

December 16, 2021

Ms. Julianne Hanak, Construction Project Manager  
 Shamrock Foods Company  
 3900 East Camelback Road, Suite 300  
 Phoenix, Arizona 85018



**RE: PARKING DEMAND STUDY FOR A SHAMROCK FOODS COMPANY FOOD SERVICE WAREHOUSE –  
 3615 EAST INDUSTRIAL DRIVE, FLAGSTAFF**

Dear Ms. Hanak:

Thank you for engaging CivTech to provide Shamrock Foods (the “**Client**”) with this parking demand study for the proposed redevelopment of its existing facility at 3615 East Industrial Drive in the City of Flagstaff, Arizona. The site consists of two parcels already owned by Shamrock fronting Industrial Drive that total a combined 74,651 square feet (SF) or 1.71 acres. The existing site includes a food service warehouse and also serves as a transportation hub. The latter use will be moved off-site to another area in Flagstaff when the site is redeveloped.

**PROPOSED DEVELOPMENT**

As currently planned, by 2022, Shamrock will construct a new food service warehouse with 18,680 square feet (SF) of floor area on the east lot (the current parking lot) and the existing building will be razed to provide a new parking lot providing 45 stalls. The new warehouse will cater to the local independent restaurant/food service industry and is opened from 7 AM to 7 PM daily. A review of the site plan reveals that, unlike a traditional grocery store or supermarket, there will be no storage area. Upon delivery, all wares are put out for sale, either on shelves or in freezers and coolers.

**CITY OF FLAGSTAFF PARKING REQUIREMENT**

Motor vehicle and bicycle parking requirements are addressed in Division 10-50.80 of the *Flagstaff City Code*. Of the land uses listed under the heading “Retail Trade,” CivTech assumed the most applicable use to be “General Retail Business” since the facility is neither a convenience store or traditional supermarket or grocery store. In accordance with the parking requirements in the code, a grocery or supermarket requires 1 parking space per 300 gsf (gross square feet). The City also requires the greater of two bicycle parking spaces or the equivalent of five percent of the off-street parking requirements. **Table 1** summarizes the required parking.

**TABLE 1 – REQUIRED PARKING SPACES PER CITY OF FLAGSTAFF’S ZONING CODE**

Project Data		Motor Vehicle Spaces Required per Code		Bicycle Spaces Required per Code	
Land Use	Quantity Units	Ratio	Spaces	Ratio	Spaces
General Retail Business	18,680 SF	1 space per 300 SF	63	5% of Motor Vehicle, min. 2	3
<b>Total Parking Spaces Provided</b>			<b>45</b>		<b>5</b>
<b>Excess(Shortage)</b>			<b>(18)</b>		<b>2</b>

As summarized in **Table 1**, the required parking based on the City's Zoning Code is 63 motor vehicle parking spaces (62.27 spaces rounded up) and 3 bicycle spaces. Per the expected conditions, 45 motor vehicle parking spaces and a 5-bicycle rack will be provided on-site for the new food service warehouse, resulting in a shortage of 18 motor vehicle parking spaces (before any allowable reductions) and an excess of 1 bicycle space. Three of the spaces will be reserved for the disabled and marked and signed per ADA requirements.

### PARKING ADJUSTMENTS

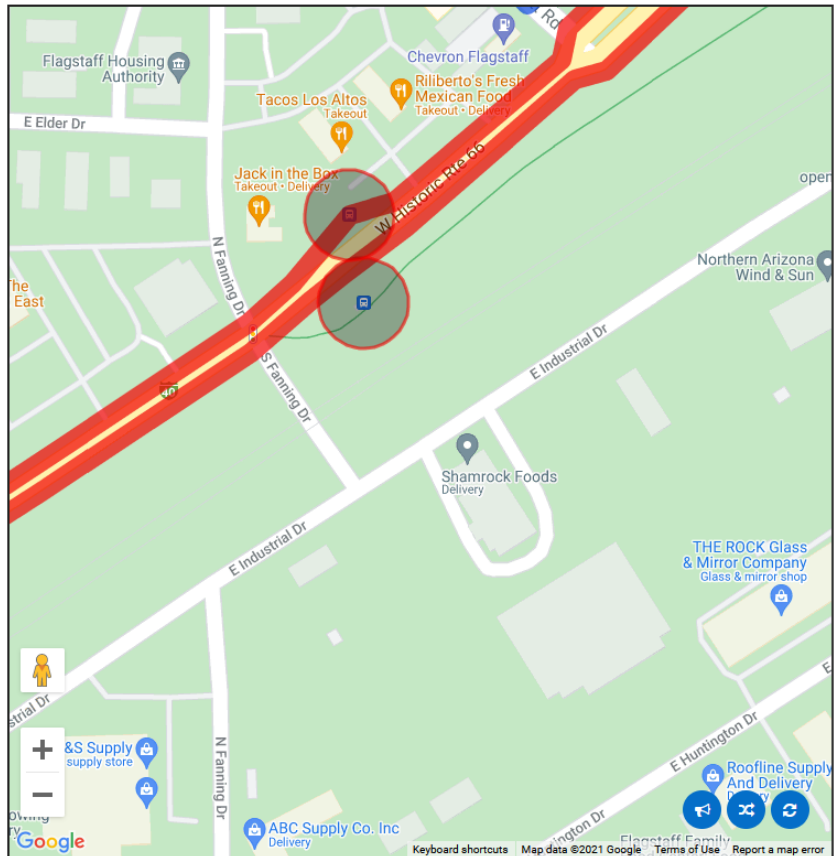
The *Flagstaff City Code Title 10, Flagstaff Zoning Code Section 10-50.80.060* allows that more than one parking adjustment may be applied.

Per Section 10-50.80.060, A. Transit Reduction, "A parking reduction of up to 10 percent may be approved by the Director for any use within one-quarter of a mile of bus stop." A bus stop for NAIPTA Red Route #66 on the south side of Route 66 just east of Fanning Drive is less than 500 feet from the Shamrock site. This stop and its corresponding stop on the north side, both depicted in **Figure 1**, are less than one-quarter mile from the Shamrock site. Thus, the site qualifies for the transit reduction of 10% or 6.22 spaces.

As noted, at least 4 bicycle spaces are required. Per Section 10-50.80.060, F. Bicycle Parking Reduction, "The Director may allow a reduction of one required motor vehicle parking space for each four bicycle parking spaces provided to a maximum of five percent (5%) of the required motor vehicle parking spaces." Thus, the 4 bicycle spaces provided can offset up to 1 parking space, as long as the 1 space is less than 5% of the total required parking. In this case, 5% of the required motor vehicle parking spaces is 3 parking spaces; thus, the maximum reduction that can be taken for the bicycle parking reduction is 1.25 spaces, or the 5 spaces in the bike rack provided divided by 4.

The reductions to the required 75 parking spaces per City of Flagstaff's Zoning Code are summarized in **Table 2**.

Live Route Map



**FIGURE 1 – VICINITY MAP WITH BUS STOPS NEAR SITE**

**TABLE 2 – REQUIRED PARKING SPACES PER CITY OF FLAGSTAFF’S ZONING CODE AFTER REDUCTIONS**

Project Data		Motor Vehicle Spaces Required per Code		Bicycle Spaces Required per Code	
Land Use	Quantity Units	Ratio	Spaces	Ratio	Spaces
General Retail Business	18,680 SF	1 space per 300 SF	62.26	5% of Motor Vehicle, min. 2	3
	<i>Transit Reduction</i>	<i>10%</i>	<i>6.22</i>		
	<i>Bicycle Parking Reduction</i>	<i>1 space per 4 bike spaces (max. 5%)</i>	<i>1.25</i>		
<b>Total Parking Spaces Required</b>			<b>55</b>		
<b>Total Parking Spaces Provided</b>			<b>45</b>		<b>5</b>
<b>Excess(Shortage)</b>			<b>(10)</b>		<b>2</b>

The resulting allowable reductions to the 62.26 required parking spaces include a 6.22-parking space transit reduction and a 1.25-parking space bicycle parking reduction. The total number of parking spaces required after these reductions is 55 parking spaces, which is 8 fewer than the number of spaces required before allowable reductions. After the reductions, there is still a shortage of 10 parking spaces when comparing the proposed 45 parking spaces to the required 55 parking spaces per the code after allowable reductions. Under the City Code a minimum of 4 bicycle parking spaces is required; thus, a bicycle rack with a capacity of 5 bicycle spaces provides 2 more spaces than required by the City.

**PARKING DEMAND**

Per Section 10-50.80.060, C. Parking Demand Study, the City may approve a reduction in the amount of parking from that otherwise required by this division based on the completion and submittal of a parking demand study completed in accordance with established professional practices. Therefore, CivTech considered two approaches to establishing an appropriate parking demand.

ITE Parking Generation. The first approach is based on parking rates published by the Institute of Transportation Engineers (ITE) in the latest (5<sup>th</sup>) edition of its *Parking Generation Manual*. The manual has two potential candidate land uses. The ITE Land Use Code (LUC) for a Supermarket is LUC 850. **Table 3** summarizes these rates for the three periods for which (sufficient) data is available. *Please note that these are for a supermarket in a "General Urban/Suburban" setting, which may imply that the data was recorded in metropolitan areas larger and more densely-populated than Flagstaff. That alone may render the data suspect. Also, while a supermarket use is more akin to the Shamrock food service warehouse than any other land use in the ITE manual, there are still substantive differences.*

**TABLE 3 – ITE PARKING RATIOS FOR LUC 850, SUPERMARKET\***

Day(s)	Hours	Low	33 <sup>rd</sup> %-ile	Average	85 <sup>th</sup> %-ile	High
Monday-Thursday	12:00 – 6:00 PM	1.89	2.70	2.93	4.07	5.08
Friday	1:00 – 5:00 PM	2.64	<b>3.20</b>	<b>4.59</b>	6.87	7.59
Saturday	11:00 AM – 5:00 PM	<b>1.54</b>	2.92	3.64	4.82	<b>7.97</b>

\* (All ratios are expressed in spaces per 1,000 SF, or KSF.)

A review of the parking ratios summarized in **Table 3** reveals that the lowest and highest ratios were recorded on a Saturday. Applying these two ratios to the 18,860-SF floor area of the Shamrock store expressed in KSF (i.e., 18.680 KSF) yields a range with a low of 29 spaces to a high of 149 spaces.



Applying the highest average rate of 4.59 spaces/KSF yields a need for 86 spaces. The ratio that best approximates the City’s requirement of 1 space per 300 SF, which is equivalent to 3.33 spaces per KSF, is the ratio of 3.20 spaces per KSF that is the 33<sup>rd</sup> percentile ratio for Friday afternoon from 1:00 to 5:00 PM. Therefore, given this sampling of results, CivTech concludes it would not be appropriate to base a justification for a reduced number of parking spaces for the Shamrock food service warehouse by use of ITE Supermarket land use parking ratios.

*Shamrock Experience.* The second approach is to mimic the approach taken by CivTech in the companion traffic study it prepared in 2020 and to use data provided by Shamrock from some of its other similar food service warehouses. None was able to provide parking occupancy counts (whereby an observer recorded how many parking spaces were occupied on an hourly or half-hourly basis), but CivTech did receive hourly transaction data from the Shamrock food service warehouse in Fort Collins, Colorado. In an email transmitting the data to CivTech, Fort Collins was described to CivTech as having “a similar market size to Flagstaff.” The data provided was recorded over a three-month period and transactions per hour averages calculated. CivTech intends to use these hourly averages as proxies, in essence assuming one transaction represents one person in a vehicle. In addition, it was indicated to CivTech that up to 6 employees may be working at any one time in the facility. CivTech will also assume some adjustment for the overlap of arriving and departing vehicles and that, occasionally, two partners in a restaurant business may arrive in separate vehicles to meet and do the shopping for the day or next day, and leave after having completed just a single transaction. CivTech will also make an allowance that the hourly averages themselves are calculated from numbers of transactions can vary during the same hour from day to day and that the need could be higher need than the average may suggest.

**Table 4** summarizes the hourly transaction data provided by Shamrock for its Fort Collins food service warehouse. These data are averages from the three-month period beginning June 22, 2021 and ending September 21, 2021.

**TABLE 4 – HOURLY TRANSACTIONS FORT COLLINS (CO) SHAMROCKFOOR SERVICE WAREHOUSE**

Hour beginning:	6 AM	7AM	8AM	9AM	10 AM	11 AM	12 N	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7PM	Total
Average Transactions:	0.7	7.4	13.6	23.9	28.0	<b>28.5</b>	25.9	26.1	26.7	24.4	18.8	15.0	11.9	2.3	253.2

As noted above, 45 parking stalls are to be provided, three of which will be reserved for the disabled and another 6 for employees. Thus, for establishing the sufficient of the parking based on the Fort Collins data, CivTech will consider only the 36 parking spaces available to the general public. With a peak average of 29 hourly transactions (rounded up from 28.5), there is capacity for 7 more spaces or approximately 24%.

CivTech noted several adjustments that should be considered to make certain that the 36 spaces are sufficient. Each is assessed below.

*Overlap.* When engineers consider how a parking lot operates, there is always some consideration of the overlap of arriving and departing vehicles, especially in an environment where there are scheduled start and stop times of a sequence of events over the course of a day, such as at a place of worship.

Typically, it is considered that the capacity of the parking lot should be about ten percent more than the expected need to allow those arriving early to park before those departing early start to leave. Ten percent of 29 spaces would be another 3 spaces.

*Hourly Variations.* As noted, hourly average rates were provided for Shamrocks Fort Collins food service warehouse. An average is the sum of numbers divided by the count of individual numbers added. Thus, during the same hour, the transactions recorded could vary from one day to the next. However, as a business that provides products for other businesses, CivTech expects the fluctuations to be fairly minimal as there are no “loss-leaders” causing the number of customers to spike dramatically as might happen at a traditional supermarket. Additionally, there is little or no advertising in the electronic media, and so forth, leading CivTech to conclude that those who shop at a Shamrock food service warehouse likely do so on a fairly regular basis because that is what they need to do for their businesses and they do it on a regular schedule. Therefore, CivTech will assume that the peak numbers of hourly transactions are approximately ten percent above than the average. As above, ten percent of 29 spaces would be another 3 spaces.

*Multi-Vehicle Transaction.* CivTech also noted the possibility of one transaction representing two trips, by business partners or couples who might meet at the store because it is convenient, do the shopping, and then go from there. CivTech estimates this likelihood to be not more than 1 in any given hour and that the situation as described would most likely arise at the beginning or end of the business day, not during the busier midday hours. For purposes of this analysis, the need for 1 additional space is assumed.

Adding to the 29 average spaces allowances for 3 overlap spaces, 3 more spaces for hourly variations, and 1 space for multi-vehicle transactions brings the total to 36 spaces, which leaves no excess—and no shortage—of spaces. Therefore, the proposed parking lot with 36 spaces is sufficient.

## **SUMMARY AND CONCLUSIONS**

Shamrock Foods is proposing to improve its Flagstaff facilities by constructing a new 18,680-SF food service warehouse on its east lot (the current parking lot), razing the existing building to provide a new parking lot, and moving its existing transportation hub facilities off-site to somewhere else in the Flagstaff area. While no substantial increase in the number of customers is being anticipated, the estimates of parking spaces required documented herein are based on a Shamrock Farms food service warehouse in Fort Collins, Colorado.

Based on the foregoing, CivTech concludes the following:

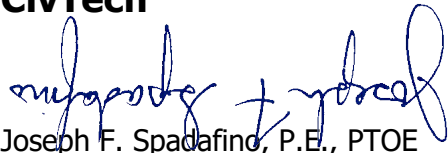
- The required parking based on the City’s Zoning Code is 63 motor vehicle parking spaces and 3 bicycle spaces.
- Per the expected conditions, 45 motor vehicle parking spaces and a 5-bicycle rack will be provided on-site for the new food service warehouse, resulting in a shortage of 18 motor vehicle parking spaces (before any allowable reductions) and an excess of 2 bicycle spaces.
- Three of the spaces will be spaces near the store entrance will be reserved for the disabled and marked and signed per ADA requirements.

- The total number of parking spaces required after allowable reductions is 55 parking spaces, which is 8 fewer than the number of spaces required before allowable reductions. After the reductions, there is still a shortage of 10 parking spaces when comparing the proposed 45 parking spaces to the required 66 parking spaces per the code after allowable reductions.
- It would not be appropriate to base a justification for a reduced number of parking spaces for the Shamrock food service warehouse by use of ITE Supermarket land use parking ratios.
- Based on Shamrock Fort Collins data and after allowing for 6 employee parking spaces, considering only the 36 parking spaces available to the general public, with a peak average of 29 hourly transactions, there is capacity for 7 more spaces or approximately 24%.
- Adding to the 29 average spaces allowances for 3 overlap spaces, 3 more spaces for hourly variations, and 1 space for multi-vehicle transactions brings the total to 36 spaces, which leaves no excess—and no shortage—of spaces. Therefore, the proposed parking lot with 45 spaces is sufficient.

Thank you for allowing CivTech to assist you on this project. Please contact me with any questions you may have on this statement.

Sincerely,

**CivTech**



Joseph F. Spadafino, P.E., PTOE  
Senior Project Manager/Traffic Engineer

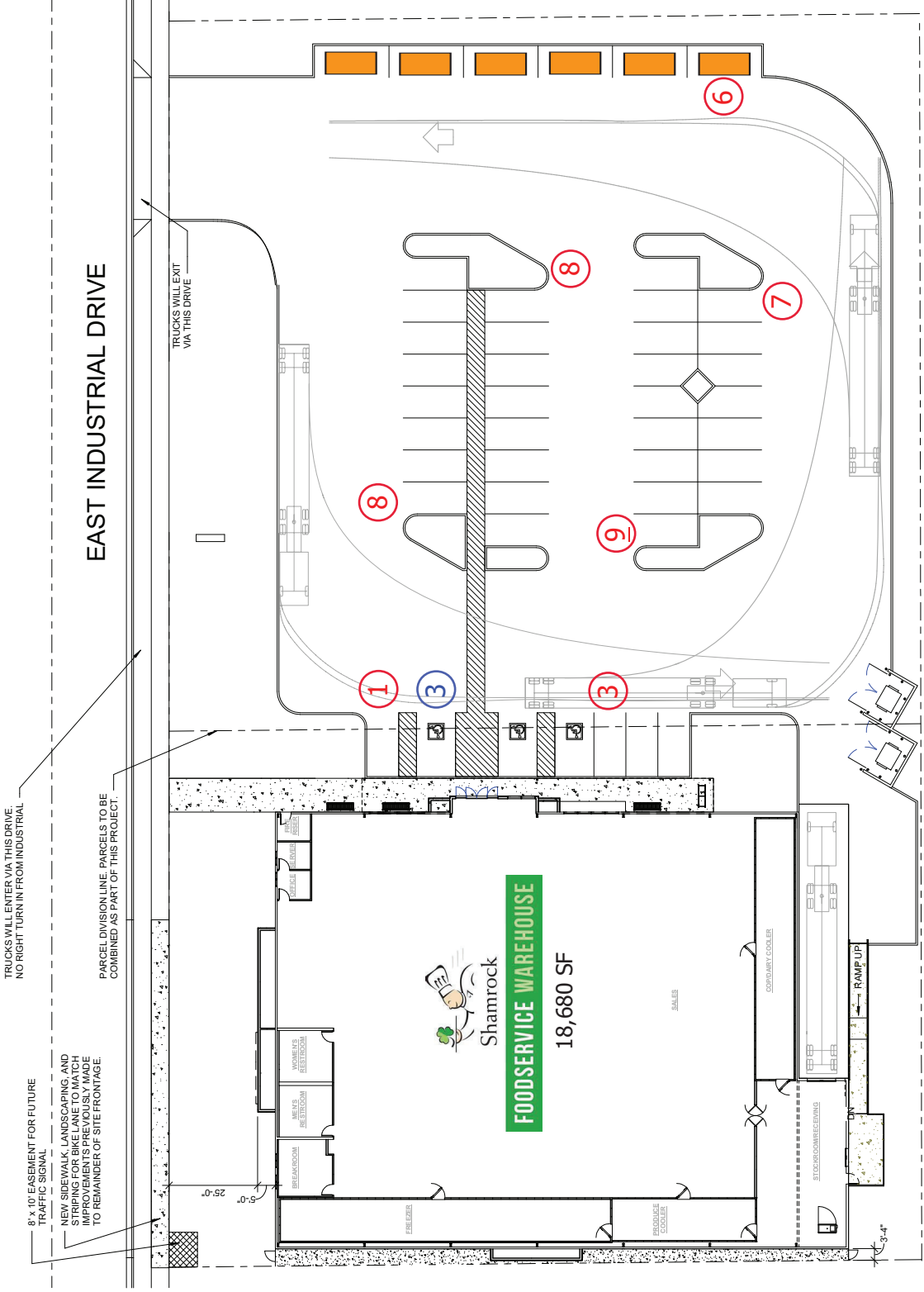
Attachment

FANNING DRIVE

**LEGEND**

- 36 Std Spaces (Public)
- 6 Std Spaces (Employees)
- 3 ADA Spaces

45 Spaces Total



**Attachment A: Site Plan**

