

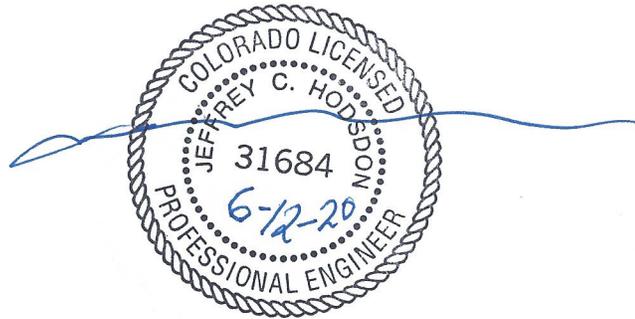


LSC TRANSPORTATION CONSULTANTS, INC.
2504 East Pikes Peak Avenue, Suite 304
Colorado Springs, CO 80909
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: <http://www.lsctrans.com>

Falcon Marketplace – King Soopers Transportation Memorandum (LSC #194770) June 10, 2020

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.

6-12-20

Date



LSC TRANSPORTATION CONSULTANTS, INC.
2504 East Pikes Peak Avenue, Suite 304
Colorado Springs, CO 80909
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: <http://www.lsctrans.com>

June 10, 2020

Mr. Lowell Good
King Soopers, Inc.
65 Tejon Street
Denver, CO 80223

RE: Falcon Marketplace – King Soopers
Transportation Memorandum --
El Paso County, CO
LSC #194770

Dear Mr. Good:

In response to your request LSC Transportation Consultants, Inc. has prepared this updated transportation memorandum for the proposed King Soopers supermarket and fuel center to be located within the Falcon Marketplace development. Falcon Marketplace is located north of Woodmen Road and west of Meridian Road in El Paso County, Colorado. This site was included in a full traffic impact analysis (TIA), *Falcon Marketplace Traffic Impact Analysis* by LSC dated October 23, 2017 (September 5, 2018 Revision). Key pages from this report have been attached. The previous version of this memo was dated December 18, 2019.

This report contains the following:

- A comparison of the currently proposed land use and access to the land use and access assumed in the Falcon Marketplace TIA;
- The projected vehicle-trip generation for the currently proposed development and a comparison to the estimate for the same parcels in the Falcon Marketplace TIA;
- Any changes to the recommendations contained in the Falcon Marketplace TIA based on the currently proposed plan;
- This memorandum has been updated to include the most recent tables submitted for the Falcon Marketplace Final Plat. June 2020 notations have been added to the attached exhibits.

SITE DEVELOPMENT AND LAND USE

Land Use

The currently proposed development includes a 123,000 square foot grocery store on Lot 2 of the Falcon Marketplace and a gas station with 18 vehicle fueling positions on Lot 3. This is the same as with the land use shown for these lots in the Falcon Marketplace TIA. The currently proposed site plan has been attached.

No changes are currently proposed to the land uses assumed for Lots 1 and 4 through 10 in the Falcon Marketplace TIA.

No changes are proposed to the proposed access points for the Falcon Marketplace. The internal access points for Lots 2 and 3 are also consistent with what was assumed in the TIA.

TRIP GENERATION

The trip generation estimate for the Falcon Marketplace in the TIA was made using the nationally published trip generation rates found in *Trip Generation, 9th Edition, 2012* by the Institute of Transportation Engineers (ITE). This estimate utilizes the applicable rates from the 10th edition of the Trip Generation manual. Table 1 shows the trip generation estimates for Lots 2 and 3 from the Falcon Marketplace TIA, based on the 9th edition rates, and an updated trip generation estimate, based on the current 10th edition rates.

The current development is projected to generate about 11,800 total (external) vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. This is about 333 more vehicle trips than was estimated for the same lots in the Falcon Marketplace TIA. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 353 vehicles would enter and 247 vehicles would exit the site. This is about four more entering trips and 15 more exiting trips than were estimated in the Falcon Marketplace TIA. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 529 vehicles would enter and 524 vehicles would exit the site. This is about four more entering trips and three more exiting trips than were estimated in the Falcon Marketplace TIA. The change in trip generation is due to the change in the ITE rates and not a change in the land use.

ROADWAY IMPROVEMENTS

The attached Exhibit 1 contains Table 7b (most recent version) from the Falcon Marketplace project (SF 19-001) shows the roadway improvements that will be constructed with the first phase of the Falcon Marketplace project. Accompanying the most recent version of Table 7b are additional tables (labeled "Exhibits 2, 3, and 4") which present "dollars per trip" calculation for

use at this site development plan/building permit stage for each improvement. Update (June 2020): Notations have been added to the attached exhibits.

CONCLUSIONS AND RECOMMENDATIONS

1. Although the land use plan for lots 2 and 3 of the Falcon Marketplace have not changed since completion of the Falcon Marketplace TIA, updates to the trip generation rates shown in the latest available *Trip Generation Manual* published by the Institute of Transportation Engineers results in a slightly higher trip generation estimate for these lots. As shown in Table 1 the total number of vehicle-trips projected to be generated by the proposed development on the average weekday is projected to be about three percent higher than what was assumed in the TIA for the same lots.
2. The attached Exhibit 1 contains an updated Table 7b (Improvements Table) from the Falcon Marketplace project. Associated tables generated with the latest update to Table 7b are presented as attached Exhibits 2, 3, and 4. These exhibits show the roadway improvements that will be constructed with the first phase of the Falcon Marketplace project and present the “dollars per trip” calculations for use at this site development plan/building permit stage for each improvement. These tables would be used when finalizing the details contained in Exhibit B of the Subdivision Improvements Agreement. **Update (June 2020): Notations have been added to the attached exhibits.**
3. Attached are other key pages from the *Falcon Marketplace Traffic Impact Analysis* by LSC dated October 23, 2017 (September 5, 2018 Revision) including the trip generation table and figures showing the needed roadway improvements for the entire Falcon Marketplace. The pages included are based on a right-in only access to Woodmen Road which has been approved. The updated trip generation estimate for Lots 2 and 3 during the afternoon peak hour of the adjacent street traffic represents less than a one percent increase over the estimate, based on 9th Edition rates presented in the TIS.

* * * * *

(Intentionally Blank)

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

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

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

JCH:KDF:jas

Enclosures: Table 1
Exhibits 1-4
Falcon Marketplace Traffic Impact Analysis by LSC dated October 23, 2017
(September 5, 2018 Revision) – Key Pages
Site Development Plan

**Table 1
Trip Generation Comparison
Falcon Marketplace King Soopers**

Lot	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates					Total Trips Generated					Internal Trips ⁽⁷⁾				Total External Trips Generated					New External Trips Generated		
				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	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	Pass-By Trips ⁽²⁾	Average New Weekday Traffic
Trip Generation Estimate Based on Current 10th Edition Trip Generation Manual ⁽¹⁾																									
2	850	Supermarket	123 KSF ⁽³⁾	80.75	2.29	1.53	3.79	3.65	9,932	282	188	467	448	938	18	27	49	39	8,994	264	161	418	409	36%	5,756
3	944	Gasoline/Service Station	18 VFP ⁽⁴⁾	172.01	5.24	5.24	7.02	7.02	3,096	94	94	126	126	292	5	8	15	12	2,804	89	86	111	114	56%	1,234
									13,028	376	282	593	575						11,798	353	247	529	524		
Trip Generation Estimate From <i>Falcon Marketplace Traffic Impact Analysis</i> by LSC October 23, 2017 (September 5, 2018 Revision) ⁽²⁾																									
2	850	Supermarket	123 KSF	78.26	2.11	1.29	3.76	3.62	9,626	259	159	463	445	909	17	26	48	37	8,717	242	133	415	408	36%	5,579
3	944	Gasoline/Service Station	18 VFP	168.56	6.20	5.96	6.94	6.94	3,034	112	107	125	125	286	5	8	15	12	2,748	107	99	110	113	56%	1,209
									12,660	371	266	588	570						11,465	349	232	525	521		
									Change in Trip Generation Estimate	368	5	16	5	5					333	4	15	4	3		
									Percent Increase	2.9%	1.4%	6.1%	0.9%	0.9%					2.9%	1.3%	6.5%	0.8%	0.6%		

Notes:
(1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)
(2) Source: "Trip Generation, 9th Edition, 2012" by the Institute of Transportation Engineers (ITE)
(3) KSF = 1,000 square feet of floor space
(4) VFP = vehicle fueling position

Source: LSC Transportation Consultants, Inc.

Exhibits



Exhibit 1

Table 7b - Updated Falcon Marketplace Roadway Improvements With Proposed Right-In Access to Woodmen Road					
Item #	Improvement	Timing	MORE DETAILED TIMING		Responsibility
			ADT that will warrant/TRIGGER the Improvement		
Countywide Road Impact Fee Program Fees and Taxes					
1	Woodmen Road Metropolitan District fees and taxes to be paid in lieu of Countywide Road Impact Fee Program fees and taxes. Woodmen Road has already been completed, but this project is joining the district.	District fees payable at platting	WITH PLAT & EACH BUILDING PERMIT	BASED ON WOODMEN ROAD DISTRICT REQUIREMENTS	Falcon Marketplace
Meridian/Eastonville and Meridian Right-In/Right-Out Intersections					
2	Signalization of Meridian Road/Eastonville Road intersection.	Design and installation with the development of Falcon Marketplace once allowed by El Paso County.	PHASE 1	TRIGGER FOR INSTALL IS ONCE WARRANTS ARE MET - HOWEVER, IF NOT ALLOWED TO INSTALL W/PHASE 1, EPC WILL REQUIRE ESCROW FOR FULL AMOUNT W PHASE 1	Falcon Marketplace
3	Reconstruction of the Meridian center median south of Eastonville Road to achieve major street left-turn sight distance for the option of northbound/southbound protected/permissive left-turn signal phasing with interim single left-turn lanes northbound and southbound and to accommodate future northbound dual left-turn lanes if needed in the future. This lane should be 425 feet long plus a 200-foot taper. The taper would be back-to-back with the southbound dual left-turn taper.	Design and installation with the development of Falcon Marketplace.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
4	Southbound right-turn deceleration lane on Meridian Road approaching Eastonville Road. This lane should be 235 feet long plus a 200-foot taper.	Design and installation with the development of Falcon Marketplace.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
5	Design and construction of continuous southbound right-turn lanes and shoulder/bike lane on Meridian Road from Eastonville Road south to the proposed right-in/right-out and from the right-in/right-out south to Woodmen Road. (Note: Also please refer to related item #16 below.)	Design and installation with the development of Falcon Marketplace.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
6	Widening of Eastonville Road east of Meridian Road to add a westbound through lane and add width as feasible between the westbound left-turn lane and the westbound through lane due to the proposed dual left-turn lanes on the west side of the intersection. This added width would allow for through lane alignment (with an acceptable offset across the intersection).	Design and installation with the development of Falcon Marketplace. Extent of this off-site improvement may be limited by available right-of-way and/or other existing constraints.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
7	Design and construction of the proposed extension of Eastonville Road between Meridian and the proposed roundabout.	Design and installation with the development of Falcon Marketplace.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
On-Site Improvements					
8	Design and construction of the public street connection through the site (Falcon Market Place).	Design and installation with the development of Falcon Marketplace.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
9	Design and construction of the proposed roundabout on-site west of the Meridian/Eastonville intersection. This would include a "stub" to the north for the anticipated future street connection north to Bent Grass Meadows Drive.	Design and installation with the development of Falcon Marketplace.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
10	Design and construction of the proposed roundabout on-site at the east terminus of the Woodmen Frontage Road.	Design and installation with the development of Falcon Marketplace.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
Woodmen/Meridian Intersection					
11	Extend existing westbound right-turn acceleration lane on Woodmen Road at Meridian Road to provide a continuous right-turn lane between Meridian Road and the proposed right-in-only access.	Design and installation with the development of Falcon Marketplace.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
12	Lengthening of Woodmen eastbound dual left-turn lanes. Lengthening of eastbound left-turn lanes and potential further future lengthening to provide a 240-foot lane transition taper, 290 feet of deceleration distance plus sufficient vehicle stacking distance. CURRENT lane length: 500 feet of dual left-turn lane and 425-foot taper. Of this taper, 215 feet is full-width "decel" distance. Remaining 20 feet of the required 235-foot decel distance occurs in the first 20 feet of the 500-foot dual left-turn lanes. The remainder of the dual left-turn lanes is stacking distance - 480 feet. SHORT TERM: Based on the short-term analysis, the existing lane provides sufficient stacking distance. LONG TERM: This lane will likely need to be extended to provide a total of 840 feet of dual left storage distance plus 235 feet of deceleration length plus a 200-foot taper.	Future extension of existing dual left-turn lanes once traffic queues regularly extend beyond the 480-foot stacking distance.	PAYMENT WITH DEVELOPMENT PLAN FOR EACH INDIVIDUAL LOT; WITH REGARDS TO THE TIMING OF THE IMPROVEMENT: "once traffic queues regularly extend beyond the 480-foot stacking distance." This is estimated to be approximately 65 PM peak hour eastbound left turns above the estimated short term total volume from Figure 16a of the TIS. Note: Short term total volumes assume the Meridian extension to Highway 24 to be open.	PAYMENT OF PRO RATA SHARE WITH EACH LOT DEVELOPMENT PLAN: The estimated "trigger" of 65 PM peak hour eastbound left turns above the estimated short term total volume (from Figure 16a of the TIS) approximately translates to an additional 957 directional ADT for residential trips (based on the ITE single family trip ratio). This estimated threshold may be reached with a combination of Falcon Marketplace trips and background trips. Falcon Marketplace daily trip to afternoon peak hour trip ratio is about 23:1 but would need to be adjusted for passby trips.	Falcon Marketplace will pay its pro-rata share by (based on total traffic volumes) of the cost of the improvements. The payment amount will be determined on an individual-lot basis in the form of an escrow amount payable at the time of site development plan for each individual lot.
13	Meridian northbound dual left-turn lanes: Lengthening of northbound left-turn lanes and potential further future lengthening to provide a 200-foot lane transition taper, 235 feet of deceleration distance plus sufficient vehicle stacking distance. CURRENT lane configuration: 315 feet of dual left-turn lane length, 145 feet of single left-turn lane length and a 150-foot lane transition taper from the through lane to the single left-turn lane. This provides a 150-foot taper, 235 feet of deceleration distance, and 225 feet of dual left stacking. SHORT TERM: The 315-foot dual left-turn lanes would accommodate the projected short-term queues. The deceleration distance (235 feet) plus a 200-foot taper will need to be provided south of the end of the existing 315-foot dual left stacking lanes. For the deceleration distance, 235 feet of at least single-lane width for deceleration length would flare to the north to connect to the existing dual lane width to the north. South of the deceleration portion of the lane, a standard 200-foot taper will need to be added in the median. These modifications will involve median reconstruction and restriping south of the existing dual left-turn lanes. This would result in a 200-foot taper, 235-foot deceleration distance, and 315 feet of dual left-turn stacking.	With the development of Falcon Marketplace, extend the northbound left-turn lane as described in the column to the left and as shown in Figure 25.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Short Term - Falcon Marketplace
14	Meridian northbound dual left-turn lanes. LONG TERM: Potentially, additional growth in the Falcon Area and east along Falcon Highway will add left-turning traffic demand. Long-term analysis indicates the potential future need for 400 feet of stacking distance plus the 235 feet of deceleration distance and the 200-foot taper.	Future (if necessary -- Add additional lane length beyond #13 to provide additional stacking //when needed (as shown in Figure 26).			By other future developments impacting this turn lane. Potential for fee program credit for improvements completed as this is a regional intersection.
Golden Sage Intersections					
15	Directional wayfinding sign(s) on eastbound Woodmen Road upstream of Golden Sage - notifying/reminding eastbound motorists of the option to enter Falcon Marketplace via the Woodmen Frontage Road.	Design and installation with the development of Falcon Marketplace.	PHASE 1	PLANNED TO BE COMPLETED WITH PHASE 1	Falcon Marketplace
16	Lengthening of the current eastbound single left-turn deceleration lane on Woodmen approaching Golden Sage Road to provide a 240-foot transition taper (20:1 taper ratio), 290 feet of deceleration distance plus sufficient vehicle stacking distance. CURRENT: 175-foot taper plus a 405-foot left-turn lane which translates to a 175-foot taper, 290-foot deceleration distance, and 175 feet of stacking distance. SHORT TERM: Adequate stacking is available in the current turn lane - calculated queue length 141 feet. LONG TERM: Lengthen single left-turn lane and/or future implementation of dual left-turn lanes (if capacity needs dictate) to maintain 290 feet of deceleration length, a 240-foot lane taper (20:1 taper ratio) plus provide sufficient vehicle stacking length - model indicates 471 feet of dual left stacking distance based on morning peak-hour projected volumes. If a dual left is implemented in the future, consideration will need to be given to the configuration on Golden Sage and at the Golden Sage/Woodmen Frontage Road intersection to receive the dual left-turn movement.	Short Term: The existing lane is adequate based on the short-term analysis. Long Term: Future with additional development served by the north frontage road - extension of existing single left-turn lane and potentially widening in the median to provide dual left-turn lanes to provide additional vehicle stacking distance as described in the column to the left.	PAYMENT WITH DEVELOPMENT PLAN FOR EACH INDIVIDUAL LOT; WITH REGARDS TO THE TIMING OF THE IMPROVEMENT: AS NEEDED TO MAINTAIN ADEQUATE LEVEL OF SERVICE AND VEHICLE STACKING DISTANCE. " This is estimated to be when the eastbound left turn turning volume reaches approximately 200 vehicles per hour during the PM peak. This translates to about 40 vehicles per hour over the estimated short term total volume from Figure 16a of the TIS. Note: Short term total volumes assume the Meridian extension to Highway 24 to be open.	PAYMENT OF PRO RATA SHARE WITH EACH LOT DEVELOPMENT PLAN; The estimated "trigger" of 40 PM peak hour eastbound left turns above the estimated short term total volume (from Figure 16a of the TIS) approximately translates to an additional 589 directional ADT for residential trips making this turning movement (based on the ITE single family trip ratio). This estimated threshold may be reached with a combination of Falcon Marketplace trips and background trips. Falcon Marketplace daily trip to afternoon peak hour trip ratio is about 23:1 but would need to be adjusted for passby trips.	Falcon Marketplace will pay its pro-rata share by (based on total traffic volumes) of the cost of the improvements. The payment amount will be determined on an individual-lot basis in the form of an escrow amount payable at the time of site development plan for each individual lot.
17	Southbound exclusive right-turn lane on Golden Sage Road approaching Woodmen Road (a continuous right-turn lane within the 150 feet between the Woodmen Frontage Road and Woodmen Road).	//when needed to maintain acceptable level of service/traffic operations and/or to control vehicle queues.	PAYMENT WITH DEVELOPMENT PLAN FOR EACH INDIVIDUAL LOT; WITH REGARDS TO THE TIMING OF THE IMPROVEMENT: AS NEEDED TO MAINTAIN ADEQUATE LEVEL OF SERVICE AND VEHICLE STACKING DISTANCE. " A preliminary trigger could be a southbound right turn volume of about 150-175 vehicles per hour. This translates to about 5 to 30 vehicles per hour over the projected short term volume from Figure 16a of the TIS. This may be conservative due to the westbound right turn acceleration lane on Woodmen Road. Additional study may indicate a higher threshold based on empirical data collection and analysis.	PAYMENT OF PRO RATA SHARE WITH EACH LOT DEVELOPMENT PLAN; The estimated "trigger" of 5-30 AM peak hour southbound right turns above the estimated short term total volume (from Figure 16a of the TIS) approximately translates to an additional 85-610 directional ADT for residential trips making this turning movement (based on the ITE single family trip ratio). This estimated threshold may be reached with a combination of Falcon Marketplace trips and background trips. Falcon Marketplace daily trip to afternoon peak hour trip ratio is about 45:1 but would need to be adjusted for passby trips.	Falcon Marketplace will pay its pro-rata share by (based on total traffic volumes) of the cost of the improvements. The payment amount will be determined on an individual-lot basis in the form of an escrow amount payable at the time of site development plan for each individual lot.
18	Signalization of Golden Sage Road/Woodmen Frontage Road or reconstruction as a modern roundabout; Future additional laneage may be necessary at this intersection to accommodate vehicle queues and for traffic operations.	Please refer to the attached sheet.	Please refer to the attached sheet.	PAYMENT OF PRO RATA SIGNAL ESCROW WITH EACH LOT DEVELOPMENT PLAN;	Falcon Marketplace will pay its pro-rata share by (based on total traffic volumes) of the cost of the improvements. The payment amount will be determined on an individual-lot basis in the form of an escrow amount payable at the time of site development plan for each individual lot.

Source: LSC Transportation Consultants, Inc. REV. (7-19-19)

*See note in Exhibit 2 regarding #16a.

Exhibit 2

Table ___
Calculation of Falcon Marketplace Overall Fair Share Percentage of Shared Offsite Improvements

Table 7b*			Falcon Marketplace Long Term Site Traffic AM/PM from TIS Figure 14	Long Term Total Traffic AM/PM From TIS Figure 18a	Applicable Percentage based on..	Applicable Percentage for Falcon Marketplace
ITEM NO.	Improvement	Table 7b* description				
12	Eastbound Left Turn at Woodmen/Meridian	<p>Lengthening of Woodmen eastbound dual left-turn lanes. Lengthening of eastbound left-turn lanes and potential further future lengthening to provide a 240-foot lane transition taper, 290 feet of deceleration distance plus sufficient vehicle stacking distance. CURRENT lane length: 500 feet of dual left-turn lane and 425-foot taper. Of this taper, 215 feet is full-width "decel" distance. Remaining 20 feet of the required 235-foot decel distance occurs in the first 20 feet of the 500-foot dual left-turn lanes. The remainder of the dual left-turn lanes is stacking distance - 480 feet. SHORT TERM: Based on the short-term analysis, the existing lane provides sufficient stacking distance. LONG TERM: This lane will likely need to be extended to provide a total of 840 feet of dual left storage distance plus 235 feet of deceleration length plus a 200-foot taper.</p>	17	472	NOT USED	N/A
			20	785	PM Peak EB LT Volume	2.5%
16	<p>Lengthening of the Eastbound Left Turn at Golden Sage/Woodmen future widening for dual left turn lanes (Note: The improvement may be phased to only lengthen the single left turn initially or potentially the median work could be done at one time to allow for the future dual left once it is needed (the additional width could be "striped out" until dual turn lanes are needed; <u>signal modifications to add appropriate signal heads.</u>)</p>	<p>Lengthening of the current eastbound single left-turn deceleration lane on Woodmen approaching Golden Sage Road to provide a 240-foot transition taper (20:1 taper ratio), 290 feet of deceleration distance plus sufficient vehicle stacking distance. CURRENT: 175-foot taper plus a 465-foot left-turn lane which translates to a 175-foot taper, 290-foot deceleration distance, and 175 feet of stacking distance. SHORT TERM: Adequate stacking is available in the current turn lane - calculated queue length 141 feet. LONG TERM: Lengthen single left-turn lane and/or future implementation of dual left-turn lanes (if capacity needs dictate) to maintain 290 feet of deceleration length, a 240-foot lane taper (20:1 taper ratio) plus provide sufficient vehicle stacking length - model indicates 471 feet of dual left stacking distance based on morning peak-hour projected volumes. If a dual left is implemented in the future, consideration will need to be given to the configuration on Golden Sage and at the Golden Sage/Woodmen Frontage Road intersection to receive the dual left-turn movement.</p>	36	418	Average of AM and PM Volumes	13.1%
			70	394		
17	Southbound Right Turn Lane at Golden Sage/Woodmen	<p>Southbound exclusive right-turn lane on Golden Sage Road approaching Woodmen Road (a continuous right-turn lane within the 150 feet between the Woodmen Frontage Road and Woodmen Road).</p>	55	354	AM Peak SB RT Volume	15.5%
			38	446	NOT USED	N/A
18	Signalization of Golden Sage/Woodmen North Frontage Road	<p>Signalization of Golden Sage Road/Woodmen Frontage Road or reconstruction as a modern roundabout; Future additional laneage may be necessary at this intersection to accommodate vehicle queues and for traffic operations.</p>	101	1214	AM and PM Total Volumes Entering the intersection	8.5%
			124	1432		

16a - see added note below

* Table 7b - Improvements Table (included in the TIS - Note: Table 7b has been updated since the date of the final TIS. The most recent update to Table 7b: 9-13-19)

Note (6-10-2020) Item 16a: (if separate line item is applicable): Addition of protected/permissive left turn phasing at Woodmen/Golden Sage; King Soopers estimated percentage - same as calculated for Improvement #16 from above: 7.56% of Falcon Marketplace percentage (if applicable); Timing - as required for traffic operations & safety considering increases in EB left turn volume and opposing westbound through/right turn volumes.

Exhibit 3

Table Pro-Rata Share for Shared Improvements by Lot Plus Calculation of Amount per Daily Trip Falcon Marketplace																							
Lot	Land Use Code	Land Use Description	Trip Generation Units	Total External Trips Generated					Calculated Fair Share of Woodmen Road Eastbound Left Turn Lane Improvement at Meridian/Woodmen: Fair Share at 2.5 percent ⁽⁸⁾			Calculated Fair Share of Woodmen Road Eastbound Left Turn Lane Improvement at Woodmen/Golden Sage: Fair Share at 13.1 percent ⁽⁸⁾			Calculated Fair Share of Golden Sage Southbound Right Turn Lane Improvement at Woodmen/Golden Sage: Fair Share at 15.5 percent ⁽⁸⁾			Calculated Fair Share of Golden Sage/Woodmen Frontage Traffic Signal Fair Share at 15.5 percent ⁽⁸⁾					
				Average Weekday Trips	Morning Peak Hour In	Afternoon Peak Hour Out	Afternoon Peak Hour In	Afternoon Peak Hour Out	Amount by Lot	Lot Dollar/Trip Rate	Amount by Lot	Lot Dollar/Trip Rate	Amount by Lot	Lot Dollar/Trip Rate	Amount by Lot	Lot Dollar/Trip Rate							
Trip Generation Estimate Based on the Currently Proposed Plan																							
1	866	Pet Supply Superstore ⁽³⁾	15 KSF ⁽⁴⁾	519	9	4	24	25	0.08%	\$255	\$0.49	0.35%	\$706	\$1.36	0.17%	\$169	\$0.33	0.23%	\$802	\$1.55			
2	850	Supermarket	123 KSF	9,054	270	160	419	412	1.46%	\$4,525	\$0.50	7.56%	\$15,120	\$1.67	7.04%	\$7,038	\$0.78	4.77%	\$16,691	\$1.84			
3	944	Gasoline/Service Station	18 VFP ⁽⁵⁾	2,822	90	85	111	115	0.39%	\$1,202	\$0.43	2.21%	\$4,427	\$1.57	3.76%	\$3,757	\$1.33	1.52%	\$5,324	\$1.89			
4	934	Fast-Food Restaurant with Drive-Through Window	2.5 KSF	797	32	41	30	22	0.11%	\$329	\$0.41	0.69%	\$1,377	\$1.73	1.81%	\$1,814	\$2.28	0.48%	\$1,670	\$2.09			
5	820	Shopping Center	5 KSF	227	3	2	10	11	0.04%	\$110	\$0.49	0.15%	\$294	\$1.29	0.07%	\$68	\$0.30	0.10%	\$345	\$1.52			
6	848	Tire Store	6.00 KSF	156	10	6	9	13	0.03%	\$100	\$0.64	0.22%	\$433	\$2.77	0.26%	\$259	\$1.66	0.14%	\$506	\$3.24			
7	934	Fast-Food Restaurant with Drive-Through Window ⁽⁶⁾	3.5 KSF	1,116	0	1	42	32	0.15%	\$459	\$0.41	0.47%	\$943	\$0.84	0.06%	\$60	\$0.05	0.29%	\$1,008	\$0.90			
8	934	Fast-Food Restaurant with Drive-Through Window ⁽⁶⁾	2.5 KSF	797	1	1	30	22	0.11%	\$329	\$0.41	0.35%	\$692	\$0.87	0.04%	\$43	\$0.05	0.21%	\$724	\$0.91			
9	630	Clinic	7.8 KSF	247	18	1	3	14	0.01%	\$37	\$0.15	0.24%	\$480	\$1.95	0.06%	\$59	\$0.24	0.14%	\$495	\$2.01			
10	820	Shopping Center	8 KSF	364	7	3	16	18	0.06%	\$172	\$0.47	0.25%	\$496	\$1.36	0.14%	\$136	\$0.37	0.17%	\$584	\$1.60			
11	937	Coffee/Donut Shop With Drive-Through Window	1.3 KSF	722	37	48	19	17	0.07%	\$207	\$0.29	0.62%	\$1,234	\$1.71	2.10%	\$2,098	\$2.90	0.46%	\$1,603	\$2.22			
				16,822	478	352	715	702	2.5%	\$7,727		13.1%	\$26,200		15.5%	\$15,500		8.5%	\$29,750				
Total Falcon Marketplace Fair Share Percentage									2.5%				13.1%				15.5%				8.5%		
Total Falcon Marketplace Development Amount												\$7,727				\$26,200				\$15,500			
Total Estimated Amount to Complete the Improvement												\$309,099				\$200,000				\$100,000			
Plus - see Item 16a note below																							

Notes

- (1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)
- (2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice" 3rd Edition, 2014
- (3) Daily and morning peak-hour trip generation rates for Pet Supply Superstore are estimates by LSC
- (4) KSF = 1,000 square feet of floor space
- (5) VFP = vehicle fueling position
- (6) The AM peak-hour trip generation rates have been reduced by LSC as the proposed fast-food restaurant does not serve breakfast
- (7) See attached NCHRP 684 Internal Trip Capture Estimate Tool Sheets
- (8) 2.5 percent calculation based on PM Peak Hour traffic volumes shown for the Meridian/Woodmen intersection in the October 23, 2017 TIS: Sum of eastbound left turn and U turn Volumes from Figure 14 divided by the sum of eastbound left turn and U turn Volumes from Figure 18a (x100).

Source: LSC Transportation Consultants, Inc. (rev. date: 4/16/2018)

Item 16a (if separate, specific line item is applicable):

Add protected/permissive left turn phasing at Woodmen/Golden Sage (short term)

Estimated Improvement Cost: \$33,750

King Soopers estimated percentage from above (if applicable): 7.56%

Amount: \$2,552 (if applicable)

Exhibit 4

“Triggers” for Signalization at Golden Sage/Woodmen N Frontage Road

(Attachment to Table 7b – Improvements)

Trigger No. 1: If Signal Warrants are **not** met but there are level of service and/or problematic queues and/or there are safety issues at the intersection or between the intersections (associated with the short intersection spacing) Evaluate:

- Test No. 1 – Queuing Issues
- Test No. 2 – Right Turn Operations
- Test No. 3 – Left Turn Operations
- Test No. 4 – Alternatives to a signal

Trigger No. 2: If signal warrant(s) **are met** at the intersection – either due to four/eight- hour signal warrants, crash experience warrant, or other applicable warrant(s):

- If warrants are met and LOS and/or queues **are** problematic and/or there are safety issues, go to
 - Test No. 1 – Queuing Issues
 - Test No. 2 – Right Turn Operations
 - Test No. 3 – Left Turn Operations
 - Test No. 4 – Alternatives to a signal
- If warrants are met and LOS and/or queues are **not** problematic or there are not significant safety issues, the installation could potentially be delayed.

Test #1: Queueing Operations:

- Once southbound queues extending back from Woodmen/Golden Sage intersection regularly back up to or through the N. Frontage Road intersection
- And:
 - Queues regularly block the northbound left movement at this intersection and cause queues in the northbound lane.
 - Queues regularly block/impede westbound traffic at this intersection from being able to turn left onto southbound Golden Sage and this regularly results in a long westbound queue which
 - Creates operational/safety issues at intersections to the east or
 - Results in westbound waiting through multiple Woodmen/Golden Sage signal cycles.
 - Queues regularly block/impede the passage of east/west through travel on the Frontage Road.

Test #2: Are the queuing issues identified in Test #1 primarily due **southbound right Turns** at Woodmen/Golden Sage?

- Has the separate SB right turn lane has been added?
- If so, have other causes of the southbound right turn queues lane been evaluated and all possible solutions to improve the SB RT operations been exhausted?

Test #3: Are the queuing issues identified in Test #1 primarily due **southbound left turns** at Woodmen/Golden Sage?

- Has the potential for a 2nd southbound left turn lane been evaluated?
- If a second southbound left turn lane has been added, have other causes of the southbound left turn queues lane been evaluated and all possible solutions to improve the SB LT operations been exhausted?

Test #4: Have **other alternatives** to a traffic signal at Woodmen N Frontage Road/Golden Sage been evaluated and options exhausted?

Previous Study

Falcon Marketplace Traffic Impact Analysis by LSC
dated October 23, 2017 (September 5, 2018 Revision) – Key Pages





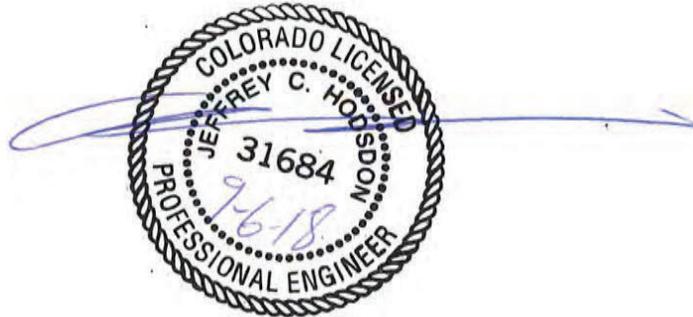
LSC TRANSPORTATION CONSULTANTS, INC.
545 East Pikes Peak Avenue, Suite 210
Colorado Springs, CO 80903
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: <http://www.lsctrans.com>

Falcon Marketplace Traffic Impact Analysis SP-17-001/CDR-16-007

(LSC #164350)
October 23, 2017
(September 5, 2018 Revision)

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.

A handwritten signature in blue ink, written over a horizontal line.

9/5/18
Date

**Table 2
Trip Generation Estimate
Falcon Marketplace**

Lot	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾					Total Trips Generated					Internal Trips ⁽⁷⁾				Total External Trips Generated					New External Trips Generated		
				Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Pass-By Trips ⁽²⁾	Average New Weekday Traffic
					In	Out	In	Out		In	Out	In	Out		In	Out	In	Out		In	Out	In	Out		
Trip Generation Estimate Based on the Currently Proposed Plan																									
1	866	Pet Supply Superstore ⁽³⁾	15 KSF ⁽⁴⁾	38.24	0.53	0.33	1.69	1.69	574	8	5	25	25	54	1	2	3	2	520	7	3	22	23	10%	468
2	850	Supermarket	123 KSF	78.26	2.11	1.29	3.76	3.62	9,626	259	159	463	445	909	17	26	48	37	8,717	242	133	415	408	36%	5,579
3	944	Gasoline/Service Station	18 VFP ⁽⁵⁾	168.56	6.20	5.96	6.94	6.94	3,034	112	107	125	125	286	5	8	15	12	2,748	107	99	110	113	56%	1,209
4	934	Fast-Food Restaurant with Drive-Through Window ⁽⁶⁾	2.5 KSF	496.12	0.42	0.39	16.98	15.67	1,240	1	1	42	39	380	0	0	12	17	860	1	1	30	22	50%	430
5	820	Shopping Center	5 KSF	55.14	0.77	0.47	2.36	2.51	276	4	2	12	13	26	1	0	1	1	250	3	2	11	12	34%	165
6	848	Tire Store	7.72 KSF	24.87	1.82	1.07	1.78	2.37	192	14	8	14	18	18	0	1	1	1	174	14	7	13	17	28%	125
7	934	Fast-Food Restaurant with Drive-Through Window	3.5 KSF	496.12	23.16	22.26	16.98	15.67	1,736	81	78	59	55	532	26	12	17	24	1,204	55	66	42	31	50%	602
8	934	Fast-Food Restaurant with Drive-Through Window ⁽⁶⁾	2.5 KSF	496.12	0.42	0.39	16.98	15.67	1,240	1	1	42	39	380	0	0	12	17	860	1	1	30	22	50%	430
9	610	Clinic	7.8 KSF	31.45	2.19	2.19	2.12	3.06	245	17	17	17	24	40	3	16	10	5	205	14	1	7	19	0%	205
10	820	Shopping Center	8 KSF	55.14	0.77	0.47	2.36	2.51	441	6	4	19	20	42	1	1	2	2	399	5	3	17	18	34%	263
11	937	Coffee/Donut Shop With Drive-Through Window	1.3 KSF	818.58	51.30	49.28	21.40	21.40	1,064	67	64	28	28	326	21	10	9	12	738	46	54	19	16	89%	81
									19,669	570	446	846	831	2,993	75	76	130	130	16,676	495	370	716	701		9,558

Notes:

- (1) Source: "Trip Generation, 9th Edition, 2012" by the Institute of Transportation Engineers (ITE)
- (2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice" 3rd Edition, 2014
- (3) Daily and morning peak-hour trip generation rates for Pet Supply Superstore are estimates by LSC
- (4) KSF = 1,000 square feet of floor space
- (5) VFP = vehicle fueling position
- (6) The AM peak-hour trip generation rates have been reduced by LSC as the proposed fast-food restaurant does not serve breakfast
- (6) See attached NCHRP 684 Internal Trip Capture Estimate Tool Sheets

Source: LSC Transportation Consultants, Inc.

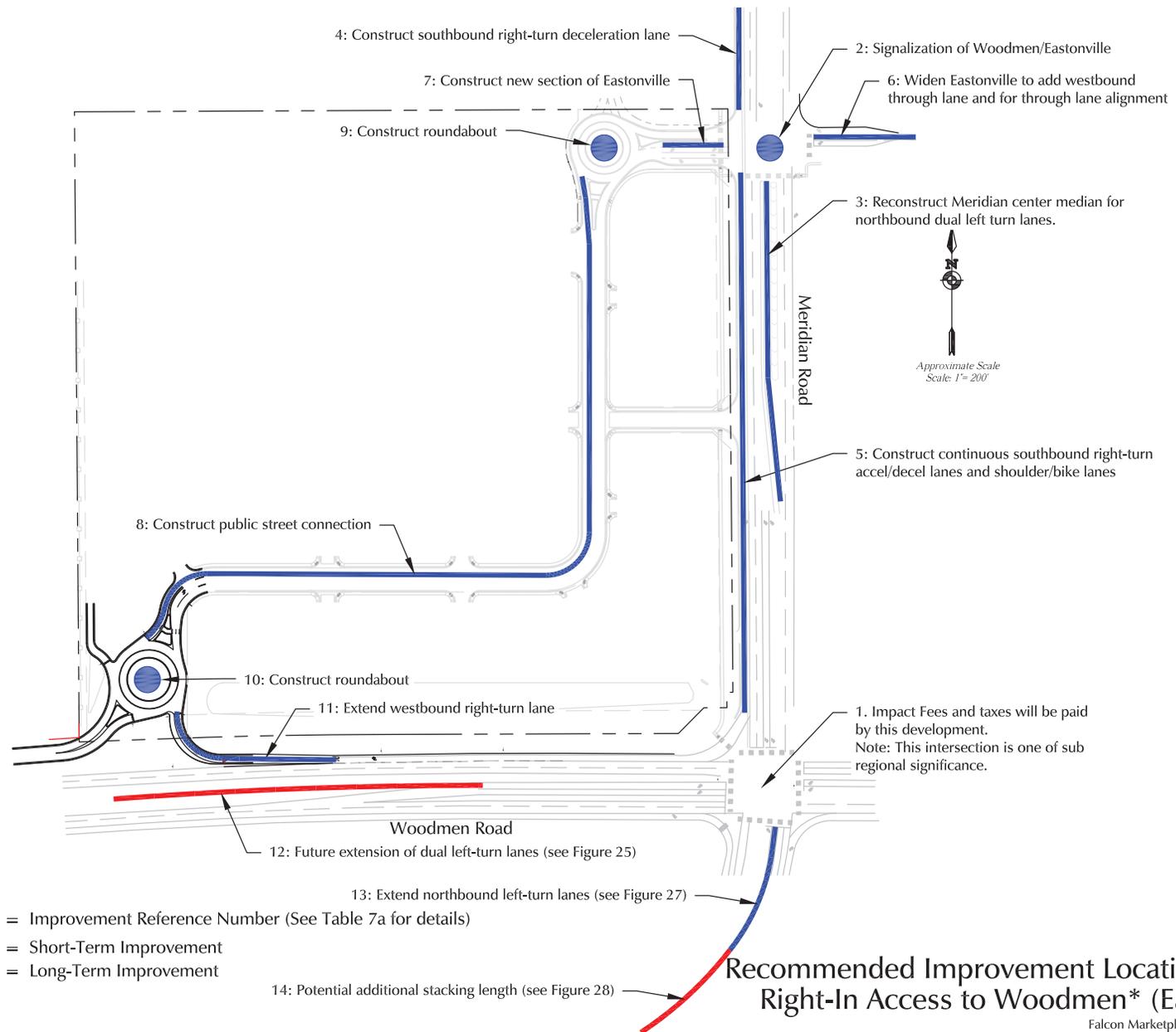
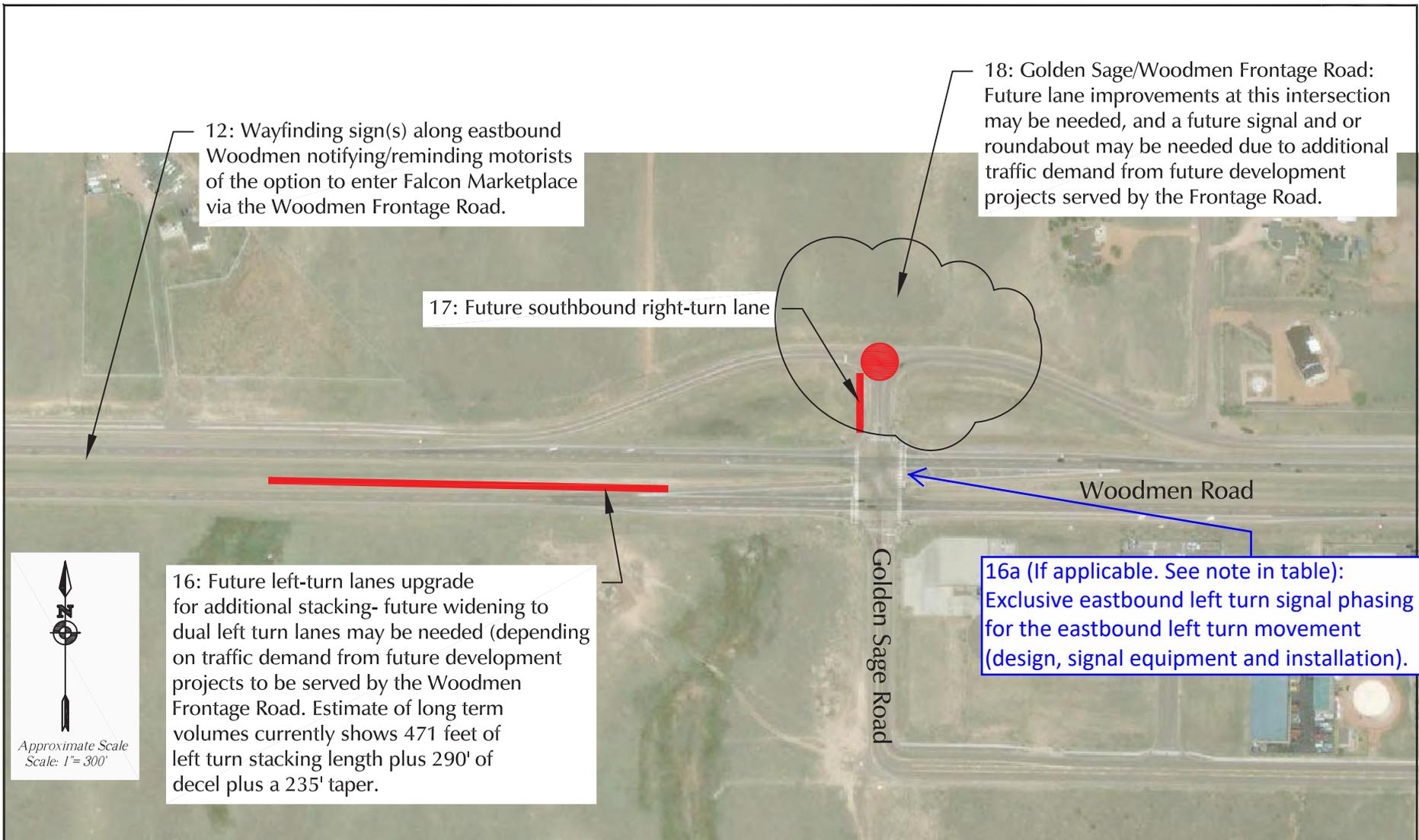


Figure 22a

Recommended Improvement Locations with Right-In Access to Woodmen* (East Area)

Falcon Marketplace (LSC #164350)



* See Table 7b for details.

Figure 22b

Recommended Improvement Locations with Right-In Access to Woodmen* (West Area)

Falcon Marketplace (LSC #164350)

Site Plan

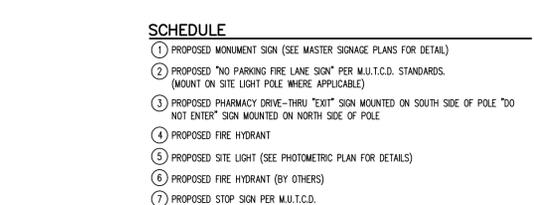
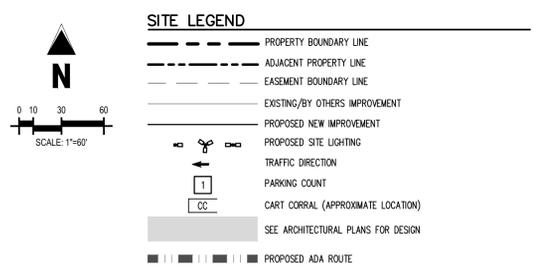
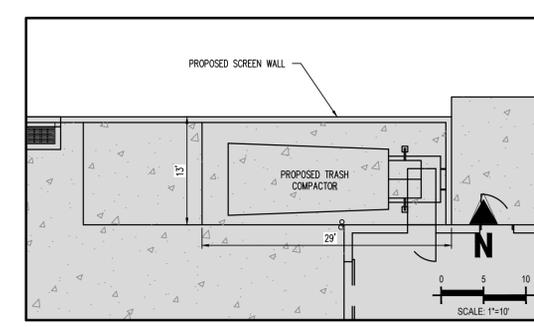
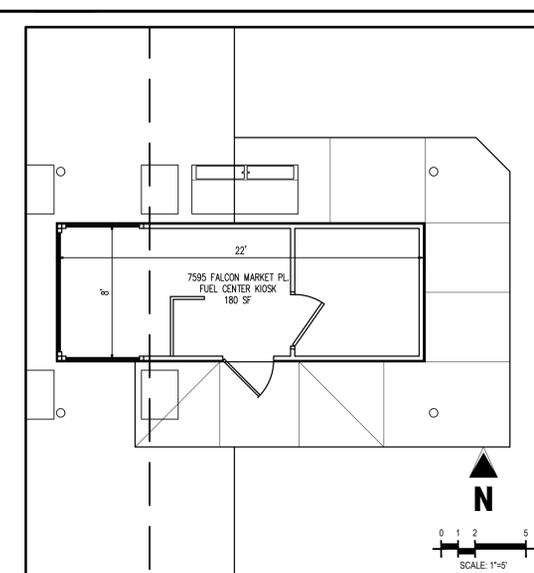
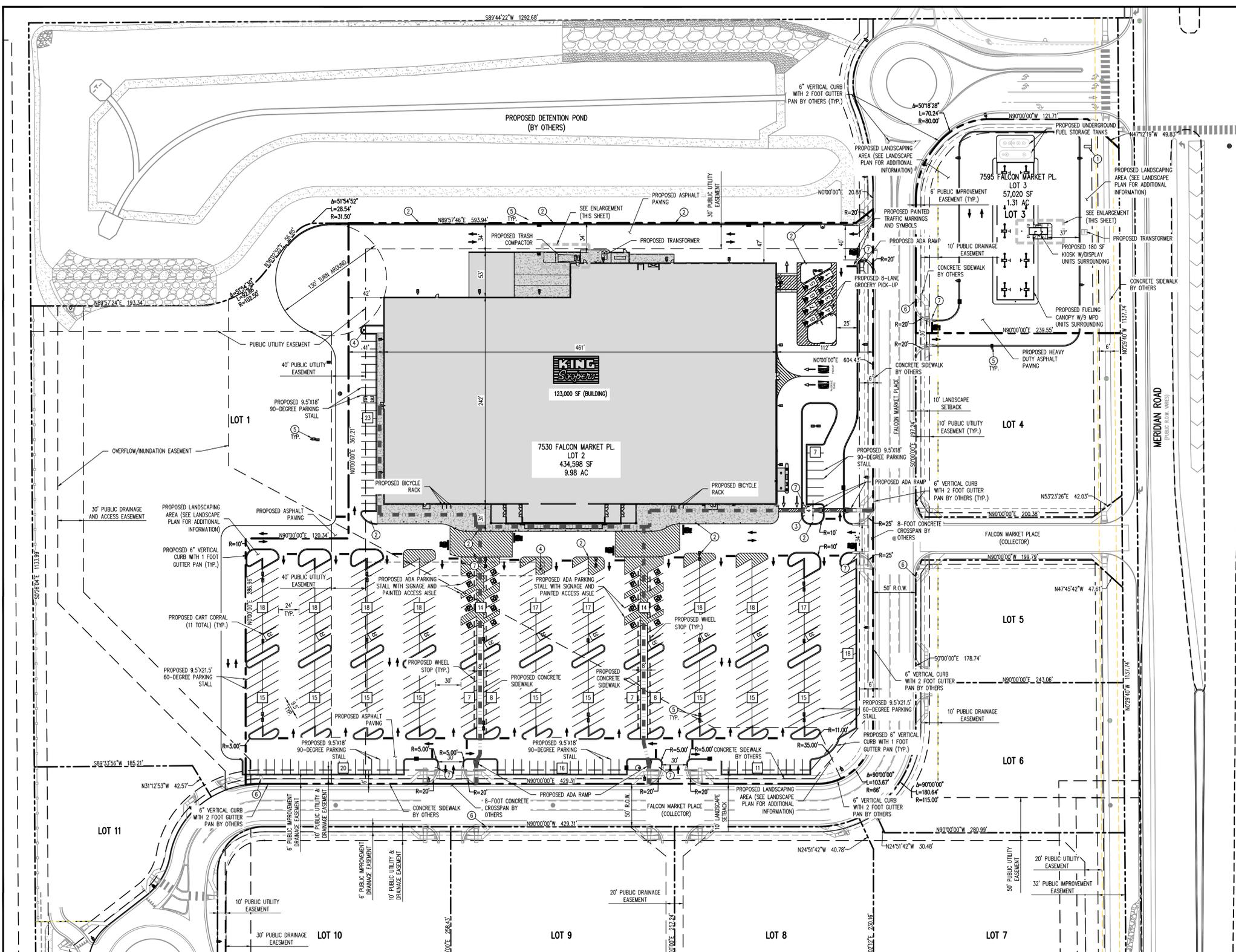


COPYRIGHT
THESE PLANS ARE AN INSTRUMENT OF SERVICE AND ARE THE PROPERTY OF GALLOWAY, AND MAY NOT BE DUPLICATED, DISCLOSED, OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF GALLOWAY. COPYRIGHTS AND INFRINGEMENTS WILL BE ENFORCED AND PROSECUTED.



King Soopers / Petroleum
65 Tejon Street
Denver, CO 80223
Phone (303) 778-3053
Fax (303) 871-9262

KING SOOPERS #147
FALCON MARKETPLACE
LOTS 2 & 3, BLOCK 1
7530 & 7595 FALCON MARKET PL.
FALCON, CO



NOTES

- ALL PERMANENT STRIPING ON ASPHALT TO BE THERMOPLASTIC.
- ALL STRIPING ON CONCRETE TO BE EPOXY FOR LANE LINES, TAPE 380-5 FOR SKID PAHS, PREFORMED COLD PLASTIC SYMBOLS, LEGEND AND CROSSWALKS.
- ALL PAVEMENT MARKINGS AND SIGNS ON PRIVATE ROADWAYS SHOULD CONFORM TO THE MANUAL OF UNIFORM TRAFFIC DESIGN.
- ON-SITE PAVEMENT MARKINGS AND ARROWS WILL NOT BE MAINTAINED BY EL PASO COUNTY.
- APPROVED BASE FLOOR ELEVATIONS (BFEs) WILL BE ESTABLISHED THROUGH THE LMR PROCESS.

Project No:	KSS0000147
Drawn By:	ACJ
Checked By:	JRR
Date:	8/29/19

SITE PLAN

C1.0