M Esparza Engineering, LLC

TRAFFIC STATEMENT

To: Kevin Hall P.E.
Cypress Civil Development

From: Marcos Esparza, P.E.
Principal

Date: July 27, 2020

Subject: **Oracle Self Storage and Business Center, NWC of Calle Concordia and Oracle Road**

Introduction

This Traffic Statement is provided to support the development of the Oracle Self Storage and Business Center, located on the northwest corner of the Calle Concordia/Oracle Road (State Route 77, or SR 77) intersection. Based on the projected trip generation (under 100 peak hour trips), ADOT has indicated that a Traffic Statement focusing on the project access on Oracle Road will be acceptable, rather than a full Traffic Impact Study. The project location is shown in Exhibit 1.

The project includes 115,086 square feet of building area which includes the storage facility, office suites and "business use". The land uses areas are:

- Storage Units (Net Rentable Area): 85,950 square feet[1]
- Executive Office Suites: 2,413 square feet
- Business Use: 1,291 square feet

The site plan is shown in Exhibit 2.

As shown in the site plan, access to the project is via one access to/from Oracle Road (State Route 77), an ADOT roadway. The location of the one access is approximately 560 feet north of Calle Concordia. The closest driveway to the north is approximately 800 feet from the proposed driveway location. The location of the driveway was established to avoid being within the taper of the southbound right turn lane on SR 77 at Calle Concordia. The driveway will be limited to right-in, right-out movements. The distance from Calle Concordia will allow drivers wishing to head northbound from the project site to cross over to the U-turn/left turn lane at the Oracle Road/Calle Concordia intersection with 560 feet of maneuvering distance.

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[1] Estimate of net leasable space provided by the client. This does not include stairs, elevators, lobbies, etc.

Exhibit 1   Project Location
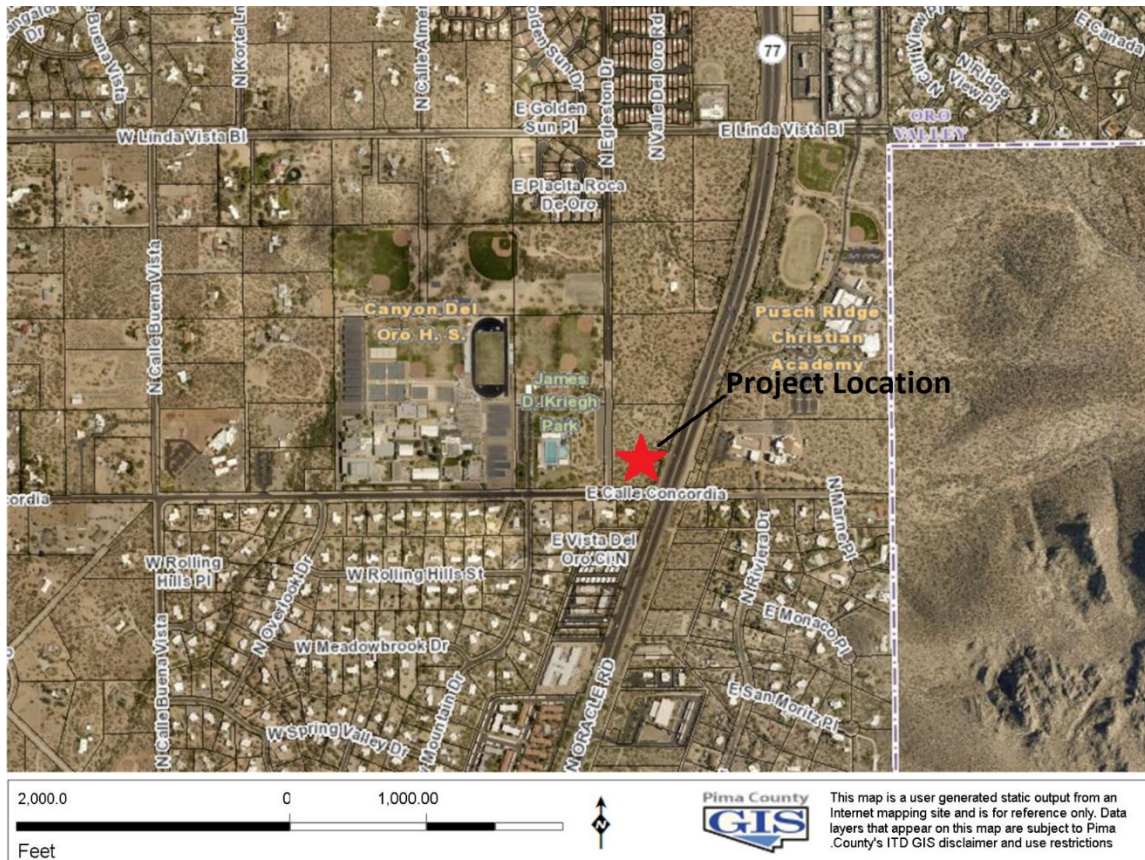
Existing Conditions

SR 77 is a six-lane, principal arterial along the eastern frontage of the property. SR 77 is uncurbed with 10-foot paved shoulders and a posted speed limit of 50 mph. Daily volumes on SR 77 are about 34,000 vehicles per day in the vicinity of the project (ADOT Transportation Management System, 2020 count). There are bus routes and bike lanes on SR 77 in the vicinity of the project. There are no sidewalks. The existing right-of-way on SR 77 is 200 feet along the frontage of the project.

Calle Concordia is a three-lane minor arterial along the southern frontage of the property. It has curb, gutter, and sidewalk on the north side of the roadway, and a two-way left turn lane from SR 77 to Calle Buena Vista. There are bike lanes on both sides of the road. The posted speed limit is 25 mph. Daily volumes on Calle Concordia are about 3,910 vehicles per day in the vicinity of the project (ADOT Transportation Management System, 2019 count). Calle Concordia provides access to James D. Kreigh Park and Canyon del Oro High School, west of the project site.
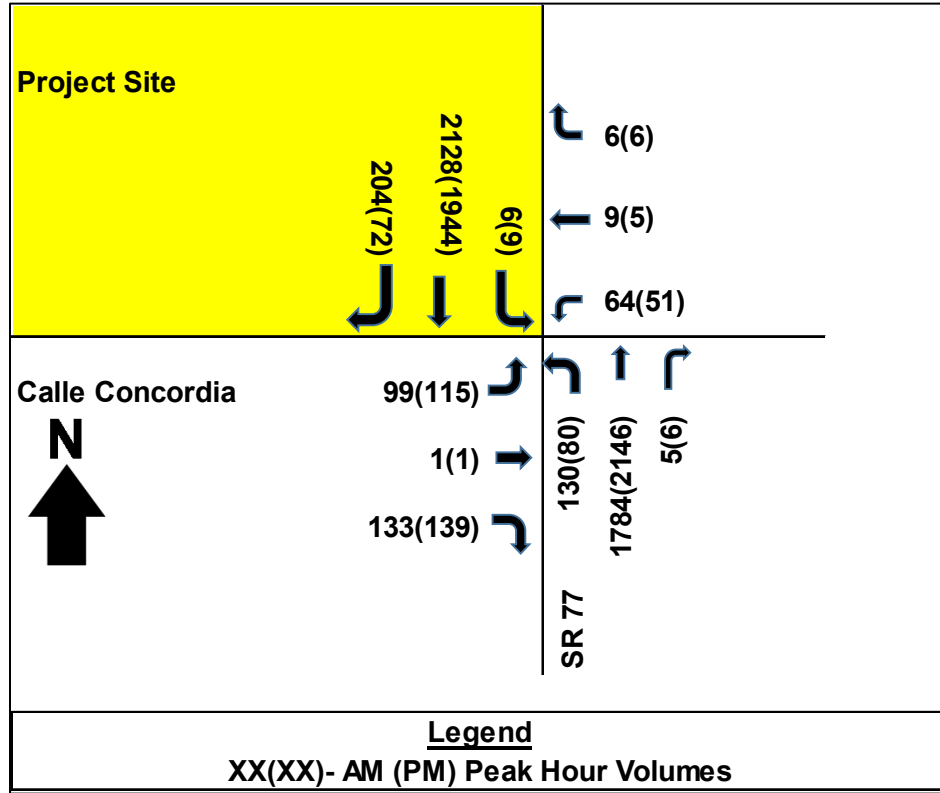
Exhibit 2   Site Plan

Notes: The total building size is 115,086. The area shown on the site plan represents the first floor only. The basement area and the second floor comprise the remainder of the building area.
The executive suites and the "business use" are not explicitly shown on the site plan but will be within the same building shown on the site plan.

Traffic Volumes
Morning and afternoon peak hour Intersection turning movement volumes at SR 77/Calle Concordia were collected in 2019 and are shown in Exhibit 3.

Crash History
Crash data for the project area roadway segments and the intersection of Calle Concordia/Oracle were gathered from ADOT. The most recent crash data available were for the years 2015-2019. Roadway segment crash rates are based on the number of crashes per million vehicle-miles, and intersection crash rates are based on the number of crashes per million vehicles entering. Roadway crash data are provided in Exhibit 4 and intersection crash data are in Exhibit 5.

The roadway segment crash rate on Oracle Road in the vicinity of the project is 0.59 crashes per million-vehicle miles. There were eighteen recorded roadway segment crashes during the five-year period. The predominant crash type was "rear-end" with nine crashes, followed by "single-vehicle" and "sideswipe" crashes with four each, and one "left-turn" crash. There were eleven "no injury" crashes, six "injury" crashes and one crash involving a fatality.

Exhibit 3   Existing (2019) Intersection Volumes

Project Site

2128(1944)

204(72)

6(6)

6(6)

9(5)

64(51)

Calle Concordia

99(115)

1(1)

133(139)

130(80)

1784(2146)

5(6)

SR 77

N

Legend
XX(XX)- AM (PM) Peak Hour Volumes

Exhibit 4   Roadway Segment Crash History (2015-2019)

Oracle Road, 1/4 Mile North to 1/4 Mile South of Calle Concordia							
Crash Type	**2015**	**2016**	**2017**	**2018**	**2019**	**5-Year Totals**	**%**
Single Vehicle		3	1			4	22%
Left turn				1		1	6%
Rear End	1	3	2	2	1	9	50%
Sideswipe	1		1	2		4	22%
Total	2	6	4	5	1	18	
Crash Rate (per MVM)	0.33	0.98	0.65	0.82	0.16	0.59	
Severity	**2016**	**2017**	**2017**	**2017**	**2018**	**Totals**	**%**
Fatality		1				1	6%
Bodily Injury	1	1	1	2	1	6	33%
No Injury	1	4	3	3		11	61%

Exhibit 5   Intersection Crash History (2015-2019)

Oracle Road/Calle Concordia							
Crash Type	**2015**	**2016**	**2017**	**2018**	**2019**	**5-Year Totals**	**%**
Single Vehicle				1	1	2	5%
Angle		1	1			2	5%
Left Turn					2	2	5%
Rear End	6	11	4	4	5	30	71%
Sideswipe		1			1	2	5%
Other		1	1	2		4	10%
Total	6	14	6	7	9	42	
Crash Rate (per MVE)	0.46	1.07	0.46	0.54	0.69	0.64	

Severity	2016	2017	2017	2017	2018	Totals	%
Bodily Injury	2	5	3	2	1	13	31%
No Injury	4	9	3	5	8	29	69%

Thirty of the forty-two recorded intersection-related crashes at Oracle/Calle Concordia were rear-end crashes. There were twenty-nine "no injury" crashes and thirteen "injury" crashes. The five-year intersection crash rate was 0.64 crashes per million-entering vehicles.

Proposed Land Uses

Office Land Use
The office use is unique as it will be a non-traditional office land use. The offices will be leased to separate tenants who may or may not access the spaces on a regular basis. In some cases, more than one space may be leased to a single tenant. It is estimated that there will be approximately eighteen employees within thirteen office units. While it is difficult to estimate the average peak hour trip rates from this type of use, it appears that the trip generation is less than what a more typical office model would generate. A more traditional small office with eighteen tenants would most likely have employees that would arrive and leave during typical commuter peak hours (7-9 am and 4-6 pm). For this unique lane use, some tenants may occupy the spaces regularly whereas others may come in one or two days a week.

Mini Storage Warehouse Land Use
The actual trip generation for the mini warehouse may be less than the average rates from the ITE Trip Generation Manual. Based on local studies[2] by Curtis Lueck & Associates, the evening peak hour rates for local mini-warehouse facilities were about one quarter of the ITE average rates (range from 0.03-0.07 trips per pm peak hour, compared to 0.17 trips per pm peak hour in the ITE Trip Generation Manual).

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[2] Independent Road Impact Fee Calculation for A-Family Discount Storage - 2000 E. Drexel Road, Curtis Lueck & Associates, Sept. 9, 2013; Independent Road Impact Fee Calculation for A-Family Discount Storage - 8950 E. Speedway Boulevard, Curtis Lueck & Associates, October 21, 2013; Independent Road Impact Fee Calculation for A-Family Discount Storage (Broadway Expansion, 9685 E. Broadway Boulevard, Curtis Lueck & Associates, October 21, 2013

Business Use (UPS Store, or Similar)

The "business use" is envisioned as a UPS Store, or something similar. Trip rates from the ITE Land Use category, "Copy, Print and Express Ship Store Shop (ITE Land Use 920) was applied to estimate the trip generation for this use.

Despite the potential reductions based on local data from similar land uses, and based on a previous meeting with ADOT staff, it was determined that applying the actual trip rates from the ITE Trip Generation Manual (10th Edition) should be used in this analysis.

Trip Generation

Trip rates for the office space were based on the ITE Land Use category, General Office Building[3] applying "employees" as the independent variable[4]. Trip rates for the mini-warehouse are based on the fitted curve equation rates for the land use, Mini-Warehouse applying "1,000 square feet, Net Rentable Area" as the independent variable. AM and PM peak hour trip rates for the Copy, Print and Express Ship Store Shop (ITE Land Use 920) are from the ITE Land Use category of the same name. Daily trip rates for this land use are not provided and were estimated based on the average AM and PM peak hour rates times ten.

The trip rates for the updated land uses and the resultant trip generation are provided in Exhibit 6. The estimated trip generation for this project is approximately 332 site trips per day with 27 am peak hour trips and 54 pm peak hour trip.

Exhibit 6   Trip Generation

Trip Generation Rates

Proposed Use	Unit	No. Units	ITE Categ.	Weekday AM In	Weekday AM Out	Weekday PM In	Weekday PM Out	Avg Weekday In	Avg Weekday Out
Mini-Warehouse	1000 SF Net Rentable Area	85.950	151	0.11		0.19		1.65	
				52%	48%	53%	47%	50%	50%
Copy, Print, and Express Ship Store	1000 SF Gross Floor Area	1.291	920	2.78		7.42		51.00	
				75%	25%	44%	56%	50%	50%
General Office Building	Employees	18	710	Ln(T)=0.72Ln(X)+0.56		T=0.27(X)+23.57		Ln(T)=0.80Ln(X)+2.51	
				83%	17%	20%	80%	50%	50%

Trip Generation

Proposed Use	Unit	No. Units	Weekday AM In	Weekday AM Out	Weekday PM In	Weekday PM Out	Avg Weekday In	Avg Weekday Out
Mini-Warehouse	1000 SF Net Rentable Area	85.950	9		16		142	
			5	5	9	8	71	71
Copy, Print, and Express	1000 SF Gross Floor Area	1.291	4		10		66	
			3	1	4	5	33	33
General Office Building	Employees	18	14		28		124	
			12	2	6	23	62	62
		Totals	27		54		332	
			19	8	19	36	166	166

Average Rates and Fitted Curve Equation from ITE's Trip Generation Manual, 10th Edition
Totals may not add due to rounding.

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[3] The rates for the ITE category, Small Office Building, assume one tenant. The executive and office space will have more than one tenant, so the General Office Building rates were applied.

[4] The application of "employees" as the independent variable was required by Town of Oro Valley staff following an initial review of a technical memorandum for this project.

M Esparza
Engineering, LLC

Project Access and Trip Distribution

All trips will access the property via the new driveway on Oracle Road to be constructed into the parcel, although a second access for the property to the north and a connecting access between the project parcel and the property to the north may allow some inbound and outbound project trips to be distributed between the two parcels in the future.

The site trips at the project driveway and at the Oracle/Calle Concordia intersection are shown in Exhibit 7.

The site trips were added to the existing volumes to estimate "with project" traffic volumes at the Calle Concordia/Oracle intersection. The "with project" intersection volumes are shown in Exhibit 8.

Turn Lane Warrant Analysis

The *ADOT Traffic Engineering Guidelines and Processes Section 245, Turn Lane Warrants* provides criteria (Exhibit 9) for determining whether turn lanes are warranted on state roadways. Based on the projected trip generation at the project driveway, there will be nineteen (19) right turning vehicles entering the site during the morning peak hour and nineteen (19) during the afternoon/evening peak hour. These peak hour right turning volumes will exceed the volume threshold (10 right turning vehicles) where a right turn lane may be warranted on a roadway with three lanes in each direction and more than 1,400 vehicles per hour on the highway in the advancing direction.

Turn Lane Design

Based on ADOT right turn lane design guidelines in the *ADOT Traffic Engineering Guidelines and Processes Sub-Section 430 – Design,* for a roadway with a posted speed limit of 50 mph, the desirable storage length would be 330 feet (245 feet braking distance and 85 feet minimum queue. The minimum turn lane for ADOT facilities is 85 feet which includes storage for one passenger car (25 feet) and one truck (60 feet). The turn lane system would also include a 90-foot taper, although ADOT prefers a 140-foot taper for turn lanes on SR 77.

Exhibit 7   Site Trips

North U-Turn

SR 77

9(6)

10(10)

4(18)

Project Dwy

19(19)

8(36)

14(28)

Project Site

4(18) 4(18)

Calle Concordia

10(10)

Legend
XX(XX)- AM (PM) Peak Hour Site Trips
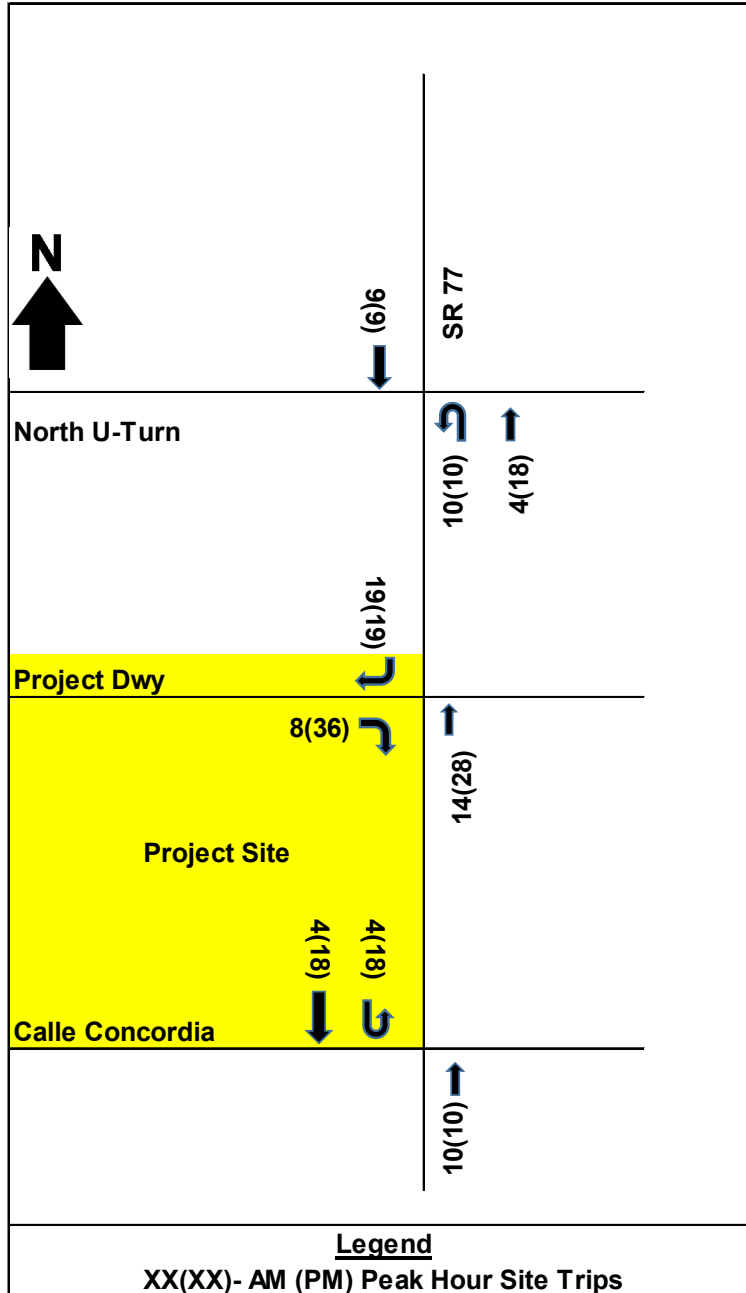
Exhibit 8   With Project Intersection Volumes

N

Project Driveway

2341(2051)

19(19)

8(36)

1899(2277)

Project Site

6(6)

9(5)

204(72)   2132(1962)   10(27)

64(51)

Calle Concordia

99(115)

1(1)

133(139)

130(80)   1794(2156)   5(6)

Legend
XX(XX)- AM (PM) Peak Hour Volumes

M Esparza
Engineering, LLC
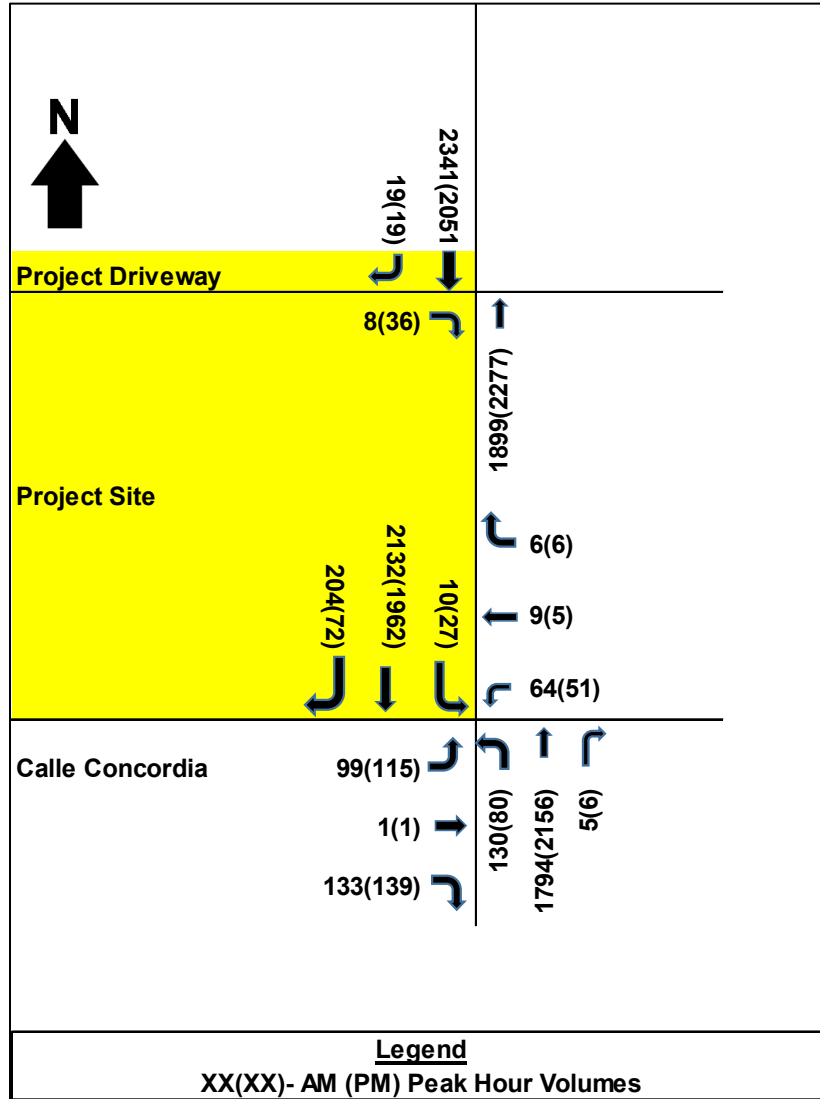
Exhibit 9   ADOT Right Turn Warrants

Right-Turn Lane Warrants

Peak Hour Traffic Volume on the Highway in Advancing Direction	Minimum Peak Hour Right-turn Traffic Volume				
	# of thru lanes per direction				
	1		2		3
	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed	All Speeds
≤ 200					
201 - 300	-	30	-	-	-
301 - 400	-	19	-	55	-
401 - 500	85	14	-	30	-
501 - 600	58	12	140	25	-
601 - 700	27	9	80	18	-
701 - 800	20	8	53	15	-
801 - 900	12	7	40	12	-
901 - 1000	9	6	30	11	-
1001 - 1100	8	5	23	9	18
1101 - 1200	7	5	18	8	16
1201 - 1300	6	4	14	8	15
1301 - 1400	6	4	11	6	12
1400+	5	3	8	6	10

PGP 245

Conclusions

The ITE trip generation rates were determined to be the more conservative set of rates to use in this analysis. Based on this, the site plan results in an estimated trip generation of 27 AM peak hour trips, 54 PM peak hour trips and 332 weekday trips.

The estimated number of entering trips during the highest peak hour based on ITE Trip Generation Manual trip rates is nineteen (19). This is above the threshold of ten (10) right turning vehicles where a right turn lane is warranted based on ADOT turn lane warrant criteria for a facility with three lanes and more than 1,400 vehicles per hour in on the highway in the advancing direction.

The desirable storage length for the warranted turn lane would be 330 feet (245 feet braking distance and 85 feet minimum queue. The minimum turn lane for ADOT facilities is 85 feet which includes storage for one passenger car (25 feet) and one truck (60 feet). The turn lane system would also include a 90-foot taper.

It is possible that project trips may also be redistributed to a northern access location on SR 77 at some time with a future development to the north. This may lower the inbound and outbound volumes for this project at the main project access location.

SCALE: 1"=40'
C.I. = 1 FOOT
0'   40'   80'
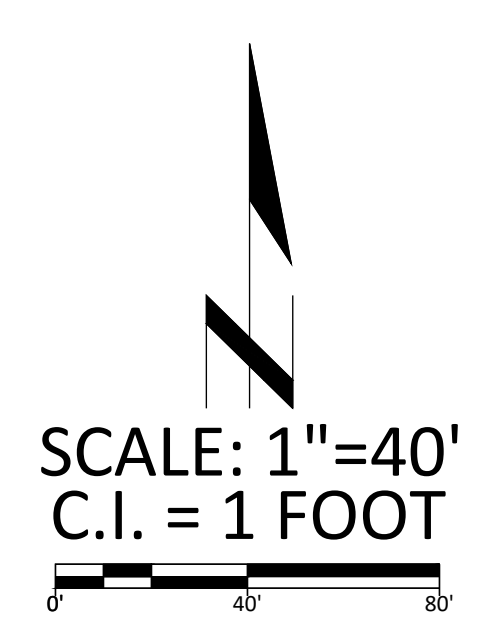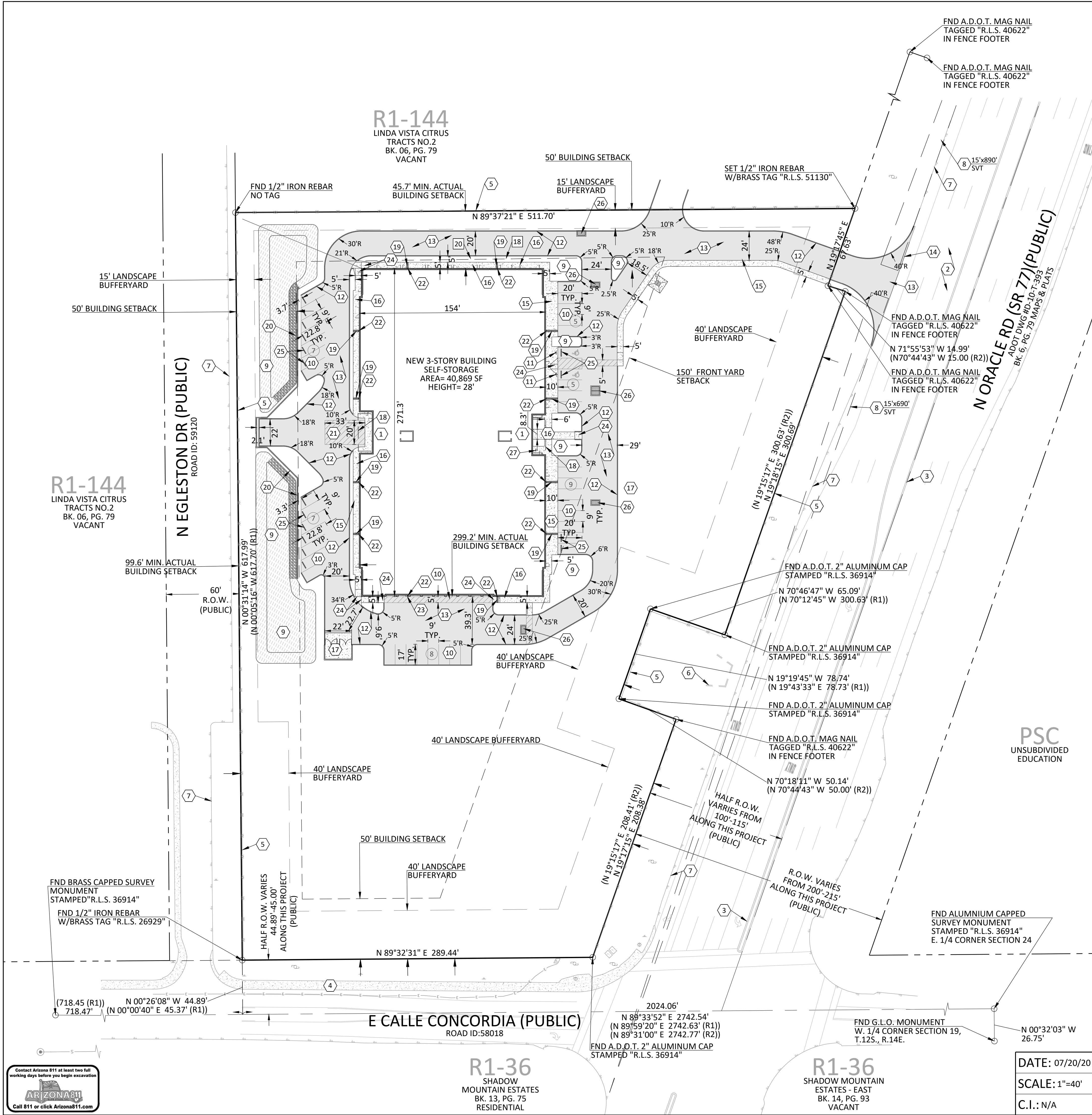
KEYNOTES

1. PRIMARY BUILDING ENTRANCE.
2. EXISTING ASPHALT TO REMAIN.
3. EXISTING CURB TO REMAIN.
4. EXISTING CONCRETE/SIDEWALK TO REMAIN.
5. EXISTING FENCE TO REMAIN.
6. EXISTING CULVERT HEADWALL TO REMAIN.
7. EXISTING PAVEMENT EDGE TO REMAIN.
8. SIGHT VISIBILITY TRIANGLE FOR NEW DEVELOPMENT. SEE KEYNOTE FOR DIMENSIONS.
9. NEW DEPRESSED LANDSCAPE AREA.
10. NEW 4" WHITE PAINT STRIPE, 0.06" THICK, TRAFFIC RATED (TYP.)
11. NEW ACCESSIBLE SIGN AND POST. SEE DETAIL **A**, SHEET 6.
12. NEW 6" VERTICAL CURB, TYPE 2, PER PAG DETAIL 209. SEE DETAIL **B**, SHEET 6.
13. NEW 3.5" AC PAVEMENT OVER 5" ABC. COMPACT ABC TO 100%. SEE DETAIL **C**, SHEET 6.
14. SAWCUT A MINIMUM OF 12" INTO THE EXISTING PAVEMENT. REMOVE EXISTING ASPHALT, TACK AND JOIN.
15. NEW MODIFIED CONCRETE SIDEWALK. SEE PLAN FOR WIDTHS. SEE DETAIL **D**, SHEET 6.
16. NEW CONCRETE SIDEWALK PER PAG DETAIL 200. SEE PLAN FOR DIMENSIONS.
17. NEW REFUSE COLLECTION AREA. SEE DETAIL **E**, SHEET 6.
18. NEW BUILDING OVERHANG PER BUILDING PLANS.
19. NEW BUILDING DOWNSPOUT PER BUILDING PLANS.
20. NEW WALL/FENCE. OWNER/ARCHITECT TO PROVIDE DETAILS AND FINISHES.
21. NEW LOADING ZONE.
22. NEW SIDEWALK SCUPPER (TYPE 1) PER PAG STD 204. SEE DETAIL **F**, SHEET 6.
23. NEW CONCRETE TONGUE DRAIN.
24. NEW CONCRETE CURB ACCESS RAMP PER 2012 IBC, CHAPTER 11 AND ICC A117.1, SECTION 405, RAMPS. SEE DETAIL **G**, SHEET 6.
25. NEW 6' WHEEL STOP (TYP.). SEE DETAIL **H**, SHEET 6.
26. NEW CATCH BASIN (TYPE 4) PER PAG DETAIL.
27. NEW SHORT TERM BICYCLE RACK. SEE RACK DETAIL **I**, SHEET 6. FOR RACK SPACING SEE DETAIL **I**, SHEET 6.

NEW 3-STORY BUILDING
SELF-STORAGE
AREA= 40,869 SF
HEIGHT= 28'

R1-144
LINDA VISTA CITRUS
TRACTS NO.2
BK. 06, PG. 79
VACANT

R1-144
LINDA VISTA CITRUS
TRACTS NO.2
BK. 06, PG. 79
VACANT

N EGLESTON DR (PUBLIC)
ROAD ID: 59120

N ORACLE RD (SR 77) (PUBLIC)
ADOT DWG RD-10-T-393
BK. 6, PG. 79 MAPS & PLATS

PSC
UNSUBDIVIDED
EDUCATION

E CALLE CONCORDIA (PUBLIC)
ROAD ID:58018

R1-36
SHADOW
MOUNTAIN ESTATES
BK. 13, PG. 75
RESIDENTIAL

R1-36
SHADOW MOUNTAIN
ESTATES - EAST
BK. 14, PG. 93
VACANT

FND A.D.O.T. MAG NAIL TAGGED "R.L.S. 40622" IN FENCE FOOTER
FND A.D.O.T. MAG NAIL TAGGED "R.L.S. 40622" IN FENCE FOOTER
SET 1/2" IRON REBAR W/BRASS TAG "R.L.S. 51130"
FND 1/2" IRON REBAR NO TAG
15' LANDSCAPE BUFFERYARD
50' BUILDING SETBACK
45.7' MIN. ACTUAL BUILDING SETBACK
15' LANDSCAPE BUFFERYARD

N 89°37'21" E 511.70'

FND A.D.O.T. MAG NAIL TAGGED "R.L.S. 40622" IN FENCE FOOTER
N 71°55'53" W 14.99' (N70°44'43" W 15.00 (R2))
FND A.D.O.T. MAG NAIL TAGGED "R.L.S. 40622" IN FENCE FOOTER

40' LANDSCAPE BUFFERYARD
150' FRONT YARD SETBACK

15' LANDSCAPE BUFFERYARD
50' BUILDING SETBACK

99.6' MIN. ACTUAL BUILDING SETBACK
60' R.O.W. (PUBLIC)

299.2' MIN. ACTUAL BUILDING SETBACK

N 00°31'14" W 617.99' (N 00°05'16" W 617.70' (R1))

FND A.D.O.T. 2" ALUMINUM CAP STAMPED "R.L.S. 36914"
N 70°46'47" W 65.09' (N 70°12'45" W 300.63' (R1))

(N 19°15'17" E 300.63' (R2))
N 19°18'15" E 300.69'

40' LANDSCAPE BUFFERYARD

40' LANDSCAPE BUFFERYARD

FND A.D.O.T. 2" ALUMINUM CAP STAMPED "R.L.S. 36914"
N 19°19'45" W 78.74' (N 19°43'33" E 78.73' (R1))

FND A.D.O.T. 2" ALUMINUM CAP STAMPED "R.L.S. 36914"

FND A.D.O.T. MAG NAIL TAGGED "R.L.S. 40622" IN FENCE FOOTER
N 70°18'11" W 50.14' (N 70°44'43" W 50.00' (R2))

HALF R.O.W. VARRIES FROM 100'-115' ALONG THIS PROJECT (PUBLIC)

R.O.W. VARIES FROM 200'-215' ALONG THIS PROJECT (PUBLIC)

HALF R.O.W. VARIES 44.89'-45.00' ALONG THIS PROJECT (PUBLIC)

(N 19°15'17" E 208.41' (R2))
N 19°21'15" E 208.38'

50' BUILDING SETBACK
40' LANDSCAPE BUFFERYARD

FND BRASS CAPPED SURVEY MONUMENT STAMPED "R.L.S. 36914"
FND 1/2" IRON REBAR W/BRASS TAG "R.L.S. 26929"

FND ALUMINUM CAPPED SURVEY MONUMENT STAMPED "R.L.S. 36914"
E. 1/4 CORNER SECTION 24

(718.45 (R1))
718.47'
N 00°26'08" W 44.89' (N 00°40'40" E 45.37' (R1))

N 89°32'31" E 289.44'

2024.06'
N 89°33'52" E 2742.54' (N 89°59'20" E 2742.63' (R1)) (N 89°31'00" E 2742.77' (R2))
FND A.D.O.T. 2" ALUMINUM CAP STAMPED "R.L.S. 36914"
FND G.L.O. MONUMENT W. 1/4 CORNER SECTION 19, T.12S., R.14E.
N 00°32'03" W 26.75'

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

ARCHITECT
2102 N. COUNTRY CLUB RD. SUITE #9
TUCSON, ARIZONA 85716
ATTN: ROBERT PAGE
PH: (520) 906-4872
E: skip@robertpagearchitect.com

OWNER/DEVELOPER
CCN INVESTMENTS LLC
6419 N MIRAMIST WAY
TUCSON, ARIZONA 85750
ATTN:
PH: (520)
E:

SITE ADDRESS
9255 NORTH ORACLE ROAD
TUCSON, ARIZONA 85704

NO.	DATE	REVISION DESCRIPTION		BY

CYPRESS PROJECT NO: 18.046

CYPRESS CIVIL
2030 east speedway boulevard
suite #110
tucson, arizona 85719
ph: 520.499.2456
e: kmhall@cypresscivil.com

A PORTION OF LOT 52, AS RECORDED IN BOOK 6 OF MAPS AND PLATS, PG 79, RECORDS OF PIMA COUNTY, BEING A PORTION OF SECTION 24, T12S, R13E, G.&S.R.M., PIMA COUNTY, ARIZONA
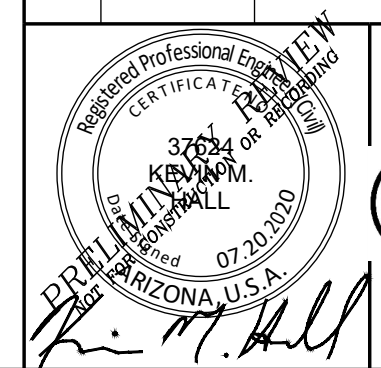
DATE: 07/20/20
SCALE: 1"=40'
C.I.: N/A

FINAL SITE PLAN PACKAGE for
OV SELF STORAGE
site + utilities plan

OV20
REF: OV1803281

3 OF 6

OV SELF STORAGE

Subject: Re: Oracle/Calle Concordia Mini-Storage Project
From: Marcos Esparza <mue-cla@cox.net>
Date: 1/11/2018, 4:44 PM
To: James Gomes <JGomes@azdot.gov>
CC: Kevin Hall <kmhall@cypresscivil.com>

Thanks James - I spoke with Kevin Hall at Cypress Civil today and he said that the project driveway would be moving north and that there would not be an access on the west side as shown.

Thanks for your response - I will submit a pre-submittal form for your review soon.

Marcos

> **Note: No pre-submittal form was submitted. However, meetings with ADOT staff were held during the course of the project.**

On 1/11/2018 4:34 PM, James Gomes wrote:

> Hello Marcos,
>
> Your plan sounds good.
> The current site plan shows the D/W in the taper of the right turn lane for Calle Concordia, which is not desirable. The D/W would either need to move outside the taper, or additional pavement would be needed to move the taper upstream.
>
> Respectfully,
>
> **James F. Gomes, Jr., P.E.**
> **Southern Regional Traffic Engineer**
> 1221 S. 2nd Ave.
> Tucson, Az 85713
> (520)388-4231 Office
> (520)603-9826 Cell
> www.azdot.gov
>
> cid:image017.jpg@01D25228.60BF609
>
> ---
>
> **From:** Marcos Esparza [mailto:mue-cla@cox.net]
> **Sent:** Wednesday, January 10, 2018 7:42 AM
> **To:** James Gomes
> **Subject:** Oracle/Calle Concordia Mini-Storage Project
>
> Hi James,
>
> I've been asked to provide a proposal for a mini-storage project on the west side of SR 77, north of Calle Concordia. The proposed site plan is attached. The building area will be no more than 117,317 sf. The highest weekday peak hour rate for this use (Mini-Warehouse) in the 10th edition of *Trip Generation* is 0.20 trips/1000 sf, resulting in an estimated peak hour volume of about 23 trips per peak hour.
>
> I'd like to propose to do a traffic statement for this, focusing on the access location on SR 77. Access will be limited to right in/right out only on SR 77. The impact at the SR 77/Calle Concordia intersection will

be minimal, so I'd like to be able to forgo the intersection capacity analysis. I'd like to avoid collecting turning movement counts at the intersection. There are recorded ADTs on SR 77 and Calle Concordia in ADOT Data Management System which I will include in the report. I'm hoping that you will allow a short 5-6 page report.

Please let me know if this is acceptable.

Regards,
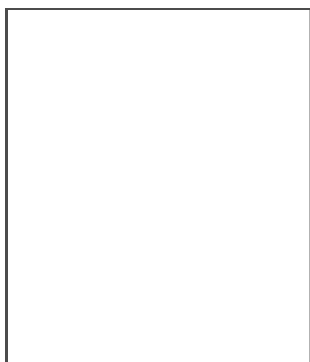
Marcos

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Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Oracle Rd. (SR-77)	DATE:	03/05/19	LOCATION:	Oro Valley
E-W STREET:	Calle Concordia	DAY:	TUESDAY	PROJECT#	19-1121-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	1	1	3	1	0.5	0.5	1	0.5	0.5	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	10	351	0	0	441	14	9	0	13	2	0	0	840
7:15 AM	15	367	0	1	553	11	6	0	15	0	1	0	969
7:30 AM	26	464	0	1	599	36	21	1	22	6	0	5	1181
7:45 AM	34	546	2	1	589	52	28	0	30	29	1	0	1312
8:00 AM	30	411	3	3	505	57	26	0	36	25	4	0	1100
8:15 AM	40	363	0	1	435	59	24	0	45	4	4	1	976
8:30 AM	12	314	0	3	472	13	8	0	9	3	0	2	836
8:45 AM	12	350	0	1	497	11	12	0	7	1	0	0	891
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	179	3166	5	11	4091	253	134	1	177	70	10	8	8105
Approach %	5.34	94.51	0.15	0.25	93.94	5.81	42.95	0.32	56.73	79.55	11.36	9.09	
App/Depart	3350	/	3308	4355	/	4338	312	/	17	88	/	442	

AM Peak Hr Begins at: 730 AM

PEAK													
Volumes	130	1784	5	6	2128	204	99	1	133	64	9	6	4569
Approach %	6.77	92.97	0.26	0.26	91.02	8.73	42.49	0.43	57.08	81.01	11.39	7.59	

PEAK HR. FACTOR:	0.824	0.910	0.844	0.658	0.871

CONTROL:	Signal
COMMENT 1:	
GPS:	32.373582, -110.966543

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N-S STREET:	Oracle Rd. (SR-77) 0	DATE: 03/05/19	LOCATION:	Oro Valley
E-W STREET:	Calle Concordia	DAY: TUESDAY	PROJECT#	19-1121-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	1	1	3	1	0.5	0.5	1	0.5	0.5	1	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM	23	524	3	14	463	21	15	0	15	30	2	7	1117
3:15 PM	33	536	1	4	472	28	11	0	16	18	1	1	1121
3:30 PM	20	570	2	2	439	15	63	1	70	11	2	3	1198
3:45 PM	13	528	1	1	477	12	26	0	37	13	2	0	1110
4:00 PM	14	512	2	2	556	17	15	0	16	9	0	2	1145
4:15 PM	12	492	1	0	397	8	15	0	15	4	0	3	947
4:30 PM	10	569	1	2	440	13	13	0	11	0	0	0	1059
4:45 PM	9	574	0	1	419	10	11	0	8	4	0	1	1037
5:00 PM													
5:15 PM													
5:30 PM													
5:45 PM													
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	134	4305	11	26	3663	124	169	1	188	89	7	17	8734
Approach %	3.01	96.74	0.25	0.68	96.07	3.25	47.21	0.28	52.51	78.76	6.19	15.04	
App/Depart	4450	/	4491	3813	/	3940	358	/	38	113	/	265	

PM Peak Hr Begins at: 315 PM

PEAK													
Volumes	80	2146	6	9	1944	72	115	1	139	51	5	6	4574
Approach %	3.58	96.15	0.27	0.44	96.00	3.56	45.10	0.39	54.51	82.26	8.06	9.68	

PEAK HR. FACTOR:	0.943	0.880	0.476	0.775	0.955

CONTROL: Signal
COMMENT 1: 0
GPS: 32.373582, -110.966543

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↵	↱		↵	↱	↱	↑↑↑	↱	↱	↑↑↑	↱
Traffic Volume (vph)	99	1	133	64	9	6	130	1784	5	6	2128	204
Future Volume (vph)	99	1	133	64	9	6	130	1784	5	6	2128	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		65	240		280	305		340
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.953			0.958		0.950			0.950		
Satd. Flow (prot)	0	1775	1583	0	1785	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.648			0.671		0.094			0.101		
Satd. Flow (perm)	0	1207	1583	0	1250	1583	175	5085	1583	188	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158			73			73			224
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		996			1125			570			621	
Travel Time (s)		22.6			25.6			13.0			14.1	
Peak Hour Factor	0.84	0.84	0.84	0.66	0.66	0.66	0.82	0.82	0.82	0.91	0.91	0.91
Adj. Flow (vph)	118	1	158	97	14	9	159	2176	6	7	2338	224
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	119	158	0	111	9	159	2176	6	7	2338	224
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Detector Phase	2	2	2	6	6	6	3	8	8	7	4	4
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	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	23.0	44.0	44.0	23.0	44.0	44.0
Total Split (%)	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	48.9%	48.9%	25.6%	48.9%	48.9%
Maximum Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	18.5	39.5	39.5	18.5	39.5	39.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		12.5	12.5		12.5	12.5	50.4	42.5	42.5	45.4	39.8	39.8
Actuated g/C Ratio		0.17	0.17		0.17	0.17	0.68	0.57	0.57	0.61	0.54	0.54
v/c Ratio		0.59	0.40		0.53	0.03	0.53	0.75	0.01	0.03	0.86	0.24
Control Delay		41.1	8.2		38.0	0.2	15.5	14.4	0.0	5.0	20.5	2.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.1	8.2		38.0	0.2	15.5	14.4	0.0	5.0	20.5	2.5
LOS		D	A		D	A	B	B	A	A	C	A
Approach Delay		22.3			35.2			14.5			18.9	
Approach LOS		C			D			B			B	

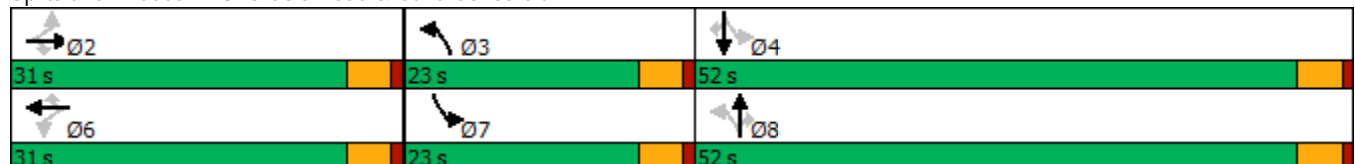| Intersection Summary		
Area Type:	Other	
Cycle Length: 90		
Actuated Cycle Length: 74.2		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.86		
Intersection Signal Delay: 17.5		Intersection LOS: B
Intersection Capacity Utilization 71.8%		ICU Level of Service C
Analysis Period (min) 15		

Splits and Phases: 3: Oracle Road & Calle Concordia

→Ø2	↖ Ø3	↓↖ Ø4
23 s	23 s	44 s

←↓ Ø6	↘ Ø7	↖↑ Ø8
23 s	23 s	44 s

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑	↱		↰↑	↱	↱	↑↑↑	↱	↱	↑↑↑	↱
Traffic Volume (vph)	115	1	139	51	5	6	80	2146	6	9	1944	72
Future Volume (vph)	115	1	139	51	5	6	80	2146	6	9	1944	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		65	240		280	305		340
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.953			0.956		0.950			0.950		
Satd. Flow (prot)	0	1775	1583	0	1781	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.676			0.528		0.081			0.084		
Satd. Flow (perm)	0	1259	1583	0	984	1583	151	5085	1583	156	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			228			62			62			82
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		996			1125			570			621	
Travel Time (s)		22.6			25.6			13.0			14.1	
Peak Hour Factor	0.48	0.48	0.48	0.78	0.78	0.78	0.94	0.94	0.94	0.88	0.88	0.88
Adj. Flow (vph)	240	2	290	65	6	8	85	2283	6	10	2209	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	242	290	0	71	8	85	2283	6	10	2209	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	6	6	6	3	8	8	7	4	4
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	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	23.0	52.0	52.0	23.0	52.0	52.0
Total Split (%)	29.2%	29.2%	29.2%	29.2%	29.2%	29.2%	21.7%	49.1%	49.1%	21.7%	49.1%	49.1%
Maximum Green (s)	26.5	26.5	26.5	26.5	26.5	26.5	18.5	47.5	47.5	18.5	47.5	47.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		21.9	21.9		21.9	21.9	56.3	49.1	49.1	53.5	47.7	47.7
Actuated g/C Ratio		0.24	0.24		0.24	0.24	0.62	0.54	0.54	0.59	0.53	0.53
v/c Ratio		0.79	0.52		0.30	0.02	0.38	0.83	0.01	0.05	0.82	0.09
Control Delay		51.6	10.9		31.4	0.0	12.6	21.2	0.0	7.3	22.2	3.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		51.6	10.9		31.4	0.0	12.6	21.2	0.0	7.3	22.2	3.4
LOS		D	B		C	A	B	C	A	A	C	A
Approach Delay		29.5			28.2			20.8			21.5	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type:	Other
Cycle Length: 106	
Actuated Cycle Length: 90.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 22.1	Intersection LOS: C
Intersection Capacity Utilization 70.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Oracle Road & Calle Concordia

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↵	↱		↵	↱	↰	↑↑↑	↱	↰	↑↑↑	↱
Traffic Volume (vph)	99	1	133	64	9	6	130	1794	5	10	2132	204
Future Volume (vph)	99	1	133	64	9	6	130	1794	5	10	2132	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		65	240		280	305		340
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.953			0.958		0.950			0.950		
Satd. Flow (prot)	0	1775	1583	0	1785	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.648			0.671		0.094			0.101		
Satd. Flow (perm)	0	1207	1583	0	1250	1583	175	5085	1583	188	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158			73			73			224
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		996			1125			570			621	
Travel Time (s)		22.6			25.6			13.0			14.1	
Peak Hour Factor	0.84	0.84	0.84	0.66	0.66	0.66	0.82	0.82	0.82	0.91	0.91	0.91
Adj. Flow (vph)	118	1	158	97	14	9	159	2188	6	11	2343	224
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	119	158	0	111	9	159	2188	6	11	2343	224
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4

Lanes, Volumes, Timings
3: Oracle Road & Calle Concordia

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	6	6	6	3	8	8	7	4	4
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	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	23.0	44.0	44.0	23.0	44.0	44.0
Total Split (%)	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	48.9%	48.9%	25.6%	48.9%	48.9%
Maximum Green (s)	18.5	18.5	18.5	18.5	18.5	18.5	18.5	39.5	39.5	18.5	39.5	39.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		12.5	12.5		12.5	12.5	50.4	42.4	42.4	45.5	39.8	39.8
Actuated g/C Ratio		0.17	0.17		0.17	0.17	0.68	0.57	0.57	0.61	0.54	0.54
v/c Ratio		0.59	0.40		0.53	0.03	0.53	0.75	0.01	0.05	0.86	0.24
Control Delay		41.1	8.2		38.0	0.2	15.6	14.6	0.0	5.2	20.6	2.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.1	8.2		38.0	0.2	15.6	14.6	0.0	5.2	20.6	2.5
LOS		D	A		D	A	B	B	A	A	C	A
Approach Delay		22.3			35.2			14.7			19.0	
Approach LOS		C			D			B			B	

Intersection Summary

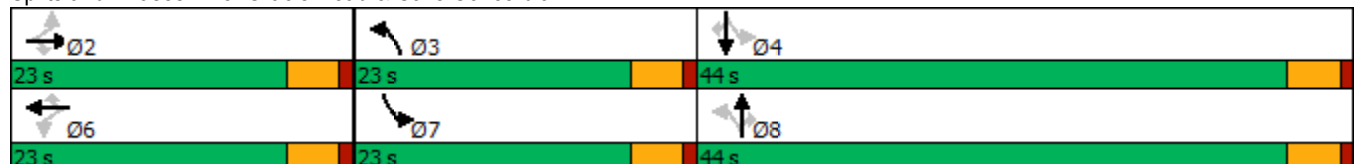|	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 74.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 71.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Oracle Road & Calle Concordia

Ø2	Ø3	Ø4
23 s	23 s	44 s

Ø6	Ø7	Ø8
23 s	23 s	44 s

Intersection

Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱		↑↑↑	↑↑↱	
Traffic Vol, veh/h	0	8	0	1899	2341	19
Future Vol, veh/h	0	8	0	1899	2341	19
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	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	0	2064	2545	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1283	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	134	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	134	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33.7	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	134	-	-
HCM Lane V/C Ratio	-	0.065	-	-
HCM Control Delay (s)	-	33.7	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↱	↑↑↑	↱	↱	↑↑↑	↱
Traffic Volume (vph)	115	1	139	51	5	6	80	2156	6	27	1962	72
Future Volume (vph)	115	1	139	51	5	6	80	2156	6	27	1962	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		65	240		280	305		340
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.953			0.956		0.950			0.950		
Satd. Flow (prot)	0	1775	1583	0	1781	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.676			0.528		0.082			0.084		
Satd. Flow (perm)	0	1259	1583	0	984	1583	153	5085	1583	156	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			228			62			62			82
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		996			1125			570			621	
Travel Time (s)		22.6			25.6			13.0			14.1	
Peak Hour Factor	0.48	0.48	0.48	0.78	0.78	0.78	0.94	0.94	0.94	0.88	0.88	0.88
Adj. Flow (vph)	240	2	290	65	6	8	85	2294	6	31	2230	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	242	290	0	71	8	85	2294	6	31	2230	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	6	6	6	3	8	8	7	4	4
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	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	23.0	52.0	52.0	23.0	52.0	52.0
Total Split (%)	29.2%	29.2%	29.2%	29.2%	29.2%	29.2%	21.7%	49.1%	49.1%	21.7%	49.1%	49.1%
Maximum Green (s)	26.5	26.5	26.5	26.5	26.5	26.5	18.5	47.5	47.5	18.5	47.5	47.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		21.9	21.9		21.9	21.9	56.0	48.8	48.8	53.8	47.7	47.7
Actuated g/C Ratio		0.24	0.24		0.24	0.24	0.62	0.54	0.54	0.60	0.53	0.53
v/c Ratio		0.79	0.52		0.30	0.02	0.38	0.84	0.01	0.15	0.83	0.09
Control Delay		51.7	10.9		31.4	0.0	12.7	21.9	0.0	8.4	22.6	3.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		51.7	10.9		31.4	0.0	12.7	21.9	0.0	8.4	22.6	3.4
LOS		D	B		C	A	B	C	A	A	C	A
Approach Delay		29.5			28.2			21.5			21.7	
Approach LOS		C			C			C			C	

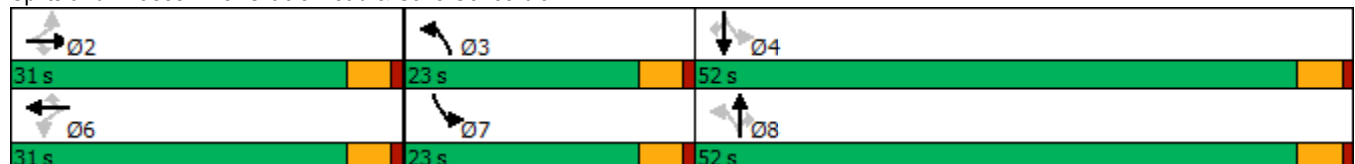| Intersection Summary	
Area Type:	Other
Cycle Length: 106	
Actuated Cycle Length: 90.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 22.5	Intersection LOS: C
Intersection Capacity Utilization 70.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Oracle Road & Calle Concordia

Intersection

Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱		↟↟↟	↟↟↳	
Traffic Vol, veh/h	0	36	0	2277	2051	19
Future Vol, veh/h	0	36	0	2277	2051	19
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	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	39	0	2475	2229	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1125	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	171	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	171	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.2	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	171	-	-
HCM Lane V/C Ratio	-	0.229	-	-
HCM Control Delay (s)	-	32.2	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	0.8	-	-