



February 21, 2024

Chloe Durfee Daniel
Planner II
City of Mesa Development Services
55 N. Center Street
Mesa, Arizona 85201



RE: PARKING STUDY – AMERICANA BUILDING 51 - NEC OF SIGNAL BUTTE ROAD AND GERMANN ROAD IN MESA, ARIZONA – SECOND SUBMITTAL

Dear Ms. Daniel:

CivTech has been retained by WMA Architects to provide a Parking Study for the proposed Americana-Building 51 (the **Project**). The proposed land use for the **Project** is an industrial use. The **Project** will be located at the NEC of the Signal Butte Road/Germann Road intersection in the City of Mesa, Arizona. The site is located on Maricopa County Assessor Parcel Number (APN) 304-63-002E. The Vicinity Map and Site Plan will be included in **Appendix A**.

BACKGROUND AND PURPOSE

CivTech’s review of historical online aerial photography suggests that the site of the **Project** had previously been developed. As noted above the **Project**, is proposed as an industrial use building, the proposed building is expected to be 137,185 square feet with 107,185 square feet being used as an industrial area and 30,400 square feet being used as an industrial shell (vacant) at this time period. Per the Institute of Transportation Engineers (ITE) Land Use Code for industrial uses, an industrial use facility will also include a number of small offices to be used for administration staff and supervisory personnel. These offices are inclusive with the designated land use and not a separate land use. The **Project** will employ 32 employees.

The purpose of this Parking Study is to document an analysis that will determine the whether or not it is reasonable to use the City of Mesa Zoning Ordinance (MZO) or the Institute of Transportation Engineers (ITE) rates for parking spaces for this industrial development. Or provide another scenario where the number of parking spaces is tied to the number of employees plus a small number of other parking spaces for miscellaneous users throughout the day.

PARKING ANALYSIS

City of Mesa Parking Requirements

Parking requirements for the City of Mesa are specified in the City of Mesa Zoning Ordinance, *Chapter 32 – On-Site Parking, Loading, and Circulation, Section 11-32-3 – Parking Spaces Required*.

Table 11-32-3.A of the Ordinance indicates that the required parking spaces by land use for Industrial land uses is 1 space parking per 600 SF ratio and for industrial shell uses there are two different parking ratios; 75% of the SF will have a parking ratio of one space per 500 SF and 25% of the SF

will have a parking ratio of one space per 375 SF. Based on City of Mesa parking requirements, a total of 246 parking spaces will be required for the **Project**.

ITE Parking Requirements

The latest (5th) Edition of ITE’s *Parking Generation Manual* provides various ratios for the number of spaces required for a large variety of land uses. The data includes the number of sites observed (the results of which are analyzed to provide the published ratios) and the calculated range of ratios from lowest observed to highest. Based on the proposed industrial uses for the **Project**, the most appropriate and representative ITE Land Use Code will be LUC 101 – General Light Industrial. A review of ITE’s Parking Generation Manual reveals that with the General Light Industrial land use, the parking rates are 0.55 parking space for every 1,000 square feet.

The City of Mesa and ITE data are included in **Appendix A**.

Developer Parking Requirements

The developer parking requirements are based on the proposed user of the building. The proposed user will have 32 employees working one daily shift. The developer is proposing to provide 55 parking spaces on the site.

Table 1 below provides a comparison of the Parking Requirements for the City of Mesa, ITE, and the Developer requirements.

Table 1 – Parking Requirement Comparison

PARKING REQUIREMENT COMPARISON						
ITE Land Use Code - 110 Industrial	Units - SF	City of Mesa Parking Ratios		ITE Parking Ratios		Developer Required Parking Spaces
		Ratio	Spaces	Ratio	Spaces	Spaces
Industrial	107,185	1 per 600 SF	179	0.55 per 1,000	195	55
Shell Industrial (75%)	22,800	1 per 500 SF	46	0.55 per 1,000	13	
Shell Industrial (25%)	7,600	1 per 375 SF	21	0.55 per 1,000	5	
Total			246		213	55

As shown in **Table 1 above**, the City of Mesa and the ITE requirements overpark the **Project** by 191 spaces and 158 parking spaces, respectively, when compared to what the user will need.

With the developer only needing 55 parking spaces, it is CivTech’s position not to overpark the proposed industrial use. Unused parking spaces are a waste on natural resources and contribute to the urban heat island affect. Also, the asphalt surface of unused parking spaces become oxidized faster over time and the surface begins to unravel with loose aggregate, thus creating a maintenance issue. Asphalt surfaces also need to be kneaded and parking spaces do not get any of that when unused.



TRIP GENERATION

CivTech estimated the potential trip generation for the proposed development using for reference TripGen11, the latest (11th) Edition of the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual* (TripGen11) and the 3rd Edition of the *Trip Generation Handbook*. The ITE *Trip Generation Manual* contains data collected by various transportation professionals for a wide range of different land uses. The data for daily and peak hour trips are summarized in the manual, which also provides average rates and regression equations developed from the data as well as the percentages of trips that enter and exit during the study period. These data are then used to generate (i.e., calculate) the site trips for each categorized land use and the in- and outbound trips for the number of units (the independent variable in the calculation) that best represents the development size. **Table 2** details the trips generation for the proposed development

Table 2 – Trip Generation

Land Use	Quantity Units ⁺	ITE LUC	ITE Land Use Name	AM Distribution		PM Distribution				
				In	Out	In	Out			
General Light Industrial	137.185 KSF	110	General Light Industrial	88%	12%	14%	86%			
Land Use	ADT		AM Peak Hour			PM Peak Hour				
	Avg. Rate	Total	Avg. Rate	In	Out	Total	Avg. Rate	In	Out	Total
General Light Industrial	4.13	588	0.71	85	12	97	0.37	7	44	51
Notes: ⁺ Average rate was calculated by dividing total trips generated using regression equation by the quantity of units. (See below.)										
<i>CALCULATIONS (Equations shown only where applicable)</i>										
Land Use [Units]		Daily			AM Peak Hour		PM Peak Hour			
Warehouse [107.185 KSF]		$T_{DAY} = 3.76X + 50.47 = 588$			$T_{AM} = 0.68X + 3.81 = 97$		$Ln(T_{PM}) = 0.72Ln(X) + 0.38 = 51$			

The trip generation calculations detailed in **Table 2** indicates that the **Project** could generate approximately 588 daily trips and 97 trips (85 trips in/12 trips out) during the AM Peak Hour and 51 trips (7 trips in/44 trips out) during the PM Peak Hour.

CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing, CivTech concludes the following:

- Based on the City of Mesa parking requirements, 246 parking spaces are required for the **Project** using Mesa Zoning Ordinance.
- Based on the ITE weekday rate of 0.55 spaces per 1000 SF, 76 parking spaces are required for the **Project**.
- Based on the user of the **Project**, there will be only 32 employees working only one daily shift. The user is requesting only 55 parking spaces.
- With the user of the **Project** only needing 55 parking spaces, it is CivTech’s position not to overpark the proposed industrial use. Unused parking spaces are a waste on natural resources and contribute to the urban heat island affect. Also, the asphalt surface of unused parking spaces become oxidized

faster over time, the surface begins to unravel with loose aggregate, creating a maintenance issue. Asphalt surfaces also need to be kneaded and parking spaces do not get any of that when unused.

- The proposed warehouse could generate approximately 588 daily trips and 97 trips (85 in/12 out) generated during the AM Peak Hour and 51 trips (7 in /44 out) generated during the PM Peak Hour.

Please contact me with any questions you may have on this Parking Study.

Sincerely,

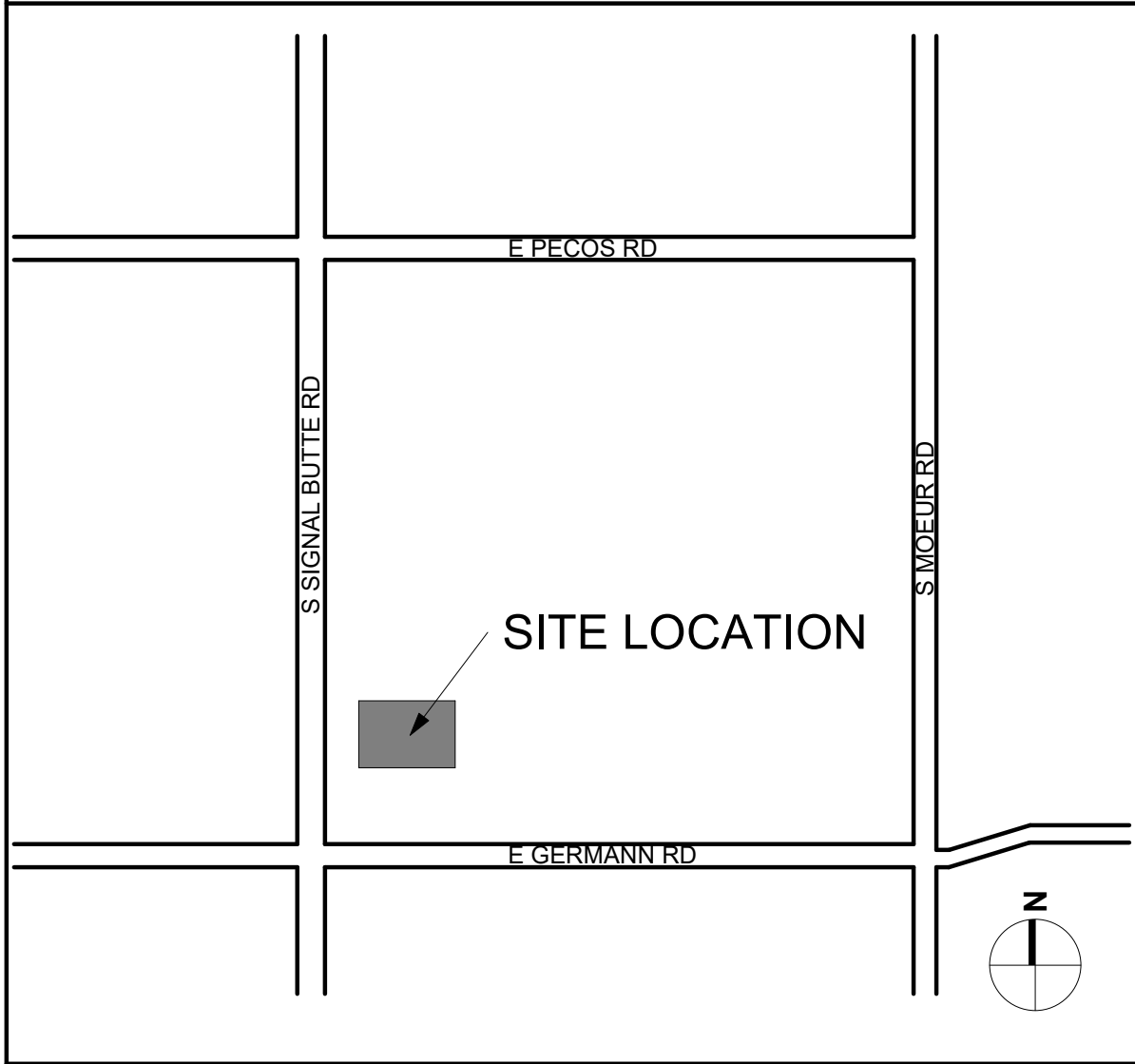
CivTech



Mick Mathieu, P.E.
Senior Project Manager

APPENDIX A

VICINITY MAP



Americana Outdoors- Bldg 51

7426 S SIGNAL BUTTE RD, MESA, AZ 85212



S SIGNAL BUTTE RD

TOTAL PARKING: 55 SPACES

BUILDING HEIGHT: 40'
BUILDING ELEVATION: 1428.15
NUMBER OF STORIES: 1 STORY & A MEZZANINE

TOTAL AREA (VACANT): 30,400 S.F.

TOTAL AREA (INDUSTRIAL): 107,185 S.F.

EXISTING
RETENTION



REVISIONS		DATE
ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION

SEAL

PROJECT NUMBER
23-0005845.01

DATE
Issue Date

DRAWN
Author

CHECKED
Checker

SCALE
1" = 40'-0"

SHEET TITLE

EXHIBIT - Site Plan

SITE PLAN
02/21/2024

SHEET NUMBER

A0.00

Chapter 32 On-Site Parking, Loading, and Circulation

Sections:

- 11-32-1 [Purpose and Applicability](#)
- 11-32-2 [General Regulations and Standards](#)
- 11-32-3 [Parking Spaces Required](#)
- 11-32-4 [Parking Area Design](#)
- 11-32-5 [Shared Parking](#)
- 11-32-6 [Parking Reductions](#)
- 11-32-7 [Alternative Compliance with Minimum Parking Requirements](#)
- 11-32-8 [Bicycle and Motorcycle Parking](#)

11-32-1: Purpose and Applicability

A. **Purpose.** The purpose of this Chapter is to provide standards for parking and loading facilities to accommodate the various land uses permitted by this Ordinance. It is the intent of this Chapter to require the minimum number of on-site parking and loading spaces with maneuvering areas, driveways, and surface materials for the efficient movement of vehicular traffic, and to provide flexibility in meeting these requirements for sites with special needs. Additional purposes of this Chapter include:

1. Ensuring the provision of safe and convenient places to park personal transportation vehicles, including automobiles, bicycles and motorcycles,
2. Providing paved surfaces and alternative dust control measures to control and reduce the amount of dust and PM-10 particulates released to the atmosphere,
3. Limiting the area of land consumed by parking through allowances for reductions to the number of required parking spaces and allowances for sharing of parking spaces among multiple uses where appropriate,
4. Minimizing conflicts between pedestrian and vehicular circulation,
5. Reducing the scale of paved surfaces and shading these surfaces, to reduce heat gain that contributes to the urban heat island effect, and
6. Encourage sustainable development by promoting the use of alternative modes of transportation, walking and bicycling through recalibrating parking regulations for mixed use and transit-oriented developments.

Angle of Parking	Stall Width	Curb Length Per Stall	Stall Depth	One-Way Aisle Width	Two-Way Aisle Width
Parallel	9'0"	22'0"	9'0"	11'	20'
30°	9'0"	18'0"	14'11"	11'	20'
40°	9'0"	14'0"	16'5"	11'	22'
45°	9'0"	12'9"	17'0"	11'	24'
50°	9'0"	11'9"	17'5"	13'	24'
60°	9'0"	10'5"	17'10"	16'	24'
70°	9'0"	9'8"	17'9"	16'	24'
90°	9'0"	9'0"	16'0"	21'	24'

3. **Loading Spaces.** If loading spaces are provided they shall be a minimum 10 feet by 30 feet.
 - I. **Size of Parking Spaces for Motorcycles, Scooters, and Golf Carts.** Motorcycle and Scooter parking spaces shall have a minimum dimension of 5 feet by 9 feet. Golf cart parking spaces shall have a minimum dimension of 5 feet by 10 feet.
 - J. **Drive Aisle without Associated Parking Spaces.** One-way drive aisles that do not provide access to parking or loading spaces shall be at least 12-foot wide. 2-way drive aisles that do not provide access to parking or loading spaces shall be at least 20-foot wide.

11-32-3: Parking Spaces Required

A. The following chart specifies the minimum parking spaces required for each permitted use (For exceptions, see Sections 11-32-5, 6, and 7):

Use	Minimum Standard	
Residential		
Single Residence, detached or attached, including Manufactured Home Subdivisions	2 spaces per dwelling which may be in tandem with Zoning Administrator approval	
Multiple Residence (Typical)	See sub categories, below	
Apartments, multiple residence condominiums, and mixed-use residential, townhomes, patio homes and similar multiple residence buildings: development site located within 1/4 mile radius (1320- feet) of bus rapid transit or light rail station, regardless of bedroom count	9 or fewer total units	1.4 spaces per dwelling unit
	10 – 25 total units	1.3 spaces per dwelling unit
	26 or more total units	1.2 spaces per dwelling unit
Apartments, multiple residence condominiums, mixed-use residential, townhomes, patio homes, and similar multiple residence buildings: development site not located within 1/4 mile radius (1320- feet) of bus rapid transit or light rail station, regardless of bedroom count	2.1 spaces per dwelling unit	

Table 11-32-3.A: Required Parking Spaces By Use	
Use	Minimum Standard
Group Residential (Boarding House, Assisted Living, Group Homes for the Handicapped in excess of 10 persons)	1.2 spaces per dwelling unit for development with distinguishable dwelling units 1.0 space for each room plus 2 additional spaces for development with congregate dining and no distinguishable separate dwelling units
Group Home for the Handicapped (10 or less persons)	Same as Single Residence
Live-Work Units	2.1 spaces per unit
Residential Care, General (Nursing Home, Hospice)	1.0 space per room or dwelling unit plus 2 additional spaces
RV Parks	1 full-sized space for each RV space, plus 1 guest parking space per 10 (or fraction thereof) RV spaces for the overall development
RV Subdivisions	1 full-sized space and 1 golf cart space for each lot; plus 1 full-sized guest parking space per 10 (or fraction thereof) dwelling units for the overall development
Manufactured Home Parks	2 full-sized space for each lot (may include tandem spaces); plus 1 guest parking space per 10 (or fraction thereof) dwelling units for the overall development
Public Assembly and Schools	
Theaters, auditoriums, assembly halls, places of worship, clubs, lodges and fraternal buildings, funeral homes, community centers, libraries	1 space per 75 square feet used for public assembly
Museums	1 space per 250 square feet used for public assembly plus accessory uses
Stadiums	1 space per 5 seats plus 1 space per 300 square feet for accessory uses
School, kindergarten through 9th grade	1 space per 75 feet for public assembly space, such as auditoriums and theaters, and 1 space per 600 square feet for all other areas
High schools, academies, colleges, universities, trade or vocational schools	1 space per 200 square feet
Health Care	
Medical/dental offices and outpatient clinics	1 space per 200 square feet
Hospitals, hospices, nursing, and convalescent homes	1 space per 400 square feet
Day care centers	1 space per 375 square feet
Group Commercial Developments	
Shell buildings (no specified use)	1 space per 275 square feet
Independent Commercial Buildings and Uses	
General offices, retail, and services	1 space per 375 square feet
General auto repair, garages, service stations, car washes, and drive-through lubrication shops	1 space per 375 square feet, including service bays, wash tunnels, and retail areas
Hotels and motels	1 space per room or suite of rooms with individual exits plus ancillary use requirements
Eating and Drinking Establishments (no drive through window)	1 space per 75 square feet for indoor area, and 1 space per 200 square feet for outdoor seating area
Eating Establishments (with drive-through window and associated queuing drive aisle)	1 space per 100 square feet for indoor area, and 1 space per 200 square feet for outdoor seating area
Outdoor sales and service areas (car lots, plant nurseries, building supplies, etc.)	1 space per 375 square feet of sales and service building, but not less than 4 spaces per use
Temporary Outdoor Uses	
Swap Meets (See Section 11-20-29)	1 space per 300 square feet of designated vendor area

[Return to Page 1](#)

Table 11-32-3.A: Required Parking Spaces By Use	
Use	Minimum Standard
Farmer's Markets (See Section 11-20-29)	1 space per 400 square feet of designated vendor area
Recreation	
Bowling centers	5 spaces per lane plus ancillary use requirements
Golf driving range	1 space per tee plus ancillary use requirements
Miniature golf, amusement parks, batting ranges, and water slides	1 space per 500 square feet of outdoor recreations area plus ancillary use requirements
Health space and clubs, gyms, and tennis, handball, and racquetball courts and clubs	1 space per 100 square feet, excluding courts, plus 2 spaces per court
Skating rinks and dance halls	1 space per 75 square feet used for recreational activities plus ancillary use requirements
Group Industrial Buildings and Uses	
Shell buildings (no specified use)	75% at 1 space per 500 square feet plus 25% at 1 space per 375 square feet
Independent Industrial Buildings and Uses	
Mini-storage (dead storage only)	4 spaces plus 2 for manager's quarters; Drive aisles between buildings shall maintain minimum distance of 24 feet
Warehousing and Storage, excluding Min-storage	1 space per 900 square feet
Industrial	1 space per 600 square feet
Airport Buildings and Uses	
Aircraft Hangars	2 per aircraft, plus ancillary use requirements
Public Facilities and Uses	
Fire stations	1 space per bed, plus 1 space per 75 square feet for Community Room
Police Substations	1 space per 300 square feet, plus 1 space per 75 square feet for Community Room, plus ancillary use requirements

B. **Basis of Calculation.** The on-site parking requirements specified in this Section are based on gross floor area unless otherwise stated.

1. In the case of mixed uses, the total requirements for off-street parking spaces shall be the sum of the requirements of the various uses computed separately as specified in this Section, and the off-street parking space for one use shall not be considered as providing the required off-street parking for any other use, unless a Shared Parking Plan has been approved in accordance with the requirements of Section 11-32-5.
2. In case of fractional results in calculating parking requirements from the chart above, the required number shall be rounded up to the nearest whole number.

C. **Maximum Parking Spaces.** The number of parking spaces provided by any development in surface parking lots shall not exceed 125% of the minimum required spaces in Table 11-32-3(A), except as follows:

[Return to Page 1](#)

LUC	Land Use	Units	Setting	Weekday
021	Commerical Airport	Daily Enplanements	General Urban/Suburban	0.29
022	General Aviation Airport	Employees		-
030	Intermodal Truck Terminal	1,000 square feet		-
		Employees		-
090	Park-and-Ride Lot with Bus or Light Rail Service	Boardings (1,000)	General Urban/Suburban	85.35
			Dense Multi-Use Urban	43.4
		Parking Spaces	General Urban/Suburban	0.63
			Dense Multi-Use Urban	0.78
110	General Light Industrial	1,000 square feet		0.55
		Employees		0.55
130	Industrial Park	1,000 square feet		1.2
		Employees		0.86
140	Manufacturing	1,000 square feet		0.92
		Acres		-
		Employees		0.81
150	Warehousing	1,000 square feet		0.39
		Employees		0.78
151	Mini-Warehouse	1,000 square feet		0.1
		Storage units (100s)		1.36
		Employees		1.57
		Occupied Storage units (100s)		-
154	High-Cube Transload & Short Term Storage Warehouse	1,000 square feet		-
155	High-Cube Fulfillment Center Warehouse	1,000 square feet		-
156	High-Cube Parcel Hub Warehouse	1,000 square feet		-
157	High-Cube Cold Storage Warehouse	1,000 square feet		-

Land Use: 110 General Light Industrial

Description

A light industrial facility is a free-standing facility devoted to a single use. The facility has an emphasis on activities other than manufacturing and typically has minimal office space. Typical light industrial activities include printing, material testing, and assembly of data processing equipment. Industrial park (Land Use 130) and manufacturing (Land Use 140) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

The sites were surveyed in the 1980s, the 2000s, and the 2010s in Colorado, Connecticut, Indiana, New Jersey, New York, Oregon, Pennsylvania, and Texas.

Source Numbers

106, 157, 174, 177, 179, 184, 191, 251, 253, 286, 300, 611, 874, 875, 912

General Light Industrial (110)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 37

Avg. 1000 Sq. Ft. GFA: 45

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.87	0.34 - 43.86	4.08

Data Plot and Equation

