

March 9, 2020

Mr. Michael Holman, VP, Investments & Finance Overland Group 14034 South 145 East, Suite 100 Draper, Utah 84020



Re: Trip Generation Comparison Statement for Crismon Commons – Southwest Quadrant Crismon Road & US 60/Superstition Freeway, Mesa, Arizona

Dear Mr. Holman:

Thank you for retaining CivTech Inc. to prepare this Trip Generation Comparison Statement for the Crismon Commons, a mixed-use development in the City of Mesa, Arizona. The proposed development site occupies two parcels located on 1756 and 1810 South Crismon Road in the southwest quadrant of the interchange of Crismon Road and the Superstition Freeway (United States Highway 60).

PURPOSE

The purpose of this statement is to document the anticipated trip generation for two separate "build" scenarios for the multi-building development. The first build scenario consists of 98,525 SF of medical/dental office space and 8,000 SF of retail space, and is the development scenario that was originally proposed in 2008. The second build scenario is described in detail below. Both scenarios are allowed under the current zoning.

BACKGROUND

CivTech's review of Maricopa County Assessor aerial parcel mapping and the plats for these site revealed that the site was platted in early 2008 as the Odyssey Medical and Professional Center, a medical/dental office condominium complex at 1810 South Crismon Road. Two of the condominium buildings (numbered 10 and 11), the site driveways, and all of the drive aisles and parking areas were built in 2008.

PROPOSED DEVELOPMENT

The development proposed to complete Crismon Commons will consist of 240 dwelling units (DUs) of Multifamily (Mid-Rise) Housing, a hotel with 115 rooms, and a 3,700-square foot (SF) fast food restaurant with drive through window. The proposed site plan is included as **Attachment A**.

SITE ACCESS

Crismon Commons will be served by two existing (2) access points:

- <u>Access A</u> is the northern most driveway located along Crismon Road approximately 1,4550 feet north of Baseline Road and is a restricted by the existing median in Crismon Road to right-in/rightout movements only with free movements in the northbound and southbound approaches and stop controlled in the eastbound approach. This driveway currently serves as the main driveway to Graham Real Estate One LLC and will be shared between the two properties upon full build out.
- <u>Access B</u> is the southernmost signalized driveway located along Crismon Road approximately 1,100 feet north of Baseline Road and allowed full access movements. This access currently serves as the main access for A to Z Pediatric Dentistry and Children's Learning Adventure.

TRIP GENERATION AND COMPARISON

A generally accepted method of calculating trip generation rates for a proposed development is to use regression equations and/or average rates developed by the Institute of Transportation Engineers (ITE) through the compilation of the field data collected at sites throughout the United States. The 10th edition of ITE's *Trip Generation Manual* was used for reference to calculate the trip generation for all three land uses proposed.

<u>Trip Generation</u>. The proposed development will consist of 240 dwelling units (DUs) of Multifamily (Mid-Rise) Housing, a hotel with 115 rooms, and a 3,700-SF fast food restaurant with drive through window. *Please note that the shopping center and fast-food uses attract trips from vehicles already passing by the site, a phenomenon known as pass-by trips, and do not add new trips to the roadway; thus, the trips shown for these uses are net of pass-by trips. The external trips generated by the multi-building development are summarized in Table 1. Detailed trip generation calculations for each of the build scenarios are included as Attachment B. The calculations include the derivation of the pass-by trips for the fast-food restaurant.*

	ITE			Daily	AN	/I Peak H	lour	P۱	I Peak H	lour
Proposed Use	LUC	Size	• Units*	Total	In	Out	Total	In	Out	Total
Original Build Scenario										
Medical-Dental Office Building	720	98.525	KSF	3,698	172	48	220	94	242	336
Retail Center	820	8.000	KSF	1,080	97	59	156	26	30	56
Total External Trips				4,778	269	107	376	120	272	392
Proposed Build Scenario										
Multifamily (Mid-Rise) Housing	221	240	DUs	1,306	21	60	81	63	40	103
Hotel	310	115	Rooms	872	31	21	52	31	29	60
Fast Food Restaurant with Drive Through Window	934	3.700	KSF	1,742	39	36	75	31	30	61
Total External Trips				3,920	91	117	208	125	99	224
Difference of Total Trips (Propo	sed - Ori	ginal)		-858	-178	10	-168	5	-173	-168

Table 1 – Trip Generation and Comparison

* KSF = 1,000 Square Feet; DUs = Dwelling Units



A review of the trip generation for the original build scenario at the top of **Table 1** reveals that a medical/dental office building and a retail center could have generated approximately 4,778 weekday daily trips with 376 new trips (269 in/107 out) generated during the AM peak hour and 392 net new trips (120 in/272 out) during the PM peak hour.

Under the scenario now proposed for Crismon Commons in the middle of **Table 1**, the multifamily housing, hotel, and fast-food restaurant uses could be expected to generate net new trips of approximately 3,920 weekday trips daily with 208 trips (91 in/117 out) generated during the AM peak hour and 224 trips (125 in/99 out) generated during the PM peak hour.

<u>*Trip Generation Comparison.*</u> CivTech was asked to provide a comparison of the trips expected from the two different "build" scenarios. The last row of **Table 1** provides the numeric differences in trips expected between build the original build scenario and the proposed build scenario.

A review of the results summarized at the bottom of **Table 1** reveals that the land uses in the newlyproposed build scenario would generate fewer overall trips than the originally proposed build scenario from 2008 generating approximately 858 fewer weekday daily trips with a net 168 fewer trips (-178 in/+10 out) during the AM peak hour and 168 fewer trips (+5 in/-173 out) during the PM peak hour.

VEHICLE TRIP DISTRIBUTION AND ASSIGNMENT

A single trip distribution pattern was assumed for the proposed development. It is expected that the proposed development will generate trips based on future population within a 10-mile radius of the site. Future total population within a 10-mile radius of the site, as predicted by the 2030 socio-economic data compiled by the Maricopa Association of Governments (MAG), was used as a basis to estimate trip distribution. The resulting trip distribution percentages for the study area are shown in **Table 2**. The trip distribution calculations are included as **Attachment C**.

Direction (To/From)	Percentage
North on Crismon Road (north of US 60)	17
East on US 60 (east of Crismon Road)	10
West on US 60 (west of Crismon Road)	30
South on Crismon Road (south of Baseline Road)	25
East on Baseline Road (east of Crismon Road)	2
West on Baseline Road (west of Crismon Road)	16
Total	100%

Table 2 – Site Trip Distribution

The percentages presented in **Table 2** were applied to the site trips generated to determine the AM and PM peak hour site traffic at the intersections within the study area for each scenario. The Original build scenario trips at surrounding intersections are shown in **Figure 1**. Proposed build scenario trips at surrounding intersections are shown in **Figure 2**.





CONCLUSIONS

From the two build scenarios, the following could be concluded:

- A review of the trip generation reveals that the original build scenario with a medical/dental office building and a retail center would generate approximately a total of 4,778 weekday daily trips with 376 trips (269 in/107 out) generated during the AM peak hour and 392 net new trips (120 in/272 out) during the PM peak hour.
- A review of the trip generation reveals that the proposed build scenario of the mid-rise multi-family apartments, hotel, and fast food restaurant with a drive through window is anticipated to generate



approximately a total of 3,920 weekday daily trips with 208 trips (91 in/117 out) generated during the AM peak hour and 224 trips (125 in/99 out) generated during the PM peak hour.

• The results of the trip generation comparison reveal that the land uses in the newly proposed build scenario would overall generate fewer trips than the originally proposed build scenario from 2008 generating approximately 858 fewer weekday daily trips with 168 fewer trips (-178 in/10 out) during the AM peak hour and 196 fewer trips (-9 in/-187 out) during the PM peak hour.

In closing, this trip generation comparison statement has been prepared to meet ADOT requirements and to permit the City to assess the potential impacts of the development on the surrounding transportation network. Should you wish to discuss this information further, please contact me at (480) 659-4250.

Sincerely,

CivTech bes

Voseph[¥]F. Spadafino, P[®]E., PTO∉, PTP Project Manager/Senior Traffic Engineer

Attachments:

- A. Site Plan
- B. Trip Generation Worksheets
- C. Trip Distribution

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Crismon Commons, Mesa, Arizona

Methodology Overview

This form facilitates trip generation estimation using data within the Institute of Transportation Engineer's (ITE) *Trip Generation Manual*, 10th Edition and method *Generation Handbook*, 3rd Edition. These references will be referred to as *Manual and Handbook*, respectively. The *Manual* contains data collected by various wide range of different land uses, with each land use category represented by a land use code (LUC). Average rates and equations have been established that an independent variable that describes the development size and generated trips for each categorized LUC in various settings and time periods. The *Handbook* methodology for how to use data contained within the Manual when to use the fitted curve instead of the average rate and when to adjustments to the volume of do so. The methodology steps are represented visually in boxes in Figure 3.1. This worksheet applies calculations for each box if applicable.

Box 1 - Define Study Site Land Use Type & Site Characteristics

The analyst is to pick an appropriate LUC(s) based on the subject's zoning/land use(s)/future land use(s). The size of the land use(s) is described in reference to specific to (each) the land use (example: 1,000 square feet of building area is relatively common).

Land Use Types and Size			
Proposed Use	Amount Units	ITE LUC	ITE Land Use Name
Original Development			
Medical, Dental or Health Office			
Buildings and Clinics	98.525 1,000 square feet	720	Medical-Dental Office Building
Shopping Center	8.000 1,000 square feet	820	Shopping Center
Proposed Development			
Mutlifamily Housing	240.000 Dwelling Units	221	Multifamily Housing (Mid-Rise)
Hotel or Motel	115 Rooms	310	Hotel
Fast Food Restaurant with Drive			
Through Window	3.700 1,000 square feet	934	Fast Food Restaurant with Drive Through Window

Land Use Types and Size

Box 2 - Define Site Context

Context assessment is to "simply determine whether the study sites is in a multimodal setting" and "could have persons accessing the site by walking, bicycling, assessment is used in Box 4. The *Manual* separates data into 4 setting categories - **Rural, General Urban/Suburban**, **Dense Multi-Urban Use** and **Center Ci** uses the following abbreviations, respectively: *R*, *G*, *D*, and *C*. The *Manual* does not have data for all settings of all land use codes. See the table on the next Time Periods" - if this table is not provided, the "General Urban/Suburban" setting is used by default.

Box 3 - Define Analysis Objectives Types of Trips & Time Period

This tool will focus on vehicular trips for a 24-hour period on a typical weekday as well as its AM peak hour and PM peak hour. Other time period(s) may be of in

Site Context and Time Periods - Actual Setting, Setting Data Available for LUC, Setting Used in Analyses

			ADT		AM Peak He	our	PM Peak He	our
Proposed Use	Setting		Available	Used	Available	Used	Available	Used
Original Development								
Medical, Dental or Health Office Buildings and Clinics	General Urban/Suburbar	G	G	G	G	G	G	G
Shopping Center	General Urban/Suburbar	G	G	G	G D	G	G D	G
Proposed Development								
Mutlifamily Housing	General Urban/Suburbar	G	G D	G	G D	G	G D	G
Hotel or Motel	General Urban/Suburbar	G	GC	G	GDC	G	GC	G
Fast Food Restaurant with Drive Through Window	General Urban/Suburbar	G	G D	G	G D	G	G D	G

If the desired setting is not available within the Manual, adjustments may be made in Boxes 6 through 8.

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Determine Equation)

Vehicle trips are estimated using rates/equations applicable to each LUC. When the appropriate graph has a fitted curve, the *Handbook* has a process (Figure 4 versus using the weighted average rate or collecting local data. The methodology requires for engineering judgement in some circumstances and permits engine make adjustments when appropriate to best project (example 1: study site is expected to operate differently than data in the applicable land use code - such as 1 morning or in the evening; example 2: LUC data in a localized area fails to be represented by the typically selected fitted curve/weighted average rate - a small s skewed by the high y-intercept).



Crismon Commons, Mesa, Arizona

Equation Type. Equation Osed [Equ	aleu Ralej (Type Abbrevialion:	s. weighte	ed Average Rate (WA), Filled Curve (
Proposed Use	ADT	R ²	AM Peak Hour	PM Peak Hour
Original Development				
Buildings and Clinics	FC: T=38.42*X-87.62 [37.53]	0.95	FC: LN(T)=0.89*LN(X)+1.31 [2.24]	FC: T=3.39*X+2.02 [3.41]
Shopping Center	LN(T)=0.68*LN(X)+5.57 [134	0.76	FC: T=0.5*X+151.78 [19.47]	FC: LN(T)=0.74*LN(X)+2.89 [10.48]
Proposed Development				
Mutlifamily Housing	FC: T=5.45*X-1.75 [5.44]	0.77	FC: LN(T)=0.98*LN(X)-0.98 [0.34]	FC: LN(T)=0.96*LN(X)-0.63 [0.43]
Hotel or Motel	FC: T=11.29*X-426.97 [7.58]	0.92	FC: T=0.5*X-5.34 [0.45]	FC: T=0.75*X-26.02 [0.52]
Through Window	WA: T=X*470.95 [470.95]	N/A	WA: T=X*40.19 [40.19]	WA: T=X*32.67 [32.67]

Equation Type: Equation Used [Equated Rate] (Type Abbreviations: Weighted Average Rate ("WA"), Fitted Curve ("FC"), or Custom ("C"))

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Apply Equations and in/out Distributions)

Baseline Vehicular Trips

		Α	DT			AM Pe	ak Hour			PM Pe	ak Hour	
Proposed Use	% In	In	Out	Total	% In	In	Out	Total	% In	In	Out	Total
Original Development												
Medical, Dental or Health Office												
Buildings and Clinics	50%	1,849	1,849	3,698	78%	172	48	220	28%	94	242	336
Shopping Center	50%	540	540	1,080	62%	97	59	156	48%	40	44	84
Totals		2,389	2,389	4,778		269	107	376		134	286	420
Proposed Development												
Mutlifamily Housing	50%	653	653	1,306	26%	21	60	81	61%	63	40	103
Hotel or Motel	50%	436	436	872	59%	31	21	52	51%	31	29	60
Fast Food Restaurant with Drive												
Through Window	50%	871	871	1,742	51%	76	73	149	52%	63	58	121
Totals		1,960	1,960	3,920		128	154	282		157	127	284

If vehicle trip reductions are not applied for internal capture and alternative mode, vehicle trips may be separtated into vehicle trip subsets (pass-by trips, diverte vehicle trips) as part of Box 10. If vehicle trip reductions are to be applied, continue to Box 6.

Box 10 - Estimate Vehicle Trip Subsets Pass-by/Diverted Trips, Truck Trips (Pass-By Trips)

Some trips may be classified as "pass-by" trips, where some vehicle trips generated by the study site are already traveling on an adjacent road and make a stop not add traffic volume to the roadway. The *Handbook* does not specify that a 'pair' of pass-by trips must enter and exit the same driveway. The current edition o pass-by trips should have directional distribution applied (%in/%out), though reviewers often comment when pass-by trip "pairs" do not occur within a the specifito ease of calculation and traditional methodology found in the first edition of the *Handbook*. As such, the analyst may ignore the direction distribution divide the apply pass-by "pairs". In addition, the analyst may consider pass-by rates at a reduced rate. Data is not available for all land use codes and all periods, assumtic percentage is applied to total external vehicle trips.

Pass-By Trips

			ADT			AM Pe	ak Hour			PM Pe	ak Hour	
Proposed Use	Percent	In	Out	Total	Percent	In	Out	Total	Percent	In	Out	Total
Original Development												
Medical, Dental or Health Office												
Buildings and Clinics	0%	0	0	0	0%	0	0	0	0%	0	0	0
Shopping Center	0%	0	0	0	0%	0	0	0	34%	14	14	28
Totals		0	0	0		0	0	0		14	14	28
Proposed Development		0	0	0		0	0	0		0	0	0
Mutlifamily Housing	0%	0	0	0	0%	0	0	0	0%	0	0	0
Hotel or Motel	0%	0	0	0	0%	0	0	0	0%	0	0	0
Fast Food Restaurant with Drive												
Through Window	0%	0	0	0	49%	37	37	74	50%	32	28	60
Totals		0	0	0		37	37	74		32	28	60



Crismon Commons, Mesa, Arizona

Box 10 - Estimate Vehicle Trip Subsets Pass-by/Diverted Trips, Truck Trips (Other Trips)

Pass-by trips and truck trips may have been separated from the total external vehicle trips, if applicable/data available. Diverted link trips may also be separated grouped with primary trips.

Net Trips (Pass-by Trips applied to Shopping Center and Fast-Food)

	A	DT		AM Pe	ak Hour		PM	Peak Hour	
Proposed Use	In	Out	Total	In	Out	Total	In	Out	Total
Original Development									
Buildings and Clinics	1,849	1,849	3,698	172	48	220	94	242	336
Shopping Center	540	540	1,080	97	59	156	26	30	56
Totals	2,389	2,389	4,778	269	107	376	120	272	392
Proposed Development									
Mutlifamily Housing	653	653	1,306	21	60	81	63	40	103
Hotel or Motel	436	436	872	31	21	52	31	29	60
Through Window	871	871	1,742	39	36	75	31	30	61
Totals	1,960	1,960	3,920	91	117	208	125	99	224
Differences (Proposed -	Original) (429)	(429)	(858)	(178)	10	(168)	5	(173)	(168)



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		203(0		2040		
Quadrant	Population	Percent		Population	Percent		
North Northwest	79,945	11.0%		82,117	10.4%		
North Northeast	42,141	5.8%		43,678	5.5%		
North	122,086	16.8%		125,795	15.9%		
East Northeast	63,437	8.7%		68,437	8.7%		
East Southeast	24,905	3.4%		37,538	4.8%		
East	88,342	12.1%		105,976	13.5%		
South Southeast	75,064	10.3%		89,240	11.3%		
South Southwest	107,682	14.8%		119,122	15.1%		
South	182,746	25.1%		208,363	26.4%		
West Southwest	161,405	22.1%		169,053	21.4%		
West Northwest	175,149	24.0%		180,069	22.8%		
West	336,553	46.1%		349,121	44.2%		
Total	ls 729,727	100.1%		789,254	100.0%		
Radius				orthern limits			
Population radius: 10	0 miles			/	/		
			MNN		NNE		
			2030 2	040 2030	2040		
Select Analysis Year (2030, 204	10, 2050)		11.0% 1	0.4% 5.8%	5.5%		
2030			MNW				
		we	24.0% 22.8%		<u>2030</u> 2040 8.7%8.7%	ea	
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			Pop%		SSE		
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