

Parking Study Update City of Flagstaff

FINAL REPORT



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City of Flagstaff
Arizona



RICH & ASSOCIATES
PARKING CONSULTANTS

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Section 1 - Executive Summary

Introduction

Rich & Associates have been asked to complete an update to a parking study completed for the City of Flagstaff, Arizona in 2009. This analysis is based on updated land use data provided by the City and parking supply information collected by Rich & Associates supported by a one-day occupancy count to evaluate how the current parking is being used. Although the analysis will analyze both sides of Historic Route 66, the analysis and results will be presented separately considering the unique conditions for each side of the downtown.

The demand is based on data collected in late July and Early August of 2018 and is intended to demonstrate conditions allowing for the impact from the peak summer tourist season.

Methodology

Rich uses the land use data provided from the City's GIS system validated by the field data collection for the types of land uses as a basis for determining the parking demand. Additionally, all on-street and off-street parking supply for the defined blocks is inventoried and classified as whether it is public or private parking. Rich defines public parking as parking that is available to anyone regardless of their destination. It therefore may include privately owned lots which charge a fee for parking but have no restrictions that someone must be visiting a specific destination. Private parking is reserved just for the staff or customers of specific businesses or offices or for the residents of apartment uses.

In order to provide a benchmark to compare the calculated parking needs based on the land use data, Rich performed an occupancy analysis for both the north and south sides of downtown. As noted above, this occupancy study was scheduled and conducted to occur during the peak summer tourist season. The counts began at 9:00 am on Thursday, August 2, 2018 and had counts conducted every two hours until 9:00 pm. Approximately 80 percent of the total parking supply on the north side and 69 percent of the south side supply including 100 percent of the publicly available off-street spaces on the south side and 82 percent of the on-street parking on the south side was directly inventoried in the analysis. Rich then corrected for any spaces not directly observed in order to have a comparison of the occupancy for the north and south sides of downtown.

Map 1 on page 2 shows the total downtown study area. Blocks 1 through 22 encompassed the entire south side study area while blocks 23 through 44 were the north side area. These were the blocks originally studied as part of the 2009 analysis. Blocks A, B, H & I were added for this latest analysis at the requests of the City. These blocks were all on the north side of the downtown.



**CITY FLAGSTAFF
ARIZONA**

Parking Study Update

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LEGEND:

- # Block Numbers
- Study Area

Sheet Title:

STUDY AREA

File No.	1907	
Scale	n/a	
Date	10/10/18	
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North Downtown

The north side of Downtown Flagstaff is characterized by multiple types of land uses from retail to restaurant, mixed-use but with a high proportion of City and County government functions. Fully one-third of the total building square footage on the north side of the downtown is attributable to government. This has a high impact on the daily parking needs.

Parking Supply

The parking supply serving downtown Flagstaff totals 2,348 spaces. This is composed of 576 on-street spaces and 1,772 off-street spaces. More than two-thirds of the parking supply is privately controlled which means it is intended primarily for the staff, customers or visitors of specific entities. The configuration is summarized by **Table ES1** below.

Table ES1 – North Downtown Parking Supply Summary

North Side of Downtown						
	Public		Private		Total	
On-Street	576	100.0%	0	0.0%	576	24.5%
Off-Street	166	9.4%	1,606	90.6%	1,772	75.5%
Total	742	31.6%	1,606	68.4%	2,348	100.0%

Occupancy Study Results / Parking Demand

Using provided land use data supported by Rich & Associates field data collection, Rich calculated the parking demand for the north side of downtown benchmarked to the observations conducted on August 2, 2018 between 9:00 am and 9:00 pm. The observations and calculated parking demand showed a peak need occurring between 3:00 pm and 5:00 pm when 1,362 spaces were occupied of 2,348 total available spaces. Correlating the calculated parking demand to this value would show that the north side of downtown would have a surplus of 986± spaces if total parking demand is compared against total parking supply and reflecting a shared-use analysis. In shared-use, spaces needed by one group can often be used by a different group with a complementary demand period such as office and restaurant. Office uses tend to peak earlier in the day whereas restaurant demand peaks much later. Therefore, parking spaces needed by restaurant patrons can be the same spaces that office workers may have used earlier in the day.

However, on the north side of downtown, just 32 percent of the supply is publicly available with the balance privately controlled. This creates issues because many private parking owners will prohibit use of their parking by outside users. If the surplus private parking (spaces not needed by businesses in their lots which are typically not made available to other users) are discarded from the calculation, the gross surplus become just 184± spaces. This is referred to as the “net basis”.

Additionally, on the north side of downtown, there are various City and County government offices and functions that comprise a large proportion of the building square footage and so have a considerable effect on downtown parking needs. The analysis of the demand as determined from the parking demand model showed that the government uses exhibited a peak need between about 11:00 am and 12:00 noon. At this time of day, although the total parking demand was only slightly lower at 1,341 spaces needed, the impact on the net parking surplus is considerable. With the slightly lower demand (1,341 spaces), the gross surplus which is total parking supply minus total parking demand would increase slightly from 986± spaces to 1,007± spaces. However, applying the parking demand on each block first to the private supply on that block and following the assumption that any surplus capacity cannot be used by the general public and therefore discounting them, the net surplus is reduced from 184± spaces using the overall peak to just 118± spaces at the government peak hour.

Rich has also factored the parking demand to account for the possibility that the demand observed on the date corresponding to the occupancy counts was not representative of a peak planning day. The parking demand model was calibrated to the observed conditions and therefore, Rich has projected the needs assuming that they could be from five percent to perhaps 15 percent greater. Using the values corresponding to the government peak hour, the comparison of the net demand values shows that at five percent higher demand (1,408 spaces needed) that the net surplus would be reduced from 118± spaces corresponding to the observed day to just 70± spaces on a slightly busier day. Projecting the parking demand to be 10 percent higher than the values observed would mean a net surplus for the entire downtown of just 23 spaces, again after discounting surplus privately controlled parking.

Public Parking Needs

A standard or rule-of-thumb in the parking industry is that about 15 percent of spaces should be available in order for someone to easily find parking. Applying this standard to the anticipated parking needs as calculated and using the observed day values at the government peak hour, about 84 percent of the publicly available spaces would be expected to be occupied. Using demand increased by five percent would mean about 50 additional public parking spaces should be provided on the north side of downtown in order to meet the 15 percent vacancy benchmark.

At values 10 percent higher than the observed day conditions, just over 100 additional publicly available parking spaces would be needed in order to have a maximum occupancy for the publicly provided parking of about 85 percent.

South Downtown

Contrary to the land use allocation on the north side of downtown, the south has more commercial uses with very little impact from government related functions. Much of the parking demand on the south side comes from the commercial functions with a special significant impact from restaurant uses particularly during the peak hour period.

Parking Supply

Parking serving the needs of south downtown is split 50/50 between that which is publicly available and that which is privately provided. This division meets Rich’s best practice that at least 50 percent be publicly available in order to foster a walkable community where patrons can park once and walk to multiple destinations without having to move their vehicle in between each stop.

Table ES2 – South Side Parking Supply Summary

South Side of Downtown						
	Public		Private		Total	
On-Street	462	100.0%	0	0.0%	462	30.6%
Off-Street	302	28.8%	745	71.2%	1,047	69.4%
Total	764	50.6%	745	49.4%	1,509	100.0%

Public and private parking supply on the south side of downtown totals 1,509 spaces. Sixty percent of the publicly available parking is on-street with just 40 percent of the capacity in four City owned and two private lots that charge a fee for parking and are therefore considered public.

Occupancy Study Results / Parking Demand South Side

Calculating the parking demand correlated to the observed conditions shows that the calculated demand peaked at 707± spaces needed between 5:00 pm and 6:00 pm which matches the 708± spaces expected to be occupied based on the occupancy counts after correcting for spaces not directly observed.

The parking demand associated with the restaurant land uses accounts for nearly 60 percent of the peak hour parking demand in the early evening and just over one-third of the afternoon peak (11:00 am – 12:00 noon) as many of the other land uses have more impact on total parking needs.

The 707-space parking demand compared against the 1,509 spaces available shows that on the gross basis, the south side would have a surplus of 802± spaces at the peak hour meaning less than 50 percent of the total parking supply is being used at the peak hour. The gross surplus / deficit figure simply compares total parking demand against total parking supply. While a comparison of total demand against total supply can provide some indication of the relative “parking health” of a community, the total comparison is slightly misleading. This is because it includes private parking where the “extra” spaces are not necessarily available to the general public. The parking spaces in these facilities are only intended for the staff, customers or staff of that business. If your destination is not that business, you may not park in that lot.

Following the assumption that parking provided by a business is likely going to be the most convenient as well as free and therefore the preferred choice, the net surplus calculation first applies the parking demand on each block to the private parking supply. Any private spaces that exceed the demand are discarded from the calculation for the reason noted above. Therefore, the “net surplus / deficit” calculation deducts surplus private parking in order to derive a truer representation of the parking needs faced by many patrons. After making this adjustment the “net surplus” for the south side is 589± spaces reduced from the 802± spaces calculated on the gross basis.

Unlike the north side of downtown with its high proportion of private parking, the south side of downtown has a greater proportion of the parking publicly available. With the higher proportion of parking publicly available, this means that there is consequently greater opportunity to use public parking even if private parking options are available.

While application of the parking demand model in the manner noted above suggests that private parking should be the preferred choice, analysis of the public parking utilization from the occupancy counts suggests that many patrons may be electing to use public parking rather than the private supply. This may be not only because there are many spaces still free although time limited on the south side as well as use of public supply allows them to visit multiple destinations once parked.

Allocating demand first to the private parking we would expect that about 70 percent of the privately controlled spaces would be occupied and just 23 percent of the public supply. However, based on data contained within the occupancy counts and on the 707± space calculated peak hour demand, it appears that just 41 percent of the available private supply (303 spaces) would be used leaving 404± public spaces occupied. These calculations still show that just 53 percent of the available public parking supply is occupied.

Adjusted Parking Demand – Alternative Peak Day Values

The parking demand as demonstrated was calculated and calibrated to the conditions observed on Thursday August 2, 2018. This was the date that the occupancy count was performed in Downtown Flagstaff. Although this was during the summer peak tourist season, it is undetermined whether the volume of activity on this date represents a peak planning day for parking analysis purposes. Therefore, Rich has calculated the parking demand by adjusting the peak by from five percent to 15 percent higher values to demonstrate the impact that higher volumes may have on parking needs.

Adjusting the calculated parking demand by five percent would increase the peak hour demand to 743± spaces. Applying the same proportion for use of public and private parking as calculated for the observed day, would mean an expected 313 private spaces would be occupied and 430 publicly available spaces. This would represent just 56 percent of the publicly available supply. Even with adjusted values by as much as 15 percent greater than conditions observed would still mean that just 64 percent of publicly available spaces would be expected to be occupied. With best practices to manage public parking such that at least 15 percent of capacity (85 percent occupancy) is available, the data suggests that the south side of Downtown Flagstaff should continue to have adequate publicly available parking based on the existing conditions.

Table ES3 - Public Parking Occupancy Projections

Pct Change Observation Day	Peak Hour Demand (5:00 PM - 6:00 PM)				
	Peak Demand (Shared)	Private Parking		Public Parking	
		Expected # Spaces Occupied	Pct of Private Supply	Expected # Spaces Occupied	Pct of Public Supply
0%	707	303	41%	404	53%
5%	743	313	42%	430	56%
10%	778	321	43%	457	60%
15%	813	326	44%	487	64%

2009 / 2018 Study Comparison

There is a substantial difference between the total parking demand values calculated in the 2009 study and the current parking demand model. This is primarily due to a change in the methodology of reporting information. The methodology employed at the time of the 2009 study calculates the parking demand for each block individually by assuming that all demand on that block wants to park on that block. Therefore, the calculated demand for each block did not factor for the availability of parking, the location of competing parking or the price in the determination of the need for parking. This compares to the needs as calculated now that also considers the demand for parking on a block but also that some of the same parking spaces needed by a group with a later peak are ones that were previously occupied by users from a different group, and because that demand has now decreased, some of those same parking spaces are available. This reduces the overall parking need. This is considered shared use which is much more widely applied now. In the past, typically once this “theoretical” demand for parking by block had been established, additional factors would need to be considered to derive actual parking need. The occupancy counts in 2009 showed not only a variation in usage throughout the survey day but also less than full occupancy of the on-street and off-street parking spaces. This frequent inconsistency was difficult and confusing to demonstrate to client communities.

This in turn led to a methodology demonstrated in the 2018 analysis that relates the ‘calculated’ parking demand to actually observed conditions. It makes it much clearer and easier to understand the parking demand when the parking generation (demand) factors applied to the land use square footage values show a parking need that can be related to what is actually happening via the observations. Once this correlation is established, appropriate adjustments (such as adding a percentage to account for likely higher days of utilization) can be employed. The current model understands and applies factors that will vary with lower restaurant demand, for example, earlier in the day increasing to a lunch peak, declining and then rising again to coincide with a dinner or evening peak. At this same later afternoon or evening period, parking needed by office and government uses would have substantially declined as the businesses closed or activity began to wind down for the day. We can also demonstrate the limited availability of private parking to non-patrons by “throwing out” from the surplus / deficit calculation any “surplus” private spaces because they are not available to the general public or users from adjacent blocks. Because patrons use of parking by its nature are considering factors such as the availability of parking at the destination, available parking on adjacent blocks, walking to destinations on adjacent blocks and pricing, the recent model will reflect this with lower values that can relate to what is actually occurring.

Other factors that should be considered include the fact that there is more management of the parking spaces via the paid system today and that Rich has also found that parking generation rates have decreased across the country.

Section 2 – North Side Analysis

The City of Flagstaff has requested this update of the parking study performed for the City in 2009. Since the time of the initial analysis, the City has implemented the Park Flag system to help manage on and off-street spaces. This is done by the fees charged for parking. In most spaces covered by the payment system, cars can stay for as long as desired so long as the hourly fee (\$1.00 per hour) is paid. There are, however, still some on and off-street spaces which are free but time limited. In addition to this public parking, there is a considerable inventory of privately controlled parking that is only available to the customers, staff or visitors of the owning entity. This includes spaces operated by various City or County offices within the downtown. The intent of this update is to help the City identify when and where peak needs are occurring and how this affects the availability of parking so that appropriate planning may be conducted.

Parking Supply

The detailed parking inventory providing for the needs on the north side of downtown Flagstaff totals approximately 2,300± spaces. The parking is split with 32 percent publicly available (on and off-street) and 68 percent privately provided. Rich defines public parking as parking that a patron may use and then visit any destination(s) they wish. As such, it may include parking provided by a private entity but available to anyone so long as they pay the daily fee. This contrast with private parking that is only intended for the staff, customers or visitors of the owning entity. At the conclusion of their visit, the patron is generally expected to move their vehicle to make way for the next customer. Rich’s best practice is that a municipality control at least 50 percent of the parking supply in order to foster a more walkable community.

Table 1 below summarizes the on and off-street supply for the north side of Downtown Flagstaff. Of the 742 public spaces on the north side, 576 are on-street and just 166 spaces are provided in off-street lots or facilities. This includes 63 spaces in an underground facility managed by American Valet on block 35 which charges an initial rate of \$4.00 the first hour or any part thereof.

Table 1 - North Side Summary Table

North Side of Downtown						
	Public		Private		Total	
On-Street	576	100.0%	0	0.0%	576	24.5%
Off-Street	166	9.4%	1,606	90.6%	1,772	75.5%
Total	742	31.6%	1,606	68.4%	2,348	100.0%

Map 2 on page 17 shows the on and off-street parking supply for the north side of Downtown. Parking areas which are privately controlled are shown in red while off-street publicly available parking areas are shown in blue along with the total capacity of the parking facility. The letter designations are keyed to **Table 2** on page 11 which details the off-street parking supply.

On-street parking is also shown on the map. All on-street parking is considered publicly available. Spaces encompassed in the Park Flag system are shown in orange while unmarked spaces with no time limit are shown in green. These spaces were primarily associated with the blocks just added as part of this update (A, B, H & I). The two-hour spaces were along Route 66 or on the north side of the park across from City Hall. **Table 3** beginning on page 14 details the on-street parking.

It will be noted that the on-street supply detail shows blocks numbered as 322, 400, 411 and 422. These are blocks just outside the study area boundaries and just north of blocks 32, 40, 41 and 42 respectively. These were added and included because of the on-street parking along the south face of each of these blocks that Rich feels is likely used by parking needs inside the defined study area.

Table 2 - Off-Street Parking Supply Detail

			Private Off-Street			Public Off-Street				Public / Private
Block	Revise Map Ltr	Description	Off-Street	Barrier		Pay-to-park	Public General		Barrier Free	Total
				Free	FX Permit		(Free/ Time Limited)	Pay-to-park EX Exempt		
23	A	Lot	0	6	110	0	0	0	0	
		Block Total	0	6	110	0	0	0	0	116
24		No Off-St Supply								
		Block Total	0	0	0	0	0	0	0	0
25	B	Pawn Shop	13	0	0	0	0	0	0	
	C	Northwest Lot	75	0	0	0	0	0	0	
	D	City Court Building	16	1	0	0	0	0	0	
	E	Fast Auto Loans, Inc.	13	0	0	0	0	0	0	
	F	Public Southeast Lot	0	0	0	23	0	0	2	
	G	Rodeway Inn Lot	14	1	0	0	0	0	0	
		Block Total	131	2	0	23	0	0	2	158
26	H	Sports Exchange	8	0	0	0	0	0	0	
	i	Aspen Deli	2	0	0	0	0	0	0	
	J	Theatre	4	0	0	0	0	0	0	
	K	Jimmy Johns	16	2	0	0	0	0	0	
	L	Peace Surplus	11	0	0	0	0	0	0	
	M	Alpine Pizza	3	0	0	0	0	0	0	
	N	Alley	8	0	0	0	0	0	0	
	O	Weatherford	9	0	0	0	0	0	0	
	P	Private Lot	8	0	0	0	0	0	0	
		Block Total	69	2	0	0	0	0	0	71
27	Q	Public Lot	0	0	0	0	0	0	9	
		Block Total	0	0	0	0	0	0	9	9
28	R	West Of Moon Gallery	7	0	0	0	0	0	0	
	S	MartAnnes Burrito Palace	16	1	0	0	0	0	0	
	T	Arizona Music Pro	9	0	0	0	0	0	0	
		Block Total	32	1	0	0	0	0	0	33
29	U	Babbitt Ford Lincoln		0	0	0	0	0	0	
	V	Run Flagstaff	13	0	0	0	0	0	0	
		Block Total	13	0	0	0	0	0	0	13
30	W	Napa	7	0	0	0	0	0	0	
	X	Ford		0	0	0	0	0	0	
	Y	Wicked AZ Coffee	4	1	0	0	0	0	0	
	Z	Flagstaff Tuxedos, etc.	11	1	0	0	0	0	0	
		Block Total	22	2	0	0	0	0	0	24

Table 2 - Off-Street Parking Supply Detail (Continued)

			Private Off-Street			Public Off-Street				Public / Private
Block	Revise Map Ltr	Description	Off-Street	Barrier Free	FX Permit	Pay-to-park	Public General (Free/ Time Limited)		Barrier Free	Total
							Pay-to-park EX Exempt			
31	AA	Pioneer Title Agency	64	4	0	0	0	0	0	
	AB	Lot		0	0	0	0	0	0	
	AC	Title Max	16	1	0	0	0	0	0	
	AD	Café Daily Fare	23	0	0	0	0	0	0	
		Block Total	103	5	0	0	0	0	0	108
32	AE	Stewart Title Company	10	2	0	0	0	0	0	
	AF	Tenant Only	36	0	0	0	0	0	0	
		Block Total	46	2	0	0	0	0	0	48
33	AG	U.S. Gov't Lot	40	0	0	0	0	0	0	
	AH	Post Office Back Lot	25	0	0	0	0	0	0	
	AI	Performance Reporters	18	0	0	0	0	0	0	
	AJ	IceHouse Side Lot	8	0	0	0	0	0	0	
		Block Total	91	0	0	0	0	0	0	91
34	AK	Alley	19	0	0	0	0	0	0	
	AL	Hotel Monte Vista	22	0	0	0	0	0	0	
	AM	Lotus Lounge	4	0	0	0	0	0	0	
	AN	Bank Of America Kiosk	33	0	0	0	0	0	0	
	AO	Sunwest Bank Top Deck	24	0	0	0	0	0	0	
	AP	Sunwest Bank Lower Level	38	0	0	0	0	0	0	
		Block Total	140	0	0	0	0	0	0	140
35	AQ	2nd Floor Parking Deck	30	0	0	0	0	0	0	
	AR	US Court Probation & Parole	19	0	0	0	0	0	0	
	AS	Underground Garage	0	0	0	63	0	0	0	
		Block Total	49	0	0	63	0	0	0	112
36	AT	Freeman Law	19	0	0	0	0	0	0	
	AU	Deckers	10	1	0	0	0	0	0	
	AV	Heritage Square Trust	0	0	0	20	0	0	1	
	AW	Century Link	20	0	0	0	0	0	0	
		Block Total	49	1	0	20	0	0	1	71
37	AX	Residence Inn	32	5	0	0	0	0	0	
	AY	Alley	13	0	0	0	0	0	0	
	AZ	ROV Ride Shop	16	0	0	0	0	0	0	
	BA	India Palace	14	1	0	0	0	0	0	
		Block Total	75	6	0	0	0	0	0	81
38	BB	Public Lots	0	0	24	18	7	0	3	
		Block Total	0	0	24	18	7	0	3	52
39	BC	Library Lots	29	2	0	0	0	0	0	
		Block Total	29	2	0	0	0	0	0	31

Table 2 - Off-Street Parking Supply Detail (Continued)

			Private Off-Street			Public Off-Street				Public / Private	
Block	Revise Map Ltr	Description	Off-Street	Barrier		Pay-to-park	Public General (Free/ Time Limited)		Pay-to-park EX Exempt	Barrier Free	Total
				Free	FX Permit						
40	BD	Chase Bank	77	2	0	0	0	0	0		
	BE	Reserved Bldg Inspector	5	0	0	0	0	0	0		
	BF	Sustainability and Environment	0	3	35	0	0	0	0		
		Block Total	82	5	35	0	0	0	0	122	
41	BG	Pay-to-Park Lot	0	0	0	7	0	4	2		
	BH	Theatre	10	0	0	0	0	0	0		
	BI	State Farm	13	0	0	0	0	0	0		
	BJ	National Bank	37	2	0	7	0	0	0		
		Block Total	60	2	0	14	0	4	2	82	
42	BK	BBVA Compass	25	1	0	0	0	0	0		
	BL	Coconino County Public Fiduciary	28	2	0	0	0	0	0		
	BM	Reality Executives of Flagstaff	16	0	0	0	0	0	0		
	BN	Flagstaff Holistic Spa and Wellness	24	1	0	0	0	0	0		
	BO	22 Birch (Wine Shop & Bar)	9	0	0	0	0	0	0		
		Block Total	102	4	0	0	0	0	0	106	
43	BP	County Courthouse	13		2	0	0	0	0		
	BQ	County Courthouse		2							
		Block Total	13	2	2	0	0	0	0	17	
44	BR	County Admin Ctr	21	3	34	0	0	0	0		
	BS	Webb Law Office	11	0	0	0	0	0	0		
	BT	Mexpro Insurance Professionals	0	0	19	0	0	0	0		
	BU	County Probation Department	10	1	10	0	0	0	0		
	BV	202 Bldg	9	0	0	0	0	0	0		
		Block Total	51	4	63	0	0	0	0	118	
A		No Off-St Supply									
		Block Total	0	0	0	0	0	0	0	0	
B	BW	Coconino County Recorder	0	2	34	0	0	0	0		
	BX	Apts.	10	0	0	0	0	0	0		
		Block Total	10	2	34	0	0	0	0	46	
422	BY	County Employee Lot	50	0	0	0	0	0	0		
		Block Total	50	0	0	0	0	0	0	50	
H	BZ	Residential	19	0	0	0	0	0	0		
		Block Total	19	0	0	0	0	0	0	19	
I	CA	VFW	34	2	0	0	0	0	0		
	CB	Apts.	12	0	0	0	0	0	0		
	CC	Salon	6	0	0	0	0	0	0		
		Block Total	52	2	0	0	0	0	0	54	
Total North Side			1,288	50	268	138	7	4	17	1,772	
Public vs. Private				1,606			166				

Table 3 - On-Street Parking Supply Detail

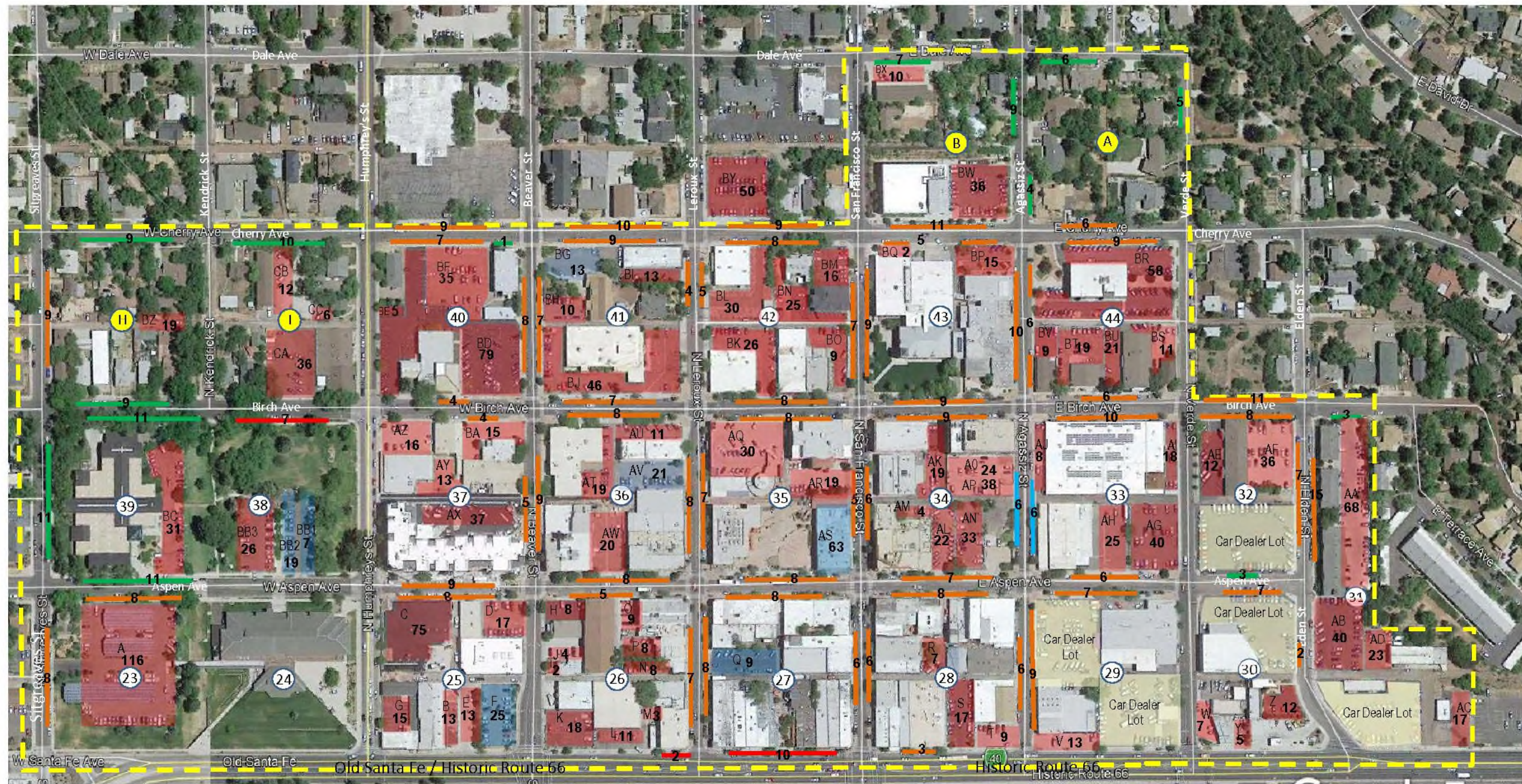
Block	Block Face	Metered	2 Hour	15 Minute Parking	Marked-No Limit Day	Unmarked-No Limit
23	A	8	0	0	0	0
	B	No Block Face				
	C	No Parking				
	D	8	0	0	0	0
TOTAL	16	16	0	0	0	0
24	A	No Parking				
	B	No Parking				
	C	No Parking				
	D	No Block Face				
TOTAL	0	0	0	0	0	0
25	A	8	0	0	0	0
	B	No Parking				
	C	No Parking				
	D	No Parking				
TOTAL	8	8	0	0	0	0
26	A	5	0	0	0	0
	B	7	0	0	0	0
	C	0	2	0	0	0
	D	No Parking				
TOTAL	14	12	2	0	0	0
27	A	8	0	0	0	0
	B	6	0	0	0	0
	C	0	10	0	0	0
	D	8	0	0	0	0
TOTAL	32	22	10	0	0	0
28	A	8	0	0	0	0
	B	6	0	0	0	0
	C	3	0	0	0	0
	D	6	0	0	0	0
TOTAL	23	23	0	0	0	0
29	A	7	0	0	0	0
	B	No Parking				
	C	No Parking				
	D	9	0	0	0	0
TOTAL	16	16	0	0	0	0
30	A	7	0	0	0	0
	B	2	0	0	0	0
	C	No Parking				
	D	No Parking				
TOTAL	9	9	0	0	0	0
31	A	0	0	0	0	3
	B	No Block Face				
	C	No Parking				
	D	15	0	0	0	0
TOTAL	18	15	0	0	0	3

Table 3 - On-Street Parking Supply Detail (Continued)

Block	Block Face	Metered	2 Hour	15 Minute Parking	Marked-No Limit Day	Unmarked-No Limit
32	A	8	0	0	0	0
	B	7	0	0	0	0
	C	3	0	0	0	0
	D	No Parking				
TOTAL	18	18	0	0	0	0
33	A	10	0	0	0	0
	B	No Parking	0	0	0	0
	C	6	0	0	0	0
	D	0	0	6	0	0
TOTAL	22	16	0	6	0	0
34	A	9	0	0	0	0
	B	0	0	6	0	0
	C	7	0	0	0	0
	D	6	0	0	0	0
TOTAL	28	22	0	6	0	0
35	A	8	0	0	0	0
	B	5	0	0	0	0
	C	8	0	0	0	0
	D	7	0	0	0	0
TOTAL	28	28	0	0	0	0
36	A	8	0	0	0	0
	B	8	0	0	0	0
	C	8	0	0	0	0
	D	9	0	0	0	0
TOTAL	33	33	0	0	0	0
37	A	4	0	0	0	0
	B	5	0	0	0	0
	C	9	0	0	0	0
	D	No Parking				
TOTAL	18	18	0	0	0	0
38	A	0	7	0	0	0
	B	No Parking				
	C	No Parking				
	D	No Block Face				
TOTAL	7	0	7	0	0	0
39	A	0	0	0	0	11
	B	No Block Face				
	C	11	0	0	0	0
	D	11	0	0	0	0
TOTAL	33	22	0	0	0	11
40	A	7	0	0	0	1
	B	8	0	0	0	0
	C	4	0	0	0	0
	D	No Parking				
TOTAL	20	19	0	0	0	1

Table 3 - On-Street Parking Supply Detail (Continued)

Block	Block Face	Metered	2 Hour	15 Minute Parking	Marked-No Limit Day	Unmarked-No Limit	
41	A	9	0	0	0	0	
	B	4	0	0	0	0	
	C	7	0	0	0	0	
	D	7	0	0	0	0	
TOTAL	27	27	0	0	0	0	
42	A	8	0	0	0	0	
	B	7	0	0	0	0	
	C	8	0	0	0	0	
	D	5	0	0	0	0	
TOTAL	28	28	0	0	0	0	
43	A	5	0	0	0	0	
	B	10	0	0	0	0	
	C	9	0	0	0	0	
	D	9	0	0	0	0	
TOTAL	33	33	0	0	0	0	
44	A	9	0	0	0	0	
	B	No Parking					
	C	6	0	0	0	0	
	D	6	0	0	0	0	
TOTAL	21	21	0	0	0	0	
A	A	0	0	0	0	6	
	B	0	0	0	0	5	
	C	6	0	0	0	0	
	D	0	0	0	0	4	
TOTAL	21	6	0	0	0	15	
B	A	0	0	0	0	7	
	B	0	0	0	9	0	
	C	11	0	0	0	0	
	D	No Parking					
TOTAL	27	11	0	0	9	7	
H	A	0	0	0	0	9	
	B	No Parking					
	C	0	0	0	9	0	
	D	0	0	0	9	0	
TOTAL	27	0	0	0	18	9	
I	A	0	0	0	0	10	
	B	No Parking					
	C	No Parking					
	D	No Parking					
TOTAL	10	0	0	0	0	10	
322	C	11					
TOTAL	11	11	0	0	0	0	
400	C	9					
TOTAL	9	9	0	0	0	0	
411	C	10					
TOTAL	10	10	0	0	0	0	
422	C	9					
TOTAL	9	9	0	0	0	0	
North Total	576	462	19	12	27	56	



<p>City of Flagstaff Parking Study Update Flagstaff, Arizona</p>	<p>RICH & ASSOCIATES PARKING CONSULTANTS Planners • Architects • Engineers 26877 NW Hwy, Suite 208 Southfield, MI 48033 Tel. 248.363.5080 • www.richassoc.com</p>	<p>LEGEND:</p> <p>STUDY AREA (Yellow dashed line)</p> <p>BLOCK NUMBER (# in circle)</p> <p>BLOCK FACE KEY PLAN:</p> <p>On-Street:</p> <ul style="list-style-type: none"> Metered (Orange line) Unmarked (Green line) 15-Minute (Blue line) 2-Hour (Red line) <p>Off-Street:</p> <ul style="list-style-type: none"> Public (Blue square) Private (Red square) 	<p>Sheet Title: NORTH STUDY AREA</p>	<p>MAP Number: MAP 2</p> <p>Page Page</p>
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Parking Occupancy

With the parking inventory quantified, the next critical step in the process is the evaluation of the occupancy counts conducted. This data provides not only a baseline to which the calculated parking can be compared to ensure it reasonably portrays downtown parking, but when analyzed by lot and location can also provide some additional insight. The detailed occupancy counts are provided in the appendix of the report.

Methodology

On Thursday, August 2, 2018 Rich & Associates staff conducted occupancy counts of the on-street and off-street parking supply. The counts were conducted beginning at 9:00 am and recorded the number of occupied parking spaces in off-street parking locations and on-street spaces. Counts were conducted every two hours until 9:00 pm. Because not every space can be evaluated as part of an efficient route within the time frame, the intent of the occupancy analysis is to inventory as many spaces as possible and then apply the same occupancy rate from the observed spaces to the spaces not directly observed to determine a total “expected” or corrected occupancy. How this affects the calculated parking demand will be discussed beginning on page 24.

In addition to providing the benchmark data for the comparison to calculated parking demand, the observations can demonstrate the occupancy rate during the peak hour for many on and off-street parking spaces. The peak hour occupancy (3:00 pm – 5:00 pm) of the various parking areas is demonstrated by **Map 3** on the following page.

In addition to the peak hour occupancy exhibited by certain parking areas during the peak hour, some of these will achieve a higher occupancy at some other point during the day. This is referred to as “peak occupancy achieved” and is shown by **Map 4** on page 20. The peak occupancy achieved simply shows the highest occupancy observed for each parking area and not at some consistent time of day. For some areas, peak occupancy in that lot, garage or block face may occur very early in the day whereas others the peak may occur much later. This map is designed to demonstrate parking areas or on-street block faces that may have sufficient parking at the time that the overall study area is peaking, and instead exhibit higher occupancies at some different time of the day creating some frustration for customers, visitors or staff.

Analysis of maps 3 and 4 show that there are only a few areas that demonstrated higher occupancy that was reflected by a change into a different color in the rankings.

The second critical aspect of the occupancy counts is to provide a comparison for the demand model. This uses parking generation rates applied to the square footage attributable to each land use for calculating the number of parking spaces needed. The corrected occupancy provides a benchmark to which the calculated parking can be compared. A close correlation between the parking occupancy as observed and the calculated parking demand lends confidence in the demand values used.

The following series of exhibits demonstrate how the observed parking occupancy was corrected so that a complete calculated value could be compared to the observed occupancy.

Off-Street Parking

Rich directly observed 1,276 (72 percent) of the 1,772 off-street spaces. At each observation period (9:00 am – 11:00 am, 11:00 am – 1:00 pm etc.) Rich calculated the percentage of observed spaces occupied. For example, at the 9:00 am – 11:00 am observation, 641 spaces were occupied of the 1,276 spaces observed. This represented an occupancy rate of 50 percent. Comparing the number of spaces directly observed (1,276) to the total off-street supply shows that 496 spaces (1,772 - 1,276) were not directly observed. Rich therefore applies the 50 percent occupancy to the 496 unobserved spaces to derive 249 “expected” additional spaces occupied. This correction and the corresponding percentage occupancy are demonstrated by **Figure 1**.

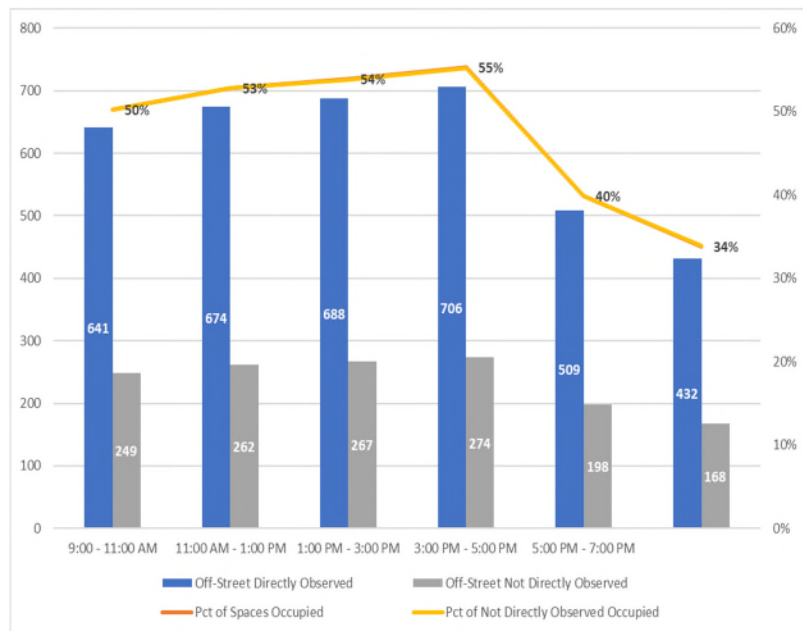


Figure 1 - Off-Street Parking Occupancy Adjustment

Combining the actually observed with the additional expected observed results in 890 “total expected observed” off-street spaces during this first observation period (9:00 am – 11:00 am). At the peak time (3:00 pm and 5:00 pm), 706 observed spaces are supplemented with 274 (55% of total not observed) for a total expected occupancy of 980 off-street parking spaces. This is demonstrated by **Figure 2** on the following page.

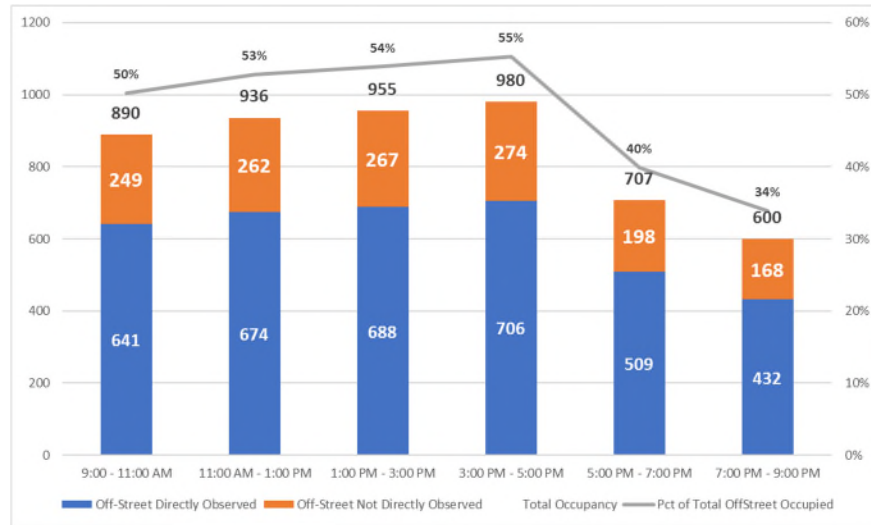


Figure 2 - Adjusted Off-Street Parking Occupancy

On-Street Parking

A similar methodology was followed for the on-street parking spaces where 97 percent of the total north side on-street supply was observed for occupancy. This resulted in a very small correction factor as demonstrated by **Figure 3**.

For the on-street spaces, the initial observation period had 282 occupied spaces directly observed with 9 expected additional occupied for a total of 291.

Combining the corrected off-street parking occupancy with the corrected on-street parking occupancy results in **Figure 4** on the following page. This shows a peak need coinciding with the 3:00 pm to 5:00 pm observation period when 1,365 spaces would be expected to be occupied derived from 980 off-street spaces (corrected) plus 385 on-street spaces (corrected).

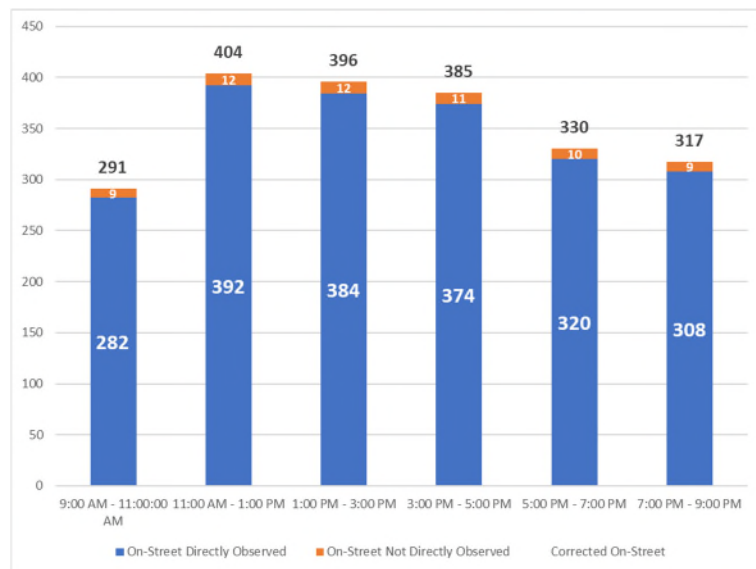


Figure 3 - Adjusted On-street Parking Occupancy

Combined On-Street and Off-Street Parking Occupancy

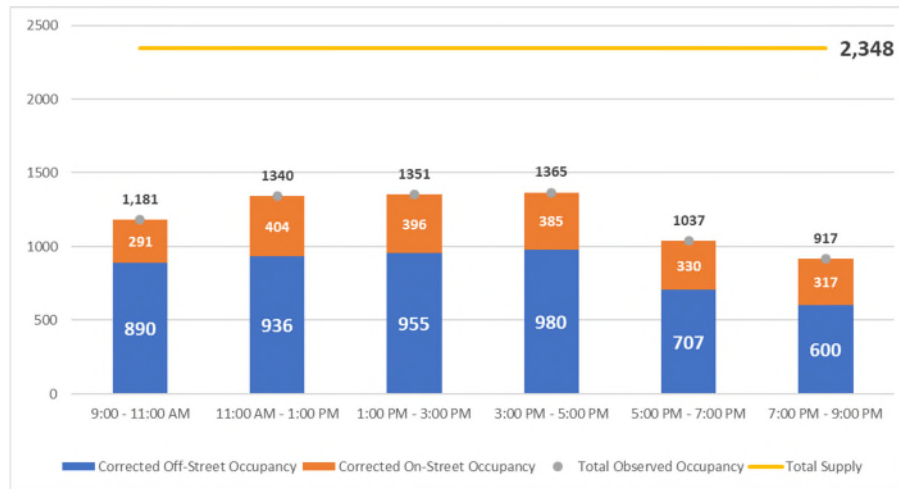


Figure 4 - Combined on and Off-Street Parking Occupancy

The observations noted above reflect the two-hour cycle. Rich is therefore using the mid-point of each cycle to establish the occupancy for each period. For example, the occupancy point for the 9:00 am to 11:00 am period is 10:00 am. For the 11:00 am – 1:00 pm circuit, 12:00 noon is used. The Shared-use model Rich employs factors the parking demand for each hour. Therefore, the in-between hours (11:00, am, 1:00 pm etc.) are extrapolated by comparing two adjacent observations and using the mid-point between them. This is demonstrated by **Figure 5**. As the observations show, the peak occurred coincident with the 4:00 pm period (1,365 spaces) although it reaches very close to this (1,340 spaces) as early as 12:00 noon.

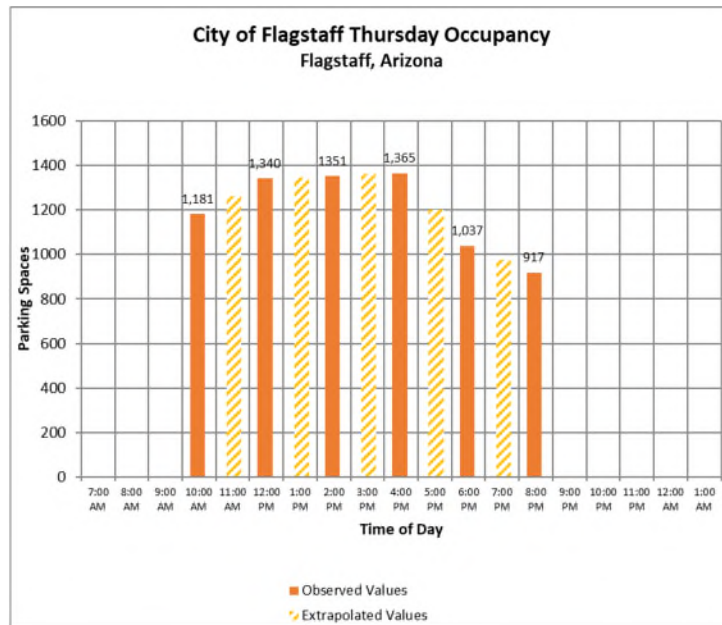


Figure 5 - Observed and Extrapolated Parking Occupancy

Parking Demand Model

The next step in the process is development of the parking demand model. Rich has developed a model based on the Urban Land Institute's *Shared Use Manual*. Shared Use assumes that spaces needed by one group can often be used by a different group with a complementary peak period. For example, the same parking spaces needed by office workers earlier in the day when they have their period of peak need can often be used by restaurant patrons who tend to peak during the early evening particularly if the spaces are public and not closed off by the land owner. The Shared Use model uses the land use square footage provided to Rich & Associates by the City via their Geographic Information System (GIS).

Land Use Data

The land use data provided by the City had the square footage (area) for each building within the defined study area. Rich then multiplied this value by the number of floors to get the building square footage. In most cases, the land uses noted in the GIS data table was applied to the building. However, based on Rich's field data collection, in a few cases the use may have changed since the use was last updated and therefore, Rich's updated data was applied. Rich applied two other changes. For the multi-family residential uses, the data was provided in square footage values where Rich's model uses dwelling units. We therefore divided the provided square footage by 640 (assumed size of apartment) to get the number of dwelling units. The model also uses hotel rooms for transient stay facilities (Hotels). Therefore, for such uses, Rich used internet sources to determine the number of hotel rooms.

Table 4 on the following page summarizes the land use values for the north side of downtown Flagstaff. The summary table shows that there is just over 1.1 million square feet of building area on the north side of downtown.

The largest component is the one-third of the total square footage devoted to various (City and County) government functions with the next largest components devoted to office, mixed-use and retail functions.

Table 4 – Land Use Summary Data - North

Current Square Footage by Land Use													
Block #	Retail	Restaurant	Hotel	Residential ¹	Office	Mixed	Auto Service	Financial	Government	Assembly	Total Occupied SF	Vacant	Total SF (includes Vacant)
23											0		0
24								64,718			64,718		64,718
25	16,098		25					1,935	13,037		31,070		31,070
26	19,285	3,010	17			10,098				18,002	50,395		50,395
27	41,165	14,611				52,866					108,642		108,642
28	13,793	25,449			17,386	35,891	19,705				112,224		112,224
29	16,877										16,877		16,877
30											0		0
31											0		0
32											0		0
33					36,956				43,401		80,357		80,357
34	1,780		42		56,202	27,842					85,824		85,824
35	36,204				41,616						77,820		77,820
36					57,567	18,436					76,003		76,003
37	7,408	2,486	110			7,899					17,793		17,793
38											0		0
39								71,066			71,066		71,066
40								20,726	9,616		30,342		30,342
41					5,312			43,275		4,232	52,819		52,819
42		3,713			16,646	15,714			5,740		41,813		41,813
43									103,738		103,738		103,738
44					15,409				24,729		40,138		40,138
A				10							0		0
B				15					41,571		41,571		41,571
H	2,280			3	4,357						6,637		6,637
I		9,369		13	3,520						12,889		12,889
Total	154,890	58,638	194	41	254,971	168,746	19,705	65,936	377,616	22,234	1,122,736	0	1,122,736

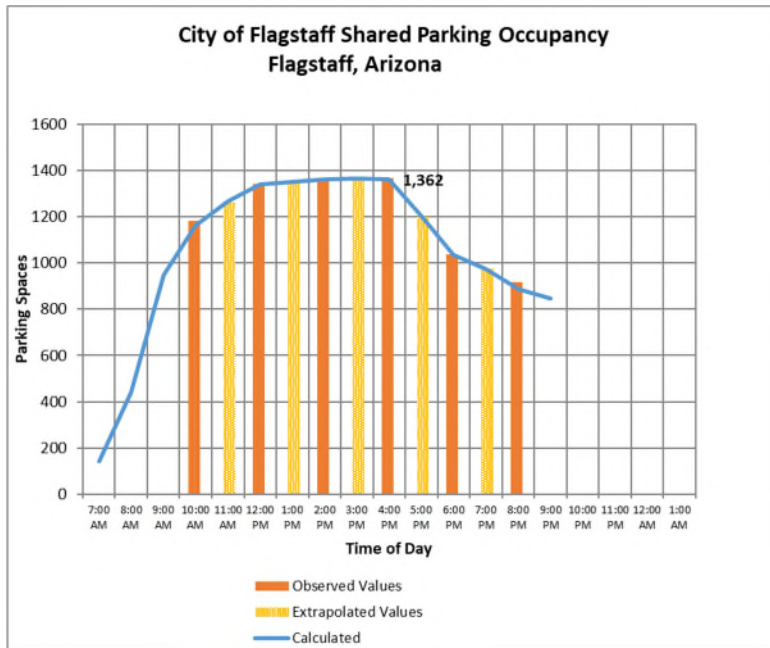


Figure 6 - Calculated and Observed Parking Occupancy Comparison

Using Rich’s parking demand model applied to the square footage values as shown in Table 4, the calculated parking needs were determined. Compiling the needs for all uses and adding them together results in the calculated line as shown in **Figure 6**. This shows that at the peak hour, the needs as calculated total 1,362± spaces which correlates well with the observed parking occupancy (1,365 spaces) at this same time as was shown in Figures 4 and 5. Similar correlations between the calculated demand and observed occupancy are shown at the other observation points.

The calculated parking demand as shown above reflects the parking under the shared-use model. However, different land uses typically peak at different times of the day. Applying the values determined for the individual land uses as used in the model shows the parking needs as shown in **Figure 7**. The figure shows how the government function (being such a large component of the downtown square footage) has a large demand component at about 600 spaces needed relatively early during the day but then begins a steady decline throughout the remainder of the day. The figure also shows how spaces needed by restaurant (dining) uses don’t peak until later in the afternoon or early evening.

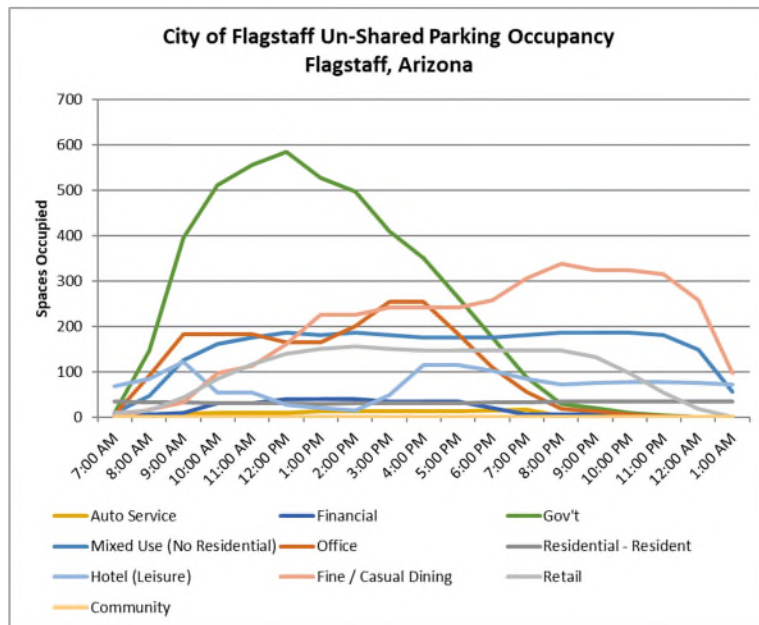


Figure 7 - Individual Land Use Parking Needs

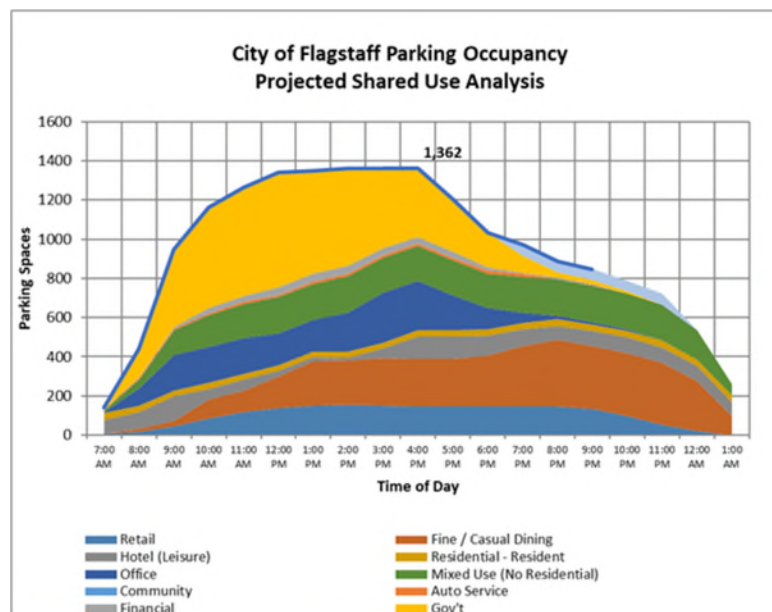


Figure 8 - Compiled Parking Demand Individual Land Uses

When the parking needed by each type of land use is added together into a composite total and showing the relative amount of parking needed by each land use type, **Figure 8** is developed. This shows how at the peak hour (3:00 pm – 4:00 pm) government uses still play a significant role but not quite as large as earlier in the day. By the time that the daily peak is occurring, government parking needs have a smaller impact as other uses (such as restaurant) plays a larger role.

With the parking demand model established that reasonably portrays the parking needs, Rich then applied the parking generation rates for each land use as determined for the peak hour (3:00 pm – 4:00 pm) to the square footage of each land use on each block. This is shown by **Table 5** on page 29.

Peak Hour Parking Demand (3:00 PM – 4:00 PM)

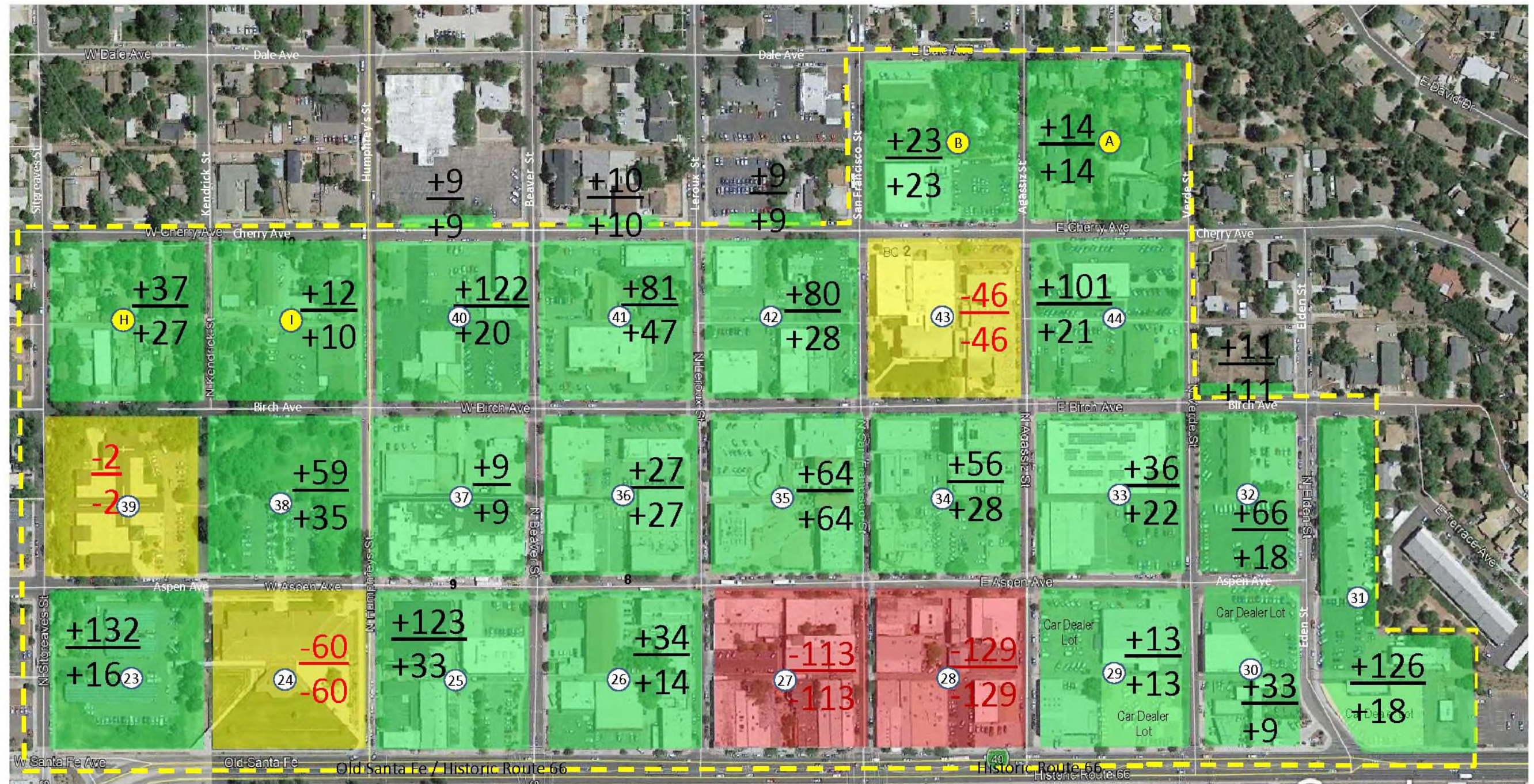
Based on the land use of each type on each block and using the calculated parking generation rates as determined for this peak hour, the calculated parking demand for each land use by block is determined. This is then compared against the parking supply on each block to derive a surplus or deficit figure. In total the model shows that the north side of Downtown Flagstaff has a gross surplus at peak time of 986± spaces. However, this figure is slightly misleading because it compares total parking demand against total parking supply. In reality, spaces controlled by a private business are typically not made available to patrons from adjoining blocks or businesses. As the parking supply data showed, only about 32 percent of the parking spaces on the north side of downtown are publicly available with the majority of parking spaces privately controlled.

Therefore, the “Net Surplus / Deficit” column in Table 5 discards surplus private parking spaces in order to demonstrate a truer condition of what patrons may experience. Although parking spaces may be available in a lot serving a government office or other private entity, signs will likely prohibit someone from parking there unless the patron’s destination is that business, government office or other private entity. This netting out of spaces is accomplished by first applying the parking demand to any private supply on the block. If the private supply exceeds

the calculated parking demand, the surplus private spaces are discarded and the surplus is just the public spaces on that block. Instead, if the demand exceeds the private supply, any public spaces are added back to the available supply and the net surplus or deficit calculated. Using this methodology, the table shows that the 986± space gross surplus is reduced to just 184± spaces on the net basis. **Map 5** on page 30 shows the surplus or deficit by block. Two values are shown. The numerator reflects the surplus or deficit on the gross basis while the denominator shows the net basis. The magnitude of the surplus or deficit is demonstrated by the color coding which reflect the net basis values.

Table 5 – Overall Peak Hour Pking Demand vs. Parking Supply (Existing Conditions)

Current Surplus / (Deficit) - Peak Daytime (3:00 PM - 4:00 PM) - Shared Use																				
Block #	Retail	Restaurant	Hotel	Residential ¹	Office	Mixed	Auto Service	Financial	Government	Assembly	Total Demand	Public Parking			Private Parking	Total			Gross Surplus / (Deficit)	Net Surplus / (Deficit)
	Parking Generation Rate (Shared Use)											On-Street	Off-Street	Total	Off-Street	On-Street	Off-Street	Combined		
	0.95	4.13	0.59	0.73	1.00	1.04	0.61	0.53	0.93	0.00										
23	0	0	0	0	0	0	0	0	0	0	0	16	0	16	116	16	116	132	132	16
24	0	0	0	0	0	0	0	0	60	0	60	0	0	0	0	0	0	0	(60)	(60)
25	15	0	15	0	0	0	0	1	12	0	43	8	25	33	133	8	158	166	123	33
26	18	12	10	0	0	11	0	0	0	0	51	14	0	14	71	14	71	85	34	14
27	39	60	0	0	0	55	0	0	0	0	154	32	9	41	0	32	9	41	(113)	(113)
28	13	105	0	0	17	37	12	0	0	0	185	23	0	23	33	23	33	56	(129)	(129)
29	16	0	0	0	0	0	0	0	0	0	16	16	0	16	13	16	13	29	13	13
30	0	0	0	0	0	0	0	0	0	0	0	9	0	9	24	9	24	33	33	9
31	0	0	0	0	0	0	0	0	0	0	0	18	0	18	108	18	108	126	126	18
32	0	0	0	0	0	0	0	0	0	0	0	18	0	18	48	18	48	66	66	18
33	0	0	0	0	37	0	0	0	40	0	77	22	0	22	91	22	91	113	36	22
34	2	0	25	0	56	29	0	0	0	0	112	28	0	28	140	28	140	168	56	28
35	34	0	0	0	42	0	0	0	0	0	76	28	63	91	49	28	112	140	64	64
36	0	0	0	0	58	19	0	0	0	0	77	33	21	54	50	33	71	104	27	27
37	7	10	65	0	0	8	0	0	0	0	90	18	0	18	81	18	81	99	9	9
38	0	0	0	0	0	0	0	0	0	0	0	7	28	35	24	7	52	59	59	35
39	0	0	0	0	0	0	0	0	66	0	66	33	0	33	31	33	31	64	(2)	(2)
40	0	0	0	0	0	0	0	11	9	0	20	20	0	20	122	20	122	142	122	20
41	0	0	0	0	5	0	0	23	0	0	28	27	20	47	62	27	82	109	81	47
42	0	15	0	0	17	16	0	0	5	0	54	28	0	28	106	28	106	134	80	28
43	0	0	0	0	0	0	0	0	96	0	96	33	0	33	17	33	17	50	(46)	(46)
44	0	0	0	0	15	0	0	0	23	0	38	21	0	21	118	21	118	139	101	21
A	0	0	0	7	0	0	0	0	0	0	7	21	0	21	0	21	0	21	14	14
B	0	0	0	11	0	0	0	0	39	0	50	27	0	27	46	27	46	73	23	23
H	2	0	0	2	4	0	0	0	0	0	9	27	0	27	19	27	19	46	37	27
I	0	39	0	9	4	0	0	0	0	0	52	10	0	10	54	10	54	64	12	10
322	0	0	0	0	0	0	0	0	0	0	0	11	0	11	0	11	0	11	11	11
400	0	0	0	0	0	0	0	0	0	0	0	9	0	9	0	9	0	9	9	9
411	0	0	0	0	0	0	0	0	0	0	0	10	0	10	0	10	0	10	10	10
422	0	0	0	0	0	0	0	0	0	0	0	9	0	9	50	9	50	59	59	9
Total	147	242	114	30	255	175	12	35	351	0	1,362	576	166	742	1,606	576	1,772	2,348	986	184



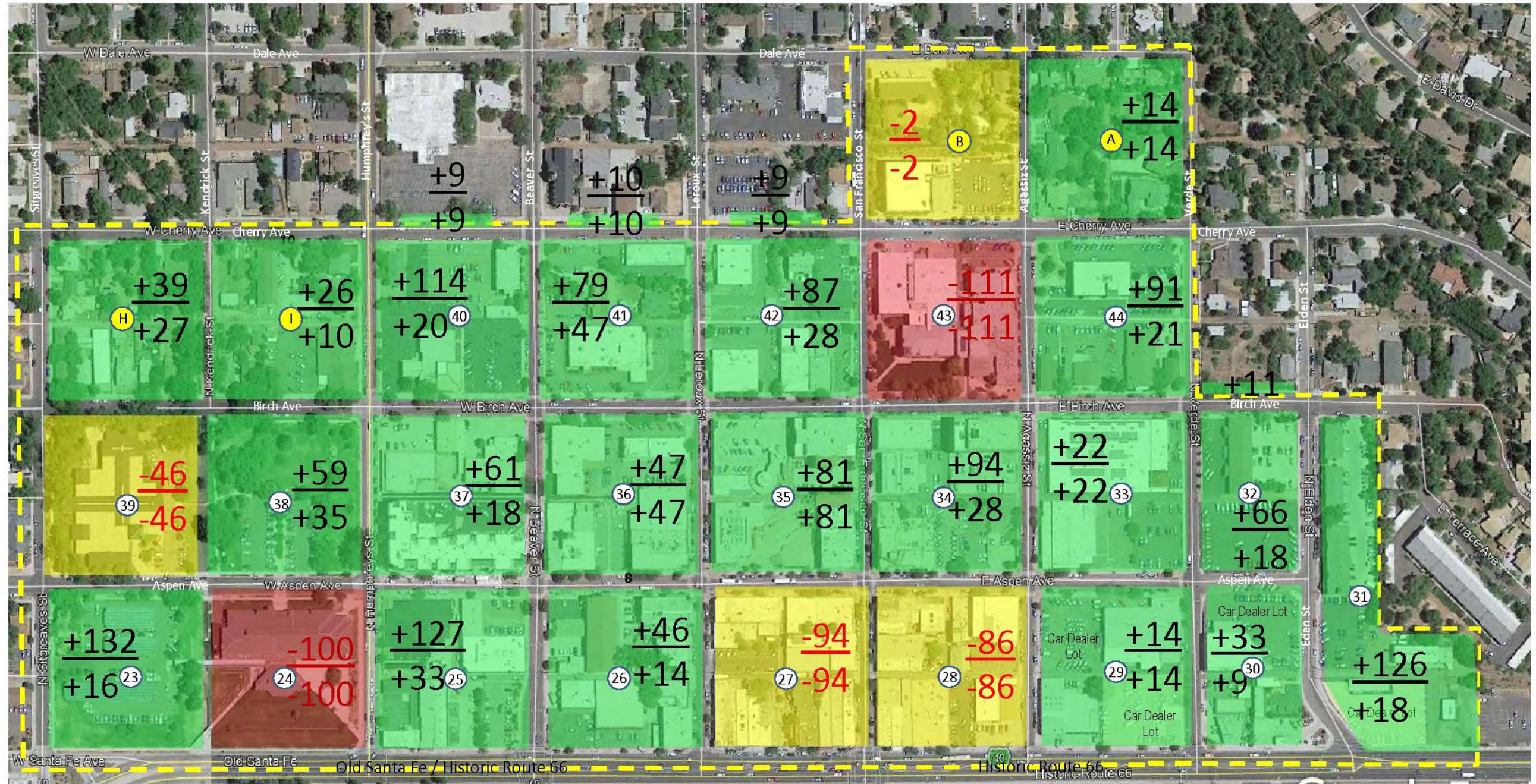
<p>City of Flagstaff Parking Study Update Flagstaff, Arizona</p>	<p>RICH & ASSOCIATES PARKING CONSULTANTS Planners • Architects • Engineers 26877 NW Hwy, Suite 208 Southfield, MI 48033 Tel. 248.353.5080 • www.richassoc.com</p>	<p>LEGEND:</p> <p>STUDY AREA: Yellow dashed line</p> <p>BLOCK NUMBER: # in circle</p> <p>BLOCK FACE KEY PLAN: A, B, C, D around #</p> <p>SURPLUS OF PARKING</p> <ul style="list-style-type: none"> +100 (Blue) 0 Thru 99 (Green) <p>DEFICIT OF PARKING</p> <ul style="list-style-type: none"> -99 Thru -1 (Yellow) -100+ (Red) <p>Gross Net</p> <p>North Arrow</p>	<p>Sheet Title: NORTH STUDY AREA CURRENT SURPLUS/DEFICIT Peak Hour 3:00-4:00PM</p>	<p>MAP Number: MAP 5 Page</p>
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Government Land Use Peak Hour (11:00 AM – 12:00 NOON)

Because of the considerable impact the various government functions have on total parking needs due to the significant square footage attributable to government functions and the high proportion of private parking, Rich is also demonstrating the parking needs at the apparent government peak hour of 11:00 am – 12:00 noon. As the occupancy data showed (Figure 4), the occupancy corrected for all spaces showed 1,340 spaces would be needed at this time. Using the parking generation rates for all land uses as calculated for the 11:00 am to 12:00 noon period results in a calculated parking need of 1,341± spaces needed which again corresponds with the observed parking needs. This slightly lower parking demand than the overall peak hour needs when compared against the 2,348 total space supply results in a slight increase in the “gross” surplus from 986± spaces to 1,007± spaces. However, when the surplus private spaces are discounted from the calculation, the “Net Surplus” actually decreases from 184± spaces as determined at the overall peak hour (3:00 pm to 4:00 pm) to 118± spaces at the government peak hour (11:00 am – 12:00 noon). The values for the individual blocks under this condition are shown by **Table 6** on the following page and **Map 6** on page 33.

Table 6 – Government Peak Hour Parking Demand vs. Supply Calculation (Existing Conditions)

Current Surplus / (Deficit) - Peak Daytime (11:00 AM - 12:00 Noon) - Peak Hour Government Needs																						
Block #	Retail	Restaurant	Hotel	Residential ¹	Office	Mixed	Auto Service	Financial	Government	Assembly	Total Demand	Public Parking			Private Parking	Total			Gross Surplus / (Deficit)	Net Surplus / (Deficit)		
	0.90	2.75	0.14	0.73	0.64	1.10	0.46	0.61	1.55	0.00		On-Street	Off-Street	Total	Off-Street	On-Street	Off-Street	Combined				
	<i>Parking Generation Rate (Shared Use)</i>																					
23	0	0	0	0	0	0	0	0	0	0	0	16	0	16	116	16	116	132	132	16		
24	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	(100)	(100)		
25	14	0	4	0	0	0	0	1	20	0	39	8	25	33	133	8	158	166	127	33		
26	17	8	2	0	0	11	0	8	0	0	39	14	0	14	71	14	71	85	46	14		
27	37	40	0	0	0	58	0	0	0	0	135	32	9	41	0	32	9	41	(94)	(94)		
28	12	70	0	0	11	39	9	0	0	0	142	23	0	23	33	23	33	56	(86)	(86)		
29	15	0	0	0	0	0	0	0	0	0	15	16	0	16	13	16	13	29	14	14		
30	0	0	0	0	0	0	0	0	0	0	0	9	0	9	24	9	24	33	33	9		
31	0	0	0	0	0	0	0	0	0	0	0	18	0	18	108	18	108	126	126	18		
32	0	0	0	0	0	0	0	0	0	0	0	18	0	18	48	18	48	66	66	18		
33	0	0	0	0	24	0	0	0	67	0	91	22	0	22	91	22	91	113	22	22		
34	2	0	6	0	36	31	0	0	0	0	74	28	0	28	140	28	140	168	94	28		
35	33	0	0	0	27	0	0	0	0	0	59	28	63	91	49	28	112	140	81	81		
36	0	0	0	0	37	20	0	0	0	0	57	33	21	54	50	33	71	104	47	47		
37	7	7	15	0	0	9	0	0	0	0	38	18	0	18	81	18	81	99	61	18		
38	0	0	0	0	0	0	0	0	0	0	0	7	28	35	24	7	52	59	59	35		
39	0	0	0	0	0	0	0	0	110	0	110	33	0	33	31	33	31	64	(46)	(46)		
40	0	0	0	0	0	0	0	13	15	0	28	20	0	20	122	20	122	142	114	20		
41	0	0	0	0	3	0	0	26	0	0	30	27	20	47	62	27	82	109	79	47		
42	0	10	0	0	11	17	0	0	9	0	47	28	0	28	106	28	106	134	87	28		
43	0	0	0	0	0	0	0	0	161	0	161	33	0	33	17	33	17	50	(111)	(111)		
44	0	0	0	0	10	0	0	0	38	0	48	21	0	21	118	21	118	139	91	21		
A	0	0	0	7	0	0	0	0	0	0	7	21	0	21	0	21	0	21	14	14		
B	0	0	0	11	0	0	0	0	64	0	75	27	0	27	46	27	46	73	(2)	(2)		
H	2	0	0	2	3	0	0	0	0	0	7	27	0	27	19	27	19	46	39	27		
I	0	26	0	9	2	0	0	0	0	0	38	10	0	10	54	10	54	64	26	10		
322	0	0	0	0	0	0	0	0	0	0	0	11	0	11	0	11	0	11	11	11		
400	0	0	0	0	0	0	0	0	0	0	0	9	0	9	0	9	0	9	9	9		
411	0	0	0	0	0	0	0	0	0	0	0	10	0	10	0	10	0	10	10	10		
422	0	0	0	0	0	0	0	0	0	0	0	9	0	9	50	9	50	59	59	9		
Total	139	161	27	30	163	186	9	40	585	0	1,341	576	166	742	1,606	576	1,772	2,348	1,007	118		



<p>City of Flagstaff Parking Study Update Flagstaff, Arizona</p>	<p>RICH & ASSOCIATES PARKING CONSULTANTS Planners • Architects • Engineers 26877 NW Hwy, Suite 208 Southfield, MI 48033 Tel. 248.353.5080 • www.richassoc.com</p>	<p>LEGEND: STUDY AREA BLOCK NUMBER BLOCK FACE KEY PLAN: </p>	<p>SURPLUS OF PARKING +100 0 Thru 99 DEFICIT OF PARKING -99 Thru -1 -100 +</p>	<p>Gross Net </p>	<p>Sheet Title: NORTH STUDY AREA CURRENT SURPLUS/DEFICIT Government Peak Hour 11:00AM-12:00 NOON</p>	<p>MAP Number: MAP 6 Page</p>
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Alternative Demand Scenarios

The analysis developed and just shown has been based on the observed data from Thursday August 2, 2018. Although this was during the summer tourist season, the volume of parking will likely vary with some days higher and others lower. It is undetermined whether the one survey day is actually a good peak day for planning purposes. Therefore, Rich has also calculated the parking needs adjusting the observed day values by from five percent to fifteen percent higher needs using the overall peak hour values and then showing the needs using the government peak hour demand. The resulting gross and net surplus of spaces are summarized by **Table 7** below. The information is then detailed in **Tables 8** and **9** on the following two pages. For each set of tables, the total demand by block is shown, the public, private and total parking supply and the resulting gross and net deficits under each of the alternative adjustment factors of five, 10 or 15 percent higher values than observed.

Table 7 - Surplus / Deficit Summary

	Overall Peak Hour (3:00 - 4:00 PM)			(Based on Gov't Peak Hour (11:00 AM - 12:00 Noon))		
Pct Change Observation Day	Peak Demand (Shared)	Gross Surplus / (Deficit)	Net Surplus / (Deficit)	Peak Demand (Unshared) +20%	Gross Surplus / (Deficit)	Net Surplus / (Deficit)
0%	1,362	986	184	1,341	1007	118
5%	1,430	918	140	1,408	940	70
10%	1,499	849	93	1,475	873	23
15%	1,567	781	47	1,542	806	(25)

Table 8 - Overall Peak Hour Demand Adjustments

Peak Hour @ +5%							Peak Hour @ +10%							Peak Hour @ +15%						
Block #	Total Demand	Public Supply	Private Supply	Total Supply	Gross Surplus / (Deficit)	Net Surplus / (Deficit)	Block #	Total Demand	Public Supply	Private Supply	Total Supply	Gross Surplus / (Deficit)	Net Surplus / (Deficit)	Block #	Total Demand	Public Supply	Private Supply	Total Supply	Gross Surplus / (Deficit)	Net Surplus / (Deficit)
23	0	16	116	132	132	16	23	0	16	116	132	132	16	23	0	16	116	132	132	16
24	63	0	0	0	(63)	(63)	24	66	0	0	0	(66)	(66)	24	69	0	0	0	(69)	(69)
25	45	33	133	166	121	33	25	48	33	133	166	118	33	25	50	33	133	166	116	33
26	54	14	71	85	31	14	26	56	14	71	85	29	14	26	59	14	71	85	26	14
27	162	41	0	41	(121)	(121)	27	170	41	0	41	(129)	(129)	27	178	41	0	41	(137)	(137)
28	194	23	33	56	(138)	(138)	28	203	23	33	56	(147)	(147)	28	213	23	33	56	(157)	(157)
29	17	16	13	29	12	12	29	18	16	13	29	11	11	29	18	16	13	29	11	11
30	0	9	24	33	33	9	30	0	9	24	33	33	9	30	0	9	24	33	33	9
31	0	18	108	126	126	18	31	0	18	108	126	126	18	31	0	18	108	126	126	18
32	0	18	48	66	66	18	32	0	18	48	66	66	18	32	0	18	48	66	66	18
33	81	22	91	113	32	22	33	85	22	91	113	28	22	33	89	22	91	113	24	22
34	117	28	140	168	51	28	34	123	28	140	168	45	28	34	128	28	140	168	40	28
35	80	91	49	140	60	60	35	84	91	49	140	56	56	35	87	91	49	140	53	53
36	81	54	50	104	23	23	36	84	54	50	104	20	20	36	88	54	50	104	16	16
37	95	18	81	99	4	4	37	99	18	81	99	(0)	(0)	37	104	18	81	99	(5)	(5)
38	0	35	24	59	59	35	38	0	35	24	59	59	35	38	0	35	24	59	59	35
39	69	33	31	64	(5)	(5)	39	73	33	31	64	(9)	(9)	39	76	33	31	64	(12)	(12)
40	21	20	122	142	121	20	40	22	20	122	142	120	20	40	23	20	122	142	119	20
41	30	47	62	109	79	47	41	31	47	62	109	78	47	41	32	47	62	109	77	47
42	56	28	106	134	78	28	42	59	28	106	134	75	28	42	62	28	106	134	72	28
43	101	33	17	50	(51)	(51)	43	106	33	17	50	(56)	(56)	43	111	33	17	50	(61)	(61)
44	40	21	118	139	99	21	44	42	21	118	139	97	21	44	44	21	118	139	95	21
A	8	21	0	21	13	13	A	8	21	0	21	13	13	A	8	21	0	21	13	13
B	52	27	46	73	21	21	B	55	27	46	73	18	18	B	57	27	46	73	16	16
H	9	27	19	46	37	27	H	10	27	19	46	36	27	H	10	27	19	46	36	27
I	54	10	54	64	10	10	I	57	10	54	64	7	7	I	59	10	54	64	5	5
322	0	11	0	11	11	11	322	0	11	0	11	11	11	322	0	11	0	11	11	11
400	0	9	0	9	9	9	400	0	9	0	9	9	9	400	0	9	0	9	9	9
411	0	10	0	10	10	10	411	0	10	0	10	10	10	411	0	10	0	10	10	10
422	0	9	50	59	59	9	422	0	9	50	59	59	9	422	0	9	50	59	59	9
Total	1,430	742	1,606	2,348	918	140	Total	1,499	742	1,606	2,348	849	93	Total	1,567	742	1,606	2,348	781	47

Table 9 - Government Peak Hour Demand Adjustments

Government Peak Hour @ +5%							Government Peak Hour @ +10%							Government Peak Hour @ +15%							
	Total Demand	Public Supply	Private Supply	Total Supply	Gross Surplus / (Deficit)	Net Surplus / (Deficit)		Total Demand	Public Supply	Private Supply	Total Supply	Gross Surplus / (Deficit)	Net Surplus / (Deficit)		Total Demand	Public Supply	Private Supply	Total Supply	Gross Surplus / (Deficit)	Net Surplus / (Deficit)	
Block #							Block #							Block #							
23	0	16	116	132	132	16	23	0	16	116	132	132	16	23	0	16	116	132	132	16	
24	105	0	0	0	(105)	(105)	24	110	0	0	0	(110)	(110)	24	115	0	0	0	(115)	(115)	
25	41	33	133	166	125	33	25	43	33	133	166	123	33	25	45	33	133	166	121	33	
26	41	14	71	85	44	14	26	43	14	71	85	42	14	26	45	14	71	85	40	14	
27	142	41	0	41	(101)	(101)	27	149	41	0	41	(108)	(108)	27	156	41	0	41	(115)	(115)	
28	149	23	33	56	(93)	(93)	28	156	23	33	56	(100)	(100)	28	163	23	33	56	(107)	(107)	
29	16	16	13	29	13	13	29	17	16	13	29	12	12	29	17	16	13	29	12	12	
30	0	9	24	33	33	9	30	0	9	24	33	33	9	30	0	9	24	33	33	9	
31	0	18	108	126	126	18	31	0	18	108	126	126	18	31	0	18	108	126	126	18	
32	0	18	48	66	66	18	32	0	18	48	66	66	18	32	0	18	48	66	66	18	
33	95	22	91	113	18	18	33	100	22	91	113	13	13	33	105	22	91	113	8	8	
34	78	28	140	168	90	28	34	81	28	140	168	87	28	34	85	28	140	168	83	28	
35	62	91	49	140	78	78	35	65	91	49	140	75	75	35	68	91	49	140	72	72	
36	60	54	50	104	44	44	36	63	54	50	104	41	41	36	66	54	50	104	38	38	
37	39	18	81	99	60	18	37	41	18	81	99	58	18	37	43	18	81	99	56	18	
38	0	35	24	59	59	35	38	0	35	24	59	59	35	38	0	35	24	59	59	35	
39	116	33	31	64	(52)	(52)	39	121	33	31	64	(57)	(57)	39	127	33	31	64	(63)	(63)	
40	29	20	122	142	113	20	40	30	20	122	142	112	20	40	32	20	122	142	110	20	
41	31	47	62	109	78	47	41	33	47	62	109	76	47	41	34	47	62	109	75	47	
42	49	28	106	134	85	28	42	52	28	106	134	82	28	42	54	28	106	134	80	28	
43	169	33	17	50	(119)	(119)	43	177	33	17	50	(127)	(127)	43	185	33	17	50	(135)	(135)	
44	51	21	118	139	88	21	44	53	21	118	139	86	21	44	55	21	118	139	84	21	
A	8	21	0	21	13	13	A	8	21	0	21	13	13	A	8	21	0	21	13	13	
B	79	27	46	73	(6)	(6)	B	83	27	46	73	(10)	(10)	B	87	27	46	73	(14)	(14)	
H	7	27	19	46	39	27	H	8	27	19	46	38	27	H	8	27	19	46	38	27	
I	39	10	54	64	25	10	I	41	10	54	64	23	10	I	43	10	54	64	21	10	
322	0	11	0	11	11	11	322	0	11	0	11	11	11	322	0	11	0	11	11	11	
400	0	9	0	9	9	9	400	0	9	0	9	9	9	400	0	9	0	9	9	9	
411	0	10	0	10	10	10	411	0	10	0	10	10	10	411	0	10	0	10	10	10	
422	0	9	50	59	59	9	422	0	9	50	59	59	9	422	0	9	50	59	59	9	
Total	1,408	742	1,606	2,348	940	70	Total	1,475	742	1,606	2,348	873	23	Total	1,542	742	1,606	2,348	806	(25)	

Public Parking Needed

The parking supply data has shown that 68 percent of the north side parking capacity is in lots or garages controlled by private entities or government functions and therefore is intended for the staff, customers, visitors or residents of the owning or controlling entity. There are still many other shops, restaurants and other businesses that do not have their own parking and are therefore dependent on the publicly available on and off-street parking.

The data and tables discussed to this point have demonstrated the gross and net surplus of parking by block and developed to totals for the north side of downtown. **Table 8** has demonstrated that using the overall peak hour values that after discarding surplus private parking, even with values 15 percent higher than the observed day conditions, that downtown Flagstaff will still have a modest surplus of parking.

Using the demand at the government peak hour, values five percent higher than the observed conditions would still show about 70 “net” surplus spaces. At 10 percent higher values this is reduced to just 23 net surplus spaces and would be a 25-space deficit using values 15 percent higher than the conditions encountered on the survey date.

One other question asked to be addressed by the City is the impact on public parking supply following parking industry standards for surplus capacity to be provided. Industry standards generally recommend maintaining 15 percent of spaces vacant to facilitate someone being able to find a space without circling blocks or traveling from lot to lot. Lower levels of vacancy (10 percent to perhaps as low as just five percent) are possible but would have a consequent impact on user convenience.

Following the same methodology as demonstrated in the previous tables where demand is first applied against private supply on each block and then any excessive demand applied to public parking needs, **Tables 10** and **11** have been prepared. These tables show under each of the alternative conditions (observed day through plus 15 percent higher values) that demand on each block is first applied to the private supply. Any demand that cannot be accommodated by the private supply on that block is therefore shown as needing public parking. This value simply shows the number of public spaces needed even if it exceeds the public capacity on that block.

Compiling all blocks develops down to a total public parking supply needed. This total public needed is then compared against the total available supply and the additional number of public parking spaces needed or in excess of the recommended 85 percent occupancy (15 percent) vacant calculated. The tables also demonstrate the requirements at just 10 percent and five percent vacancy rates.

Table 10 - Public Parking Needs – Overall Peak Hour Alternative Factors

Observation Day						Observation Day + 5%						Observation Day + 10%						Observation Day + 15%					
	Total Demand	Public Parking	Private Parking	A	B		Total Demand	Public Parking	Private Parking	A	B		Total Demand	Public Parking	Private Parking	A	B		Total Demand	Public Parking	Private Parking	A	B
Block #				Number of Cars Parked in Private Spots	Number of Cars Parked in Public Spots	Block #				Number of Cars Parked in Private Spots	Number of Cars Parked in Public Spots	Block #				Number of Cars Parked in Private Spots	Number of Cars Parked in Public Spots	Block #				Number of Cars Parked in Private Spots	Number of Cars Parked in Public Spots
23	0	16	116	0	0	23	0	16	116	0	0	23	0	16	116	0	0	23	0	16	116	0	0
24	60	0	0	0	60	24	63	0	0	0	63	24	66	0	0	0	66	24	69	0	0	0	69
25	43	33	133	43	0	25	45	33	133	45	0	25	48	33	133	48	0	25	50	33	133	50	0
26	51	14	71	51	0	26	54	14	71	54	0	26	56	14	71	56	0	26	59	14	71	59	0
27	154	41	0	0	154	27	162	41	0	0	162	27	170	41	0	0	170	27	178	41	0	0	178
28	185	23	33	33	152	28	194	23	33	33	161	28	203	23	33	33	170	28	213	23	33	33	180
29	16	16	13	13	3	29	17	16	13	13	4	29	18	16	13	13	5	29	18	16	13	13	5
30	0	9	24	0	0	30	0	9	24	0	0	30	0	9	24	0	0	30	0	9	24	0	0
31	0	18	108	0	0	31	0	18	108	0	0	31	0	18	108	0	0	31	0	18	108	0	0
32	0	18	48	0	0	32	0	18	48	0	0	32	0	18	48	0	0	32	0	18	48	0	0
33	77	22	91	77	0	33	81	22	91	81	0	33	85	22	91	85	0	33	89	22	91	89	0
34	112	28	140	112	0	34	117	28	140	117	0	34	123	28	140	123	0	34	128	28	140	128	0
35	76	91	49	49	27	35	80	91	49	49	31	35	84	91	49	49	35	35	87	91	49	49	38
36	77	54	50	50	27	36	81	54	50	50	31	36	84	54	50	50	34	36	88	54	50	50	38
37	90	18	81	81	9	37	95	18	81	81	14	37	99	18	81	81	18	37	104	18	81	81	23
38	0	35	24	0	0	38	0	35	24	0	0	38	0	35	24	0	0	38	0	35	24	0	0
39	66	33	31	31	35	39	69	33	31	31	38	39	73	33	31	31	42	39	76	33	31	31	45
40	20	20	122	20	0	40	21	20	122	21	0	40	22	20	122	22	0	40	23	20	122	23	0
41	28	47	62	28	0	41	30	47	62	30	0	41	31	47	62	31	0	41	32	47	62	32	0
42	54	28	106	54	0	42	56	28	106	56	0	42	59	28	106	59	0	42	62	28	106	62	0
43	96	33	17	17	79	43	101	33	17	17	84	43	106	33	17	17	89	43	111	33	17	17	94
44	38	21	118	38	0	44	40	21	118	40	0	44	42	21	118	42	0	44	44	21	118	44	0
A	7	21	0	0	7	A	8	21	0	0	8	A	8	21	0	0	8	A	8	21	0	0	8
B	50	27	46	46	4	B	52	27	46	46	6	B	55	27	46	46	9	B	57	27	46	46	11
H	9	27	19	9	0	H	9	27	19	9	0	H	10	27	19	10	0	H	10	27	19	10	0
I	52	10	54	52	0	I	54	10	54	54	0	I	57	10	54	54	3	I	59	10	54	54	5
322	0	11	0	0	0	322	0	11	0	0	0	322	0	11	0	0	0	322	0	11	0	0	0
400	0	9	0	0	0	400	0	9	0	0	0	400	0	9	0	0	0	400	0	9	0	0	0
411	0	10	0	0	0	411	0	10	0	0	0	411	0	10	0	0	0	411	0	10	0	0	0
422	0	9	50	0	0	422	0	9	50	0	0	422	0	9	50	0	0	422	0	9	50	0	0
Total	1,362	742	1,606	804	558	Total	1,430	742	1,606	827	603	Total	1,499	742	1,606	850	649	Total	1,567	742	1,606	871	696
Percentage Occupancy				50.1%	75.2%	Percentage Occupancy				51.5%	81.3%	Percentage Occupancy				52.9%	87.4%	Percentage Occupancy				54.2%	93.8%
Number of Public Spaces to Add for Max 85% Occupancy					-85	Number of Public Spaces to Add for Max 85% Occupancy					-32	Number of Public Spaces to Add for Max 85% Occupancy					21	Number of Public Spaces to Add for Max 85% Occupancy					76
Public Capacity with -85 Added Spaces = 657					85.0%	Public Capacity with -32 Added Spaces = 710					85.0%	Public Capacity with 21 Added Spaces = 763					85.0%	Public Capacity with 76 Added Spaces = 818					85.0%
Number of Public Spaces to Add for Max 90% Occupancy					-122	Number of Public Spaces to Add for Max 90% Occupancy					-72	Number of Public Spaces to Add for Max 90% Occupancy					-21	Number of Public Spaces to Add for Max 90% Occupancy					31
Public Capacity with -122 Added Spaces = 620					90.1%	Public Capacity with -72 Added Spaces = 670					90.1%	Public Capacity with -21 Added Spaces = 721					90.0%	Public Capacity with 31 Added Spaces = 773					90.0%
Number of Public Spaces to Add for Max 95% Occupancy					-154	Number of Public Spaces to Add for Max 95% Occupancy					-107	Number of Public Spaces to Add for Max 95% Occupancy					-59	Number of Public Spaces to Add for Max 95% Occupancy					-10
Public Capacity with -154 Added Spaces = 588					95.0%	Public Capacity with -107 Added Spaces = 635					95.0%	Public Capacity with -59 Added Spaces = 683					95.0%	Public Capacity with -10 Added Spaces = 732					95.0%

Table 11 - Public Parking Needs – Government Peak Hour Alternative Factors

Observation Day						Observation Day + 5%						Observation Day + 10%						Observation Day + 15%					
Block #	Total Demand	Public Parking	Private Parking	A	B	Block #	Total Demand	Public Parking	Private Parking	A	B	Block #	Total Demand	Public Parking	Private Parking	A	B	Block #	Total Demand	Public Parking	Private Parking	A	B
				Number of Cars Parked in Private Spots	Number of Cars Parked in Public Spots					Number of Cars Parked in Private Spots	Number of Cars Parked in Public Spots					Number of Cars Parked in Private Spots	Number of Cars Parked in Public Spots					Number of Cars Parked in Private Spots	Number of Cars Parked in Public Spots
23	0	16	116	0	0	23	0	16	116	0	0	23	0	16	116	0	0	23	0	16	116	0	0
24	100	0	0	0	100	24	105	0	0	0	105	24	110	0	0	0	110	24	115	0	0	0	115
25	39	33	133	39	0	25	41	33	133	41	0	25	43	33	133	43	0	25	45	33	133	45	0
26	39	14	71	39	0	26	41	14	71	41	0	26	43	14	71	43	0	26	45	14	71	45	0
27	135	41	0	0	135	27	142	41	0	0	142	27	149	41	0	0	149	27	156	41	0	0	156
28	142	23	33	33	109	28	149	23	33	33	116	28	156	23	33	33	123	28	163	23	33	33	130
29	15	16	13	13	2	29	16	16	13	13	3	29	17	16	13	13	4	29	17	16	13	13	4
30	0	9	24	0	0	30	0	9	24	0	0	30	0	9	24	0	0	30	0	9	24	0	0
31	0	18	108	0	0	31	0	18	108	0	0	31	0	18	108	0	0	31	0	18	108	0	0
32	0	18	48	0	0	32	0	18	48	0	0	32	0	18	48	0	0	32	0	18	48	0	0
33	91	22	91	91	0	33	95	22	91	91	4	33	100	22	91	91	9	33	105	22	91	91	14
34	74	28	140	74	0	34	78	28	140	78	0	34	81	28	140	81	0	34	85	28	140	85	0
35	59	91	49	49	10	35	62	91	49	49	13	35	65	91	49	49	16	35	68	91	49	49	19
36	57	54	50	50	7	36	60	54	50	50	10	36	63	54	50	50	13	36	66	54	50	50	16
37	38	18	81	38	0	37	39	18	81	39	0	37	41	18	81	41	0	37	43	18	81	43	0
38	0	35	24	0	0	38	0	35	24	0	0	38	0	35	24	0	0	38	0	35	24	0	0
39	110	33	31	31	79	39	116	33	31	31	85	39	121	33	31	31	90	39	127	33	31	31	96
40	28	20	122	28	0	40	29	20	122	29	0	40	30	20	122	30	0	40	32	20	122	32	0
41	30	47	62	30	0	41	31	47	62	31	0	41	33	47	62	33	0	41	34	47	62	34	0
42	47	28	106	47	0	42	49	28	106	49	0	42	52	28	106	52	0	42	54	28	106	54	0
43	161	33	17	17	144	43	169	33	17	17	152	43	177	33	17	17	160	43	185	33	17	17	168
44	48	21	118	48	0	44	51	21	118	51	0	44	53	21	118	53	0	44	55	21	118	55	0
A	7	21	0	0	7	A	8	21	0	0	8	A	8	21	0	0	8	A	8	21	0	0	8
B	75	27	46	46	29	B	79	27	46	46	33	B	83	27	46	46	37	B	87	27	46	46	41
H	7	27	19	7	0	H	7	27	19	7	0	H	8	27	19	8	0	H	8	27	19	8	0
I	38	10	54	38	0	I	39	10	54	39	0	I	41	10	54	41	0	I	43	10	54	43	0
322	0	11	0	0	0	322	0	11	0	0	0	322	0	11	0	0	0	322	0	11	0	0	0
400	0	9	0	0	0	400	0	9	0	0	0	400	0	9	0	0	0	400	0	9	0	0	0
411	0	10	0	0	0	411	0	10	0	0	0	411	0	10	0	0	0	411	0	10	0	0	0
422	0	9	50	0	0	422	0	9	50	0	0	422	0	9	50	0	0	422	0	9	50	0	0
Total	1,341	742	1,606	718	623	Total	1,408	742	1,606	735	673	Total	1,475	742	1,606	755	720	Total	1,542	742	1,606	774	768
Percentage Occupancy				44.7%	84.0%	Percentage Occupancy				45.8%	90.7%	Percentage Occupancy				47.0%	97.1%	Percentage Occupancy				48.2%	103.5%
Number of Public Spaces to Add for Max 85% Occupancy					-9	Number of Public Spaces to Add for Max 85% Occupancy					50	Number of Public Spaces to Add for Max 85% Occupancy					105	Number of Public Spaces to Add for Max 85% Occupancy					162
Public Capacity with -9 Added Spaces = 733					85.0%	Public Capacity with 50 Added Spaces = 792					85.0%	Public Capacity with 105 Added Spaces = 847					85.0%	Public Capacity with 162 Added Spaces = 904					85.0%
Number of Public Spaces to Add for Max 90% Occupancy					-50	Number of Public Spaces to Add for Max 90% Occupancy					6	Number of Public Spaces to Add for Max 90% Occupancy					58	Number of Public Spaces to Add for Max 90% Occupancy					112
Public Capacity with -50 Added Spaces = 692					90.0%	Public Capacity with 6 Added Spaces = 748					90.0%	Public Capacity with 58 Added Spaces = 800					90.0%	Public Capacity with 112 Added Spaces = 854					90.0%
Number of Public Spaces to Add for Max 95% Occupancy					-86	Number of Public Spaces to Add for Max 95% Occupancy					-33	Number of Public Spaces to Add for Max 95% Occupancy					16	Number of Public Spaces to Add for Max 95% Occupancy					67
Public Capacity with -86 Added Spaces = 656					95.0%	Public Capacity with -33 Added Spaces = 709					94.9%	Public Capacity with 16 Added Spaces = 758					95.0%	Public Capacity with 67 Added Spaces = 809					95.0%

Table 12 below summarizes the information contained in the previous two tables for easier comparison. The table shows that at the overall peak hour (3:00 pm – 4:00 pm) that even at plus 5 percent higher values, the proportion of public spaces occupied is only about 81 percent. However, at this same adjustment, using the values at the government peak (11:00 am – 12:00 noon), that the calculated occupancy of public parking would be nearly 91 percent of the spaces occupied and about 50 additional publicly designated spaces are needed in order to maintain an 85 percent maximum occupancy of the public supply.

Table 12 - Public Parking Needed Summary

	Observed Day Values	Observed Day Values(+5%)	Observed Day Values(+10%)	Observed Day Values(+15%)
Overall Peak Hour (3:00 - 4:00 pm)				
Peak Demand	1,362	1,430	1,499	1,567
Private Spaces Parked	804	827	850	871
Public Spaces Parking	558	603	649	696
% of Public Spaces Occupied	75.2%	81.3%	87.5%	93.8%
Additional Public Spaces Needed				
For Maximum of 85% Occupancy	(85)	(32)	21	76
For Maximum of 90% Occupancy	(122)	(72)	(21)	31
For Maximum of 95% Occupancy	(154)	(107)	(59)	(10)
Government Peak Hour (11:00 - 12:00 noon)				
Peak Demand	1,341	1,408	1,475	1,542
Private Spaces Parked	718	735	755	774
Public Spaces Parking	623	673	720	768
% of Public Spaces Occupied	84.0%	90.7%	97.0%	103.5%
Additional Public Spaces Needed				
For Maximum of 85% Occupancy	(9)	50	105	162
For Maximum of 90% Occupancy	(50)	6	58	112
For Maximum of 95% Occupancy	(86)	(33)	16	67

Summary – North Side

The north side of downtown Flagstaff is characterized by a significant number of various City and County offices and functions as well as a high proportion of the parking supply classified as privately controlled. This has the potential to have a significant impact on user's perceptions of parking availability because very often the private supply is signed as restricted only for the use of customers, visitors or staff of the owning or controlling entity.

While the overall peak need for downtown occurs between about 3:00 and 4:00 pm, the government uses have a significant impact on parking needs and these peak needs occur between about 11:00 am and 12:00 noon. At this time, the total demand is only slightly less than the overall peak but the government functions have much greater impact.

On the observed day the downtown would have a gross surplus of about 990± spaces. However, because this figure includes private supply that may not be available, deducting surplus private parking from the calculation reduces this surplus to 184 spaces. Using values corresponding to the peak hour experienced by the various government functions (11:00 am – 12:00 noon), the total demand at this time is slightly lower (1,341 at this time vs. 1,362 at the overall peak). This means that the gross surplus of total demand minus total supply increases slightly to 1,007 spaces but the impact after deducting surplus private parking means the net surplus is reduced from 184 spaces at the overall peak to just 118 spaces at this peak time even though the demand is slightly less.

Using adjustments to the demand to project conditions assuming that the observed day was not the most appropriate planning day, the demand using the government peak hour shows that using just a five percent increase in the calculated demand to account for a slightly busier day, approximately 50 additional public spaces should be provided in order to maintain a parking supply where about 15 percent of public spaces remain vacant in order to facilitate someone being able to easily find parking. Assuming that the observed day values should be increased by 10 percent, then just over 100 additional public spaces should be added and as many as 160± additional public spaces are needed if it is determined that planning day values should be 15 percent higher than the observed day conditions.

Section 3 – South Side Neighborhood Analysis

The parking needs for the blocks south of Route 66 have also been analyzed as part of this parking study update. The south side has different characteristics compared to the north with less of a presence by government offices and functions and instead exhibits a more diverse compilation of commercial enterprises including retail, restaurant, mixed-use and residential.

The methodology employed for analyzing the parking needs included the collection of parking supply data and land use information provided via the City’s GIS system supported by field data collected by Rich & Associates staff. This information is used with the parking demand model to be discussed. As with the north side analysis, a critical component is the occupancy study completed on August 2, 2018 for both north and south downtown which provides a benchmark to which the demand calculated by the demand model can be compared.

Parking Inventory

Table 13 below summarizes the parking inventory recorded for south side neighborhoods. The table shows that the total parking supply is 1,509 spaces which is virtually evenly split 50/50 between the parking supply that is publicly available (764 spaces / 51%) to the 745 spaces or 49 percent privately controlled. This meets Rich’s best practice that at least 50 percent of the parking be publicly available in order to foster a more walkable environment where a patron can park once and visit multiple destination. This level of public parking suggests that there may be a greater opportunity for shared use on the south side than experienced or possible on the north side of downtown.

The detailed off-street and on-street parking supply is shown by **Tables 14** and **15** on pages 43 through 47 and by **Map 7** on page 48

Table 13 - South Side Parking Supply Summary

South Side of Downtown						
	Public		Private		Total	
On-Street	462	100.0%	0	0.0%	462	30.6%
Off-Street	302	28.8%	745	71.2%	1,047	69.4%
Total	764	50.6%	745	49.4%	1,509	100.0%

Table 14 - Off-Street Parking Supply Detail (South Side)

			Private			Public				Public / Private
			Off-Street			Off-Street				
Block	Revised Map Letter	Description	Off-Street	Barrier Free	FX Permit	Pay-to-park	Public General (Free/ Time Limited)	Pay-to-park EX Exempt	Barrier Free	Total
1	A	Knights Inn	39	1	0	0	0	0	0	
	B	Auto Repair	10	0	0	0	0	0	0	
	Block Total			49	1	0	0	0	0	0
2	C	American Valet Lot	0	0	0	32	0	0	0	
	D	Hope Pregnancy Center	5	0	0	0	0	0	0	
	E	Our Lady of Guadalupe	5	3						
Block Total			10	3	0	32	0	0	0	45
3			No Off-St Supply							
	Block Total		0	0	0	0	0	0	0	0
4	F	Flagstaff Christian Fellowship	40	0	0	0	0	0	0	
	G	Ponderosa Apts.	22	0	0	0	0	0	0	
	Block Total			62	0	0	0	0	0	0
5	H	Santa Fe Reality	13	0	0	0	0	0	0	
	I	Climbing Center	16	1	0	0	0	0	0	
	Block Total			29	1	0	0	0	0	0
6	J	McGaugh's Craft Beer	3	1	0	0	0	0	0	
	K	116 E Butler Ave	12	0	0	0	0	0	0	
	L	Sacred Mountain/ Tai Chi	6	0	0	0	0	0	0	
	Block Total			21	1	0	0	0	0	0
7	M	American Valet Lot	0	0	0	20	0	0	1	
	N	115 E Cottage Ave	7	0	0	0	0	0	0	
	O	101 S Agassiz St.	7	0	0	0	0	0	0	
	P	115 1/2 S Agassiz St.	4	0	0	0	0	0	0	
	Block Total			18	0	0	20	0	0	1
8	Q	Alley	5	0	0	0	0	0	0	
	R	Tenant	4	0	0	0	0	0	0	
	Block Total			9	0	0	0	0	0	0
9	S	Ray's Barber Shop Etc.	20	1	0	0	0	0	0	
	T	Seventh-day Adventist Church	6	0	0	0	0	0	0	
	U	7 W Cottage Ave	6	0	0	0	0	0	0	
	Block Total			32	1	0	0	0	0	0
10	V	Christian Fellowship	6	2	0	0	0	0	0	
	Block Total			6	2	0	0	0	0	0
11	W	Agassiz Landscape Group	8	0	0	0	0	0	0	
	X	Interactive Humanics, inc.	3	0	0	0	0	0	0	
	Y	Apts	16	0	0	0	0	0	0	
	Block Total			27	0	0	0	0	0	0
12	Z	Mother Road Brewing	7	0	0	0	0	0	0	
	AA	Ruff's	9	1	0	0	0	0	0	
	AB	Brake's Masters	7	0	0	0	0	0	0	
	AC	Arizona Mortgage Prof.	5	0	0	0	0	0	0	
	AD	VP Fuel	6	1	0	0	0	0	0	
	AE	218 Milton Road	17	0	0	0	0	0	0	
	Block Total			51	2	0	0	0	0	0

Table 14 - Off-Street Parking Supply Detail (South Side, Continued)

			Private			Public				Public / Private
						Off-Street				
Block	Revised Map Letter	Description	Off-Street	Barrier Free	FX Permit	Pay-to-park	Public General (Free/ Time Limited)	Pay-to-park EX Exempt	Barrier Free	Total
13	AF	Los & Las	13	0	0	0	0	0	0	
	AG	Flag Tee Factory	9	0	0	0	0	0	0	
	AH	Rehab Services Etc.	16	2	0	0	0	0	0	
	AI	The Cottage	5	0	0	0	0	0	0	
	AJ	Burly Fish Tattoo & Piercing	70	3	0	0	0	0	0	
		Block Total	113	5	0	0	0	0	0	118
14	AK	Gated Lot	16	0	0	0	0	0	0	
	AL	DuBeau Hostel	17	2	0	0	0	0	0	
	AM	Apts.	10	0	0	0	0	0	0	
	AN	7 W Phoenix Ave.	10	0	0	0	0	0	0	
		Block Total	53	2	0	0	0	0	0	55
15	AO	Hotel Sierra Vista	20	0	0	0	0	0	0	
	AP	Morning Dew Landscaping	4	1	0	0	0	0	0	
	AQ	Grand Canyon Int'l Hostel	8	0	0	0	0	0	0	
	AR	17 E Phoenix Ave	15	0	0	0	0	0	0	
	AS	Downtowner Motel	22	0	0	0	0	0	0	
		Block Total	69	1	0	0	0	0	0	70
16	AT	Lot	11	0	0	0	0	0	0	
16	AU	Gravel Corner Lot	50	0	0	0	0	0	0	
		Block Total	61	0	0	0	0	0	0	61
17	AV3	Bus Station Lot	3	0	0		0	77	5	
	AV2	Pay to Park Lot	0	0	0	0	0	44	1	
	AV1	Pay to Park Lot	0	0	0	22	0		2	
		Block Total	3	0	0	22	0	121	8	154
18	AW	Altitude Bar	48	1	0	0	0	0	0	
	AX	By Lumberyard Brewing	0	0	0	45	0	0	4	
	AY	Lumberyard Side Lot	10							
	AZ	CPA Lot	8			3				
		Block Total	66	1	0	48	0	0	4	119
19	BA	Allstate Insurance	11	0	0	0	0	0	0	
	BB	Lot along San Francisco	11	0	0	0	0	0	0	
		Block Total	22	0	0	0	0	0	0	22
20	BC	Old Train Station	13	0	0	0	0	0	0	
		Block Total	13	0	0	0	0	0	0	13
21	BD	Train Station (East)		0	0	25	0	4	3	
	BE	Train Station (West)				12			2	
		Block Total	0	0	0	37	0	4	5	46
22	BF	Chamber of Commerce	11	0	0	0	0	0	0	
		Block Total	11	0	0	0	0	0	0	11
		Total South Side	725	20	0	159	0	125	18	1,047
			745			302				

Table 15 - On-Street Parking Supply Detail (South Side)

Block	Block Face	Metered	2 Hour	15 Minute Parking	Marked-No Limit Day	Unmarked-No Limit	
1	A				6		
	B	0	0	0	0	8	
	C	No Parking					
	D	5	0	0	0	0	
TOTAL	19	5	0	0	6	8	
2	A	0	13	0	0	0	
	B	0	0	0	0	6	
	C	No Parking					
	D	0	0	0	0	6	
TOTAL	25	0	13	0	0	12	
3	A	0	8	0	0		
	B	No Parking					
	C	No Parking					
	D	No Parking					
TOTAL	8	0	8	0	0	0	
4	A	0	5	0	0	0	
	B	0	0	0	0	10	
	C	No Parking					
	D	2	0	0	0	0	
TOTAL	17	2	5	0	0	10	
5	A	0	0	0	0	12	
	B	4	0	0	0	0	
	C	No Parking					
	D	0	0	0	0	6	
TOTAL	22	4	0	0	0	18	
6	A	0	10	0	0	0	
	B	0	0	0	3	0	
	C	No Parking					
	D	4	0	0	0	0	
TOTAL	17	4	10	0	3	0	
7	A	0	11	0	0	0	
	B	0	0	0	0	9	
	C	0	8	0	0	0	
	D	7	0	0	0	0	
TOTAL	35	7	19	0	0	9	

Table 15 - On-Street Parking Supply Detail (South Side, Continued)

Block	Block Face	Metered	2 Hour	15 Minute Parking	Marked-No Limit Day	Unmarked-No Limit	
8	A	0	9	0	0	0	
	B	8	0	0	0	0	
	C	0	9	0	0	0	
	D	0	0	0	3	0	
TOTAL	29	8	18	0	3	0	
9	A	0	9	0	0	0	
	B	0	0	0	0	7	
	C	0	6	0	0	0	
	D	5	0	0	0	0	
TOTAL	27	5	15	0	0	7	
10	A	0	4	0	0	0	
	B	No Parking					
	C	0	7	0	0	0	
	D	0	0	0	0	6	
TOTAL	17	0	11	0	0	6	
11	A	0	6	0	0	0	
	B	0	4	0	0	0	
	C	0	8	0	0	0	
	D	6	0	0	0	0	
TOTAL	24	6	18	0	0	0	
12	A	0	0	0	0	6	
	B	26	0	0	0	0	
	C	No Parking					
	D	No Block Face					
TOTAL	32	26	0	0	0	6	
13	A	5	0	0	0	0	
	B	No Parking					
	C	0	9	0	0	0	
	D	11	0	0	0	0	
TOTAL	25	16	9	0	0	0	
14	A	10	0	0	0	0	
	B	0	0	0	0	7	
	C	0	8	0	0	0	
	D	7	0	0	0	0	
TOTAL	32	17	8	0	0	7	
15	A	12	0	0	0	0	
	B	7	0	0	0	0	
	C	0	9	0	0	0	
	D	0	0	0	10	0	
TOTAL	38	19	9	0	10	0	

Table 15 - On-Street Parking Supply Detail (South Side, Continued)

Block	Block Face	Metered	2 Hour	15 Minute Parking	Marked-No Limit Day	Unmarked-No Limit
16	A	10	0	0	0	0
	B	0	0	0	0	11
	C	0	10	0	0	0
	D	8	0	0	0	0
TOTAL	39	18	10	0	0	11
17	A	No Block Face				
	B	No Parking				
	C	10	0	0	0	6
	D	No Parking				
TOTAL	16	10	0	0	0	6
18	A	No Block Face				
	B	No Parking				
	C	26	0	0	0	0
	D	No Parking				
TOTAL	26	26	0	0	0	0
19	A	No Block Face				
	B	No Parking				
	C	14	0	0	0	0
	D	No Parking				
TOTAL	14	14	0	0	0	0
20	A	No Parking				
	B	No Parking				
	C	No Block Face				
	D	No Parking				
TOTAL	0	0	0	0	0	0
21	A	No Parking				
	B	No Parking				
	C	No Block Face				
	D	No Parking				
TOTAL	0	0	0	0	0	0
22	A	No Parking				
	B	No Parking				
	C	No Block Face				
	D	No Parking				
TOTAL	0	0	0	0	0	0
South Total	462	187	153	0	22	100

Occupancy Counts – South Side

Just as was performed for the blocks north of Route 66, Rich & Associates conducted occupancy counts for the south side neighborhood blocks. Although Table 13 shows a total of 462 on-street spaces, Rich is discounting 32 on-street spaces surrounding the new NAU construction on block 12. Therefore, for a total supply to be evaluated we are using 430 spaces. For the on-street parking, Rich was able to inventory approximately 88 percent (378) of the 430 total spaces. At peak time for the on-street parking (5:00 pm – 7:00 pm), 65 percent of the spaces were occupied.

For the off-street parking, Rich directly observed 668 of the 1,047 (64%) total spaces. Peak observed occupancy of the off-street parking occurred during the last circuit (7:00 pm – 9:00 pm) when 42 percent of the off-street spaces were occupied.

South Side On-Street and Off-Street Occupancy

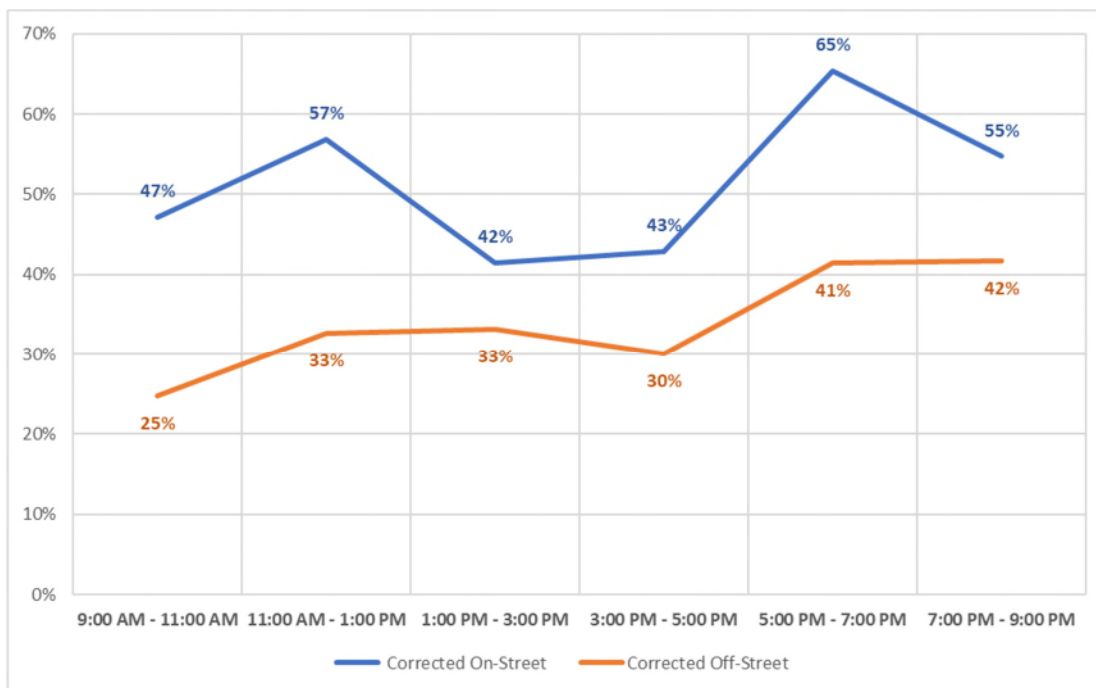
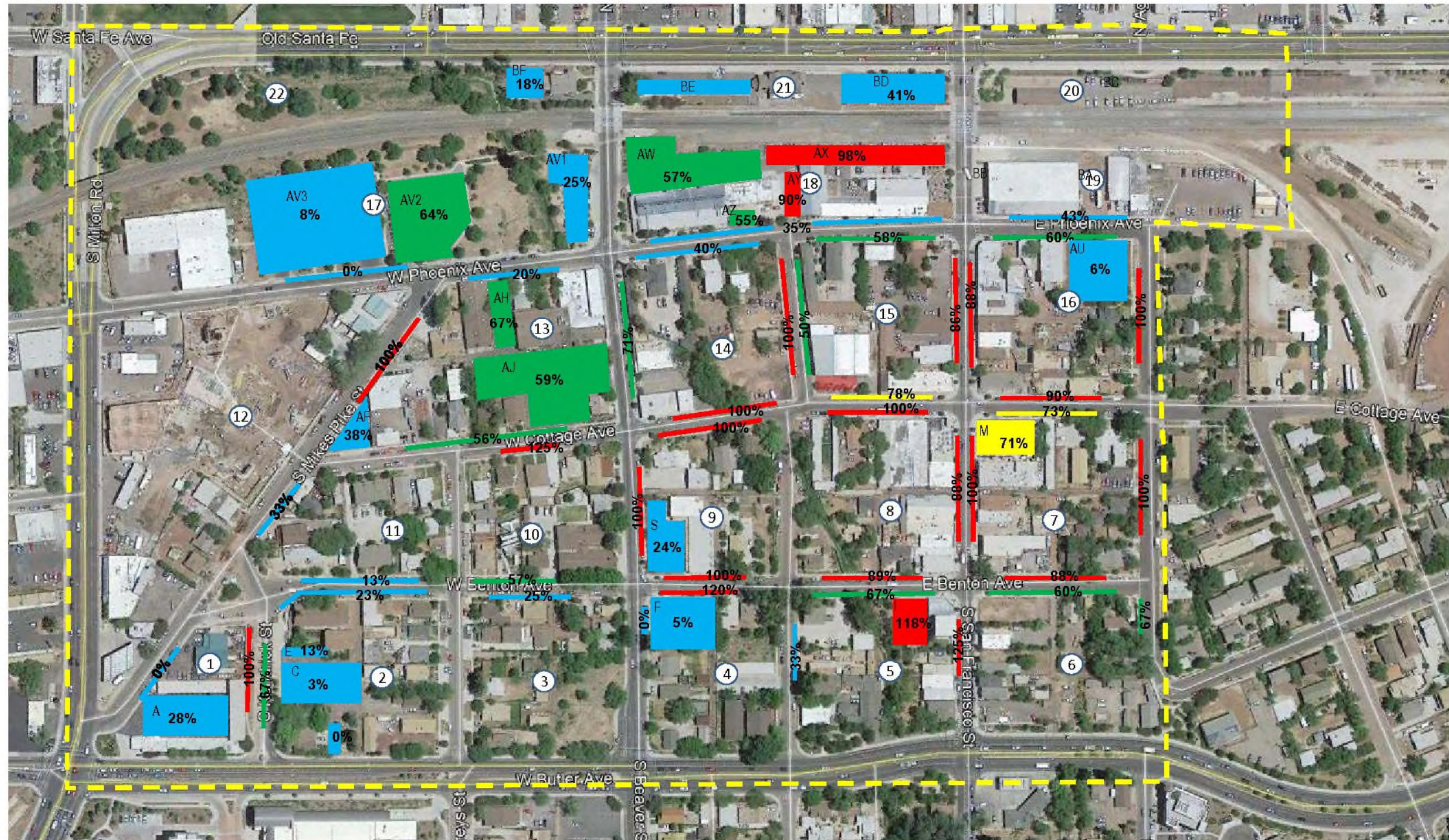


Figure 9 - On and Off-Street Parking Occupancy

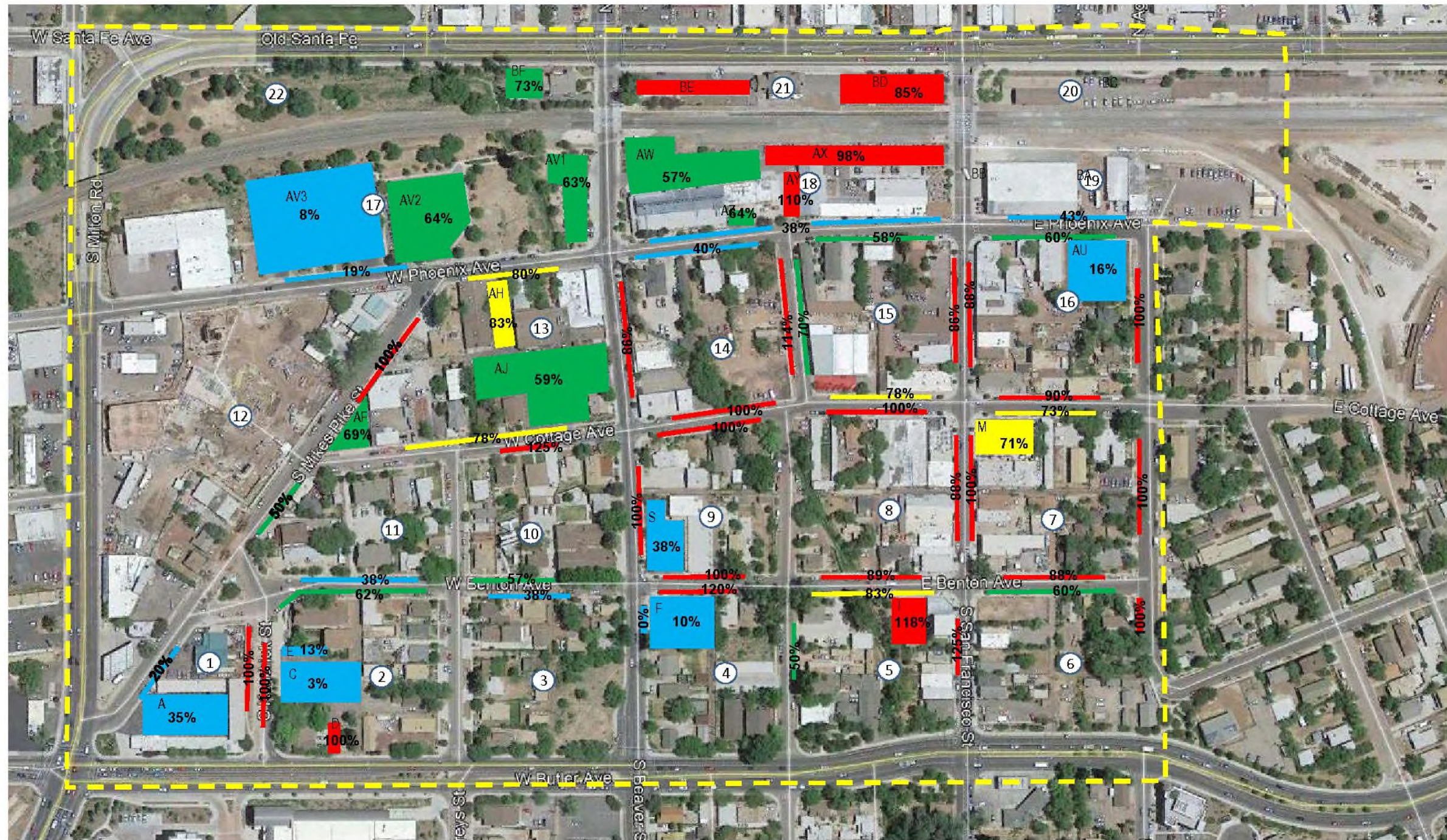
The parking occupancy counts when displayed on maps can provide a visual reference as how parking areas are being used. Rich prepares two maps to demonstrate the conditions. The first map (**Map 8**) shows the occupancy of each of the various parking areas as they were observed to be occupied coinciding with the peak hour which in the case of the south side was between 5:00 pm and 7:00 pm. This map shows many of the available on-street spaces, particularly north of Benton Avenue as being full or very nearly full (> 85 percent).

For the off-street supply, the public lot adjacent the lumberyard off of San Francisco Street was virtually full with the American Valet Lot at San Francisco and Cottage Avenue also well utilized (71 percent).

Rich also shows the highest occupancy reached in each on-street or off-street area studied. This is referred to as “Peak Achieved”. This simply demonstrates the highest occupancy reached regardless of time of day. This is shown by **Map 9** on page 52 and shows there were only a few areas that markedly differed from the peak hour occupancy experienced.



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Apart from the visualization of the utilization of various parking areas, another critical aspect of the occupancy counts is to provide a benchmark to which the calculated parking demand based on the parking demand model can be compared. A close correlation in the demand as calculated to the actually observed conditions lends confidence in the values applied.

However, in order to accurately correlate the calculated parking demand to the observed parking, the on-street and off-street spaces not directly observed must be accounted for. This is done by determining the percentage occupancy at each observation period (9:00 am – 11:00 am, 11:00 am – 1:00 pm etc.) and applying this same percentage to the missing spaces. Adding the directly observed to the extrapolated values gives the expected occupancy. This correction is done separately for the off-street and on-street spaces and the two values combined to derive the total expected occupancy.

Off-Street Parking

Figure 10 below demonstrates the correction of off-street parking. The occupancy of the spaces directly observed is represented by the taller columns. Of the total 1,047 space off-street supply, Rich directly observed 668 spaces. As an example, at the 9:00 am – 11:00 am period, 162 spaces (24%) of the 668 spaces were occupied. Subtracting the 668 spaces observed from the 1,047 space total means that 379 spaces were not directly observed. Applying the approximate 24 percent occupancy rate to these spaces results in 92 additional spaces expected to be occupied. Similar adjustments were made at each of the other observation periods.

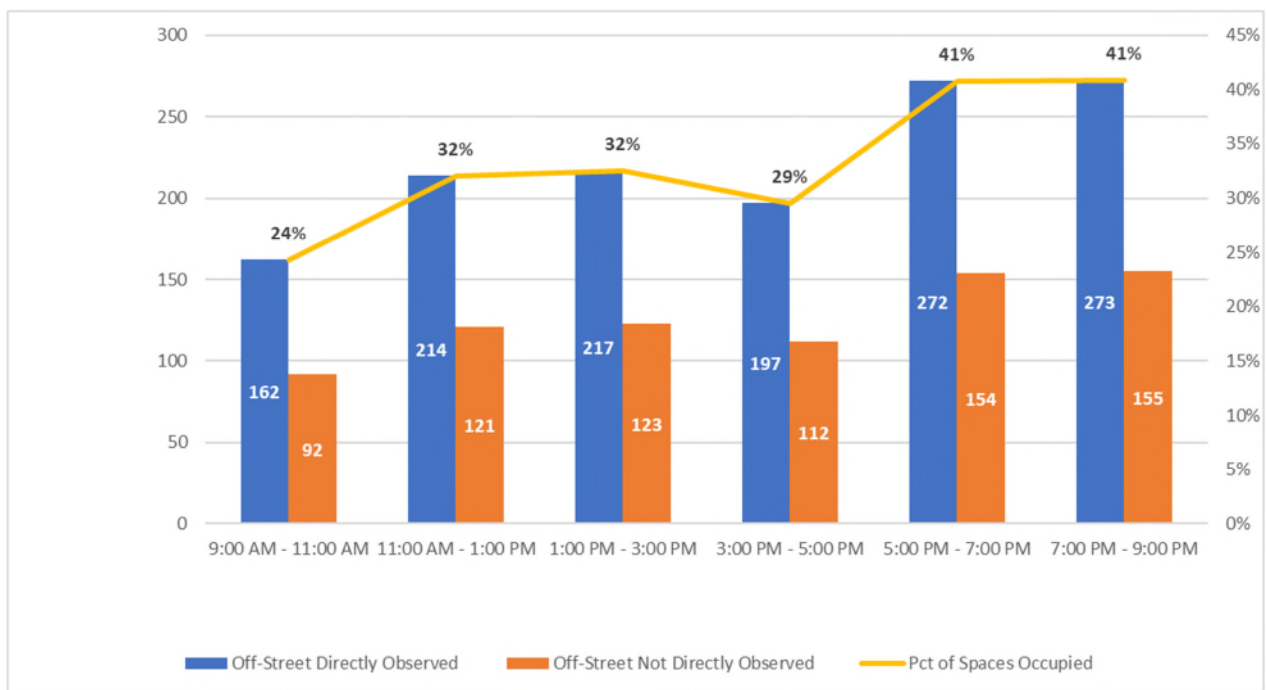


Figure 10 - Off-Street Parking Occupancy Adjustment South Side

Adding together the occupied spaces from those directly observed to the extrapolated values results in the total occupancy figures for the off-street spaces as shown below in **Figure 11**.

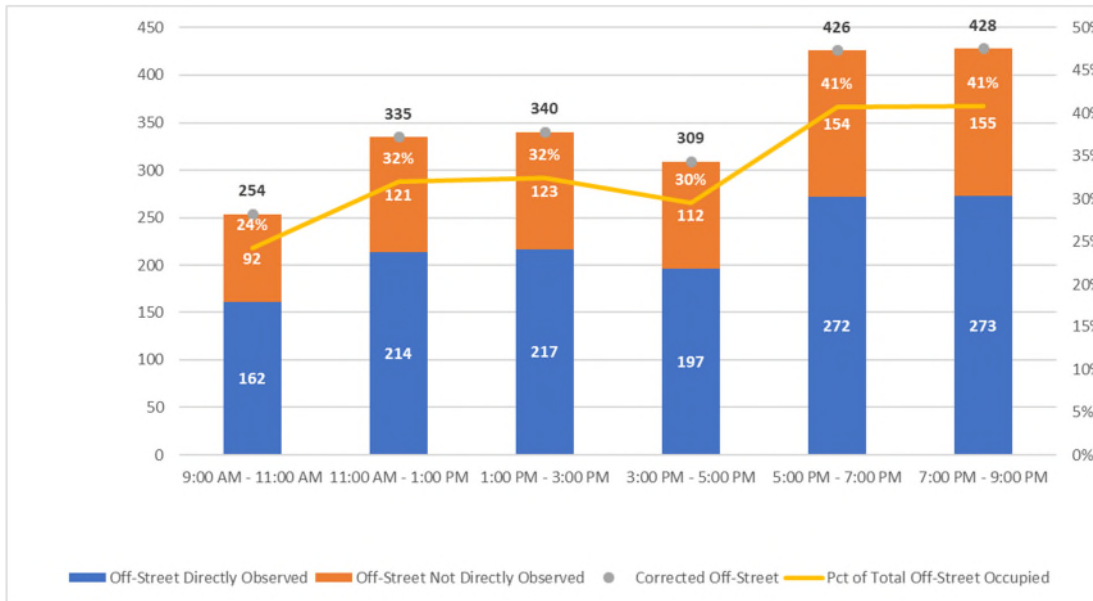


Figure 11 - Adjusted Off-Street Parking Occupancy, South Side

Following a similar methodology for adjusting the on-street parking results in the values as demonstrated by **Figure 12**.

While Figure 11 above shows that the off-street parking peaks between about 5:00 pm and 9:00 pm, the on-street parking showed a clear peak coinciding with the 5:00 pm – 7:00 pm period.

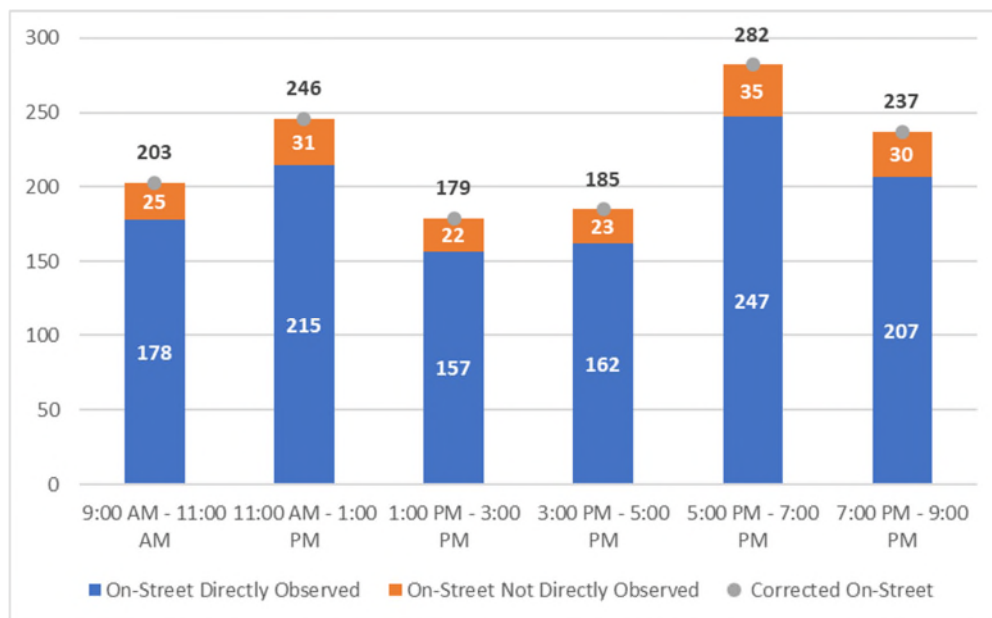


Figure 12 - Adjusted On-Street Occupancy, South Side

Compiling the observed and corrected values for the on-street and off-street parking gives the graph as demonstrated by **Figure 13**. This shows that an expected peak occupancy would be about 710± spaces.

Similar as the methodology employed for the north side of downtown, with observation circuits occurring on a two-hour cycle, Rich uses the mid-point of each cycle as the observation point. Establishing these values, the mid-point between two observations is extrapolated to derive the occupancy at these interim periods. This is demonstrated by **Figure 14** below.

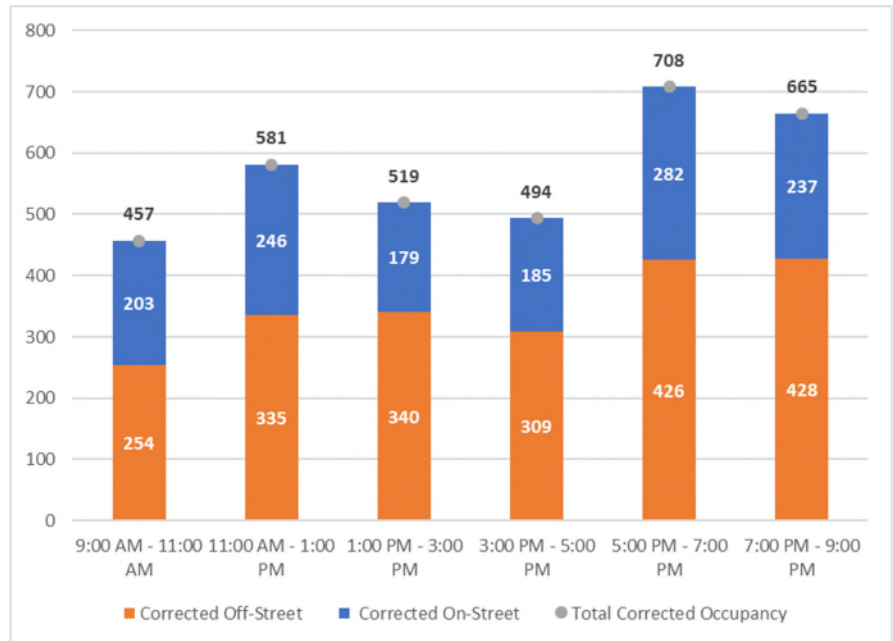


Figure 13 - Combined On-Street and Off-Street Parking Occupancy, South Side

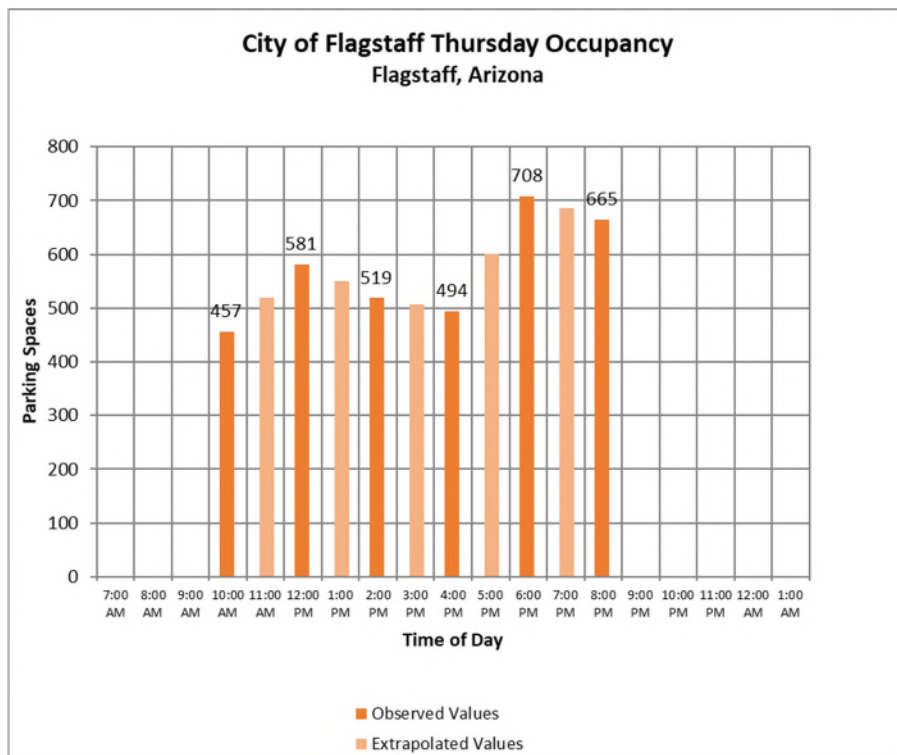


Figure 14 - Observed and Extrapolated Parking Occupancy

Parking Demand Model – South Side Neighborhood

While the parking occupancy observations provide some insight into how the parking is operating, a more complete picture can be derived from an accurate parking demand model. This would represent the parking needs showing the parking needed by various land uses at various times of the day.

Rich again used the land use data provided from the City's GIS system supported by the field data collected in downtown Flagstaff.

Table 16 on page 57 details the square footage by type allocated to each block for the south side. The largest value is 83,000 square feet attributable to restaurant uses which plays a significant role in the occupancy pattern experienced with the peak occurring during the early evening hours.

Table 16 - Existing Land Use Allocation – South Side

Current Square Footage by Land Use													
Block #	Retail	Restaurant	Hotel	Community	Residential ¹	Office	Mixed	Auto Service	Financial	Government	Total Occupied SF	Vacant	Total SF (includes Vacant)
1			35					4,861			4,861		4,861
2				13,168							13,168		13,168
3											0		0
4					18						0		0
5	6,822				4	2,966	6,090				15,878		15,878
6	1,551										1,551		1,551
7	5,762	1,219		8,102	12						15,083	1,832	16,915
8		5,447				5,020					10,467		10,467
9	9,019										9,019		9,019
10		2,187		17,260							19,447		19,447
11					8						0		0
12	2,474	9,224						4,715	1,822		18,235		18,235
13	1,142	16,274					26,064				43,480		43,480
14		3,424	15		11		9,379				12,803		12,803
15			41								0		0
16		15,383	2				3,900				19,283	2,444	21,727
17										22,268	22,268		22,268
18	3,374	30,184				12,787	11,196				57,541		57,541
19						11,434	17,131				28,565		28,565
20											0	3,619	3,619
21											0		0
22											0		0
Total	30,144	83,342	93	38,530	53	32,207	73,760	9,576	1,822	22,268	291,649	7,895	299,544

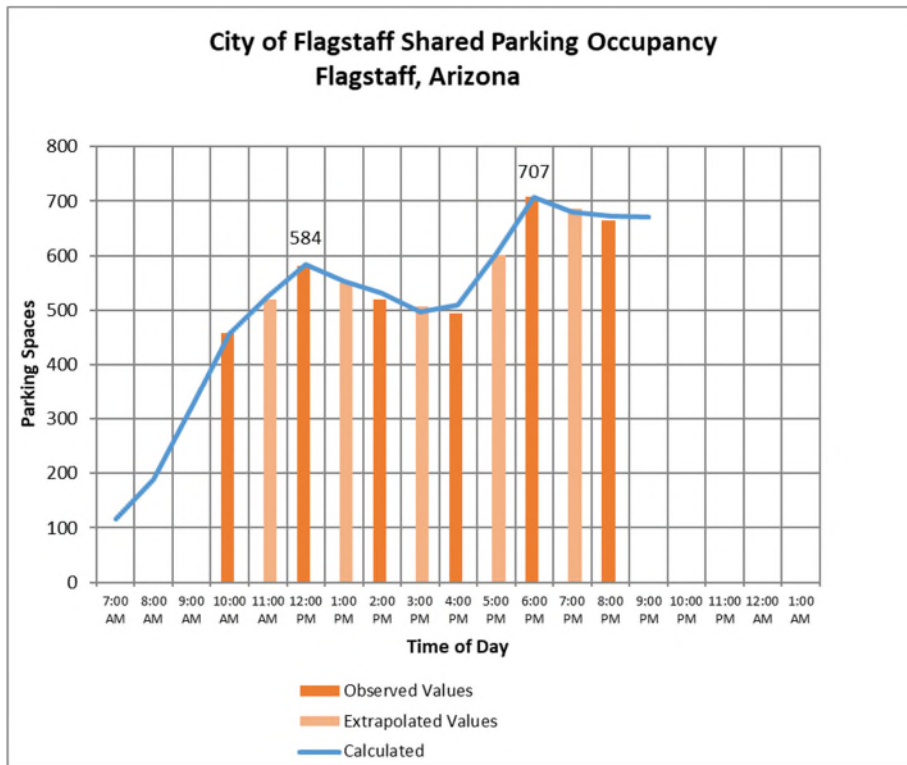


Figure 15 - Calculated Parking Demand vs. Observed Parking Occupancy, South Side

Using parking generation rates (number of parking spaces needed) appropriate to each type of land use as derived from Rich's shared use model results in a calculated parking demand for the south side neighborhood in total that correlates with the conditions observed based on the occupancy counts. This shows that the parking need as calculated for the peak hour totals 707± spaces which matches the 708 spaces expected observed at this time based on the

occupancy counts. Similarly, during the afternoon peak the calculated parking totals 584 spaces which very closely matches the expected 581 spaces per the occupancy counts.

If the parking generation rates are applied to each land use and the results demonstrated individually, **Figure 16** is derived. This shows how the peak parking needs are largely driven by the restaurant component of land uses on the south side.

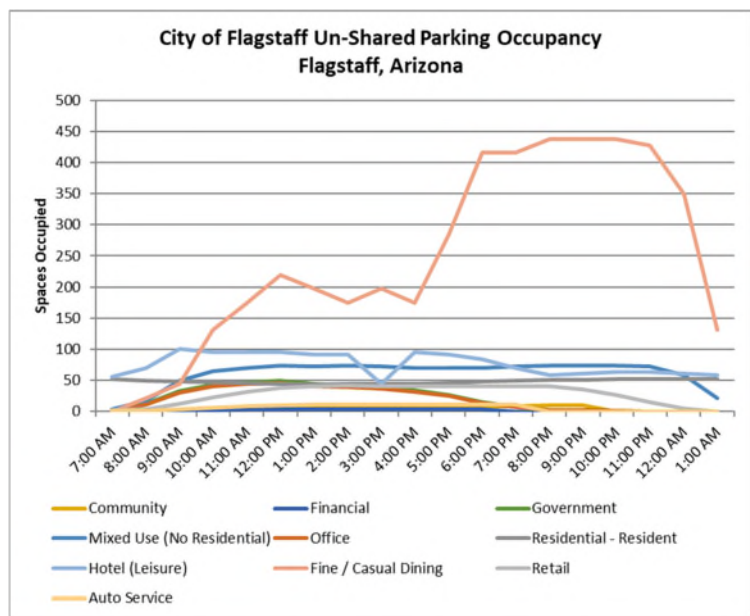


Figure 16 - Individual Land Use Parking Needs, South Side

Aggregating the individual land uses into a graph which demonstrates the relative contribution of each to the total parking demand throughout the day is demonstrated by **Figure 17**. This clearly shows how the restaurant land uses and parking demand plays the major role for the amount of parking needed in the evening. This is a typical pattern in many downtown where various uses contribute to the parking needs during the daytime hours but restaurant uses will often have the major impact on evening parking needs.

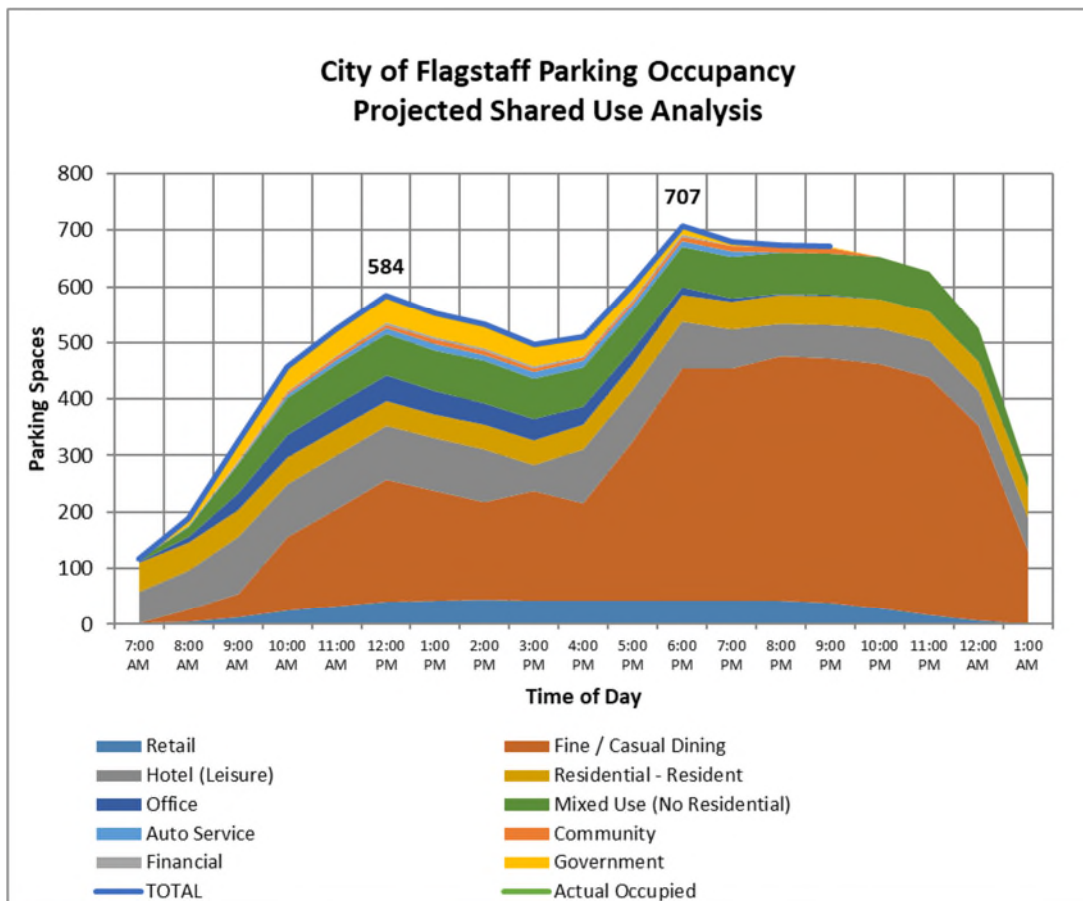


Figure 17 - Compiled Parking Demand Individual Land Uses, South Side

Rich used the demand model as demonstrated above which calculates parking needs that correspond to the observed conditions and applied the parking generation rates at the peak hour (5:00 pm – 6:00 pm) to the land uses as demonstrated in Table 16 to derive the parking needed by each type of land use by block. This is demonstrated by **Table 17** on the following page and **Map 10** on page 61.

Table 17 - Peak Hour Parking Demand – South Side Neighborhood

Current Surplus / (Deficit) - Peak Daytime (5:00 PM - 6:00 PM)																				
Block #	Retail	Restaurant	Hotel	Community	Residential ¹	Office	Mixed	Auto Service	Financial	Government	Total Demand	Public Parking			Private Parking	Total			Gross Surplus / (Deficit)	Net Surplus / (Deficit)
	Parking Generation Rate (Shared Use)											On-Street	Off-Street	Total	Off-Street	On-Street	Off-Street	Combined		
	1.39	4.94	0.90	0.21	0.92	0.43	0.95	1.15	1.65	0.67										
1	0	0	32	0	0	0	0	6	0	0	37	19	0	19	50	19	50	69	32	19
2	0	0	0	3	0	0	0	0	0	0	3	25	32	57	13	25	45	70	67	57
3	0	0	0	0	0	0	0	0	0	0	0	8	0	8	0	8	0	8	8	8
4	0	0	0	0	17	0	0	0	0	0	17	17	0	17	62	17	62	79	62	17
5	9	0	0	0	4	1	6	0	0	0	20	22	0	22	30	22	30	52	32	22
6	2	0	0	0	0	0	0	0	0	0	2	17	0	17	22	17	22	39	37	17
7	8	6	0	2	11	0	0	0	0	0	27	35	21	56	18	35	39	74	47	47
8	0	27	0	0	0	2	0	0	0	0	29	29	0	29	9	29	9	38	9	9
9	13	0	0	0	0	0	0	0	0	0	13	27	0	27	33	27	33	60	47	27
10	0	11	0	4	0	0	0	0	0	0	14	17	0	17	8	17	8	25	11	11
11	0	0	0	0	7	0	0	0	0	0	7	24	0	24	27	24	27	51	44	24
12	3	46	0	0	0	0	0	5	3	0	57	32	0	32	53	32	53	85	28	28
13	2	80	0	0	0	0	25	0	0	0	107	25	0	25	118	25	118	143	36	25
14	0	17	14	0	10	0	9	0	0	0	49	32	0	32	55	32	55	87	38	32
15	0	0	37	0	0	0	0	0	0	0	37	38	0	38	70	38	70	108	71	38
16	0	76	2	0	0	0	4	0	0	0	81	39	0	39	61	39	61	100	19	19
17	0	0	0	0	0	0	0	0	0	15	15	16	151	167	3	16	154	170	155	155
18	5	149	0	0	0	5	11	0	0	0	170	26	52	78	67	26	119	145	(25)	(25)
19	0	0	0	0	0	5	16	0	0	0	21	14	0	14	22	14	22	36	15	14
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	13	13	13	0
21	0	0	0	0	0	0	0	0	0	0	0	0	46	46	0	0	46	46	46	46
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11	11	11	0
Total	42	412	84	8	49	14	70	11	3	15	707	462	302	764	745	462	1,047	1,509	802	589



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The table and map just shown demonstrates the parking on both the gross and net basis. The “Gross Surplus / Deficit” compares total parking demand against total parking supply. The “Net Surplus / Deficit” allocates parking demand first to private supply and if surplus parking, discards the excess private spaces in the analysis. This follows the assumption that businesses with excess parking typically do not make these spaces available to the general public or adjacent businesses. Map 10 shows the gross surplus or deficit as the numerator and the net surplus or deficit as the denominator value.

While this convention would suggest that a high proportion of the private parking should be used with a relatively low usage of the public supply, analysis of the data contained in the occupancy counts suggests instead that a higher proportion of the public supply is used. This may be due to the higher proportion of publicly available parking (50 percent of the total supply) affords more opportunities to use the public supply even if private parking is provided. It may also be a result of more free spaces (although time limited) may allow someone to park and visit multiple destinations without having to move their car. Based on the observed day conditions with a calculated need of 707± spaces needed at the peak hour, the data suggests that just 303± spaces are used of the 745-space private supply while 404± of the 764 publicly available spaces are used. This represents just 53 percent of the available public supply.

Alternative Demand Values

As previously noted, the counts conducted in downtown Flagstaff were scheduled and conducted to coincide with the peak tourist season. However, with just the one day of counts it is undetermined whether this is an accurate portrayal of likely peak needs. Therefore, Rich calculated the parking as it may exist with values from five percent to 15 percent higher than these observed day conditions. These adjustments are demonstrated by **Table 18** on the following page.

Applying the same proportions for the apparent use of private and public parking spaces as calculated for the observed day conditions, Rich is projecting that even with peak hour demand 15 percent higher than the observed conditions, that just 64 percent of the publicly available parking would be used.

Best practices in a community is to manage the parking so that at least 15 percent of the spaces are available. This level of occupancy (85 percent) facilitates someone being able to easily find parking reasonably close to their destination without having to hunt multiple locations. The projected level of public parking utilization for the south side of downtown shows that this benchmark is easily met.

Table 18 - Factored Parking Demand Alternative Peak Days (South Side)

Pct Change Observation Day	Peak Hour Demand (5:00 PM - 6:00 PM)				
	Peak Demand (Shared)	Private Parking		Public Parking	
		Expected #	Pct of	Expected #	Pct of
		Spaces Occupied	Private Supply	Spaces Occupied	Public Supply
0%	707	303	41%	404	53%
5%	743	313	42%	430	56%
10%	778	321	43%	457	60%
15%	813	326	44%	487	64%

Summary – South Side Demand

The south side of Downtown Flagstaff is characterized much differently than the north. Government uses and functions on the south side play a much smaller role in driving parking demand which instead is driven by the impact from restaurant uses. Both during the overall peak hour and with a significant role earlier in the day, the parking needed by restaurant uses are facilitated by the high proportion (50 percent) of publicly available parking. The 50 percent of parking publicly available meets Rich’s best practice for this since it allows patrons to park once and walk to multiple destinations without having to move their car in between.

The demand model shows that even allowing for demand values as much as 15 percent higher than the conditions observed and calculated, the south side of Downtown Flagstaff should have more than adequate publicly available parking to support the existing land uses.

Appendix

Table A1 – North Downtown On-Street Occupancy Results

Block	Face	Description	Capacity	9:00 AM		11:00 AM		1:00 PM		3:00 PM		5:00 PM		7:00 PM	
				9:00 AM - 11:00:00 AM		11:00 AM - 1:00 PM		1:00 PM - 3:00 PM		3:00 PM - 5:00 PM		5:00 PM - 7:00 PM		7:00 PM - 9:00 PM	
				# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ
23	A	On-Street	8	4	50%	5	63%	4	50%	5	63%	0	0%	1	13%
25	A	On-Street	8	1	13%	5	63%	3	38%	5	63%	3	38%	7	88%
26	A	On-Street	5	1	20%	3	60%	2	40%	5	100%	4	80%	5	100%
26	B	On-Street	7	1	14%	7	100%	7	100%	7	100%	6	86%	6	86%
26	C	On-Street	2	2	100%	2	100%	2	100%	2	100%	2	100%	2	100%
27	A	On-Street	8	3	38%	7	88%	7	88%	7	88%	8	100%	8	100%
27	B	On-Street	6	6	100%	5	83%	6	100%	6	100%	6	100%	5	83%
27	C	On-Street	10	10	100%	10	100%	10	100%	10	100%	9	90%	10	100%
27	D	On-Street	8	6	75%	7	88%	8	100%	7	88%	8	100%	7	88%
28	A	On-Street	8	5	63%	7	88%	6	75%	8	100%	8	100%	8	100%
28	B	On-Street	6	1	17%	5	83%	2	33%	4	67%	5	83%	3	50%
28	C	On-Street	3	3	100%	3	100%	3	100%	3	100%	3	100%	3	100%
28	D	On-Street	6	5	83%	6	100%	5	83%	6	100%	5	83%	6	100%
29	A	On-Street	7	1	14%	5	71%	2	29%	4	57%	2	29%	5	71%
29	D	On-Street	9	5	56%	5	56%	5	56%	7	78%	4	44%	7	78%
30	A	On-Street	7	1	14%	3	43%	3	43%	0	0%	0	0%	0	0%
31	D	On-Street	15	5	33%	6	40%	5	33%	5	33%	0	0%	1	7%
32	A	On-Street	8	1	13%	1	13%	0	0%	1	13%	0	0%	0	0%
32	B	On-Street	7	2	29%	1	14%	1	14%	1	14%	0	0%	1	14%
32	C	On-Street	3	3	100%	2	67%	1	33%	1	33%	2	67%	3	100%
33	A	On-Street	10	10	100%	10	100%	8	80%	10	100%	10	100%	5	50%
33	C	On-Street	6	3	50%	3	50%	2	33%	5	83%	3	50%	4	67%
33	D	On-Street	6	2	33%	2	33%	4	67%	5	83%	3	50%	2	33%
34	A	On-Street	9	3	33%	8	89%	9	100%	8	89%	4	44%	7	78%
34	B	On-Street	6	1	17%	5	83%	5	83%	4	67%	2	33%	4	67%
34	C	On-Street	7	0	0%	5	71%	5	71%	6	86%	6	86%	7	100%
34	D	On-Street	6	6	100%	6	100%	6	100%	5	83%	5	83%	5	83%
35	A	On-Street	8	7	88%	3	38%	8	100%	7	88%	7	88%	8	100%
35	B	On-Street	5	5	100%	5	100%	3	60%	4	80%	5	100%	5	100%
35	C	On-Street	8	4	50%	8	100%	7	88%	7	88%	7	88%	7	88%
35	D	On-Street	7	6	86%	7	100%	5	71%	7	100%	7	100%	6	86%
36	A	On-Street	8	0	0%	6	75%	8	100%	6	75%	7	88%	8	100%
36	B	On-Street	8	7	88%	9	113%	8	100%	7	88%	8	100%	7	88%
36	C	On-Street	8	2	25%	3	38%	6	75%	5	63%	7	88%	8	100%
36	D	On-Street	9	1	11%	5	56%	5	56%	2	22%	2	22%	8	89%
37	A	On-Street	4	0	0%	2	50%	2	50%	0	0%	0	0%	0	0%
37	B	On-Street	5	0	0%	3	60%	0	0%	2	40%	2	40%	5	100%

Table A1 – North Downtown On-Street Occupancy Results (Continued)

Block	Face	Description	Capacity	9:00 AM		11:00 AM		1:00 PM		3:00 PM		5:00 PM		7:00 PM	
				9:00 AM - 11:00:00 AM		11:00 AM - 1:00 PM		1:00 PM - 3:00 PM		3:00 PM - 5:00 PM		5:00 PM - 7:00 PM		7:00 PM - 9:00 PM	
				# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ
37	C	On-Street	9	0	0%	0	0%	2	22%	4	44%	4	44%	6	67%
38	A	On-Street	7	1	14%	5	71%	4	57%	4	57%	7	100%	2	29%
39	A	On-Street	11	10	91%	9	82%	10	91%	9	82%	9	82%	3	27%
39	C	On-Street	11	4	36%	6	55%	5	45%	4	36%	1	9%	0	0%
39	D	On-Street	11	0	0%	1	9%	2	18%	0	0%	1	9%	1	9%
40	A	On-Street	8	6	75%	5	63%	7	88%	7	88%	3	38%	2	25%
40	B	On-Street	8	0	0%	0	0%	1	13%	2	25%	2	25%	3	38%
40	C	On-Street	4	0	0%	3	75%	3	75%	0	0%	0	0%	0	0%
41	A	On-Street	9	7	78%	6	67%	8	89%	9	100%	4	44%	4	44%
41	B	On-Street	4	1	25%	2	50%	2	50%	3	75%	2	50%	2	50%
41	C	On-Street	7	0	0%	7	100%	5	71%	6	86%	3	43%	4	57%
41	D	On-Street	7	1	14%	2	29%	3	43%	1	14%	3	43%	7	100%
42	A	On-Street	8	6	75%	6	75%	6	75%	6	75%	3	38%	3	38%
42	B	On-Street	7	7	100%	8	114%	6	86%	6	86%	7	100%	4	57%
42	C	On-Street	8	7	88%	9	113%	8	100%	7	88%	7	88%	8	100%
42	D	On-Street	5	2	40%	4	80%	6	120%	5	100%	6	120%	6	120%
43	A	On-Street	5	4	80%	4	80%	4	80%	4	80%	4	80%	3	60%
43	B	On-Street	10	6	60%	9	90%	10	100%	8	80%	5	50%	5	50%
43	C	On-Street	9	3	33%	9	100%	6	67%	6	67%	3	33%	9	100%
43	D	On-Street	9	9	100%	9	100%	9	100%	7	78%	9	100%	6	67%
44	A	On-Street	9	8	89%	9	100%	9	100%	8	89%	5	56%	2	22%
44	C	On-Street	6	5	83%	5	83%	5	83%	4	67%	7	117%	5	83%
44	D	On-Street	6	7	117%	5	83%	6	100%	3	50%	2	33%	2	33%
322	C	On-Street	11	0	0%	3	27%	0	0%	0	0%	0	0%	0	0%
400	C	On-Street	9	4	44%	6	67%	8	89%	5	56%	3	33%	0	0%
411	C	On-Street	10	8	80%	10	100%	10	100%	9	90%	8	80%	2	20%
422	C	On-Street	9	8	89%	9	100%	9	100%	8	89%	8	89%	7	78%
A	A	On-Street	6	4	67%	4	67%	4	67%	4	67%	5	83%	1	17%
A	B	On-Street	5	1	20%	3	60%	5	100%	5	100%	4	80%	4	80%
A	C	On-Street	6	6	100%	5	83%	6	100%	6	100%	4	67%	1	17%
B	A	On-Street	7	5	71%	7	100%	7	100%	7	100%	7	100%	5	71%
B	B	On-Street	9	9	100%	9	100%	9	100%	8	89%	8	89%	5	56%
B	C	On-Street	11	11	100%	11	100%	11	100%	11	100%	7	64%	4	36%
H	A	On-Street	9	2	22%	0	0%	1	11%	1	11%	0	0%	1	11%
H	C	On-Street	9	5	56%	9	100%	6	67%	6	67%	7	78%	5	56%
H	D	On-Street	9	2	22%	5	56%	6	67%	6	67%	1	11%	0	0%
I	A	On-Street	10	0	0%	3	30%	2	20%	1	10%	1	10%	2	20%
On-Street Directly Observed			559	282	50%	392	70%	384	69%	374	67%	320	57%	308	55%

Table A2 – North Downtown Off-Street Occupancy Results

Block	Description	Map Letter	Capacity	9:00 AM		11:00 AM		1:00 PM		3:00 PM		5:00 PM		7:00 PM	
				9:00 - 11:00 AM	11:00 AM - 1:00 PM	1:00 PM - 3:00 PM	3:00 PM - 5:00 PM	5:00 PM - 7:00 PM	7:00 PM - 9:00 PM						
				# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ
23	City Hall Lot (Employees)	A	116	91	78%	95	82%	97	84%	94	81%	17	15%	12	10%
25	Permit Lot	C	75	38	51%	25	33%	31	41%	29	39%	20	27%	40	53%
25	City Court Building	D	17	18	106%	15	88%	16	94%	15	88%	6	35%	10	59%
25	Auto Loan Lot	E	13	3	23%	3	23%	3	23%	3	23%	2	15%	0	0%
25	Municipal Lot	F	25	4	16%	0	0%	2	8%	1	4%	1	4%	5	20%
25	Rodeway Inn Lot	G	15	6	40%	3	20%	3	20%	3	20%	4	27%	8	53%
26	Sports Exchange Lot	H	8	2	25%	2	25%	5	63%	3	38%	3	38%	3	38%
26	Weatherford Hotel	O	9	9	100%	5	56%	6	67%	5	56%	8	89%	7	78%
26	Peace Surplus	L	11	3	27%	5	45%	3	27%	4	36%	4	36%	3	27%
26	Jimmy John's	K	18	4	22%	3	17%	6	33%	3	17%	7	39%	3	17%
26	Aspen Deli	I	2	2	100%	2	100%	2	100%	2	100%	2	100%	0	0%
26	Theater	J	4	3	75%	4	100%	4	100%	4	100%	1	25%	0	0%
27	City Hcp Lot	Q	9	2	22%	3	33%	3	33%	5	56%	5	56%	3	33%
28	Arizona Music Pro	T	9	1	11%	4	44%	6	67%	8	89%	4	44%	8	89%
28	Marta Annes	S	17	7	41%	12	71%	15	88%	5	29%	12	71%	15	88%
29	Run Flagstaff	V	13	1	8%	8	62%	4	31%	3	23%	1	8%	2	15%
32	Tenant Lot	AF	36	13	36%	13	36%	15	42%	15	42%	5	14%	6	17%
33	Post Office Back Lot	AH	25	2	8%	3	12%	2	8%	5	20%	3	12%	4	16%
33	Ice House Side Lot	AJ	8	4	50%	6	75%	6	75%	6	75%	0	0%	1	13%
34	Sunwest Bank Top Deck	AO	24	14	58%	18	75%	15	63%	13	54%	9	38%	8	33%
34	Sunwest Bank Lower Level	AP	38	14	37%	15	39%	14	37%	15	39%	11	29%	7	18%
34	Bank of America Lot	AN	33	8	24%	17	52%	16	48%	18	55%	12	36%	9	27%
34	Hotel Monte Vista	AL	22	20	91%	18	82%	20	91%	18	82%	20	91%	22	100%
34	Back Alley Lot (Fed Bldg)	AK & AM	23	9	39%	3	13%	10	43%	8	35%	7	30%	7	30%
36	Deckers Lot	AU	11	8	73%	8	73%	6	55%	9	82%	5	45%	1	9%
37	Residence Inn Lot	AX	37	13	35%	10	27%	14	38%	23	62%	33	89%	35	95%
37	Alley North	AY	13	5	38%	7	54%	5	38%	5	38%	5	38%	5	38%
38	30-Min	BB1	7	2	29%	4	57%	1	14%	1	14%	0	0%	0	0%
38	City Hall Pay-by-Plate	BB2	19	6	32%	9	47%	11	58%	14	74%	4	21%	2	11%
38	Permit Only	BB3	26	4	15%	5	19%	3	12%	2	8%	2	8%	1	4%
39	Library Lot	BC	31	6	19%	26	84%	26	84%	25	81%	28	90%	16	52%

Table A2- North Downtown Off-Street Occupancy Results (Continued)

Block	Description	Map Letter	Capacity	9:00 AM		11:00 AM		1:00 PM		3:00 PM		5:00 PM		7:00 PM		
				9:00 - 11:00 AM	% Occ	11:00 AM - 1:00 PM	% Occ	1:00 PM - 3:00 PM	% Occ	3:00 PM - 5:00 PM	% Occ	5:00 PM - 7:00 PM	% Occ	7:00 PM - 9:00 PM	% Occ	
40	Sustainability & Environment	BF	38	38	100%	29	76%	34	89%	37	97%	36	95%	32	84%	
40	Chase Bank Lot	BD	79	21	27%	24	30%	20	25%	35	44%	38	48%	31	39%	
41	Pay to Park	BG	13	3	23%	4	31%	6	46%	3	23%	0	0%	0	0%	
41	State Farm	BI	13	1	8%	8	62%	6	46%	8	62%	1	8%	2	15%	
41	Theater	BH	10	4	40%	5	50%	4	40%	3	30%	0	0%	1	10%	
41	National Bank AZ	BJ	46	23	50%	19	41%	14	30%	18	39%	8	17%	12	26%	
42	Realty Exec	BM	16	6	38%	10	63%	8	50%	6	38%	4	25%	1	6%	
42	BBVA Compass Bank	BK	26	11	42%	11	42%	11	42%	11	42%	13	50%	24	92%	
42	22 Birch (Wine Shop & Bar)	BO	9	7	78%	11	122%	9	100%	9	100%	5	56%	8	89%	
42	County Lot	BL	30	12	40%	9	30%	11	37%	11	37%	8	27%	7	23%	
42	BACK Lot	BN	25	14	56%	8	32%	14	56%	11	44%	8	32%	9	36%	
43	County Courthouse Lot Visitors	BQ	2	1	50%	2	100%	2	100%	2	100%	2	100%	0	0%	
43	County Courthouse Lot Restricted	BP	15	9	60%	11	73%	12	80%	11	73%	13	87%	3	20%	
44	County Admin Ctr	BR	58	53	91%	52	90%	48	83%	55	95%	34	59%	24	41%	
44	County Probation Dept Lot	BS & BU	32	15	47%	18	56%	17	53%	22	69%	14	44%	5	16%	
44	Mexpro Insurance	BT	19	8	42%	9	47%	8	42%	8	42%	2	11%	6	32%	
44	202 Bldg Lot	BV	9	8	89%	6	67%	7	78%	5	56%	8	89%	1	11%	
422	County Employee Lot	BY	50	43	86%	42	84%	42	84%	42	84%	38	76%	11	22%	
B	County Bldg North of Cherry	BW	36	34	94%	33	92%	33	92%	33	92%	23	64%	8	22%	
I	VFW lot	CA	36	8	22%	12	33%	12	33%	12	33%	13	36%	4	11%	
Off-Street Directly Observed			72.01%	1276	641	50%	674	53%	688	54%	706	55%	509	40%	432	34%

Table A3 – South Downtown On-Street Occupancy Results

Block	Face	Description	Capacity	9:00 AM		11:00 AM		1:00 PM		3:00 PM		5:00 PM		7:00 PM	
				9:00 AM - 11:00 AM		11:00 AM - 1:00 PM		1:00 PM - 3:00 PM		3:00 PM - 5:00 PM		5:00 PM - 7:00 PM		7:00 PM - 9:00 PM	
				# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ
1	B	On-Street	8	8	100%	8	100%	8	100%	8	100%	8	100%	7	88%
1	D	On-Street	5	1	20%	1	20%	0	0%	0	0%	0	0%	0	0%
2	A	On-Street	13	7	54%	7	54%	7	54%	8	62%	3	23%	0	0%
2	D	On-Street	6	6	100%	5	83%	4	67%	4	67%	4	67%	4	67%
3	A	On-Street	8	3	38%	2	25%	2	25%	2	25%	2	25%	2	25%
4	A	On-Street	5	1	20%	3	60%	5	100%	3	60%	6	120%	2	40%
4	D	On-Street	2	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
5	A	On-Street	12	5	42%	10	83%	5	42%	7	58%	8	67%	7	58%
5	B	On-Street	4	3	75%	3	75%	1	25%	3	75%	5	125%	5	125%
5	D	On-Street	6	1	17%	2	33%	1	17%	1	17%	2	33%	3	50%
6	A	On-Street	10	3	30%	5	50%	3	30%	4	40%	6	60%	3	30%
6	B	On-Street	3	3	100%	2	67%	2	67%	2	67%	2	67%	2	67%
7	A	On-Street	11	4	36%	7	64%	6	55%	4	36%	8	73%	7	64%
7	B	On-Street	9	8	89%	7	78%	4	44%	4	44%	9	100%	4	44%
7	C	On-Street	8	4	50%	6	75%	4	50%	6	75%	7	88%	5	63%
7	D	On-Street	7	5	71%	6	86%	1	14%	6	86%	7	100%	6	86%
8	A	On-Street	9	5	56%	6	67%	3	33%	3	33%	9	100%	6	67%
8	B	On-Street	8	3	38%	5	63%	2	25%	4	50%	7	88%	6	75%
8	C	On-Street	9	3	33%	7	78%	7	78%	6	67%	8	89%	7	78%
9	A	On-Street	9	8	89%	6	67%	5	56%	4	44%	9	100%	8	89%
9	C	On-Street	6	2	33%	2	33%	1	17%	2	33%	6	100%	2	33%
9	D	On-Street	5	3	60%	2	40%	0	0%	1	20%	5	100%	5	100%
10	A	On-Street	4	3	75%	3	75%	4	100%	2	50%	5	125%	4	100%
10	C	On-Street	7	3	43%	2	29%	4	57%	2	29%	4	57%	1	14%
11	C	On-Street	8	2	25%	3	38%	2	25%	2	25%	1	13%	1	13%
11	D	On-Street	6	2	33%	3	50%	1	17%	3	50%	2	33%	3	50%
13	A	On-Street	5	1	20%	4	80%	1	20%	2	40%	1	20%	1	20%
13	C	On-Street	9	5	56%	6	67%	7	78%	6	67%	5	56%	4	44%
13	D	On-Street	11	9	82%	11	100%	9	82%	7	64%	11	100%	11	100%
14	A	On-Street	10	2	20%	3	30%	0	0%	1	10%	4	40%	4	40%
14	B	On-Street	7	8	114%	7	100%	5	71%	5	71%	7	100%	8	114%
14	C	On-Street	8	8	100%	8	100%	4	50%	1	13%	8	100%	6	75%
14	D	On-Street	7	5	71%	6	86%	5	71%	5	71%	5	71%	3	43%
15	A	On-Street	12	0	0%	0	0%	3	25%	0	0%	7	58%	6	50%
15	B	On-Street	7	4	57%	6	86%	3	43%	5	71%	6	86%	6	86%
15	C	On-Street	9	5	56%	7	78%	6	67%	7	78%	7	78%	6	67%
15	D	On-Street	10	7	70%	7	70%	5	50%	6	60%	5	50%	7	70%

Table A3 – South Downtown On-Street Occupancy Results (Continued)

Block	Face	Description	Capacity	9:00 AM		11:00 AM		1:00 PM		3:00 PM		5:00 PM		7:00 PM	
				9:00 AM - 11:00 AM		11:00 AM - 1:00 PM		1:00 PM - 3:00 PM		3:00 PM - 5:00 PM		5:00 PM - 7:00 PM		7:00 PM - 9:00 PM	
				# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ	# Occ	% Occ
16	A	On-Street	10	0	0%	1	10%	0	0%	0	0%	6	60%	6	60%
16	B	On-Street	11	9	82%	10	91%	11	100%	9	82%	11	100%	10	91%
16	C	On-Street	10	2	20%	8	80%	5	50%	6	60%	9	90%	6	60%
16	D	On-Street	8	4	50%	7	88%	4	50%	6	75%	7	88%	6	75%
17	C	On-Street	16	3	19%	2	13%	1	6%	3	19%	0	0%	2	13%
18	C	On-Street	26	8	31%	7	27%	4	15%	1	4%	9	35%	10	38%
19	C	On-Street	14	2	14%	2	14%	2	14%	1	7%	6	43%	5	36%
On-Street Directly Observed			378	178	47%	215	57%	157	42%	162	43%	247	65%	207	55%

Table A4 – South Downtown Off-Street Occupancy Results

Block	Description	Map Letter	Capacity	9:00 AM		11:00 AM		1:00 PM		3:00 PM		5:00 PM		7:00 PM	
				9:00 AM - 11:00 AM	% Occ	11:00 AM - 1:00 PM	% Occ	1:00 PM - 3:00 PM	% Occ	3:00 PM - 5:00 PM	% Occ	5:00 PM - 7:00 PM	% Occ	7:00 PM - 9:00 PM	% Occ
1	Knights Inn Lot	A	40	7	18%	5	13%	7	18%	7	18%	11	28%	14	35%
2	American Valet Lot	C	32	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%
2	Hope Pregnancy Ctr Lot	D	5	4	80%	5	100%	5	100%	3	60%	0	0%	0	0%
2	Our Lady of Guadalupe Lot	E	8	1	13%	0	0%	0	0%	0	0%	1	13%	0	0%
4	Christian Fellowship Gravel Lot	F	40	0	0%	2	5%	2	5%	3	8%	2	5%	4	10%
5	Rock Climbing Center	I	17	4	24%	6	35%	10	59%	7	41%	20	118%	10	59%
7	American Valet Lot	M	21	2	10%	8	38%	2	10%	5	24%	15	71%	15	71%
9	Ray's Barber Shop etc.	S	21	5	24%	2	10%	5	24%	3	14%	5	24%	8	38%
13	Rehab Services Etc.	AH	18	7	39%	12	67%	12	67%	8	44%	12	67%	15	83%
13	Restaurant Lot	AJ	73	21	29%	43	59%	35	48%	40	55%	43	59%	39	53%
13	Corner Lot (Mike's Pike/Cottage)	AF	13	0	0%	9	69%	3	23%	0	0%	5	38%	6	46%
16	Gravel Lot (Estimate)	AU	50	7	14%	8	16%	5	10%	6	12%	3	6%	1	2%
17	City Pay Lot	AV1	24	8	33%	4	17%	9	38%	8	33%	6	25%	15	63%
17	Bus Station Lot	AV2	45	26	58%	25	56%	21	47%	21	47%	29	64%	28	62%
17	Bus Station Lot	AV3	85	3	4%	3	4%	5	6%	2	2%	7	8%	4	5%
18	Pay-by-Plate	AX	49	8	16%	20	41%	37	76%	21	43%	48	98%	40	82%
18	Lumberyard	AY	10	11	110%	11	110%	9	90%	9	90%	9	90%	7	70%
18	Altitude Bar	AW	49	18	37%	23	47%	22	45%	21	43%	28	57%	17	35%
18	CPA Lot	AZ	11	7	64%	6	55%	5	45%	3	27%	6	55%	7	64%
21	Train Station Lots along Rte 66	BD & BE	46	15	33%	18	39%	17	37%	22	48%	19	41%	39	85%
22	Chamber of Commerce Lot	BF	11	8	73%	4	36%	6	55%	8	73%	2	18%	3	27%
Off-Street Directly Observed			668	162	24%	214	32%	217	32%	197	29%	272	41%	273	41%