45 PM					04:45 PM					
Volume	30	0	0	0	30	0	0	0	0	0	0	1	8	0	9	9	0	0	0	9	
Peak Factor	0.76										0.52					0.63					
	7										8					9					



LSC Transportation Consultants, Inc.

File Name : Southmoor Dr - Security Shopping Access AM
Site Code : 00184140
Start Date : 02/15/2018
Page No : 1

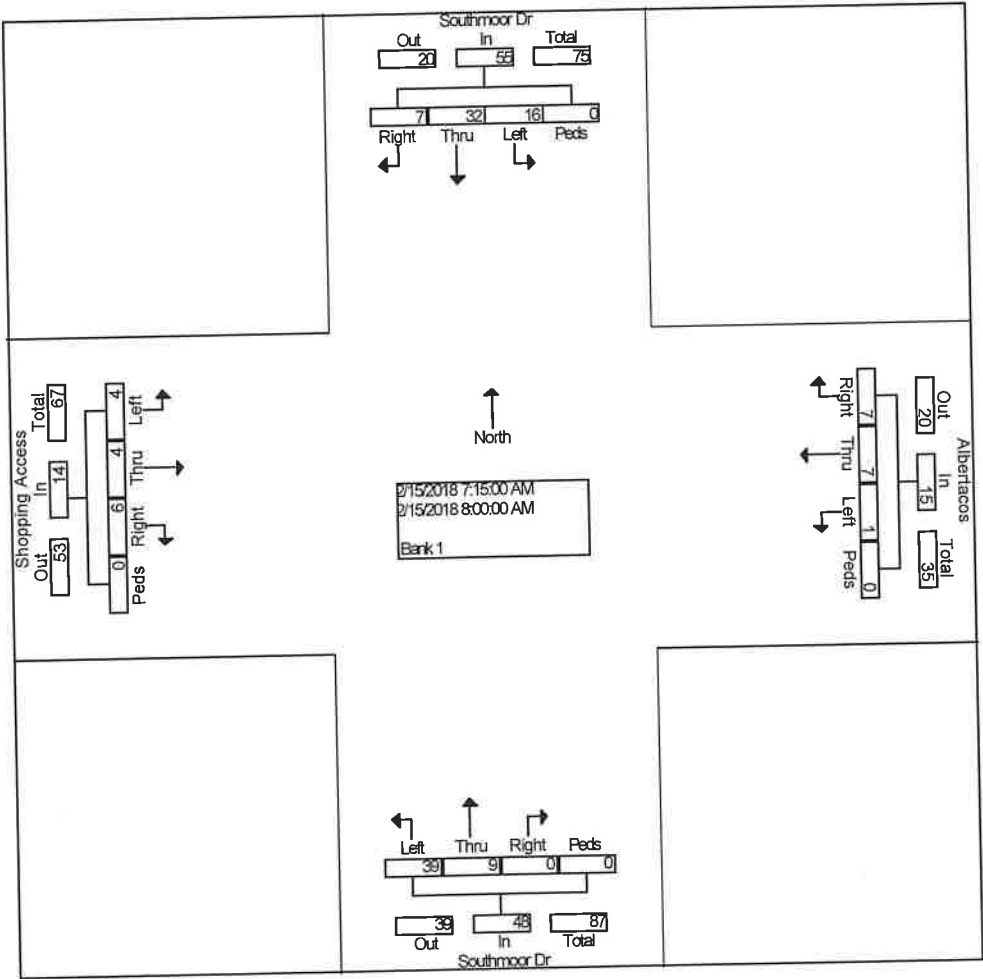
Groups Printed- Bank 1

	Southmoor Dr From North				Albertacos From East				Southmoor Dr From South				Shopping Access From West				Int. Total
Start Time	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	2	12	2	0	0	0	0	0	0	4	10	0	2	0	0	0	32
06:45 AM	2	17	2	0	3	0	0	0	0	1	5	0	0	1	0	0	31
Total	4	29	4	0	3	0	0	0	0	5	15	0	2	1	0	0	63
07:00 AM	3	4	3	0	1	4	0	0	0	0	0	0	0	1	0	0	16
07:15 AM	3	10	5	0	2	3	0	0	0	1	16	0	1	2	0	0	43
07:30 AM	1	5	3	0	2	1	1	0	0	4	14	0	1	0	0	0	32
07:45 AM	1	8	2	0	1	2	0	0	0	1	3	0	4	0	2	0	24
Total	8	27	13	0	6	10	1	0	0	6	33	0	6	3	2	0	115
08:00 AM	2	9	6	0	2	1	0	0	0	3	6	0	0	2	2	0	33
08:15 AM	1	9	1	0	2	4	1	0	0	1	5	0	0	0	0	0	24
Grand Total	15	74	24	0	13	15	2	0	0	15	59	0	8	6	4	0	235
Apprch %	13.3	65.5	21.2	0.0	43.3	50.0	6.7	0.0	0.0	20.3	79.7	0.0	44.4	33.3	22.2	0.0	
Total %	6.4	31.5	10.2	0.0	5.5	6.4	0.9	0.0	0.0	6.4	25.1	0.0	3.4	2.6	1.7	0.0	

Counts by LSC

File Name : Southmoor Dr - Security Shopping Access AM
Site Code : 00184140
Start Date : 02/15/2018
Page No : 2

	Southmoor Dr From North					Albertacos From East					Southmoor Dr From South					Shopping Access From West					
Start Time	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	Int. Total
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	7	32	16	0	55	7	7	1	0	15	0	9	39	0	48	6	4	4	0	14	132
Percent	12.	58.	29.	0.0		46.	46.	6.7	0.0		0.0	18.	81.	0.0		42.	28.	28.	0.0		
	7	2	1			7	7					8	3			9	6	6			
07:15 Volume	3	10	5	0	18	2	3	0	0	5	0	1	16	0	17	1	2	0	0	3	43
Peak Factor																					0.76
High Int.	07:15 AM					07:15 AM					07:30 AM					07:45 AM					
Volume	3	10	5	0	18	2	3	0	0	5	0	4	14	0	18	4	0	2	0	6	
Peak Factor	0.76										0.75					0.66					0.58
	4										0					7					3



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Southmoor Dr - Security Shopping Access PM
Site Code : 00184140
Start Date : 02/14/2018
Page No : 1

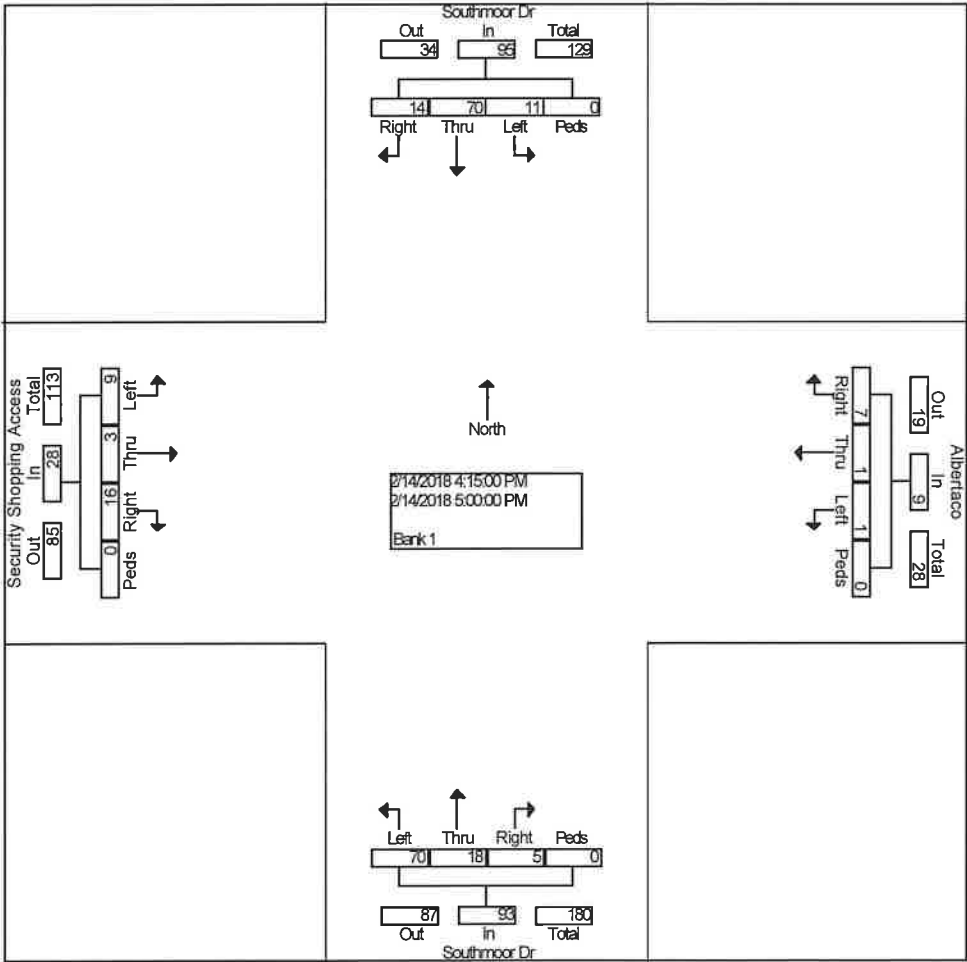
Groups Printed- Bank 1

	Southmoor Dr From North				Albertaco From East				Southmoor Dr From South				Security Shopping Access From West				Int. Total
Start Time	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	2	10	4	0	0	0	0	0	0	2	22	0	7	0	0	0	47
04:15 PM	1	19	2	0	5	0	1	0	1	9	26	0	2	1	2	0	69
04:30 PM	3	18	0	0	0	1	0	0	1	0	18	0	2	0	1	0	44
04:45 PM	5	13	5	0	1	0	0	0	0	6	12	0	8	1	4	0	55
Total	11	60	11	0	6	1	1	0	2	17	78	0	19	2	7	0	215
05:00 PM	5	20	4	0	1	0	0	0	3	3	14	0	4	1	2	0	57
05:15 PM	2	22	1	0	2	1	1	0	0	2	10	0	7	1	1	0	50
05:30 PM	3	23	7	0	1	3	0	0	0	0	11	0	4	0	1	0	53
05:45 PM	6	15	4	0	3	2	0	0	0	1	8	0	1	0	5	0	45
Total	16	80	16	0	7	6	1	0	3	6	43	0	16	2	9	0	205
Grand Total	27	140	27	0	13	7	2	0	5	23	121	0	35	4	16	0	420
Apprch %	13.9	72.2	13.9	0.0	59.1	31.8	9.1	0.0	3.4	15.4	81.2	0.0	63.6	7.3	29.1	0.0	
Total %	6.4	33.3	6.4	0.0	3.1	1.7	0.5	0.0	1.2	5.5	28.8	0.0	8.3	1.0	3.8	0.0	

Counts by LSC

























File Name : Southmoor Dr - Security Shopping Access PM
Site Code : 00184140
Start Date : 02/14/2018
Page No : 2

	Southmoor Dr From North					Albertaco From East					Southmoor Dr From South					Security Shopping Access From West					Int.
Start Time	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	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersecti on	04:15 PM																				
Volume	14	70	11	0	95	7	1	1	0	9	5	18	70	0	93	16	3	9	0	28	225
Percent	14.	73.	11.	0.0		77.	11.	11.	0.0		5.4	19.	75.	0.0		57.	10.	32.	0.0		
	7	7	6			8	1	1				4	3			1	7	1			
04:15 Volume	1	19	2	0	22	5	0	1	0	6	1	9	26	0	36	2	1	2	0	5	69
Peak Factor																					0.815
High Int.	05:00 PM					04:15 PM					04:15 PM					04:45 PM					
Volume	5	20	4	0	29	5	0	1	0	6	1	9	26	0	36	8	1	4	0	13	
Peak Factor	0.81					0.37					0.64					0.53					
	9					5					6					8					



Levels of Service



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	29	22	227	28	570	13	962	199	182	361	9
Future Volume (vph)	59	29	22	227	28	570	13	962	199	182	361	9
Turn Type	Prot	NA	Perm	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free	2		2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	35.0		11.0	25.0	25.0	11.0	34.0	34.0
Total Split (s)	14.0	13.0	13.0	21.0	20.0		17.0	39.0	39.0	17.0	39.0	39.0
Total Split (%)	15.6%	14.4%	14.4%	23.3%	22.2%		18.9%	43.3%	43.3%	18.9%	43.3%	43.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	8.7	7.0	7.0	12.4	10.7	90.0	49.1	43.2	43.2	9.8	54.0	54.0
Actuated g/C Ratio	0.10	0.08	0.08	0.14	0.12	1.00	0.55	0.48	0.48	0.11	0.60	0.60
v/c Ratio	0.41	0.24	0.08	0.58	0.15	0.43	0.03	0.73	0.29	0.50	0.18	0.01
Control Delay	45.5	42.7	0.5	41.0	35.7	0.9	9.0	24.7	3.6	42.4	11.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	42.7	0.5	41.0	35.7	0.9	9.0	24.7	3.6	42.4	11.3	0.0
LOS	D	D	A	D	D	A	A	C	A	D	B	A
Approach Delay		35.7			13.1			21.0			21.4	
Approach LOS		D			B			C			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 65 (72%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 19.2

























Intersection Capacity Utilization 59.1%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service B



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	37	26	369	29	255	21	523	434	500	1022	23
Future Volume (vph)	41	37	26	369	29	255	21	523	434	500	1022	23
Turn Type	Prot	NA	Perm	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free	2		2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	35.0		11.0	25.0	25.0	11.0	34.0	34.0
Total Split (s)	17.0	12.0	12.0	22.0	17.0		25.0	31.0	31.0	25.0	31.0	31.0
Total Split (%)	18.9%	13.3%	13.3%	24.4%	18.9%		27.8%	34.4%	34.4%	27.8%	34.4%	34.4%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	11.5	6.7	6.7	14.5	12.1	90.0	39.7	33.7	33.7	17.5	52.1	52.1
Actuated g/C Ratio	0.13	0.07	0.07	0.16	0.13	1.00	0.44	0.37	0.37	0.19	0.58	0.58
v/c Ratio	0.18	0.27	0.09	0.67	0.12	0.16	0.08	0.43	0.54	0.78	0.52	0.02
Control Delay	36.8	44.2	0.7	41.6	34.8	0.2	11.2	24.7	5.3	43.2	15.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.8	44.2	0.7	41.6	34.8	0.2	11.2	24.7	5.3	43.2	15.8	0.0
LOS	D	D	A	D	C	A	B	C	A	D	B	A
Approach Delay		30.4			25.1			15.8			24.4	
Approach LOS		C			C			B			C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 66 (73%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 22.1























Intersection LOS: C

Intersection Capacity Utilization 63.8%

ICU Level of Service B

Analysis Period (min) 15



											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	32	18	227	11	570	7	962	199	182	361	2
Future Volume (vph)	32	18	227	11	570	7	962	199	182	361	2
Turn Type	pm+pt	NA	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4				Free	2		2			6
Detector Phase	7	4	3	8		5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	32.0	10.0	32.0		11.0	25.0	25.0	11.0	25.0	25.0
Total Split (s)	21.0	32.0	21.0	32.0		11.0	32.0	32.0	15.0	36.0	36.0
Total Split (%)	21.0%	32.0%	21.0%	32.0%		11.0%	32.0%	32.0%	15.0%	36.0%	36.0%
Yellow Time (s)	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	13.4	6.1	13.0	9.6	100.0	60.2	54.5	54.5	10.8	68.8	68.8
Actuated g/C Ratio	0.13	0.06	0.13	0.10	1.00	0.60	0.54	0.54	0.11	0.69	0.69
v/c Ratio	0.15	0.10	0.61	0.07	0.43	0.01	0.64	0.27	0.51	0.15	0.00
Control Delay	32.9	45.0	46.8	41.5	0.9	7.6	20.1	4.8	46.7	7.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	45.0	46.8	41.5	0.9	7.6	20.1	4.8	46.7	7.6	0.0
LOS	C	D	D	D	A	A	C	A	D	A	A
Approach Delay		37.3		14.3			17.4			20.7	
Approach LOS		D		B			B			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

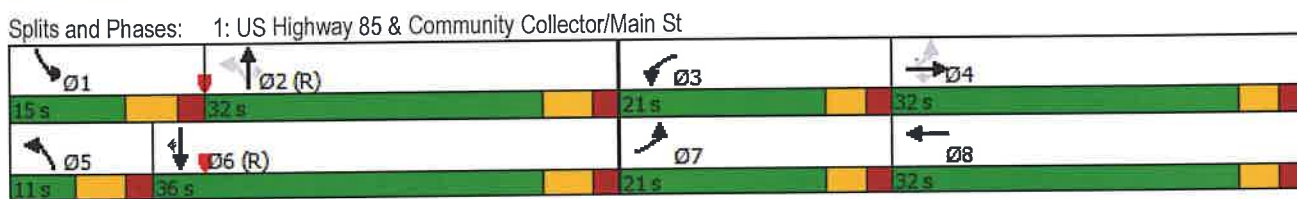
Intersection Signal Delay: 17.4

Intersection LOS: B

Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

























Intersection										
Int Delay, s/veh	0.2									
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations		↱	↱	↕↕↕			↕↕			
Traffic Vol, veh/h	0	12	9	1166	0	0	556	32	0	0
Future Vol, veh/h	0	12	9	1166	0	0	556	32	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	400	-	400	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	16974	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	58	58	79	79	79	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	21	11	1476	0	0	604	35	0	0

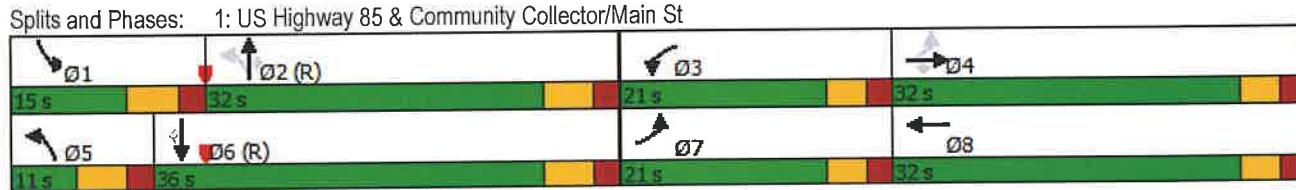
Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	-	320	639	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-
Pot Cap-1 Maneuver	0	676	941	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	676	941	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	941	-	676	-	-
HCM Lane V/C Ratio	0.012	-	0.031	-	-
HCM Control Delay (s)	8.9	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	29	27	369	19	255	6	523	434	500	1022	11
Future Volume (vph)	29	27	369	19	255	6	523	434	500	1022	11
Turn Type	pm+pt	NA	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases	4				Free	2		2			6
Detector Phase	7	4	3	8		5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	32.0	10.0	32.0		11.0	25.0	25.0	11.0	25.0	25.0
Total Split (s)	21.0	32.0	21.0	32.0		11.0	32.0	32.0	15.0	36.0	36.0
Total Split (%)	21.0%	32.0%	21.0%	32.0%		11.0%	32.0%	32.0%	15.0%	36.0%	36.0%
Yellow Time (s)	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	13.7	6.3	14.8	12.5	100.0	36.9	31.2	31.2	30.1	64.8	64.8
Actuated g/C Ratio	0.14	0.06	0.15	0.12	1.00	0.37	0.31	0.31	0.30	0.65	0.65
v/c Ratio	0.12	0.12	0.73	0.08	0.16	0.03	0.52	0.58	0.50	0.46	0.01
Control Delay	29.9	45.1	49.6	38.9	0.2	11.0	30.4	5.7	32.7	11.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	45.1	49.6	38.9	0.2	11.0	30.4	5.7	32.7	11.7	0.0
LOS	C	D	D	D	A	B	C	A	C	B	A
Approach Delay		37.3		29.7			19.1			18.5	
Approach LOS		D		C			B			B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

























Intersection										
Int Delay, s/veh	0.1									
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations		↗	↘	↑↑↑			↑↑			
Traffic Vol, veh/h	0	15	3	963	0	0	1299	92	0	0
Future Vol, veh/h	0	15	3	963	0	0	1299	92	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	400	-	400	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	16974	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	64	64	90	90	90	99	99	99	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	23	3	1070	0	0	1312	93	0	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	703	1405
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	2.22
Pot Cap-1 Maneuver	0	380	482
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	380	482
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	482	-	380	-	-
HCM Lane V/C Ratio	0.007	-	0.062	-	-
HCM Control Delay (s)	12.5	-	15.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	32	18	277	11	696	5	1175	243	229	442	2
Future Volume (vph)	32	18	277	11	696	5	1175	243	229	442	2
Turn Type	Prot	NA	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					Free	2		2			6
Detector Phase	7	4	3	8		5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	10.0	35.0		11.0	25.0	25.0	11.0	34.0	34.0
Total Split (s)	25.0	20.0	20.0	15.0		11.0	30.0	30.0	20.0	39.0	39.0
Total Split (%)	27.8%	22.2%	22.2%	16.7%		12.2%	33.3%	33.3%	22.2%	43.3%	43.3%
Yellow Time (s)	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	11.9	6.0	12.6	9.1	90.0	49.8	44.2	44.2	11.6	59.4	59.4
Actuated g/C Ratio	0.13	0.07	0.14	0.10	1.00	0.55	0.49	0.49	0.13	0.66	0.66
v/c Ratio	0.15	0.08	0.61	0.06	0.46	0.01	0.71	0.29	0.55	0.20	0.00
Control Delay	34.3	39.8	41.8	37.3	1.0	8.4	23.8	4.5	41.1	8.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	39.8	41.8	37.3	1.0	8.4	23.8	4.5	41.1	8.4	0.0
LOS	C	D	D	D	A	A	C	A	D	A	A
Approach Delay		36.3		12.9			20.4			19.5	
Approach LOS		D		B			C			B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 66 (73%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 18.1

Intersection LOS: B

Intersection Capacity Utilization 67.7%

ICU Level of Service C

Analysis Period (min) 15

























Intersection										
Int Delay, s/veh	0.1									
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations		↗	↘	↑↑↑			↑↑			
Traffic Vol, veh/h	0	13	10	1423	0	0	684	35	0	0
Future Vol, veh/h	0	13	10	1423	0	0	684	35	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	400	-	400	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	16974	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	11	1498	0	0	720	37	0	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	-	379	757	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-
Pot Cap-1 Maneuver	0	619	850	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	619	850	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	850	-	619	-	-
HCM Lane V/C Ratio	0.012	-	0.022	-	-
HCM Control Delay (s)	9.3	-	10.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	29	27	450	19	311	6	639	530	618	1244	11
Future Volume (vph)	29	27	450	19	311	6	639	530	618	1244	11
Turn Type	Prot	NA	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					Free	2		2			6
Detector Phase	7	4	3	8		5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	10.0	35.0		11.0	25.0	25.0	11.0	34.0	34.0
Total Split (s)	25.0	20.0	20.0	15.0		11.0	30.0	30.0	20.0	39.0	39.0
Total Split (%)	27.8%	22.2%	22.2%	16.7%		12.2%	33.3%	33.3%	22.2%	43.3%	43.3%
Yellow Time (s)	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	8.7	6.2	14.7	12.3	90.0	32.8	27.1	27.1	26.4	57.1	57.1
Actuated g/C Ratio	0.10	0.07	0.16	0.14	1.00	0.36	0.30	0.30	0.29	0.63	0.63
v/c Ratio	0.18	0.11	0.85	0.08	0.21	0.03	0.63	0.64	0.65	0.58	0.01
Control Delay	39.4	40.0	51.9	35.1	0.3	10.8	30.7	6.4	32.5	13.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	40.0	51.9	35.1	0.3	10.8	30.7	6.4	32.5	13.3	0.0
LOS	D	D	D	D	A	B	C	A	C	B	A
Approach Delay		39.7		30.9			19.6			19.5	
Approach LOS		D		C			B			B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 66 (73%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 22.1

Intersection Capacity Utilization 72.2%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service C



























Intersection										
Int Delay, s/veh		0.1								
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations		↗	↘	↑↑↑			↑↑			
Traffic Vol, veh/h	0	17	3	1175	0	0	1592	102	0	0
Future Vol, veh/h	0	17	3	1175	0	0	1592	102	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	400	-	400	-	-	-	-	-
Veh In Median Storage, #	0	-	-	0	-	-	0	-	16974	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	18	3	1237	0	0	1676	107	0	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	-	892	1783	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-
Pot Cap-1 Maneuver	0	285	344	-	0
Stage 1	0	-	-	0	0
Stage 2	0	-	-	0	0
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	285	344	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	344	-	285	-	-
HCM Lane V/C Ratio	0.009	-	0.063	-	-
HCM Control Delay (s)	15.6	-	18.5	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	87	56	221	90	548	77	925	191	175	361	62
Future Volume (vph)	165	87	56	221	90	548	77	925	191	175	361	62
Turn Type	pm+pt	NA	Perm	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			Free	2		2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		11.0	25.0	25.0	11.0	25.0	25.0
Total Split (s)	21.0	32.0	32.0	21.0	32.0		11.0	32.0	32.0	15.0	36.0	36.0
Total Split (%)	21.0%	32.0%	32.0%	21.0%	32.0%		11.0%	32.0%	32.0%	15.0%	36.0%	36.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	25.6	11.9	11.9	12.9	11.1	100.0	50.8	42.7	42.7	10.5	47.5	47.5
Actuated g/C Ratio	0.26	0.12	0.12	0.13	0.11	1.00	0.51	0.43	0.43	0.10	0.48	0.48
v/c Ratio	0.51	0.24	0.20	0.60	0.52	0.42	0.18	0.78	0.31	0.50	0.22	0.08
Control Delay	31.6	40.1	1.4	46.8	50.3	0.8	11.5	31.3	6.1	46.8	18.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	40.1	1.4	46.8	50.3	0.8	11.5	31.3	6.1	46.8	18.3	0.2
LOS	C	D	A	D	D	A	B	C	A	D	B	A
Approach Delay		28.5			17.8			26.0			24.7	
Approach LOS		C			B			C			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

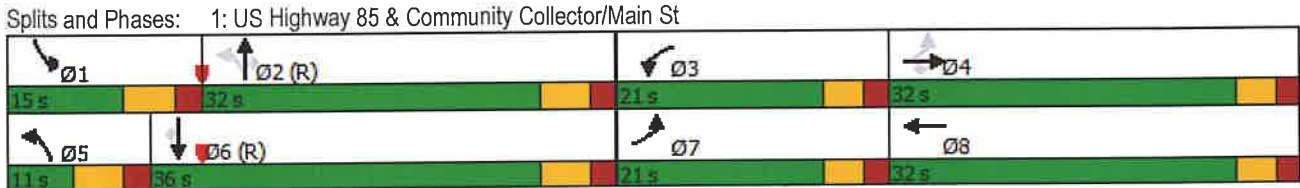
Intersection Signal Delay: 23.6

Intersection LOS: C







Intersection Capacity Utilization 60.5%







ICU Level of Service B

























Analysis Period (min) 15



Intersection										
Int Delay, s/veh		0.4								
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations		↗	↘	↑↑↑			↑↑			
Traffic Vol, veh/h	0	34	29	1193	0	0	590	49	0	0
Future Vol, veh/h	0	34	29	1193	0	0	590	49	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	400	-	400	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	16974	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	58	58	79	79	79	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	59	37	1510	0	0	641	53	0	0
Major/Minor										
Minor2		Major1			Major2					
Conflicting Flow All		-	347	694	0	-	-	-	0	
Stage 1		-	-	-	-	-	-	-	-	
Stage 2		-	-	-	-	-	-	-	-	
Critical Hdwy		-	6.94	4.14	-	-	-	-	-	
Critical Hdwy Stg 1		-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2		-	-	-	-	-	-	-	-	
Follow-up Hdwy		-	3.32	2.22	-	-	-	-	-	
Pot Cap-1 Maneuver		0	649	897	-	0	0	-	-	
Stage 1		0	-	-	-	0	0	-	-	
Stage 2		0	-	-	-	0	0	-	-	
Platoon blocked, %					-			-	-	
Mov Cap-1 Maneuver		-	649	897	-	-	-	-	-	
Mov Cap-2 Maneuver		-	-	-	-	-	-	-	-	
Stage 1		-	-	-	-	-	-	-	-	
Stage 2		-	-	-	-	-	-	-	-	
Approach										
EB		NB			SB					
HCM Control Delay, s		11.1		0.2				0		
HCM LOS		B								
Minor Lane/Major Mvmt										
		NBL	NBT	EBLn1	SBT	SBR				
Capacity (veh/h)		897	-	649	-	-				
HCM Lane V/C Ratio		0.041	-	0.09	-	-				
HCM Control Delay (s)		9.2	-	11.1	-	-				
HCM Lane LOS		A	-	B	-	-				
HCM 95th %tile Q(veh)		0.1	-	0.3	-	-				

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	9	36	20	42	33
Future Vol, veh/h	11	9	36	20	42	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	57	67	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	10	39	35	63	36
Major/Minor						
	Minor2		Major1		Major2	
Conflicting Flow All	194	81	99	0	-	0
Stage 1	81	-	-	-	-	-
Stage 2	113	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	795	979	1494	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	774	979	1494	-	-	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Approach						
	EB		NB		SB	
HCM Control Delay, s	9.4		3.9		0	
HCM LOS	A					
Minor Lane/Major Mvmt						
	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1494	-	845	-	-	
HCM Lane V/C Ratio	0.026	-	0.026	-	-	
HCM Control Delay (s)	7.5	-	9.4	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	

Intersection												
Int Delay, s/veh		2.3										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	0	1	0	0	10	0	32	0	4	33	14
Future Vol, veh/h	14	0	1	0	0	10	0	32	0	4	33	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	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	15	0	1	0	0	11	0	34	0	4	35	15
Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	91	85	43	85	92	34	50	0	0	34	0	0
Stage 1	51	51	-	34	34	-	-	-	-	-	-	-
Stage 2	40	34	-	51	58	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	893	805	1027	901	798	1039	1557	-	-	1578	-	-
Stage 1	962	852	-	982	867	-	-	-	-	-	-	-
Stage 2	975	867	-	962	847	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	882	803	1027	898	796	1039	1557	-	-	1578	-	-
Mov Cap-2 Maneuver	882	803	-	898	796	-	-	-	-	-	-	-
Stage 1	962	849	-	982	867	-	-	-	-	-	-	-
Stage 2	965	867	-	959	844	-	-	-	-	-	-	-
Approach	EB		WB		NB			SB				
HCM Control Delay, s	9.1		8.5		0			0.6				
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1557	-	-	890	1039	1578	-	-				
HCM Lane V/C Ratio	-	-	-	0.018	0.01	0.003	-	-				
HCM Control Delay (s)	0	-	-	9.1	8.5	7.3	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	108	61	371	99	248	70	509	424	488	1029	111
Future Volume (vph)	119	108	61	371	99	248	70	509	424	488	1029	111
Turn Type	pm+pt	NA	Perm	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			Free	2		2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		11.0	25.0	25.0	11.0	25.0	25.0
Total Split (s)	21.0	32.0	32.0	21.0	32.0		11.0	32.0	32.0	15.0	36.0	36.0
Total Split (%)	21.0%	32.0%	32.0%	21.0%	32.0%		11.0%	32.0%	32.0%	15.0%	36.0%	36.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.4	8.9	8.9	14.8	12.2	100.0	34.4	27.0	27.0	27.3	49.3	49.3
Actuated g/C Ratio	0.21	0.09	0.09	0.15	0.12	1.00	0.34	0.27	0.27	0.27	0.49	0.49
v/c Ratio	0.35	0.34	0.22	0.73	0.44	0.16	0.29	0.59	0.61	0.54	0.61	0.14
Control Delay	29.6	45.1	1.8	49.7	46.2	0.2	15.4	34.6	6.6	34.6	22.3	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	45.1	1.8	49.7	46.2	0.2	15.4	34.6	6.6	34.6	22.3	2.4
LOS	C	D	A	D	D	A	B	C	A	C	C	A
Approach Delay		29.5			32.1			21.4			24.6	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

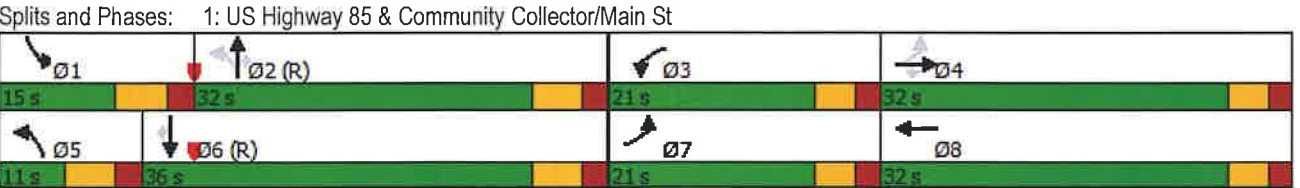
Intersection Signal Delay: 25.5

Intersection Capacity Utilization 64.0%





Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service C



Intersection										
Int Delay, s/veh		0.7								
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations		↑	↑	↑↑↑			↑↑			
Traffic Vol, veh/h	0	44	36	1003	0	0	1326	134	0	0
Future Vol, veh/h	0	44	36	1003	0	0	1326	134	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	400	-	400	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	16974	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	64	64	90	90	90	99	99	99	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	69	40	1114	0	0	1339	135	0	0
Major/Minor										
Minor2		Major1			Major2					
Conflicting Flow All		-	737	1474	0	-	-	-	0	
Stage 1		-	-	-	-	-	-	-	-	
Stage 2		-	-	-	-	-	-	-	-	
Critical Hdwy		-	6.94	4.14	-	-	-	-	-	
Critical Hdwy Stg 1		-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2		-	-	-	-	-	-	-	-	
Follow-up Hdwy		-	3.32	2.22	-	-	-	-	-	
Pot Cap-1 Maneuver		0	361	453	-	0	0	-	-	
Stage 1		0	-	-	-	0	0	-	-	
Stage 2		0	-	-	-	0	0	-	-	
Platoon blocked, %		-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver		-	361	453	-	-	-	-	-	
Mov Cap-2 Maneuver		-	-	-	-	-	-	-	-	
Stage 1		-	-	-	-	-	-	-	-	
Stage 2		-	-	-	-	-	-	-	-	
Approach										
EB		NB			SB					
HCM Control Delay, s		17.3		0.5			0			
HCM LOS		C								
Minor Lane/Major Mvmt										
NBL		NBT EBLn1			SBT SBR					
Capacity (veh/h)		453	-	361	-	-	-	-	-	-
HCM Lane V/C Ratio		0.088	-	0.19	-	-	-	-	-	-
HCM Control Delay (s)		13.7	-	17.3	-	-	-	-	-	-
HCM Lane LOS		B	-	C	-	-	-	-	-	-
HCM 95th %tile Q(veh)		0.3	-	0.7	-	-	-	-	-	-

























Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	27	48	23	125	34
Future Vol, veh/h	23	27	48	23	125	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	76	95	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	29	52	30	132	37
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	285	151	169	0	-	0
Stage 1	151	-	-	-	-	-
Stage 2	134	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	705	895	1409	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	892	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	679	895	1409	-	-	-
Mov Cap-2 Maneuver	695	-	-	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	892	-	-	-	-	-
Approach						
	EB	NB		SB		
HCM Control Delay, s	9.9	4.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt						
	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1409	-	790	-	-	
HCM Lane V/C Ratio	0.037	-	0.069	-	-	
HCM Control Delay (s)	7.7	-	9.9	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-	

Intersection												
Int Delay, s/veh		1.3										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	9	0	1	0	0	9	1	53	0	15	91	46
Future Vol, veh/h	9	0	1	0	0	9	1	53	0	15	91	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	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	9	0	1	0	0	9	1	56	0	16	96	48

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	215	210	120	211	234	56	144	0	0	56	0	0
Stage 1	152	152	-	58	58	-	-	-	-	-	-	-
Stage 2	63	58	-	153	176	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	742	687	931	746	666	1011	1438	-	-	1549	-	-
Stage 1	850	772	-	954	847	-	-	-	-	-	-	-
Stage 2	948	847	-	849	753	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	729	679	931	739	659	1011	1438	-	-	1549	-	-
Mov Cap-2 Maneuver	729	679	-	739	659	-	-	-	-	-	-	-
Stage 1	849	764	-	953	846	-	-	-	-	-	-	-
Stage 2	938	846	-	839	745	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.9		8.6		0.1		0.7	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1438	-	-	745	1011	1549	-	-
HCM Lane V/C Ratio	0.001	-	-	0.014	0.009	0.01	-	-
HCM Control Delay (s)	7.5	-	-	9.9	8.6	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	87	56	271	90	674	77	1138	235	222	442	62
Future Volume (vph)	165	87	56	271	90	674	77	1138	235	222	442	62
Turn Type	pm+pt	NA	Perm	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			Free	2		2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		11.0	25.0	25.0	11.0	25.0	25.0
Total Split (s)	21.0	32.0	32.0	21.0	32.0		11.0	32.0	32.0	15.0	36.0	36.0
Total Split (%)	21.0%	32.0%	32.0%	21.0%	32.0%		11.0%	32.0%	32.0%	15.0%	36.0%	36.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	22.4	10.3	10.3	13.3	10.4	100.0	51.9	44.3	44.3	12.3	51.4	51.4
Actuated g/C Ratio	0.22	0.10	0.10	0.13	0.10	1.00	0.52	0.44	0.44	0.12	0.51	0.51
v/c Ratio	0.49	0.25	0.20	0.63	0.49	0.45	0.15	0.76	0.30	0.56	0.26	0.07
Control Delay	33.0	41.8	1.5	47.1	50.1	0.9	11.0	30.4	6.3	46.1	17.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	41.8	1.5	47.1	50.1	0.9	11.0	30.4	6.3	46.1	17.1	0.2
LOS	C	D	A	D	D	A	B	C	A	D	B	A
Approach Delay		29.8			17.3			25.5			24.5	
Approach LOS		C			B			C			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

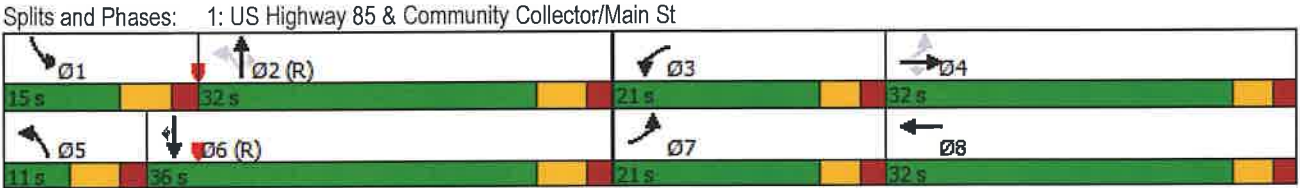
Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15









Intersection										
Int Delay, s/veh	0.3									
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations		↱	↱	↗↗↗			↗↗			
Traffic Vol, veh/h	0	35	30	1450	0	0	718	52	0	0
Future Vol, veh/h	0	35	30	1450	0	0	718	52	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	400	-	400	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	16974	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	37	32	1526	0	0	756	55	0	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	-	406	811	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-
Pot Cap-1 Maneuver	0	594	811	0	0
Stage 1	0	-	-	0	0
Stage 2	0	-	-	0	0
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	594	811	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	811	-	594	-	-
HCM Lane V/C Ratio	0.039	-	0.062	-	-
HCM Control Delay (s)	9.6	-	11.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	9	36	24	57	33
Future Vol, veh/h	11	9	36	24	57	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	9	38	25	60	35

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	179	78	95
Stage 1	78	-	-
Stage 2	101	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	811	983	1499
Stage 1	945	-	-
Stage 2	923	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	791	983	1499
Mov Cap-2 Maneuver	772	-	-
Stage 1	921	-	-
Stage 2	923	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	4.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1499	- 855	-	-
HCM Lane V/C Ratio	0.025	- 0.025	-	-
HCM Control Delay (s)	7.5	- 9.3	-	-
HCM Lane LOS	A	- A	-	-
HCM 95th %tile Q(veh)	0.1	- 0.1	-	-

HCM 6th TWSC
5: Southmoor Dr & Residential Access/Blue Sky Mobile Home Park

2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	14	0	1	0	0	10	0	36	0	4	48	14
Future Vol, veh/h	14	0	1	0	0	10	0	36	0	4	48	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	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	15	0	1	0	0	11	0	38	0	4	51	15

























Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	111	105	59	105	112	38	66	0
Stage 1	67	67	-	38	38	-	-	-
Stage 2	44	38	-	67	74	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	867	785	1007	875	778	1034	1536	-
Stage 1	943	839	-	977	863	-	-	-
Stage 2	970	863	-	943	833	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	857	783	1007	872	776	1034	1536	-
Mov Cap-2 Maneuver	857	783	-	872	776	-	-	-
Stage 1	943	836	-	977	863	-	-	-
Stage 2	960	863	-	940	831	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	8.5	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1536	-	-	866	1034	1572	-	-
HCM Lane V/C Ratio	-	-	-	0.018	0.01	0.003	-	-
HCM Control Delay (s)	0	-	-	9.2	8.5	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Timings
1: US Highway 85 & Community Collector/Main St

2040 Total Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	108	61	452	99	304	70	625	520	606	1251	111
Future Volume (vph)	119	108	61	452	99	304	70	625	520	606	1251	111
Turn Type	pm+pt	NA	Perm	Prot	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			Free	2		2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		11.0	25.0	25.0	11.0	25.0	25.0
Total Split (s)	23.0	32.0	32.0	23.0	32.0		11.0	30.0	30.0	15.0	34.0	34.0
Total Split (%)	23.0%	32.0%	32.0%	23.0%	32.0%		11.0%	30.0%	30.0%	15.0%	34.0%	34.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	19.4	8.7	8.7	17.1	15.1	100.0	31.4	24.0	24.0	28.2	47.2	47.2
Actuated g/C Ratio	0.19	0.09	0.09	0.17	0.15	1.00	0.31	0.24	0.24	0.28	0.47	0.47
v/c Ratio	0.42	0.37	0.23	0.81	0.37	0.20	0.36	0.78	0.69	0.66	0.79	0.14
Control Delay	30.1	46.1	2.0	51.7	42.4	0.3	19.4	42.7	8.0	36.2	28.6	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	46.1	2.0	51.7	42.4	0.3	19.4	42.7	8.0	36.2	28.6	2.5
LOS	C	D	A	D	D	A	B	D	A	D	C	A
Approach Delay		30.2			32.3			26.5			29.5	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 29.2

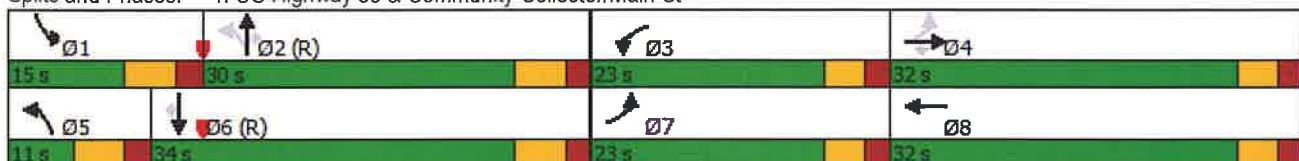
Intersection LOS: C

Intersection Capacity Utilization 72.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: US Highway 85 & Community Collector/Main St



HCM 6th TWSC
2: US Highway 85 & Southmoor Dr

2040 Total Traffic
PM Peak Hour

Intersection										
Int Delay, s/veh	0.5									
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations		↗	↘	↑↑↑			↑↑			
Traffic Vol, veh/h	0	46	36	1215	0	0	1619	144	0	0
Future Vol, veh/h	0	46	36	1215	0	0	1619	144	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	400	-	400	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	16974	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	48	38	1279	0	0	1704	152	0	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	928	1856
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	2.22
Pot Cap-1 Maneuver	0	270	322
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	270	322
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.2	0.5	0
HCM LOS	C		






Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	322	-	270	-
HCM Lane V/C Ratio	0.118	-	0.179	-
HCM Control Delay (s)	17.7	-	21.2	-
HCM Lane LOS	C	-	C	-
HCM 95th %tile Q(veh)	0.4	-	0.6	-

HCM 6th TWSC
4: Southmoor Dr & Site Access

2040 Total Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	27	48	27	139	34
Future Vol, veh/h	23	27	48	27	139	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	28	51	28	146	36

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	294	164	182
Stage 1	164	-	-
Stage 2	130	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	697	881	1393
Stage 1	865	-	-
Stage 2	896	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	671	881	1393
Mov Cap-2 Maneuver	689	-	-
Stage 1	833	-	-
Stage 2	896	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	4.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1393	-	781	-	-
HCM Lane V/C Ratio	0.036	-	0.067	-	-
HCM Control Delay (s)	7.7	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

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	9	0	1	0	0	9	1	57	0	15	105	46
Future Vol, veh/h	9	0	1	0	0	9	1	57	0	15	105	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	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	9	0	1	0	0	9	1	60	0	16	111	48

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	234	229	135	230	253	60	159	0	0	60	0	0
Stage 1	167	167	-	62	62	-	-	-	-	-	-	-
Stage 2	67	62	-	168	191	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	721	671	914	725	650	1005	1420	-	-	1544	-	-
Stage 1	835	760	-	949	843	-	-	-	-	-	-	-
Stage 2	943	843	-	834	742	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	708	664	914	718	643	1005	1420	-	-	1544	-	-
Mov Cap-2 Maneuver	708	664	-	718	643	-	-	-	-	-	-	-
Stage 1	834	752	-	948	842	-	-	-	-	-	-	-
Stage 2	933	842	-	824	735	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	8.6	0.1	0.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1420	-	-	724	1005	1544	-	-
HCM Lane V/C Ratio	0.001	-	-	0.015	0.009	0.01	-	-
HCM Control Delay (s)	7.5	-	-	10	8.6	7.4	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Queuing Reports



Queuing and Blocking Report

2040 Total Traffic

AM Peak Hour

Intersection: 1: US Highway 85 & Community Collector/Main St

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	L	T	L	T	T	R	L
Maximum Queue (ft)	143	69	73	48	245	288	137	262	466	450	111	161
Average Queue (ft)	78	28	30	18	98	172	65	44	285	257	16	51
95th Queue (ft)	135	59	65	40	229	258	118	139	418	401	65	129
Link Distance (ft)		190	190			380	380		484	484	484	
Upstream Blk Time (%)									1	1		
Queuing Penalty (veh)									3	3		
Storage Bay Dist (ft)	130			130	230			335				775
Storage Blk Time (%)	2				0	2			5			
Queuing Penalty (veh)	1				0	3			4			

Intersection: 1: US Highway 85 & Community Collector/Main St

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	180	197	151	36
Average Queue (ft)	112	76	56	11
95th Queue (ft)	167	150	113	31
Link Distance (ft)		1067	1067	1067
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	775			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: US Highway 85 & Southmoor Dr

Movement	EB	NB	NB	NB
Directions Served	R	L	T	T
Maximum Queue (ft)	43	21	50	21
Average Queue (ft)	19	9	2	1
95th Queue (ft)	44	24	23	10
Link Distance (ft)	117		813	813
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		400		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report

Intersection: 4: Southmoor Dr & Site Access

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	30	41
Average Queue (ft)	12	4
95th Queue (ft)	36	22
Link Distance (ft)	86	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	200	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Southmoor Dr & Residential Access

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	13
95th Queue (ft)	37
Link Distance (ft)	201
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 14

Queuing and Blocking Report

2040 Total Traffic
PM Peak Hour

Intersection: 1: US Highway 85 & Community Collector/Main St

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	L	T	L	T	T	R	L
Maximum Queue (ft)	131	104	111	73	315	384	302	109	261	236	304	280
Average Queue (ft)	65	36	36	25	208	266	85	46	166	139	134	170
95th Queue (ft)	116	75	77	58	304	376	208	88	237	208	254	257
Link Distance (ft)		190	190			380	380		484	484	484	
Upstream Blk Time (%)						2	0					
Queuing Penalty (veh)						0	0					
Storage Bay Dist (ft)	130			130	230			335				775
Storage Blk Time (%)	1		0		1	21						
Queuing Penalty (veh)	1		0		3	47						

Intersection: 1: US Highway 85 & Community Collector/Main St

Movement	SB	SB	SB	SB
Directions Served	L	T	T	R
Maximum Queue (ft)	313	403	462	69
Average Queue (ft)	209	222	247	24
95th Queue (ft)	276	358	390	49
Link Distance (ft)		1067	1067	1067
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	775			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: US Highway 85 & Southmoor Dr

Movement	EB	NB	SB	SB
Directions Served	R	L	T	TR
Maximum Queue (ft)	68	63	20	21
Average Queue (ft)	27	19	1	1
95th Queue (ft)	52	48	11	10
Link Distance (ft)	117		484	484
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		400		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report

Intersection: 4: Southmoor Dr & Site Access

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	54	39
Average Queue (ft)	26	9
95th Queue (ft)	51	34
Link Distance (ft)	86	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	200	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Southmoor Dr & Residential Access

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	8
95th Queue (ft)	30
Link Distance (ft)	201
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 51

Queuing and Blocking Report

Intersection: 1: US Highway 85 & Main St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	R	L	T	T	R
Maximum Queue (ft)	150	157	50	26	76	74	117	65	82	271	231	104
Average Queue (ft)	112	73	17	18	69	54	83	59	45	188	159	47
95th Queue (ft)	173	163	55	32	93	98	125	67	96	298	267	132
Link Distance (ft)		282	282		68	68	68			483	483	483
Upstream Blk Time (%)					53	14	14	2				
Queuing Penalty (veh)					181	50	50	0				
Storage Bay Dist (ft)	130			130				230	335			
Storage Blk Time (%)	9						14	2				
Queuing Penalty (veh)	4						97	1				

Intersection: 1: US Highway 85 & Main St

Movement	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R
Maximum Queue (ft)	173	198	123	109	18
Average Queue (ft)	144	170	60	58	8
95th Queue (ft)	224	223	131	122	22
Link Distance (ft)			1066	1066	1066
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	775	775			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report

2040 Total Traffic PM Peak Hour

With Train Crossing

Intersection: 1: US Highway 85 & Main St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	R	L	T	T	R
Maximum Queue (ft)	130	152	117	78	99	78	122	68	110	245	210	521
Average Queue (ft)	90	89	44	31	86	74	74	47	53	132	109	380
95th Queue (ft)	138	160	106	75	102	82	117	87	115	230	194	645
Link Distance (ft)		282	282		68	68	68			483	483	483
Upstream Blk Time (%)					88	63	23	1				8
Queuing Penalty (veh)					251	179	65	0				34
Storage Bay Dist (ft)	130			130				230	335			
Storage Blk Time (%)	4	4	0				23	1				
Queuing Penalty (veh)	2	5	0				69	1				

Intersection: 1: US Highway 85 & Main St

Movement	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R
Maximum Queue (ft)	825	872	1081	1036	64
Average Queue (ft)	691	733	498	405	27
95th Queue (ft)	944	985	1131	940	58
Link Distance (ft)			1066	1066	1066
Upstream Blk Time (%)			13		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)	775	775			
Storage Blk Time (%)	23	31			
Queuing Penalty (veh)	142	193			

