

June 24, 2021

Tim Varley  
SSCW Companies  
1830 N. 95<sup>th</sup> Avenue, Suite 106  
Phoenix, AZ 85037

Phone: (602) 421-6717

Email: r.amirrezvani@superstarcarwashaz.com



**Subject: Traffic Impact Statement**  
**Super Star Car Wash, Intermediate Traffic Impact Study – Falcon, CO**

Dear Mr. Varley,

Y2K Engineering, LLC. (Y2K) has been retained to prepare an Intermediate Traffic Impact Study (TIS) for the proposed Project, Super Star Car Wash, located on Lot 10 within the Falcon Marketplace development on the northwest corner of Woodmen Road and Meridian Road in Falcon, CO. The project proposes an automated car wash facility with one  $\pm$  5,200 square-foot tunnel and parking for 33 vacuum stalls. Located in the southwest corner of the Falcon Marketplace development, this study will supplement information provided in the "Falcon Marketplace TIA" by LSC Transportation Consultants and approved in September 2018. The site access point will be a shared driveway between Lot 9 and Lot 10 with one full access driveway to Falcon Market Place. A vicinity map of the project site is shown in **Figure 1**.

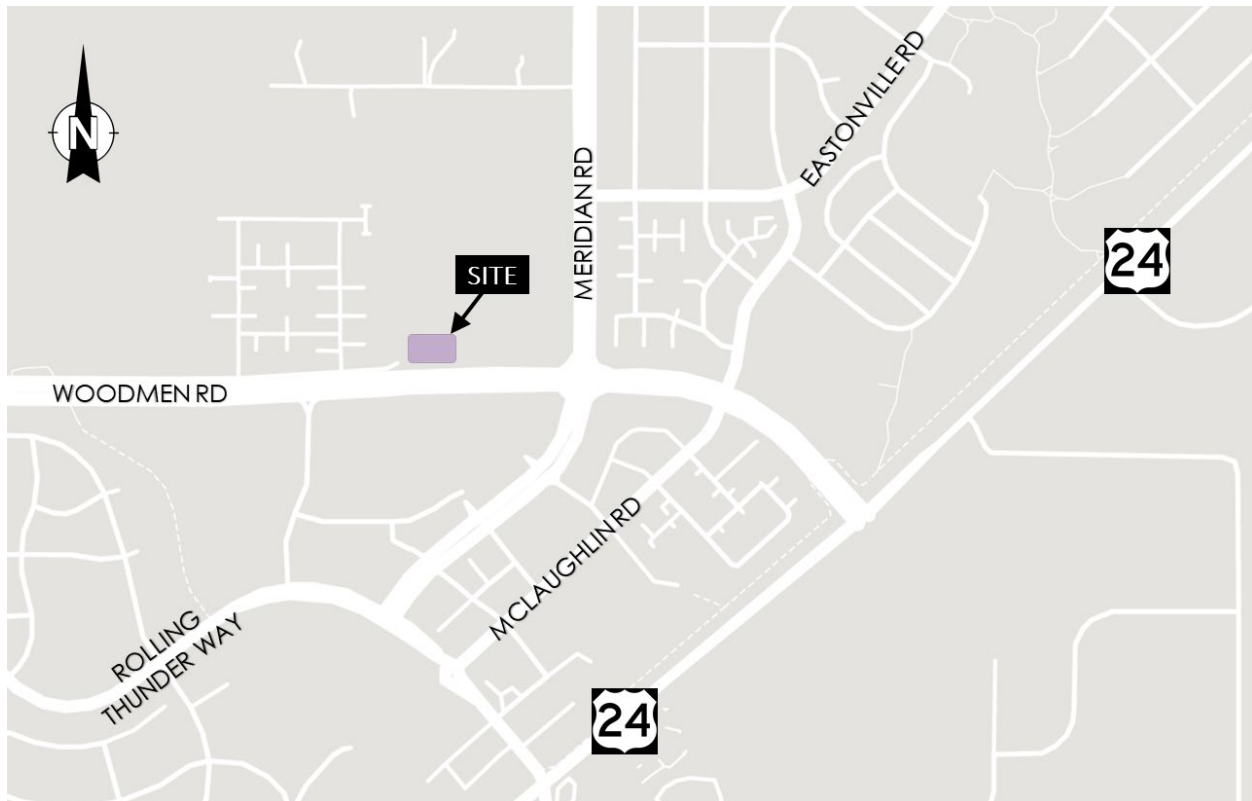
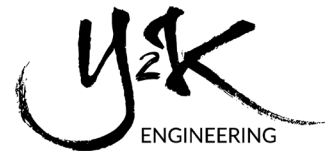


Figure 1: Vicinity Map





## EXISTING CONDITIONS

### SURROUNDING LAND USE

The proposed Super Star Car Wash is located on Lot 10 in the southwest corner of the future Falcon Marketplace development. Currently this land is vacant. The Falcon Marketplace is anchored by a King Soopers grocery store and has 11 additional lots for mixed-use development. Surrounding land uses include a neighborhood of single-family residential homes directly to the west, residential rural (5 acre) single-family homes to the north, single-family residential homes to the east, and commercial development to the south.

### ROADWAY NETWORK

Access to the future Falcon Marketplace will be from Meridian Road to the east and Woodmen Road and Woodmen Frontage Road to the south. For the south access, ingress will be made from Woodmen Road and egress will be made to Woodmen Frontage Road.

**Meridian Road** is classified as a principal arterial per El Paso County 2016 Major Transportation Corridors Plan Update. Meridian Road has a north-south alignment with two travel lanes in each direction. Adjacent to the site, Meridian Road is divided by a 35-foot raised median. The west side of the street is partially improved with curb, gutter, and a 3-foot median, and the east side of the street has a 6-foot median but no curb and gutter. There are currently no bicycle lanes or sidewalks along either side of Meridian Road in the project vicinity. The posted speed limit on Meridian Road is 55 mph. Traffic counts taken in conjunction with the original Falcon Marketplace TIA indicate that the daily traffic volume on Meridian Road, near the project site, is approximately 22,400 vehicles per day (vpd).

**Woodmen Road** is classified as a principal arterial per El Paso County 2016 Major Transportation Corridors Plan Update. Woodmen Road has an east-west alignment with two travel lanes in each direction. Adjacent to the site, Woodmen Road is divided by a 35-foot raised median. The eastbound direction has a 6-foot shoulder, and the westbound direction has a 10-foot shoulder. Neither direction has curb, gutter, bicycle lanes, or sidewalks. The posted speed limit on Woodmen Road is 55 mph. Traffic counts taken with the Falcon Marketplace TIA shows traffic volumes on Woodmen Road were approximately 24,500 vpd.

**Woodmen Frontage Road** is an east-west local roadway with one lane in each direction. Woodmen Frontage Road is located on the north side of Woodmen Road and currently terminates in a cul-de-sac at the southwest corner of the future Falcon Marketplace. Woodmen Frontage Road does not have any curb, gutter, or bicycle lanes. There is a sidewalk on the northside of Woodmen Frontage Road which runs along the adjacent neighborhood. Woodmen Frontage Road provides access to Woodmen Road approximately one mile to the west of the development.

**Falcon Market Place internal drive** is a future roadway that will be constructed in conjunction with the future Falcon Marketplace development. Construction plans indicate that Falcon Market Place will provide one lane in each direction with a center lane striped to provide dedicated left turn lanes at site driveways, including the Super Star Car Wash driveway. Sidewalks will be provided on both sides of the roadway.

The **east access point to Falcon Marketplace** is the intersection of Meridian Road and Eastonville Road which is currently minor-street stop controlled, with a stop sign on the westbound approach. The Falcon

Marketplace site plan proposes this intersection to be the east access point as a four-legged signalized intersection.

The *south access point to Falcon Marketplace* is proposed as an ingress movement from Woodmen Road and an egress movement to Woodmen Frontage Road. Currently Woodmen Road has a lane drop in the vicinity of the future access point, and Woodmen Frontage Road ends in a cul-de-sac. The Falcon Marketplace site plan proposes the drop lane is repurposed as a dedicated right-turn lane into the site and the cul-de-sac will be converted to an access point.

The *Super Star Car Wash internal* access point is proposed as a full movement minor-street stop intersection with Falcon Market Place. The Super Star Car Wash will share this driveway with the lot directly to the east, Lot 9. Falcon Market Place is signed for 25 MPH and consist of one lane in each direction separated by a two way left turn lane (TWLTL).

An aerial of the surrounding roadway network is depicted in **Figure 2**.

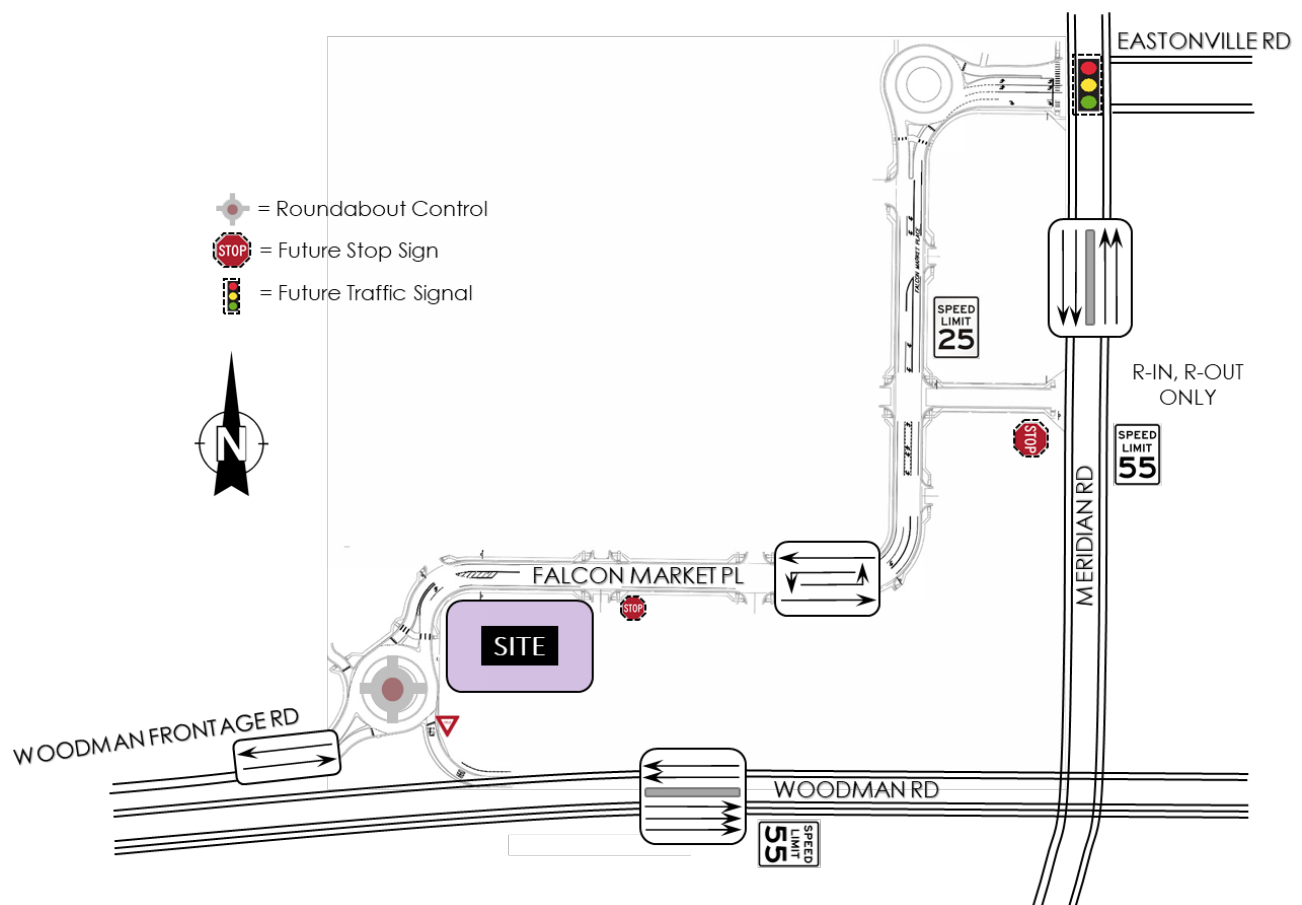


Figure 2: Existing Roadway Network and Intersection Lane Configuration

## PROPOSED DEVELOPMENT

### SITE LOCATON, LAND USE, AND ACCESS

The Super Star Car Wash is proposed for Lot 10 (approximately  $\pm 1.62$  acres) in the southwest corner of Falcon Marketplace development in Falcon, Colorado. The project proposes an automated car wash facility with one  $\pm 5,200$  square-foot tunnel and parking for 33 vacuum stalls. One site access point is proposed:

- Driveway A (full-access) – Falcon Marketplace access drive internal intersection

Driveway A will be shared between the Super Star Car Wash (Lot 10) and Lot 9. Driveway A will be aligned with access to the King Soopers parking lot directly to the north. The site plan is provided in **Attachment A** and is depicted in **Figure 3**.

### SITE CIRCULATION

Vehicles entering and exiting the car wash will use Driveway A or come from the neighboring business in Lot 9. Once at the car wash, three lanes of queuing are provided in advance of the payment gates, which provides enough space for up to 21 vehicles to queue. The pay stations are able to process up to 80 vehicles an hour, and the tunnel is able to process 130 vehicles per hour. Therefore, significant stacking of vehicles is not expected, and ample storage is provided per the site plan. Following the payment station, vehicles continue through the car wash tunnel, and then may continue into one of the vacuum bays or exit the site. Ingress and egress are permitted through Driveway A. Falcon Marketplace has one lane in each direction separated by a TWLTL. The TWLTL will provide 200 feet of storage for westbound left-turning ingress vehicles. Eastbound right-turning ingress vehicles will be uncontrolled and therefore have no storage or delay associated. There is anticipated to be adequate storage within the site for egress movements.

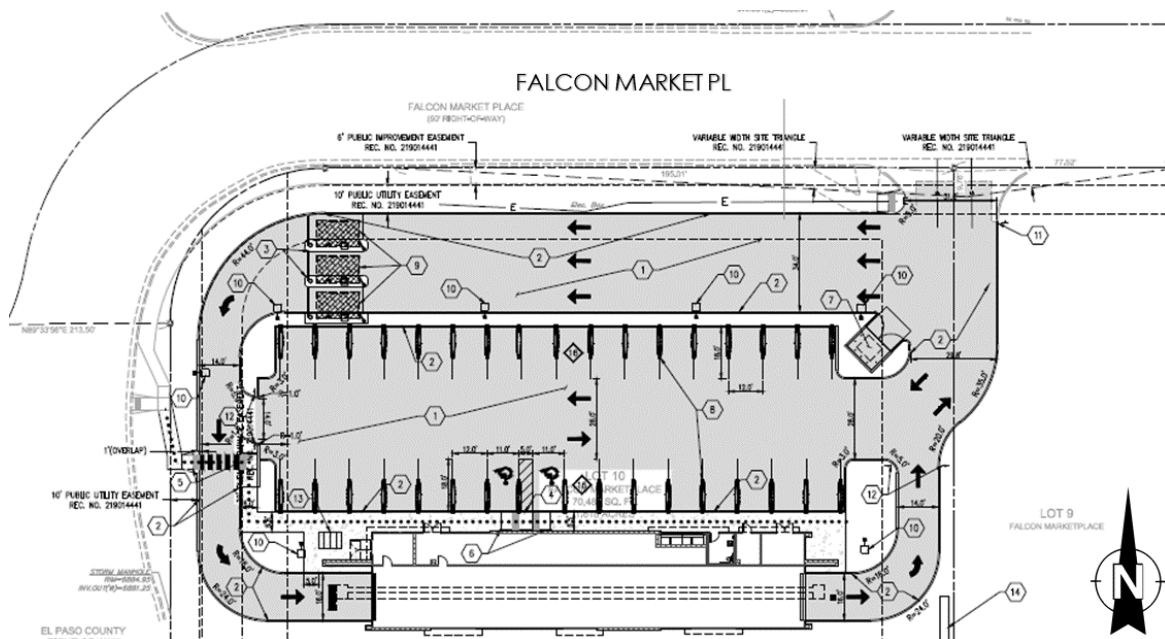


Figure 3: Site Plan



## TRIP GENERATION

ITE's *Trip Generation Manual, 10<sup>th</sup> Edition* contains data collected by various transportation professionals for a wide range of different land uses. The data summarized in the manual include average rates and equations that have been established correlating the relationship between an independent variable that describes the development size and generated trips for each categorized land use. The manual provides information for daily and peak hour trips. Land Use Category (LUC) 948, Automated Car Wash, best fits the proposed development.

The ITE *Trip Generation Manual, 10<sup>th</sup> Edition* does not provide data for the daily and AM peak hour for the Automated Car Wash land use. Therefore, only the weekday PM peak hour is reported, which is expected to be more than the AM peak hour. Estimates were also provided by Super Star Car Wash Companies for a previous Traffic Impact Statement. Super Star Car Wash estimates a maximum of 50 vehicles enter during the weekday PM peak hour and a maximum of 75 vehicles enter during the Saturday peak hour. The trip generation estimates for the weekday PM peak hour and Saturday peak hour are provided in **Table 1** and **Table 2**, respectively. The estimated trips provided by Super Star Car Wash were selected for use in this study as they are more conservative than the estimates provided in the ITE *Trip Generation Manual*.

Table 1: Trip Generation – Weekday PM Peak Hour

DESCRIPTION OF LAND USE			VEHICLE GENERATED TRIPS		
			Weekday PM Peak Hour		
LAND USE	ITE LUC	SIZE	Enter	Exit	Total
Super Star Car Wash <sup>1</sup>	948	1 Car Wash Tunnel	39	39	78
Super Star Car Wash <sup>2</sup>			50	50	100

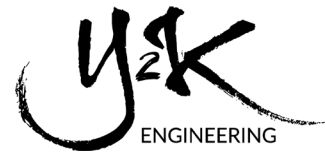
1. Source: ITE's *Trip Generation Manual, 10<sup>th</sup> Edition*. The average rate and directional distributions are provided below:  
 Weekday PM Average Rate: 77.50 In: 50%, Out: 50%
2. Estimate provided from Super Star Car Wash

Table 2: Trip Generation – Saturday Peak Hour

DESCRIPTION OF LAND USE			VEHICLE GENERATED TRIPS		
			Saturday Peak Hour		
LAND USE	ITE LUC	SIZE	Enter	Exit	Total
Super Star Car Wash <sup>1</sup>	948	1 Car Wash Tunnel	19	22	41
Super Star Car Wash <sup>2</sup>			75	75	150

1. Source: ITE's *Trip Generation Manual, 10<sup>th</sup> Edition*. The average rate and directional distributions are provided below:  
 Saturday Average Rate: 41.00 In: 46%, Out: 54%
2. Estimate provided from Super Star Car Wash

The proposed Super Star Car Wash is anticipated to generate a total of 100 weekday PM peak hour trips (entering and exiting) and 150 Saturday peak hour trips (entering and exiting).



## TRIP GENERATION COMPARISON

In order to assess the impacts of the proposed site traffic, an analysis was conducted to estimate trips from the “original” site plan as analyzed in the Falcon Marketplace TIA by LSC Transportation Consultants.

Our team spoke with LSC Transportation Consultants and they stated, “...for the lots with unknown potential users at the time, we used ITE land use code 820 rates and we most likely used the square footage of the entire center as the input to the ITE formula rate calculator. Then we applied those calculated rates to the 8,000 sf building. We often do this as otherwise small individual retail buildings within a larger shopping center end up with very high and unrealistic trip generation especially in terms of external trips.”

Excerpts from the original TIA are included in Attachment B.

The trip generation comparison between the originally proposed building and car wash site is summarized in **Table 3** below.

*Table 3: Trip Generation Comparison*

DESCRIPTION OF LAND USE				VEHICLE GENERATED TRIPS		
				PM Peak Hour		
Land Use	ITE LUC	SIZE		Enter	Exit	Total
<b>Existing Site Building</b>						
Shopping Center	820	8.0	KSF	19	20	39
<i>Formerly Proposed Building: Estimated Trips</i>				19	20	39
<b>Proposed Car Wash</b>						
Super Star Car Wash		1 Car Wash Tunnel		50	50	100
<i>Proposed Site: Estimated Trips</i>				50	50	100
<b>Difference</b>				<b>31</b>	<b>30</b>	<b>61</b>

As summarized in **Table 3**, the difference between the former building and car wash site traffic is 61 trips during the PM peak hour (31 entering and 30 exiting). Based on the trip generation analysis, the conversion of this site from a “general retail” building to car wash will increase overall trips versus the original TIA.

## PASS-BY TRIPS

Not all generated trips to a project will be 'new' to the locality. Some vehicles will already be present on the street system passing by or will be able to make a short diversion. This is particularly true during the weekday morning and evening peak hours when traffic is diverted from the work/home trips. It is also true on Saturdays when traffic is already on the adjacent roadways running errands and desires to have their car cleaned prior to evening plans. Pass-by traffic refers to drivers already on the adjacent street who enter the site from or to another destination. Diverted traffic refers to traffic which makes a *very short* diversion to visit the proposed site. The *ITE Trip Generation Handbook, 3<sup>rd</sup> Edition* has data and provides percentages for pass-by traffic. Reductions for pass-by and diverted trips are only applied to the off-site traffic movements while 100% of the generated trips are applied to the traffic entering and exiting the driveways. While a car wash is expected to attract pass-by trips, no reductions in the site-generated traffic were included in this analysis, since the traffic statement focuses on the driveways.



## TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

Trip distribution for this site was assumed based on access to the nearby arterial network and is depicted in **Figure 4**. It is assumed that 60% of traffic will come to/from the west from Woodmen Road and 40% of traffic will come to/from the east on Falcon Market Place and from Meridian Road.

Based on the trip distribution, new trips from the proposed Super Star Car Wash have been assigned to the site driveways. The trip assignment percentages are shown in **Figure 4**, and the associated volumes for the weekday PM and Saturday peak hours are shown in **Figure 5**.

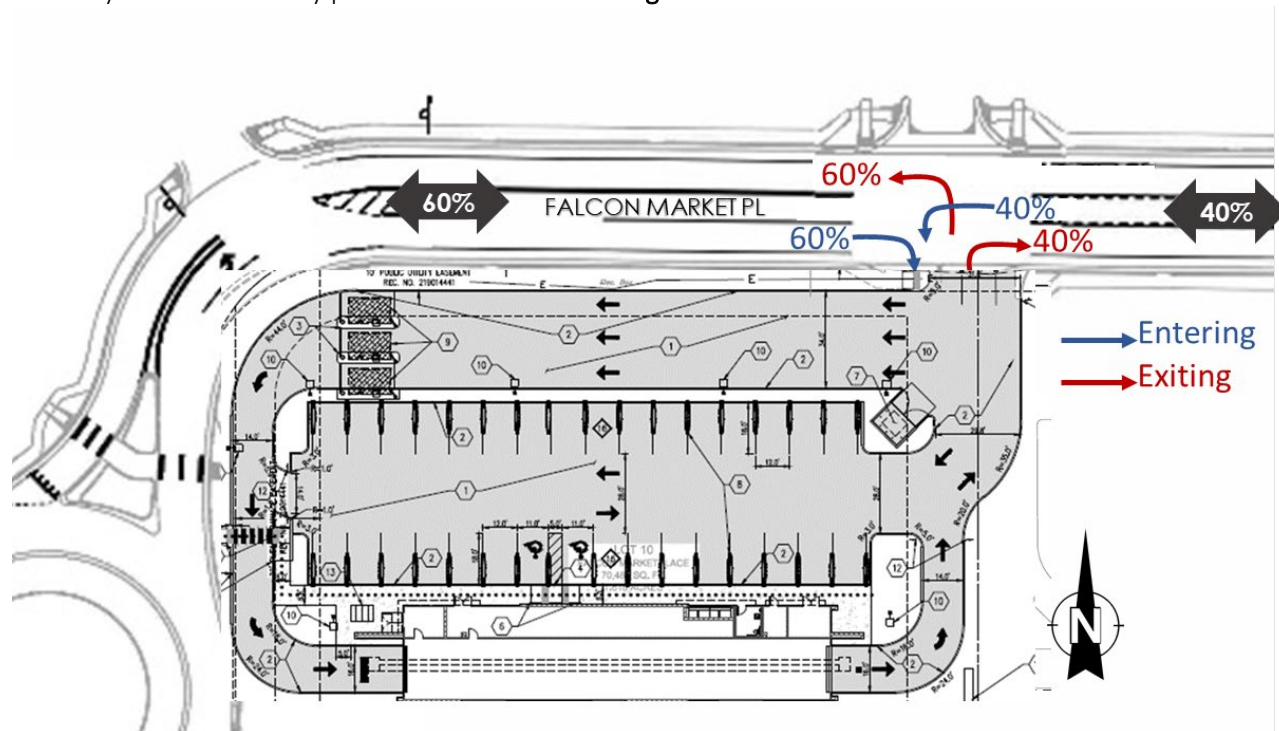


Figure 4: Trip Distribution

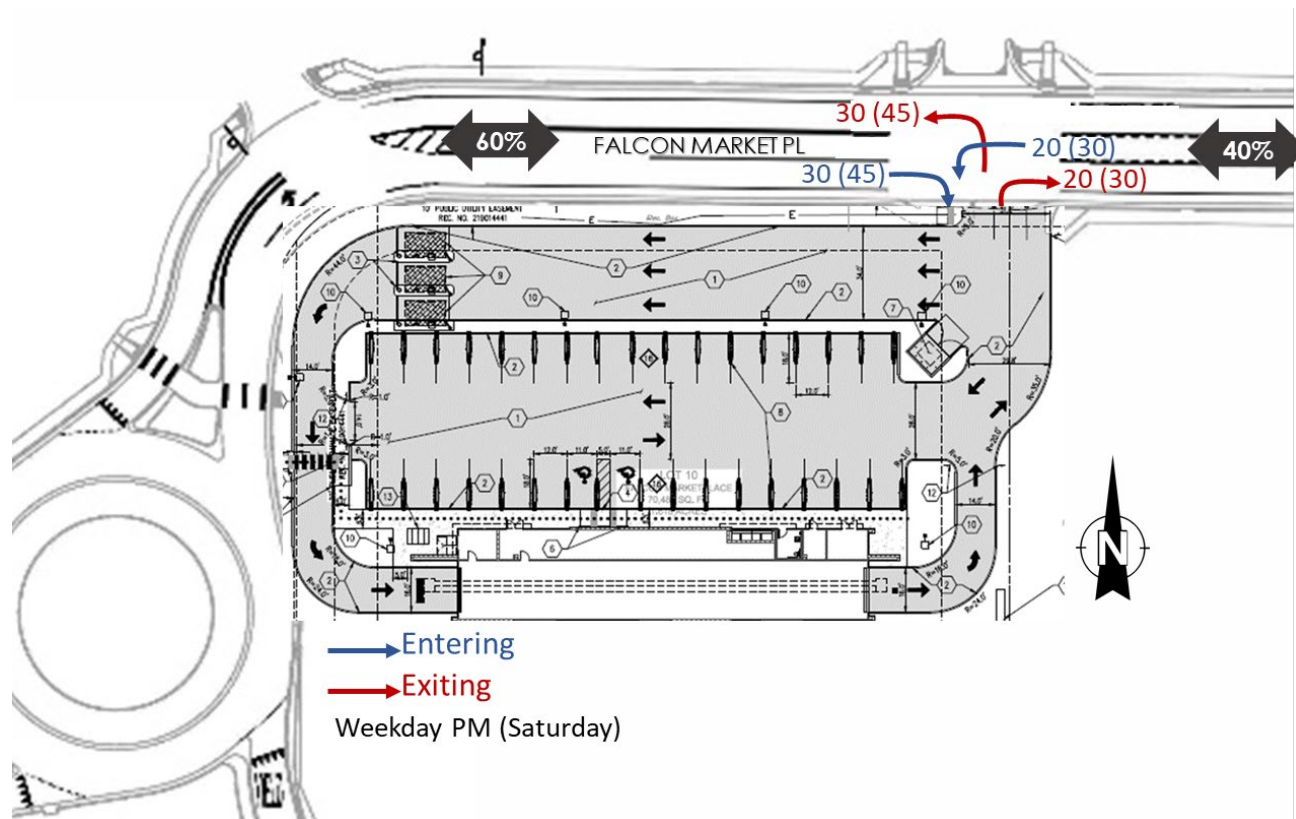


Figure 5: Site Traffic Volumes – Weekday PM and Saturday Peak Hour

## IMPROVEMENT ANALYSIS

### DRIVEWAYS

Site access will be provided from a single proposed full-access driveway on Falcon Market Place approximately 400 feet east of the proposed roundabout at the intersection of Woodmen Frontage Road and Falcon Market Place. Driveway A will provide shared access to the adjacent shopping center to the east. A westbound TWLTL is planned at Driveway A to support the shopping center.

### AUXILIARY LANES

When warranted, turn lanes permit separation of conflicting traffic movements and removes the slower turning traffic from the through traffic, thus improving capacity and reducing rear-end crashes. The analysis focuses on the auxiliary lane needs at Driveway A. A center TWLTL to provide dedicated left turn lanes into site driveways, including Driveway A, is proposed on the future Falcon Market Place roadway.

The criteria for a right-turn lane is based on the criteria set forth in the *El Paso County – Engineering Criteria Manual* revised in 2016. The manual specifies that on roadways with the classification of Minor Arterial or lower, right turn lanes are required for any access with a project peak hour right turning volume of 50 vehicles per hour (VPH) or greater. During the Saturday peak hour, 45 westbound right-turning vehicles are anticipated at Driveway A. As such, a right-turn deceleration lane is not warranted or recommended at





Driveway A. The right-turn lane needs at Driveway A should be re-evaluated as development continues to grow in the adjacent commercial lots east of the proposed car wash site.

## CONCLUSIONS

- The proposed car wash site includes an automated car wash facility with one  $\pm 5,200$  square-foot tunnel and parking for 33 vacuum stalls.
- Site access will be provided from a single proposed full-access driveway on Falcon Market Place approximately 400 feet east of the proposed roundabout at the intersection of Woodmen Frontage Road and Falcon Market Place.
- The car wash is anticipated to generate a total of 100 trips (entering and exiting) during the weekday PM peak hour and a total of 150 trips (entering and exiting) during the Saturday peak hour.
- A center TWLTL lane to provide left turn lanes into site driveways, including Driveway A, is proposed on the future Falcon Market Place roadway.
- The conversion of this parcel (Lot 10) from a general commercial building to a car wash will result in 61 “additional” PM peak hour trips versus what was originally proposed. The division of these trips between the east and west on Falcon Market Place are expected to have minimal impact on the LOS results presented in the original TIA.

We appreciate the opportunity to prepare this study. Should you have any questions, please feel free to contact me by email at [rstephani@y2keng.com](mailto:rstephani@y2keng.com) or by phone at (928) 814-6808.

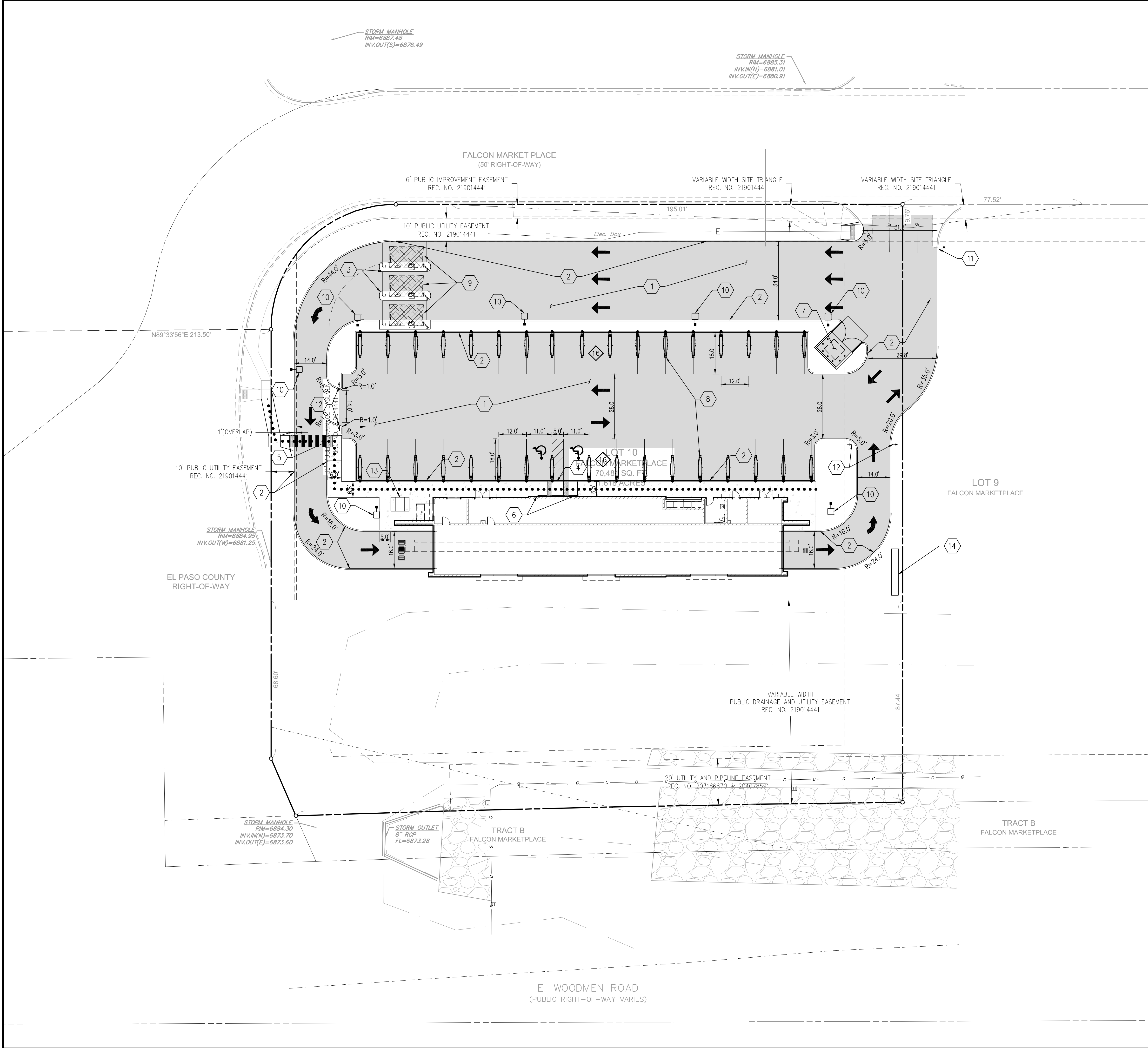
Sincerely,

A handwritten signature in blue ink that reads 'Rae Stephani'.

Rae Stephani, PE  
Project Engineer

Attachments

**ATTACHMENT A:**  
**SITE PLAN**

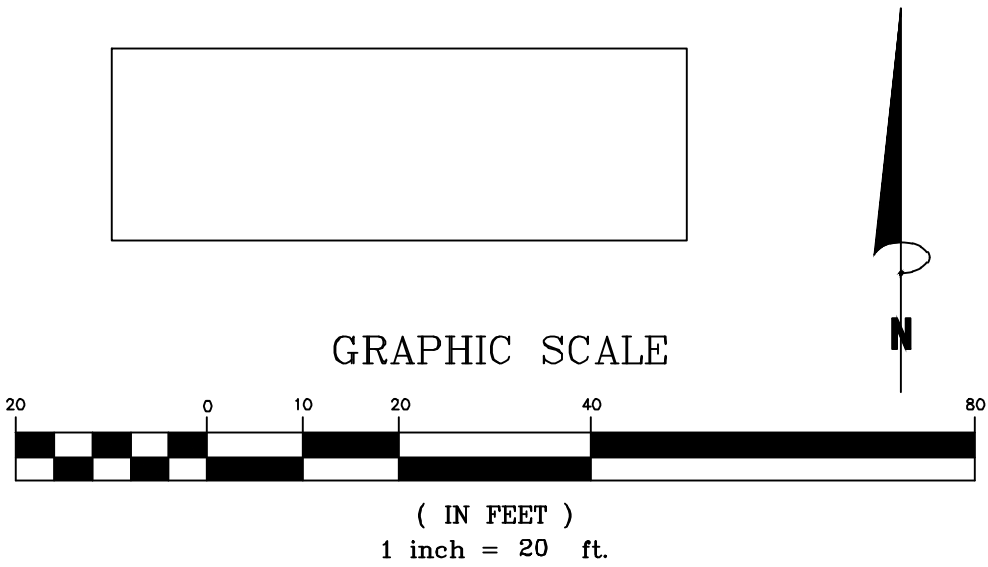


LEGEND		
EXISTING	DESCRIPTION	PROPOSED
---	PROPERTY LINE	---
---	ADJACENT PROPERTY LINE	---
---	LOT LINE	---
---	RIGHT OF WAY	---
---	FENCE LINE	---
---	EASEMENT	---
---	VERTICAL CURB AND GUTTER	---
---	CONCRETE SIDEWALK	---
---	SIGN(S)	---
---	PARKING COUNT INDICATOR	---
---	ADA ACCESSIBLE ROUTE	---

- KEY NOTES**
- 1 PROPOSED CONCRETE PAVEMENT
  - 2 PROPOSED 6" INTEGRAL CURB
  - 3 PROPOSED RAISED CONCRETE SLAB
  - 4 PROPOSED ADA RAMP (SEE DETAIL ON SHEET C8.0)
  - 5 PROPOSED ADA RAMP (SEE DETAIL ON SHEET C8.1)
  - 6 PROPOSED ADA PARKING SIGN
  - 7 PROPOSED TRASH ENCLOSURE
  - 8 PROPOSED VACUUM STATION (SEE ARCHITECTURAL PLANS)
  - 9 PROPOSED CANOPY (SEE ARCHITECTURAL PLANS)
  - 10 PROPOSED SITE LIGHT
  - 11 PROPOSED STOP SIGN
  - 12 PROPOSED "DO NOT ENTER" DIRECTIONAL SIGN
  - 13 PROPOSED BICYCLE PARKING
  - 14 DEVELOPMENT MONUMENT SIGN (BY OTHERS)

SITE DATA TABLE		
PROPERTY ADDRESS	7525 FALCON MARKET PL	
PARCEL ID	5301403006	
ZONING DISTRICT	CR	
LAND USE	COMMERCIAL - CAR WASH	
TOTAL SITE AREA	70,481 SF	1.62 AC
OPEN SPACE AREA	10,012 SF	0.23 AC
IMPERVIOUS AREA	35,913 SF	0.83 AC
POND AREA	24,556 SF	0.56 AC
PARKING CALCULATIONS		
REQUIRED	STANDARD	ADA
PROVIDED	2	1
BUILDING SETBACKS		
LOCATION	REQUIRED	PROPOSED
FRONT - WOODMEN RD	50'	98'
SIDE - INTERNAL	0'	38'
SIDE - FALCON MARKET PL	25'	56'
REAR - FALCON MARKET PL	25'	126'
BUILDING HEIGHT		
MAX	45'	
PROPOSED	30'	

ACCESSIBILITY NOTES:  
THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH ALL CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL SITE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY EL PASO COUNTY DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITH RESPECT TO SUCH LAWS.



# Bowman

Phone: (909) 801-2900  
www.bowmanconsulting.com

REVISIONS	DATE
1	06/30/2021
2	
3	
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10	
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**SITE PLAN**

**SUPER STAR CAR WASH - FALCON MARKETPLACE LOT 10**

**SITE DEVELOPMENT PLAN**

**COLORADO**

**EL PASO COUNTY**

SEAL

NOT FOR CONSTRUCTION

DESIGN	DRAWN	CHKD
SWK	SWK	TOP
SCALE	H: 1" = 20' V: 1" = XXX'	
JOB No.	020441-01-001	
DATE :	02/09/2021	
SHEET	C3.0	



**ATTACHMENT B:**  
**ORIGINAL TIA INFORMATION**



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](mailto:lsc@lsctrans.com)  
Website: <http://www.lsctrans.com>  
EPC 10/9/18

## 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, likely of the Developer, written over a horizontal line.

9/5/18  
Date

SP 17-001

# Falcon Marketplace

## Updated Traffic Impact Analysis

Prepared for:

Hummel Investments, LLC  
8117 Preston Road, Suite 120  
Dallas, TX 75225  
(214) 416-9820

Prepared by:

LSC Transportation Consultants, Inc.  
545 East Pikes Peak Avenue  
Colorado Springs, CO 80903  
(719) 633-2868

LSC #164350

October 23, 2017  
Revised September 5, 2018



**Table 2**  
**Trip Generation Estimate**  
**Falcon Marketplace**

Trip Generation Summary																									
Lot	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates <sup>(1)</sup>				Total Trips Generated				Internal Trips <sup>(7)</sup>				Total External Trips Generated				Pass-By Trips <sup>(2)</sup>	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		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 <sup>(3)</sup>	15 KSF <sup>(4)</sup>	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 <sup>(5)</sup>	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 <sup>(6)</sup>	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 <sup>(6)</sup>	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.																									

## **ATTACHMENT C: COMMENT RESOLUTION**

## COMMENT RESPONSES

### 1st Submittal

<b>Project:</b>	<b>Super Star Car Wash - Falcon Marketplace Development (PPR-21-008)</b>		
<b>Project Location</b>	NWC of Woodmen Road & Meridian Road	<b>Prepared by</b>	Y2K Engineering
<b>Agency</b>	El Paso County, CO	<b>Date of Report</b>	2/4/2021
<b>Reviewed By</b>	Jeff Rice	<b>Responses by</b>	Rae Stephani
<b>Date</b>	4/14/2021	<b>Date of Responses</b>	6/25/2021

A = WILL COMPLY

C = AGENCY TO EVALUATE

B = CONSULTANT / DESIGNER / APPLICANT TO EVALUATE

D = REVIEW TEAM RECOMMENDS NO FURTHER ACTION

No	Agency	Item* / Dgn / Sht / Pg. #	Comment By	Comment	Disposition		Comment Addressed By	Response / Comment
					Initial	Final		
1	El Paso County	2 of 11	J. Rice	2,600 vpd volume seems low.  (Regarding traffic count within the El Paso County 2016 Major Transportation Corridors Plan Update.)	A	A	R. Stephani	<i>This typo was corrected and a different data source referenced.</i>
2	El Paso County	2 of 11	J. Rice	"Meridian Road" referenced twice in Woodmen Road paragraph.	A	A	R. Stephani	<i>Corrected.</i>
3	El Paso County	3 of 11	J. Rice	Replace "internal access driveway" with "Falcon Market Place.	A	A	R. Stephani	<i>Corrected.</i>
4	El Paso County	3 of 11	J. Rice	Correct traffic control to show traffic signal at Eastonville Road.	A	A	R. Stephani	<i>Corrected.</i>
5	El Paso County	4 of 11	J. Rice	Update "Internal Site Access" to "Falcon Market Place".	A	A	R. Stephani	<i>Corrected.</i>
6	El Paso County	4 of 11	J. Rice	Replace site plan with latest available.	A	A	R. Stephani	<i>New site plan added within Figure 3.</i>
7	El Paso County	5 of 11	J. Rice	Provide trip generation comparison to original TIA prepared for the site.	A	A	R. Stephani	<i>A trip generation comparison has been added. A Saturday comparison could not be made because that analysis was not completed in the Original TIA.</i>
8	El Paso County	8 of 11	J. Rice	Discuss comparison to original TIA in conclusions.	A	A	R. Stephani	<i>Discussion added to the conclusion.</i>
9	El Paso County	8 of 11	J. Rice	Delete "future" from 2nd to last bullet point.	A	A	R. Stephani	<i>"Future" deleted.</i>
10	El Paso County	8 of 11	J. Rice	Last bullet point: This sentence contradicts the current plan for Lot 9.	A	A	R. Stephani	<i>Agree. Sentence deleted.</i>



February 4, 2021

Reza Amirrezvani  
SSCW Companies  
1830 N. 95<sup>th</sup> Avenue, Suite 106  
Phoenix, AZ 85037

Phone: (602) 421-6717

Email: r.amirrezvani@superstarcarwashaz.com

### Engineering Review

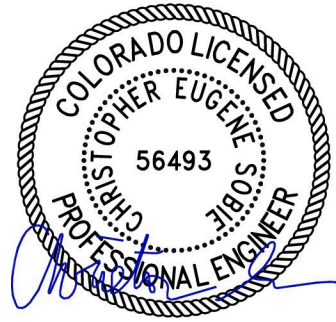
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dsdrice

JeffRice@elpasoco.com

(719) 520-7877

EPC Planning & Community  
Development Department



**Subject: Traffic Impact Statement**

**Super Star Car Wash, Intermediate Traffic Impact Study – Falcon, CO**

Dear Mr. Amirrezvani,

Y2K Engineering, LLC. (Y2K) has been retained to prepare an Intermediate Traffic Impact Study (TIS) for the proposed Project, Super Star Car Wash, located on Lot 10 in the future Falcon Marketplace development near the northwest corner of Woodmen Road and Meridian Road in Falcon, CO. The project proposes an automated car wash facility with one ± 5,200 square-foot tunnel and parking for 33 vacuum stalls. Located in the southwest corner of the future Falcon Marketplace development, one site access point is proposed on the northeast corner of the parcel. This access point will be a shared driveway between Lot 9 and Lot 10, which will have a full access driveway with the Falcon Marketplace internal circulation roadway. A vicinity map of the project site is shown in **Figure 1**.

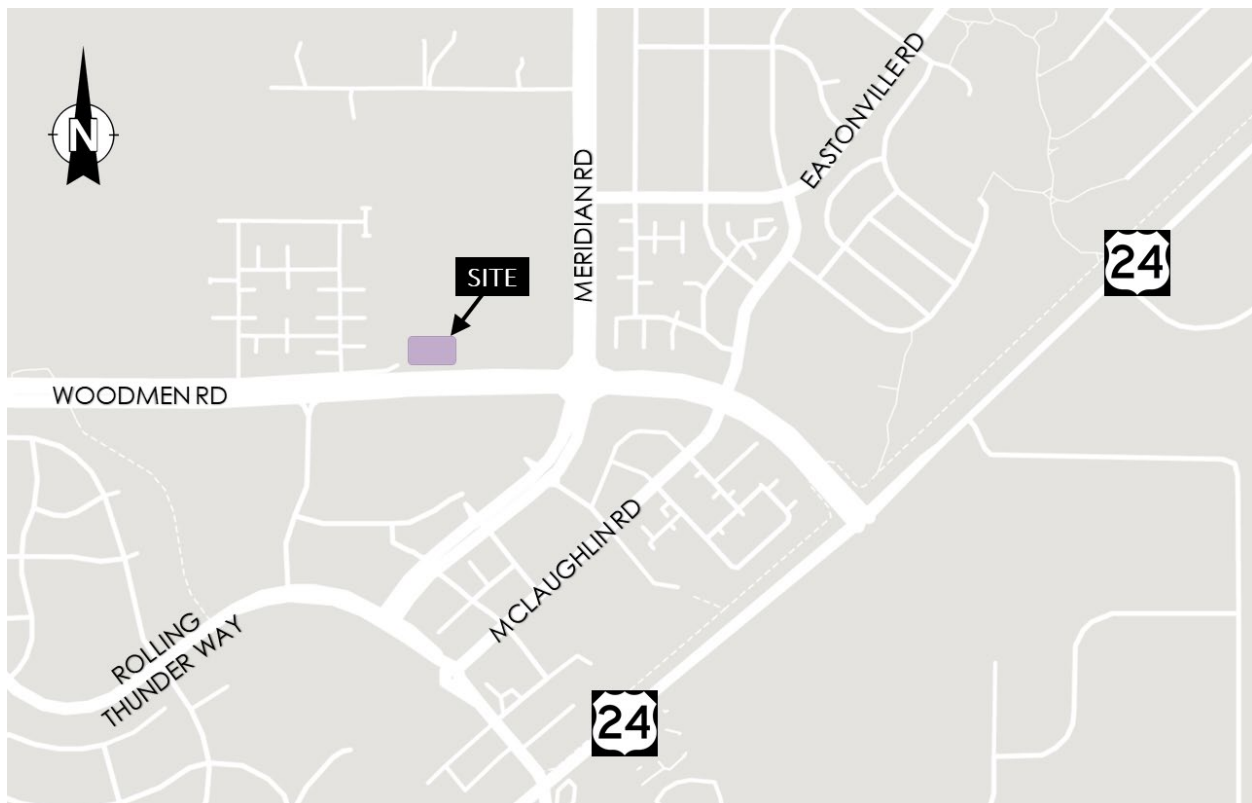


Figure 1: Vicinity Map





## EXISTING CONDITIONS

### SURROUNDING LAND USE

The proposed Super Star Car Wash is located on Lot 10 in the southwest corner of the future Falcon Marketplace development. Currently this land is vacant. The Falcon Marketplace is anchored by a King Soopers grocery store and has 11 additional lots for mixed-use development. Surrounding land uses include a neighborhood of single-family residential homes directly to the west, residential rural (5 acre) single-family homes to the north, single-family residential homes to the east, and commercial development to the south.

seems low

### ROADWAY NETWORK

Access to the future Falcon Marketplace will be from Meridian Road to the east and Woodmen Road and Woodmen Frontage Road to the south. For the south access, ingress will be made from Woodmen Road and egress will be made to Woodmen Frontage Road.

**Meridian Road** is classified as a principal arterial per El Paso County 2016 Major Transportation Corridors Plan Update. Meridian Road has a north-south alignment with two travel lanes in each direction. Adjacent to the site, Meridian Road is divided by a 35-foot raised median. The west side of the street is partially improved with curb, gutter, and a 3-foot median, and the east side of the street has a 6-foot median but no curb and gutter. There are currently no bicycle lanes or sidewalks along either side of Meridian Road in the project vicinity. The posted speed limit on Meridian Road is 55 mph. Traffic counts reported in the El Paso County 2016 Major Transportation Corridors Plan Update indicate the average daily traffic on Meridian Road near the project site is approximately 2,600 vehicles per day (vpd).

**Woodmen Road** is classified as a principal arterial per El Paso County 2016 Major Transportation Corridors Plan Update. Woodmen Road has an east-west alignment with two travel lanes in each direction. Adjacent to the site, Woodmen Road is divided by a 35-foot raised median. The eastbound direction has a 6-foot shoulder, and the westbound direction has a 10-foot shoulder. Neither direction has curb, gutter, bicycle lanes, or sidewalks. The posted speed limit on Meridian Road is 55 mph. The nearest traffic counts reported in the El Paso County 2016 Major Transportation Corridors Plan Update indicate the average daily traffic on Meridian Road approximately 3.5 miles to the west of the project site is approximately 22,600 vpd.

**Woodmen Frontage Road** is an east-west local roadway with one lane in each direction. Woodmen Frontage Road is located on the north side of Woodmen Road and currently terminates in a cul-de-sac at the southwest corner of the future Falcon Marketplace. Woodmen Frontage Road does not have any curb, gutter, or bicycle lanes. There is a sidewalk on the northside of Woodmen Frontage Road which runs along the adjacent neighborhood. Woodmen Frontage Road provides access to Woodmen Road approximately one mile to the west of the development.

**Falcon Market Place internal drive** is a future roadway that will be constructed in conjunction with the future Falcon Marketplace development. Construction plans indicate that Falcon Market Place will provide one lane in each direction with a center lane striped to provide dedicated left turn lanes at site driveways, including the Super Star Car Wash driveway. Sidewalks will be provided on both sides of the roadway.

The **east access point to Falcon Marketplace** is the intersection of Meridian Road and Eastonville Road which is currently minor-street stop controlled, with a stop sign on the westbound approach. The Falcon

Marketplace site plan proposes this intersection to be the east access point as a four-legged signalized intersection.

The **south access point to Falcon Marketplace** is proposed as an ingress movement from Woodmen Road and an egress movement to Woodmen Frontage Road. Currently Woodmen Road has a lane drop in the vicinity of the future access point, and Woodmen Frontage Road ends in a cul-de-sac. The Falcon Marketplace site plan proposes the drop lane is repurposed as a dedicated right-turn lane into the site and the cul-de-sac will be converted to an access point.

The **Super Star Car Wash internal** access point is proposed as a full movement minor-street stop intersection with the internal access road. The Super Star Car Wash will share a driveway with the lot directly to the east, Lot 9. The internal access driveway will be signed for 25 MPH and consist of one lane in each direction separated by a two way left turn lane (TWLTL).

An aerial of the surrounding roadway network is depicted in Figure 2.

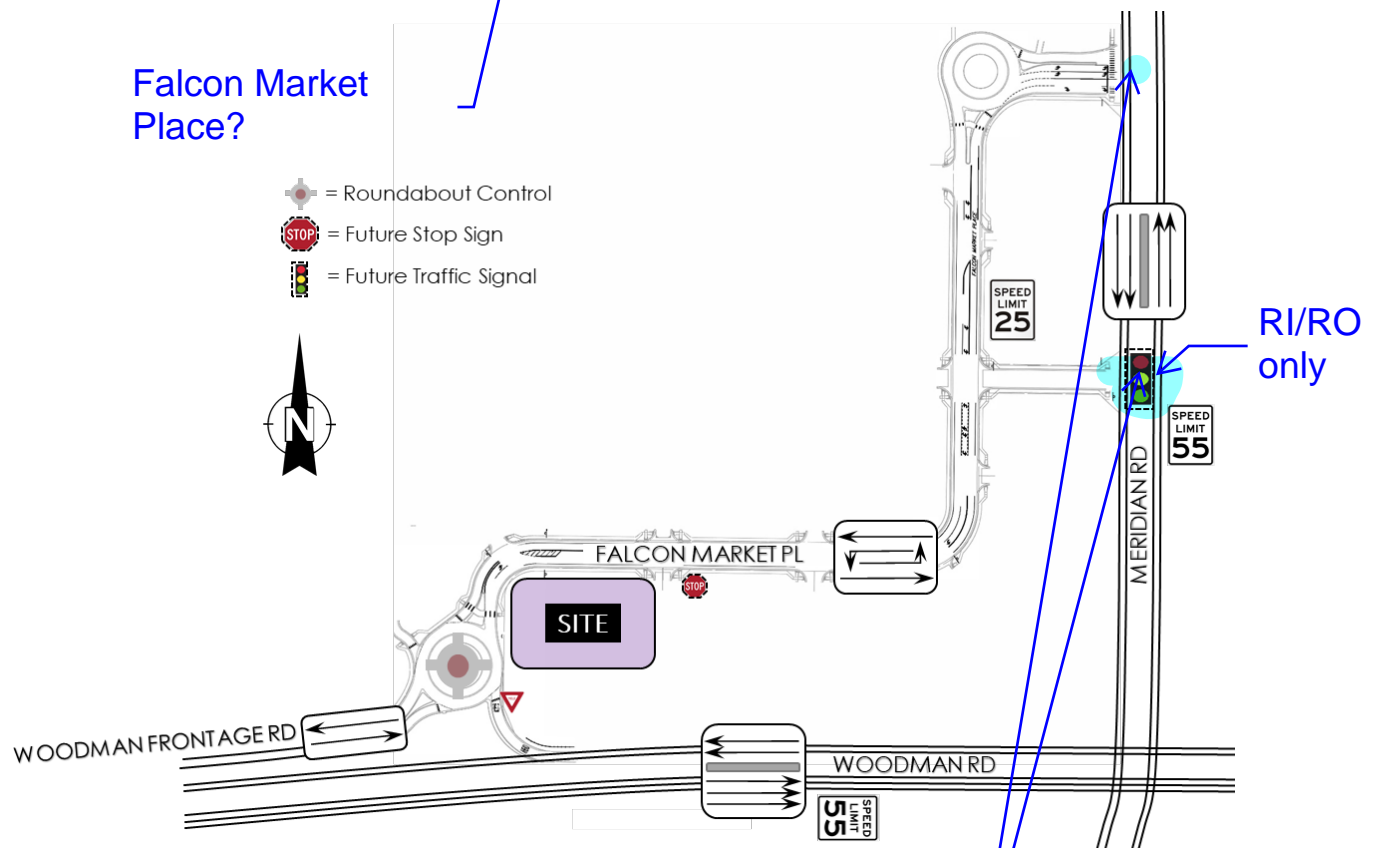


Figure 2: Existing Roadway Network and Intersection Lane Configuration



## PROPOSED DEVELOPMENT

### SITE LOCATON, LAND USE, AND ACCESS

The Super Star Car Wash is proposed for Lot 10 (approximately  $\pm 1.62$  acres) in the southwest corner of Falcon Marketplace development in Falcon, Colorado. The project proposes an automated car wash facility with one  $\pm 5,200$  square-foot tunnel and parking for 33 vacuum stalls. One site access point is proposed:

- Driveway A (full-access) – Falcon Marketplace access drive internal intersection

Driveway A will be shared between the Super Star Car Wash (Lot 10) and Lot 9. Driveway A will be aligned with access to the King Soopers parking lot directly to the north. The site plan is provided in **Attachment A** and is depicted in **Figure 3**.

### SITE CIRCULATION

Vehicles entering and exiting the car wash will use Driveway A or come from the neighboring business in Lot 9. Once at the car wash, three lanes of queuing are provided in advance of the payment gates, which provides enough space for up to 21 vehicles to queue. The pay stations are able to process up to 80 vehicles an hour, and the tunnel is able to process 130 vehicles per hour. Therefore, significant stacking of vehicles is not expected, and ample storage is provided per the site plan. Following the payment station, vehicles continue through the car wash tunnel, and then may continue into one of the vacuum bays or exit the site. Ingress and egress are permitted through Driveway A. The internal site access drive is proposed to have one lane in each direction separated by a TWLTL. The TWLTL will provide 200 feet of storage for westbound left-turning ingress vehicles. Eastbound right-turning ingress vehicles will be uncontrolled and therefore have no storage or delay associated. There is anticipated to be adequate storage within the site for egress movements.

Falcon Market  
Place?

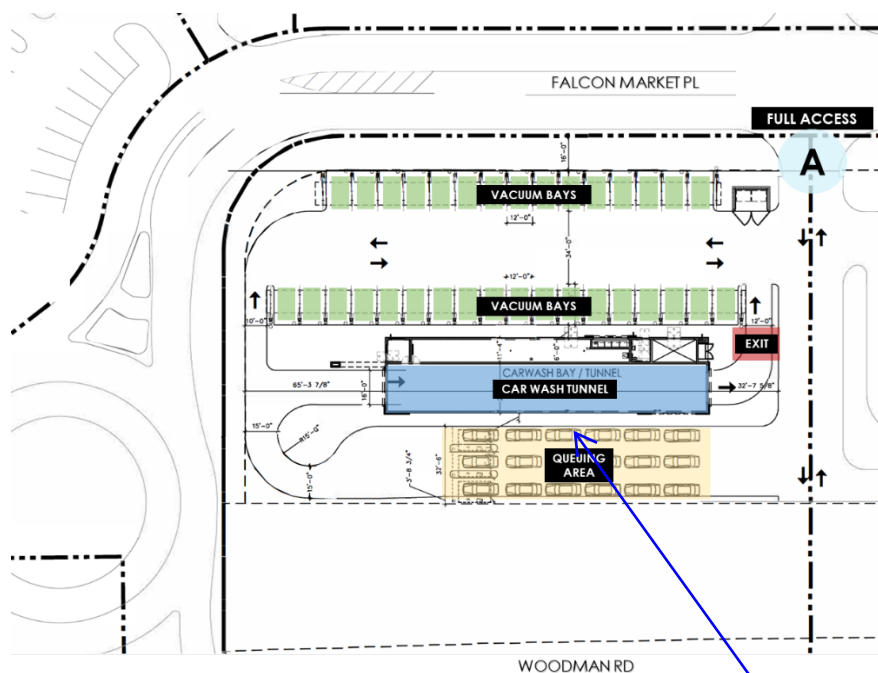
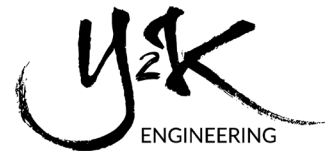


Figure 3: Site Plan

Provide the layout  
from the site  
development plan



## TRIP GENERATION

ITE's *Trip Generation Manual, 10<sup>th</sup> Edition* contains data collected by various transportation professionals for a wide range of different land uses. The data summarized in the manual include average rates and equations that have been established correlating the relationship between an independent variable that describes the development size and generated trips for each categorized land use. The manual provides information for daily and peak hour trips. Land Use Category (LUC) 948, Automated Car Wash, best fits the proposed development.

The ITE *Trip Generation Manual, 10<sup>th</sup> Edition* does not provide data for the daily and AM peak hour for the Automated Car Wash land use. Therefore, only the weekday PM peak hour is reported, which is expected to be more than the AM peak hour. Estimates were also provided by Super Star Car Wash Companies for a previous Traffic Impact Statement. Super Star Car Wash estimates a maximum of 50 vehicles enter during the weekday PM peak hour and a maximum of 75 vehicles enter during the Saturday peak hour. The trip generation estimates for the weekday PM peak hour and Saturday peak hour are provided in **Table 1** and **Table 2**, respectively. The estimated trips provided by Super Star Car Wash were selected for use in this study as they are more conservative than the estimates provided in the ITE *Trip Generation Manual*.

Table 1: Trip Generation – Weekday PM Peak Hour

DESCRIPTION OF LAND USE			VEHICLE GENERATED TRIPS		
			Weekday PM Peak Hour		
LAND USE	ITE LUC	SIZE	Enter	Exit	Total
Super Star Car Wash <sup>1</sup>	948	1 Car Wash Tunnel	39	39	78
Super Star Car Wash <sup>2</sup>			50	50	100

1. Source: ITE's *Trip Generation Manual, 10<sup>th</sup> Edition*. The average rate and directional distributions are provided below:  
 Weekday PM Average Rate: 77.50 In: 50%, Out: 50%
2. Estimate provided from Super Star Car Wash

Table 2: Trip Generation – Saturday Peak Hour

DESCRIPTION OF LAND USE			VEHICLE GENERATED TRIPS		
			Saturday Peak Hour		
LAND USE	ITE LUC	SIZE	Enter	Exit	Total
Super Star Car Wash <sup>1</sup>	948	1 Car Wash Tunnel	19	22	41
Super Star Car Wash <sup>2</sup>			75	75	150

1. Source: ITE's *Trip Generation Manual, 10<sup>th</sup> Edition*. The average rate and directional distributions are provided below:  
 Saturday Average Rate: 41.00 In: 46%, Out: 54%
2. Estimate provided from Super Star Car Wash

The proposed Super Star Car Wash is anticipated to generate a total of 100 weekday PM peak hour trips (entering and exiting) and 150 Saturday peak hour trips (entering and exiting).

## PASS-BY TRIPS

Not all generated trips to a project will be 'new' to the locality. Some vehicles will already be present on the street system passing by or will be able to make a short diversion. This is particularly true during the weekday morning and evening peak hours when traffic is diverted from the work/home trips. It is also true

Provide comparison to the subdivision TIS values.

on Saturdays when traffic is already on the adjacent roadways running errands and desires to have their car cleaned prior to evening plans. Pass-by traffic refers to drivers already on the adjacent street who enter the site from or to another destination. Diverted traffic refers to traffic which makes a *very short* diversion to visit the proposed site. The *ITE Trip Generation Handbook, 3<sup>rd</sup> Edition* has data and provides percentages for pass-by traffic. Reductions for pass-by and diverted trips are only applied to the off-site traffic movements while 100% of the generated trips are applied to the traffic entering and exiting the driveways. While a car wash is expected to attract pass-by trips, no reductions in the site-generated traffic were included in this analysis, since the traffic statement focuses on the driveways.

### TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

Trip distribution for this site was assumed based on access to the nearby arterial network and is depicted in **Figure 4**. It is assumed that 60% of traffic will come to/from the west from Woodmen Road and 40% of traffic will come to/from the east on Falcon Market Place and from Meridian Road.

Based on the trip distribution, new trips from the proposed Super Star Car Wash have been assigned to the site driveways. The trip assignment percentages are shown in **Figure 4**, and the associated volumes for the weekday PM and Saturday peak hours are shown in **Figure 5**.

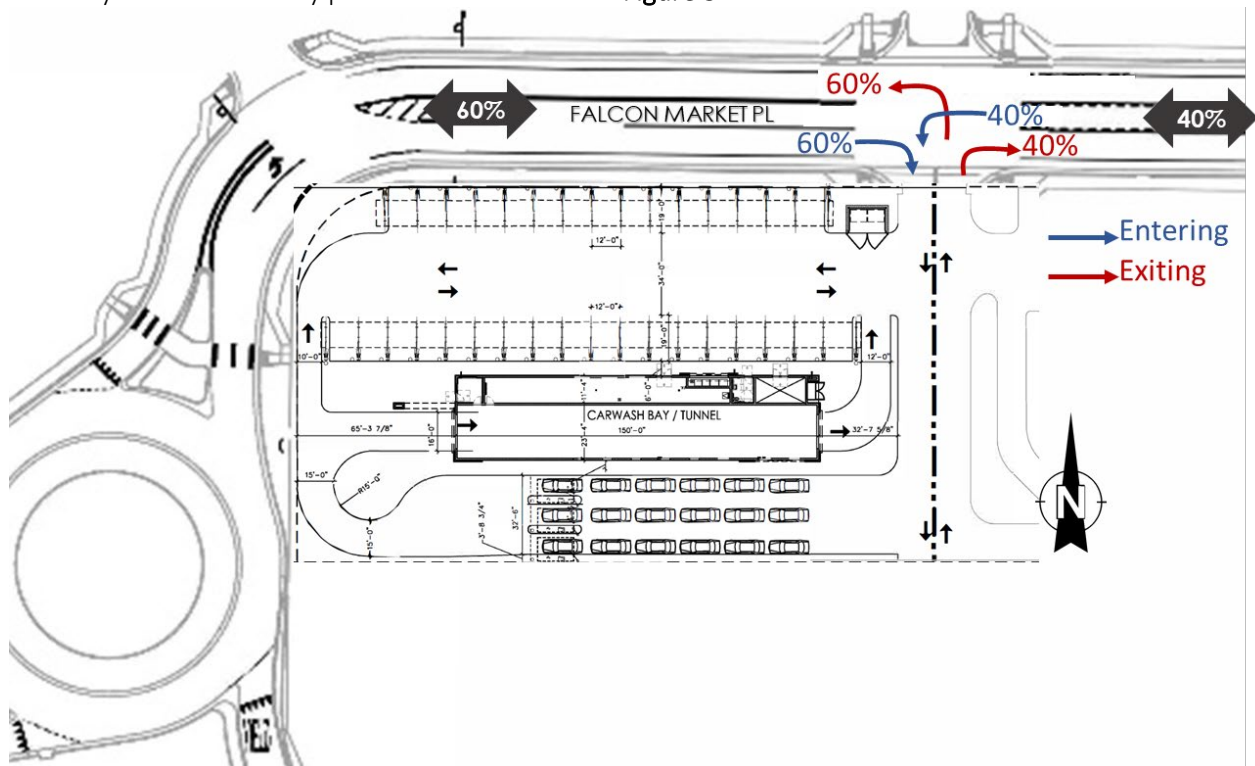


Figure 4: Trip Distribution

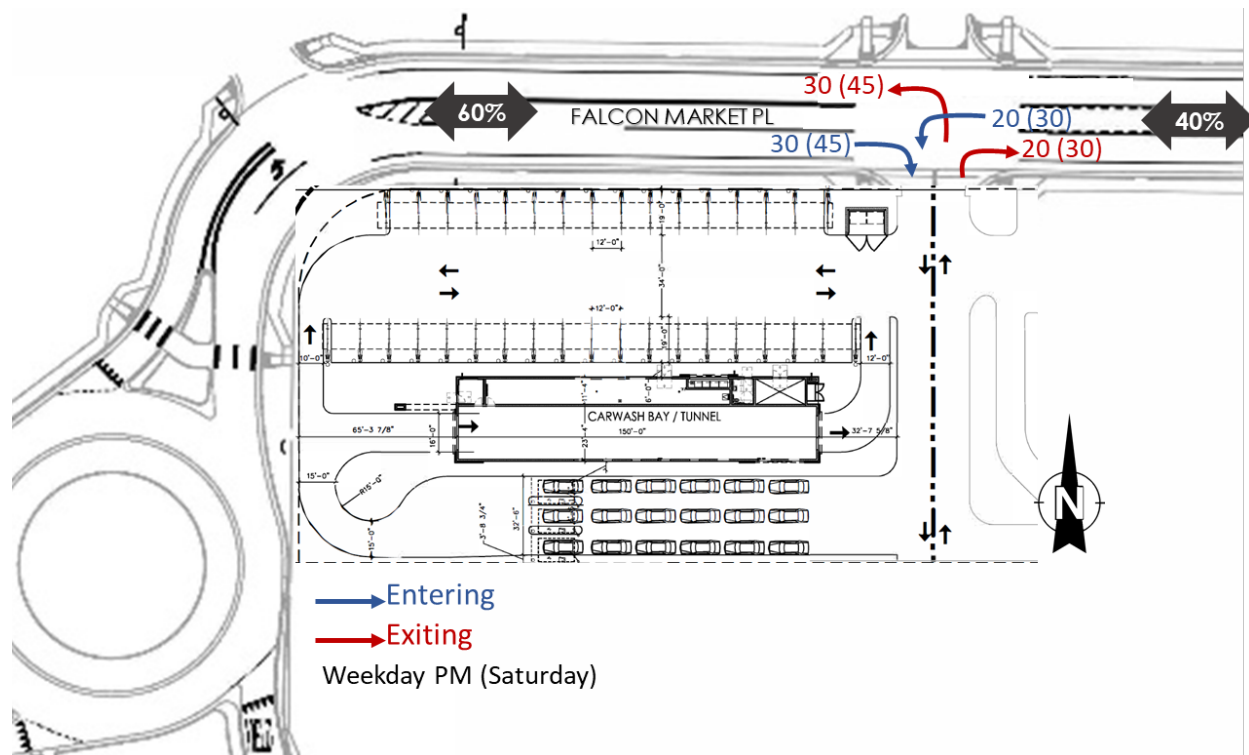


Figure 5: Site Traffic Volumes – Weekday PM and Saturday Peak Hour

## IMPROVEMENT ANALYSIS

### DRIVEWAYS

Site access will be provided from a single proposed full-access driveway on Falcon Market Place approximately 400 feet east of the proposed roundabout at the intersection of Woodmen Frontage Road and Falcon Market Place. Driveway A will provide shared access to the adjacent shopping center to the east. A westbound TWLTL is planned at Driveway A to support the shopping center.

### AUXILIARY LANES

When warranted, turn lanes permit separation of conflicting traffic movements and removes the slower turning traffic from the through traffic, thus improving capacity and reducing rear-end crashes. The analysis focuses on the auxiliary lane needs at Driveway A. A center TWLTL to provide dedicated left turn lanes into site driveways, including Driveway A, is proposed on the future Falcon Market Place roadway.

The criteria for a right-turn lane is based on the criteria set forth in the *El Paso County – Engineering Criteria Manual* revised in 2016. The manual specifies that on roadways with the classification of Minor Arterial or lower, right turn lanes are required for any access with a project peak hour right turning volume of 50 vehicles per hour (VPH) or greater. During the Saturday peak hour, 45 westbound right-turning vehicles are anticipated at Driveway A. As such, a right-turn deceleration lane is not warranted or recommended at Driveway A. The right-turn lane needs at Driveway A should be re-evaluated as development continues to grow in the adjacent commercial lots east of the proposed car wash site.



## CONCLUSIONS

- The proposed car wash site includes an automated car wash facility with one ±5,200 square-foot tunnel and parking for 33 vacuum stalls.
- Site access will be provided from a single proposed full-access driveway on Falcon Market Place approximately 400 feet east of the proposed roundabout at the intersection of Woodmen Frontage Road and Falcon Market Place.
- The car wash is anticipated to generate a total of 100 trips (entering and exiting) during the weekday PM peak hour and a total of 150 trips (entering and exiting) during the Saturday peak hour.
- A center TWLTL lane to provide left turn lanes into site driveways, including Driveway A, is proposed on the future Falcon Market Place roadway.
- Based on projected site volumes and the El Paso County right-turn lane criteria, a right-turn lane is not considered to be necessary at Driveway A. The right-turn lane needs at Driveway A should be re-evaluated as development expands east of the proposed car wash site, as a portion of the adjacent site will share access of Driveway A.

We appreciate the opportunity to prepare this study. Should you have any questions, please feel free to contact me by email at [csobie@y2keng.com](mailto:csobie@y2keng.com) or by phone at (720) 735-5855.

Sincerely,

A handwritten signature in black ink, appearing to read 'Christopher Sobie'.

Christopher Sobie, PE, PTOE  
Project Engineer

Attachments

delete "future"

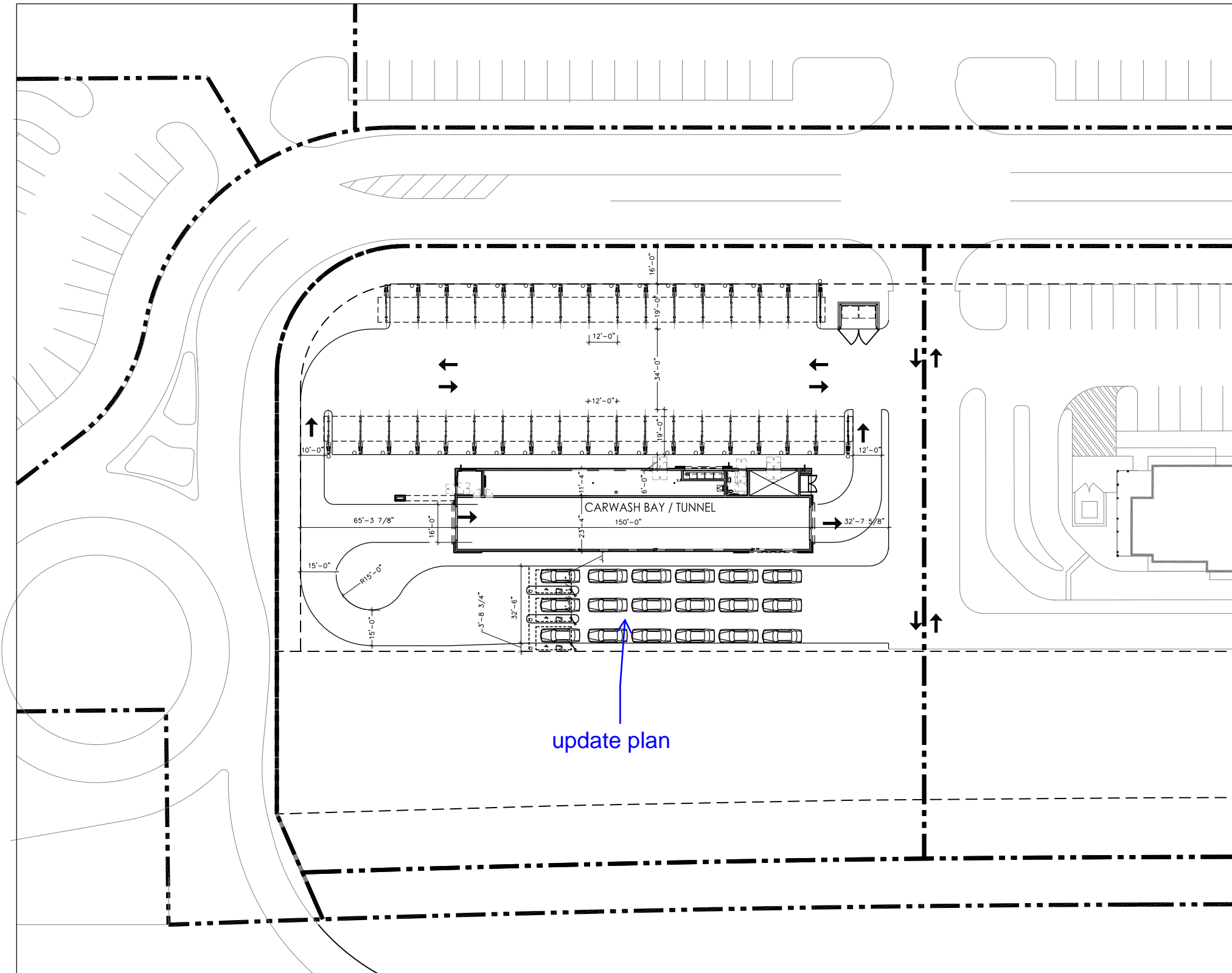
not per current Lot 9 plan?

How does this compare to the subdivision TIS?

Address escrow contribution requirements per the subdivision TIS. Discuss with Staff.

**ATTACHMENT A:**  
**SITE PLAN**





SUPERSTAR CARWASH  
E. WOODMAN, FALCON, CO

PRELIMINARY SITE LAYOUT  
OPTION 1r3  
8-27-20  
SCALE = NTS

