Shared Parking Analysis

for the

University District Public Development Authority

August 2020

UNIVERSITY DISTRICT

DESMAN
Design Management
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Contents

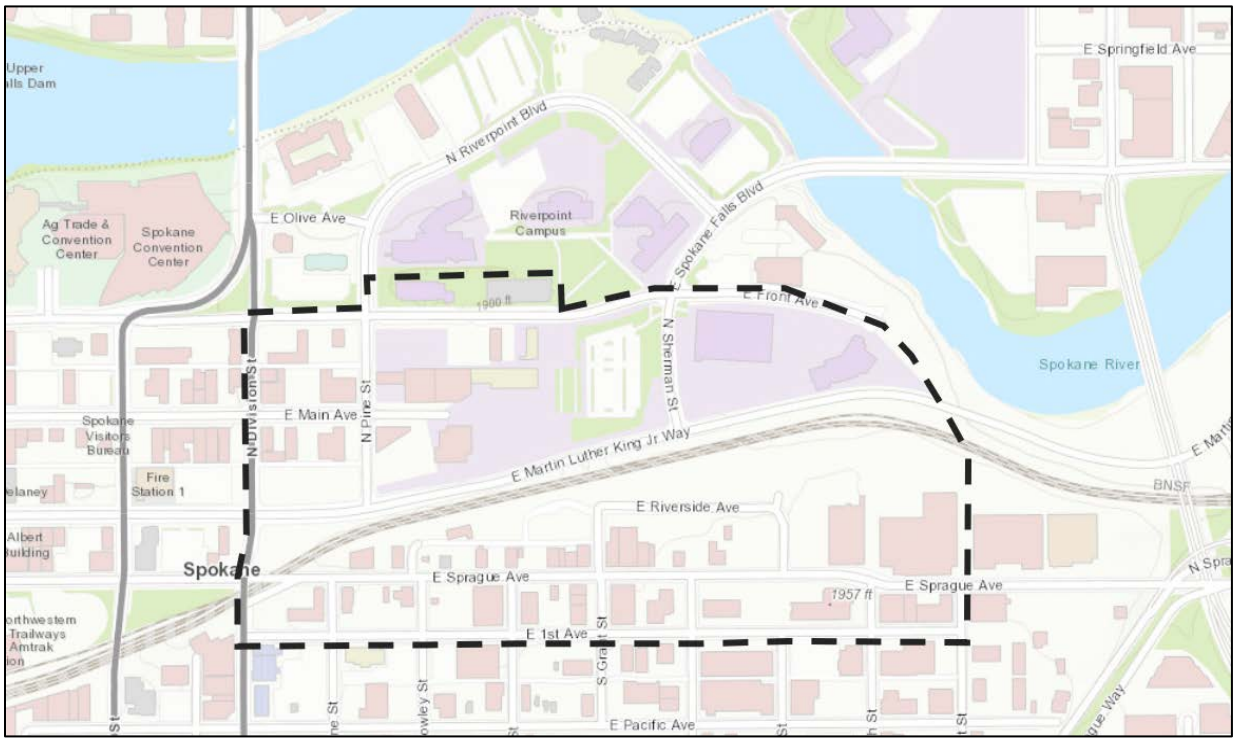
Figures and Tables

1. Executive Summary

In March of 2020, the University District Public Development Authority (UDPDA) retained DESMAN to conduct a shared parking analysis for a subarea contained within the University District (UD) in Spokane, Washington. The study aimed to validate parking supply information provided by other recent parking studies, to determine existing conditions parking demand, and to determine parking demand for various planning scenarios as directed by the UDPDA.

The study area was bounded by Spokane Falls Boulevard to the north, E. 1st Avenue to the south, N. Division Street to the west, and S. Scott Street to the east. See Figure 1: Study Area, below. Two buildings north of Spokane Falls Boulevard were included in the study area because a portion of the parking demand from these two buildings is within the study area. The buildings consist of the Washington State University Health Sciences Spokane's College of Nursing and the College of Pharmacy and Pharmaceutical Sciences.

Figure 1: Study Area



For analysis purposes, the study area was divided into two subareas – North and South – bisected by the Burlington Northern Santa Fe (BNSF) railroad line.

Parking Supply

There are 2,585 documented parking spaces within the study area. These consist of approximately 536 on-street spaces and 2,049 off-street spaces.

Existing Parking Demand

Based on existing land uses and Spokane commuting behavior there is a demand for 2,132 parking spaces in the study area. Based on this analysis, there is currently a total surplus of 453 parking spaces in the study area – 438 in the north and 15 in the south.

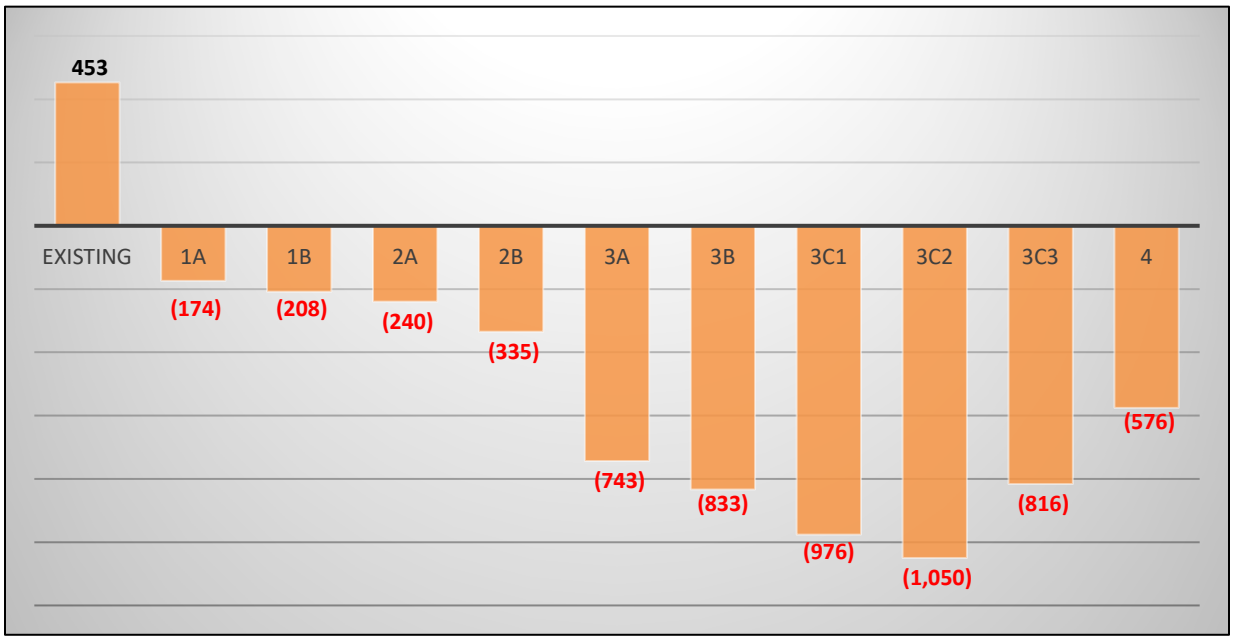
Table 1: Existing Parking Supply and Demand (Weekday)

	NORTH	SOUTH	TOTAL
TOTAL PARKING SUPPLY	1,513	1,072	2,585
TOTAL PARKING DEMAND	1,075	1,057	2,132
SURPLUS (DEFICIT)	438	15	453

Future Parking Demand

Each of the nine scenarios of development evaluated in this study produces a parking deficit within the study area ranging from a modest 174 spaces to severe at 1,050. A tenth scenario (4) models the full build-out development program of 3B with the mode split of Salt Lake City, UT resulting in a deficit of 576 parking spaces.

Figure 2: Development Scenarios Parking Impact



2. Parking Supply

Methodology

Because of COVID-19 travel restrictions, it was not possible to conduct an in-field inventory of parking spaces within the study area. Instead, data was obtained from a recent City of Spokane parking study, from online mapping resources, and validation by UD staff. Consultants also received parking utilization data from Washington State University (WSU) to estimate the number of total parking spaces available on campus to the general public.

Findings

Parking inventory is categorized as either on- or off-street parking spaces. There are 2,585 parking spaces within the study area. These consist of approximately 536 on-street spaces and 2,049 off-street spaces.

Table 2: Existing Parking by Type

CATEGORY	NORTH	SOUTH	TOTAL
ON-STREET	182	354	536
OFF-STREET	1,331	718	2,049
TOTAL AVAILABLE SUPPLY	1,513	1,072	2,585

Off-street parking spaces are further defined as shared or non-shared. Shared spaces typically accommodate more than just a single land use whereas non-shared spaces are dedicated to the employees or patrons of a particular business. The parking lots for WSU and First American Title Company are examples of shared parking facilities because the general public can park in these facilities even though some restrictions exist. In both cases, a fee is charged for the use of parking facilities. First American Title Insurance restricts when the general public can park in their facility while WSU does not. Distinguishing between shared and non-shared parking helps to identify the total parking supply available to the general public and illustrates the importance of sharing parking resources between land uses when possible.

WSU currently sells permits to university affiliates to park in their facilities within the UD and has noted that parking utilization is at approximately 65% leaving 35% available to the general public on an hourly basis. [1]

[1] In the study area, not necessarily in all of WSU's parking facilities in the University District.

Table 3: Existing Parking Summary (Shared Parking)

CATEGORY	NORTH	SOUTH	TOTAL
ON-STREET	182	354	536
OFF-STREET	1,331	718	2,049
TOTAL PARKING SUPPLY	1,513	1,072	2,585
SHARED PARKING SPACES	628	0	628
NON-SHARED PARKING SPACES	412	718	1,130
PARKING AVAILABLE TO THE GENERAL PUBLIC	1,222	1,072	2,294

Figure 3: Parking Supply by Parcel

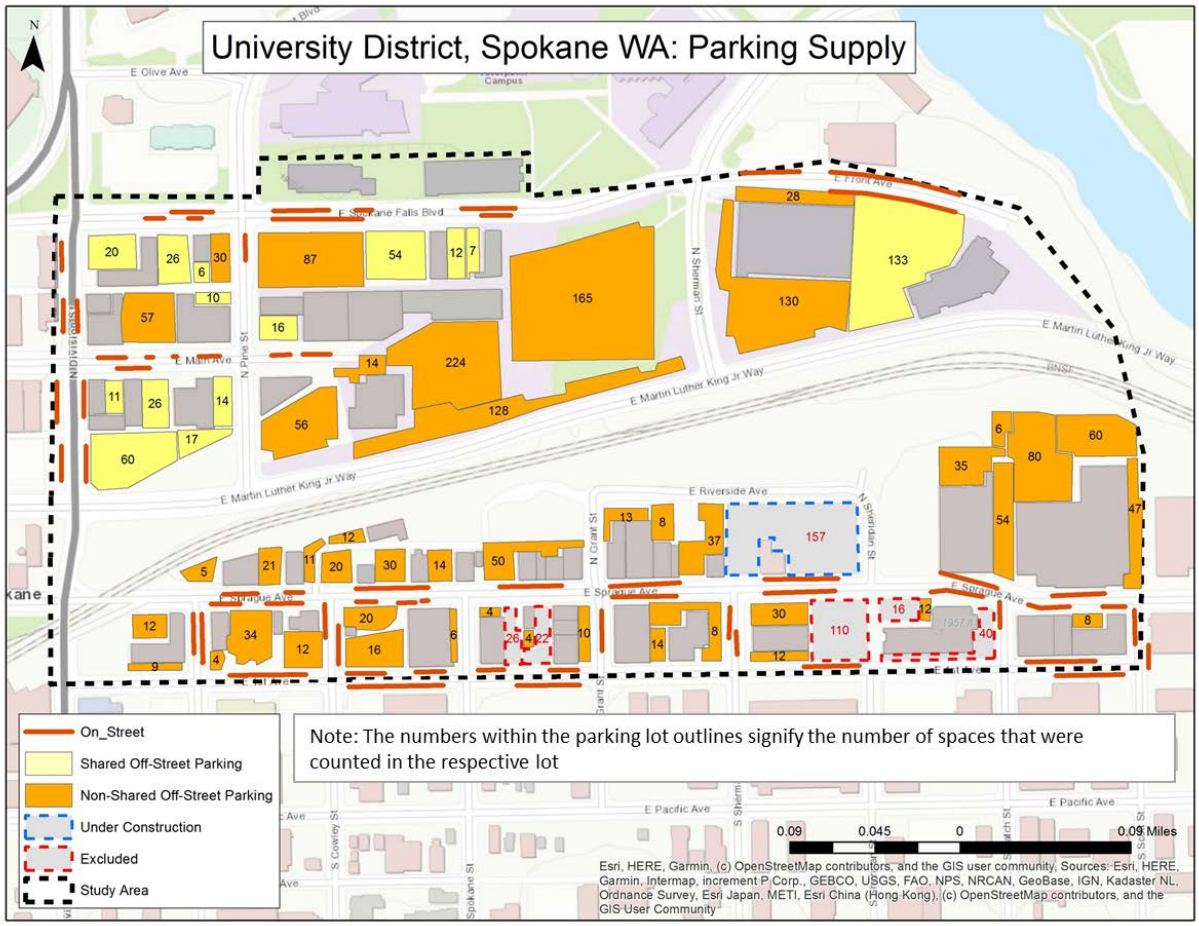


Figure 3 above shows the type and number of parking spaces included in the study area. Some spaces were eliminated from the study because of construction (157 spaces in blue) and because the spaces accommodate automobile and boat inventory parking for two businesses (214 spaces). Visitor parking for both of these businesses is included in this study. The number of on-street spaces is estimated based on the amount of curb available in a particular area and the typical space allotted per vehicle since much of the on-street spaces are not marked.

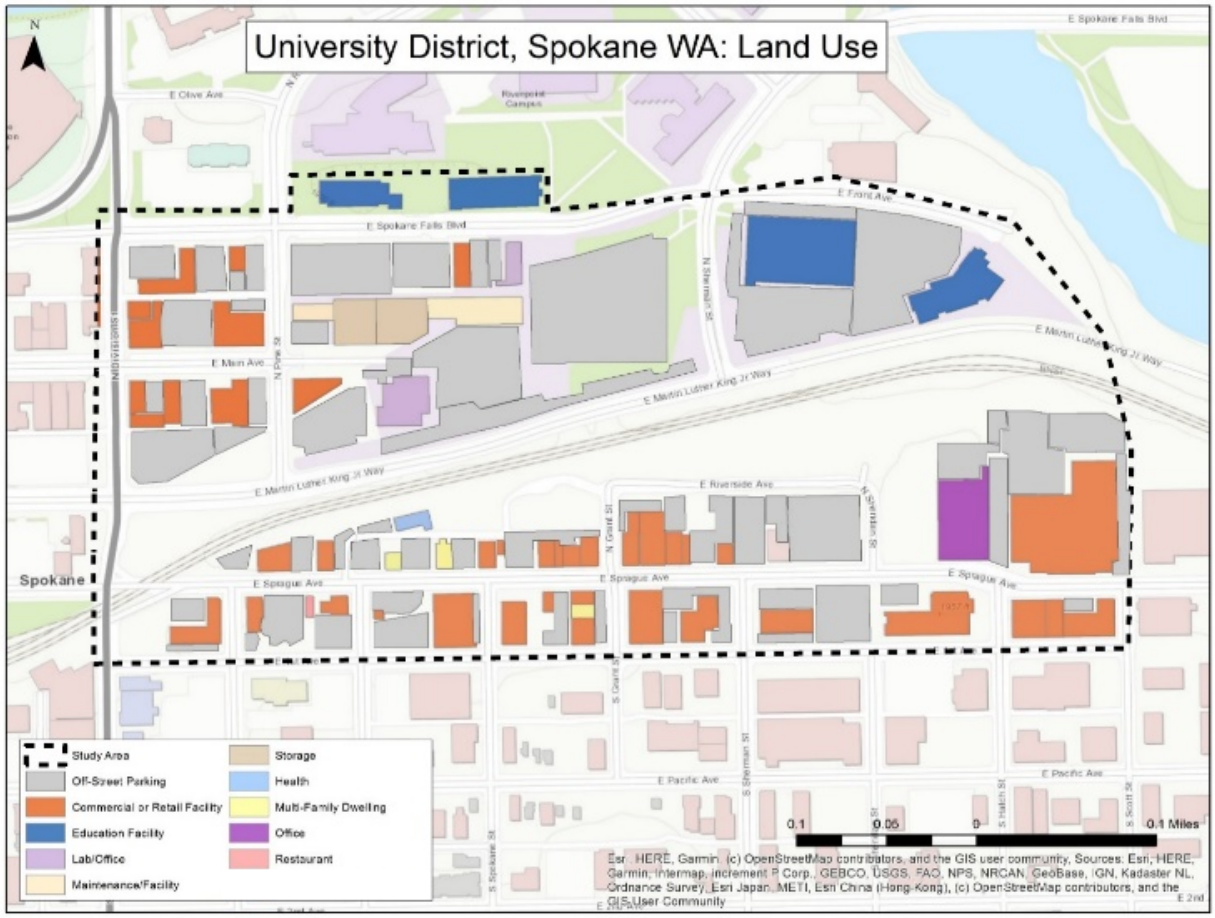
3. Existing Parking Demand

Methodology

Parking demand is typically calculated using two methods – utilization and land use analysis. Utilization studies measure the actual use of parking facilities by observation. A parking utilization assessment was not conducted for this study because of COVID-19 limitations and the abnormal (and assumed temporary) impact of the present health crisis on parking demand. The determination of present and future parking demand is based on nationally validated ratios that assign parking demand by land use and calibrate the calculations based on documented Spokane-specific commuting behavior.

Land Use

Figure 4: Land Uses[2]



[2] The building footprints for Catalyst and Scott Morris Center for Innovation are not included in this map due to the base map dating back to 2018.

Table 4: Land Use Summary

LAND USE TYPE	EXISTING NORTH (SF)	EXISTING SOUTH (SF)	EXISTING TOTAL (SF)
Commercial and Retail	131,536	310,863	442,399
Education Facility	165,572		165,572
Heath		4,467	4,467
Lab/Office	54,383		54,383
Office		36,696	36,696
Restaurant		1,499	1,499
Storage			-
TOTAL SF	**351,491**	**353,525**	**705,016**

Multi-Family Dwelling Unit (DU)	NORTH (DU)	SOUTH (DU)	TOTAL
Studio		20	20
1BR		51	51
2BR		2	2
3BR			0
TOTAL DU		**73**	**73**

Figure 4 shows land use in graphical form and Table 4 summarizes land uses by category in either square footage (SF) or dwelling unit (DU). This summary was used to calculate total parking demand after certain adjustments were made to standard parking ratios to improve the accuracy of the model. Table 5 lists the land uses and parking ratios that were utilized for the parking demand calculation.

Table 5: Parking Ratios[3]

Land Use	Weekday Base Rate	Weekend Base Rate
Retail		
Retail 600-1,000 ksf	2.23	2.23
Employee	0.55	0.55
Food & Beverage		
Bar/Lounge/Night Club	15.25	17.5
Employee	1.25	1.5
Entertainment & Institutions		
Health Club	6.60	5.5
Employee	0.40	0.025
Residential		
Residential, Urban		
Studio Efficency	0.85	0.85
1 BR	0.90	0.90
2 BR	1.65	1.65
3+ BR	2.50	2.50
Reserved	0.00	0.00
Visitor	0.10	0.15

Land Use	Weekday Base Rate	Weekend Base Rate
Office & Education		
Lab/Office	0.30	0.03
Reserved	0.00	0.00
Employee	2.50	0.35
Office 25-100 ksf	0.64	0.04
Reserved	0.00	0.00
Employee	3.30	0.35
Education	0.00	0.02
Reserved	0.00	0.00
Students	4.80	3.50
Maintenance/Storage	0.08	0.08
Employee	0.25	0.00

[3]Urban Land Institute Shared Parking 3rd Edition, and Institute of Traffic Engineers Trip Generation Manual, 10th Edition.

Commercial and retail land uses are a blend of commercial and retail with uses such as automobile, sales, furniture/carpet stores, supermarkets, and storage. Therefore, an average of the 85th percentile values from the Institute of Traffic Engineers Trip Generation Manual was used.

Commuting Behavior

Modal split is the percentage of persons arriving at a destination in different modes of transportation other than by car. Among the modes that may be available are public transportation, bicycles, carpools and vanpools, walking, and other means.

Modal split is assumed to be 74% among employees in the study area. This means that it is assumed that 74% of the employees in the study area will drive to work. See Table 6 for data obtained from the U.S. Census Bureau for Spokane commuting behavior.

Residential units are assumed to have 90% drivers.

Table 6: Spokane Mode Split[4]

TYPICAL COMMUTE	NUMBER	PERCENT
Workers	105,028	
Drove Alone	77,510	74%
Carpooled	10,449	10%
Public Transportation	4,470	4%
Walked	4,080	4%
Other	8,519	8%

Captive Drivers

The non-captive ratio is an estimate of the percentage of parkers at land use in a mixed-use development or district who are not already counted as being parked at another of the land uses. An example of this would be if an employee of a retail store went to eat at a restaurant on-site, no additional parking demand is generated.

Findings

Based on current land uses and commuting behavior, there is a total weekday parking demand for 2,132 spaces for all parking user types, leaving a surplus of parking spaces in the north portion of the study area of 438 and in the south of 15, for a total surplus of 453.

[4] 2018 U.S. Census Bureau American Community Survey

Table 7: Existing Parking Supply and Demand

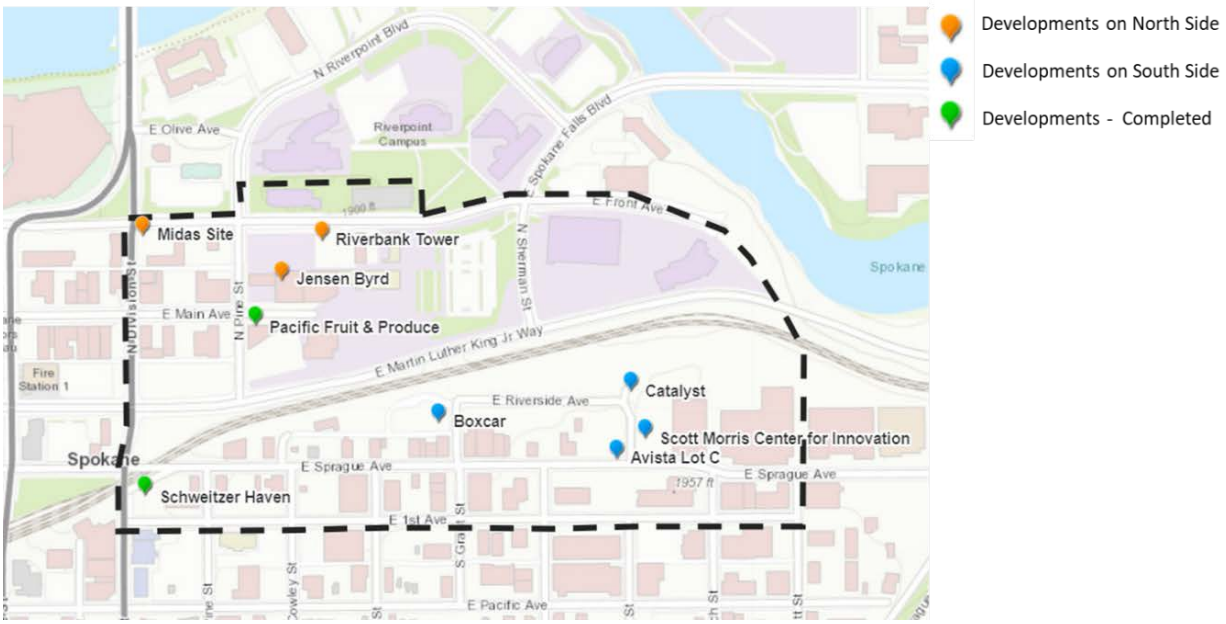
EXISTING PARKING SUPPLY/DEMAND SUMMARY (WEEKDAY)			
	NORTH	SOUTH	TOTAL
TOTAL PARKING SUPPLY	1,513	1,072	2,585
TOTAL PARKING DEMAND	1,075	1,057	2,132
SURPLUS (DEFICIT)	438	15	453

This demand is only for land uses within the study area and does not include parking demand for calculated parking uses outside of the study area. For example, a parker may park on-street within the study area and then walk to a destination outside of the study area. As a result, the actual use of parking in the study area is higher than the demand calculations presented here. As noted above, a utilization study is necessary to confirm this assumption and could not be undertaken as a result of COVID-19 travel restrictions.

4. Future Parking Demand

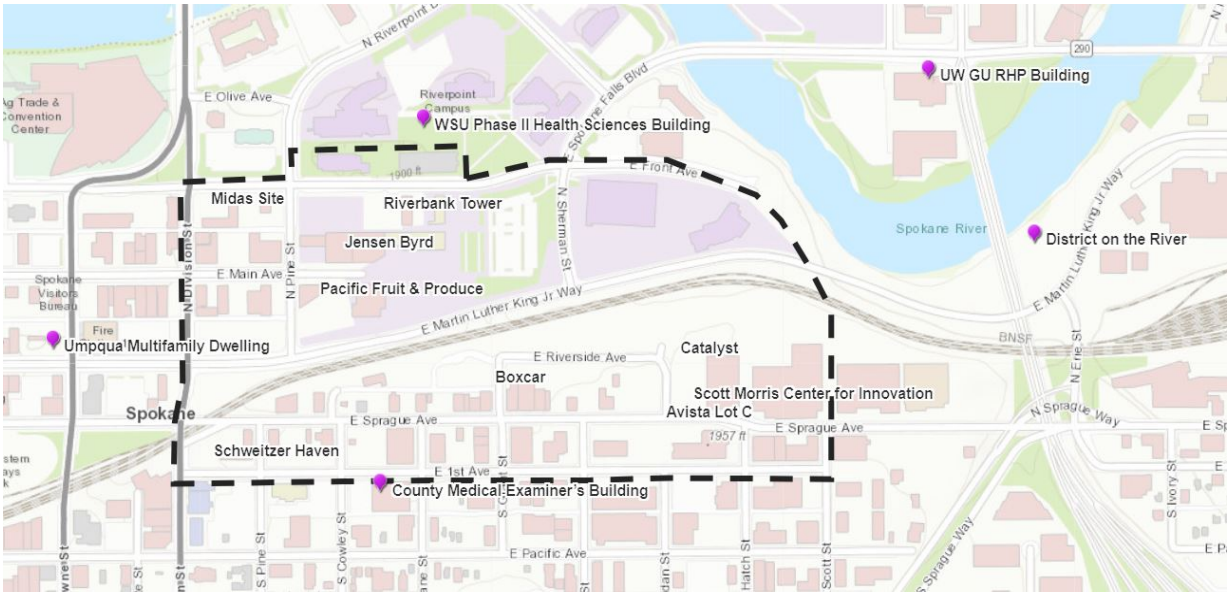
Several development scenarios were evaluated for their impact on parking supply and demand. Nine projects are inside the study area and are considered in this analysis. Seven of these projects are planned or under construction while two have been recently completed. These two projects – Pacific Fruit & Produce and Schweitzer Haven – are considered as part of existing conditions. Planned projects and additional developments considered in Scenarios 3C are based on publicly available information and UD staff estimates based on past observations and analysis. These forward-looking assessments do not represent commitments or proprietary development plans of any current or potential owners or developers.

Figure 5: Developments Impacting Parking Supply and Demand



We show in Figure 6 developments outside the study area that have the potential to impact parking supply and demand within the boundaries of this study. Factors impacting the extent of the impact on parking supply and demand include proximity to the study area, land use, physical barriers between the development and the study area that may impact a person's willingness to walk between a parking facility and their intended destination, and the amount of on-site parking provided for each development. This is known as a walkshed. Our purpose for excluding these external developments from our analysis is to guard against the possibility of overstating parking demand with their inclusion. External projects should be included if and when it is determined that additional parking supply inside the study area should be constructed. Once potential sites for future parking supply are identified, further study could be conducted that includes external development projects within a defined and defensible walkshed.

Figure 6: Developments External to the Study Area



Development Scenarios

Nine different development scenarios were evaluated in three broad categories. These categories include **1) Certain** which includes projects that are currently under construction or are in a pre-development stage; **2) Likely** which means the UD recovers from COVID fairly well, demand for residential is strong, but demand for commercial/research/education is limited; and **3) Strong** where Spokane has a strong secondary market with educational and health assets and draws development from other competing regions. The last iteration of the strong category includes a full build-out scenario that includes all developments in the study area. This category also includes three scenarios where three hypothetical developments are explored for impact on parking supply and demand.

A tenth scenario uses the full build-out scenario (3B) but applies a different mode split to calculate parking demand. This is described in Section 5 - Mode Split Analysis. Each scenario is additive which means that the developments from the previous model are included along with noted new developments, creating a running total for parking supply and demand. A summary table follows the narrative and maps below.

Certain

There are two scenarios in the "certain" category which include projects that are currently under construction or are in a pre-development stage. In the first iteration of the "certain" scenarios, Scenario 1A analyzes the impact of the Catalyst Building and the Scott Morris Center for Innovation. Together, these developments bring over 200,000 square feet of office, educational, and retail space and result in a parking surplus in the north of 232 spaces and a shortage of 406 spaces in the south for a total deficit of 174 spaces in the study area.

Figure 7: Certain Scenario Developments 1A

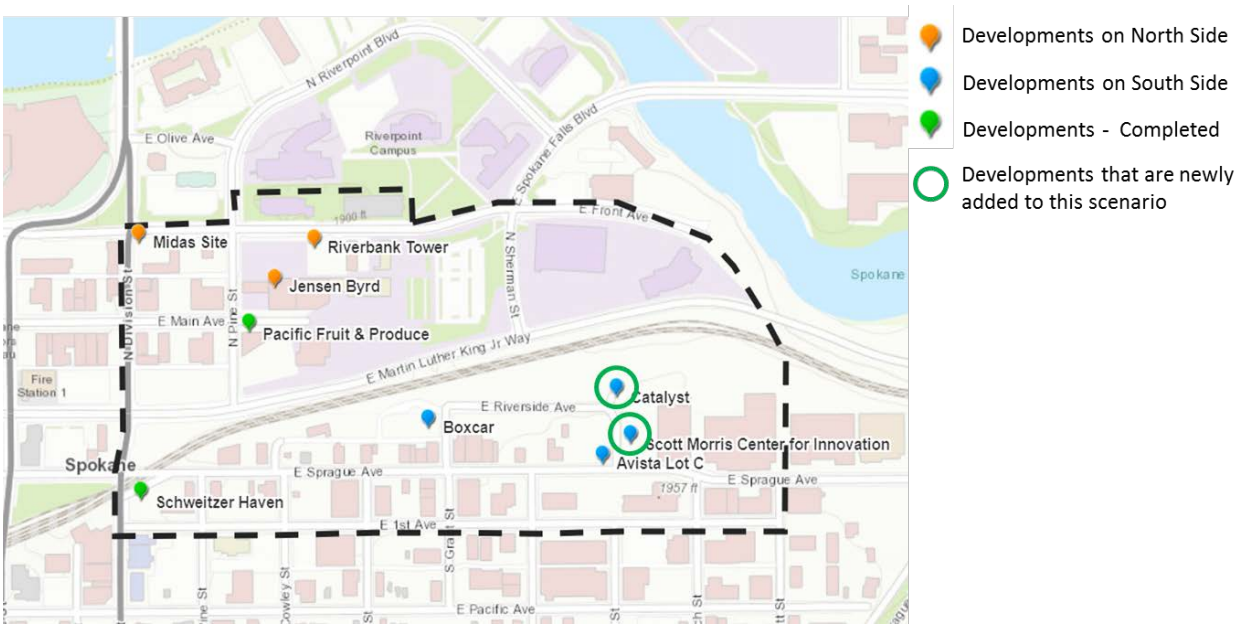


Table 8:1A Development Details and Parking Impact

Development	Address	Land Use	Area (Sq. Ft)	Parking Spaces
Catalyst + Scott Morris Center for Innovation	601 E Riverside Ave	Office	80,000	266
		Education	106,000	
		Retail	5,000	
		Eco District	8,000	

Scenario 1A	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
1A	1,222	1,181	990	1,587	232	(406)

In the second iteration of the "certain" category, the Boxcar project and its 136 housing units and 76 parking spaces are added resulting in a parking surplus in the north of 232 spaces and a deficit of 440 spaces in the south for a total deficit of 208 parking spaces.

Figure 8: Certain Scenario Developments 1B

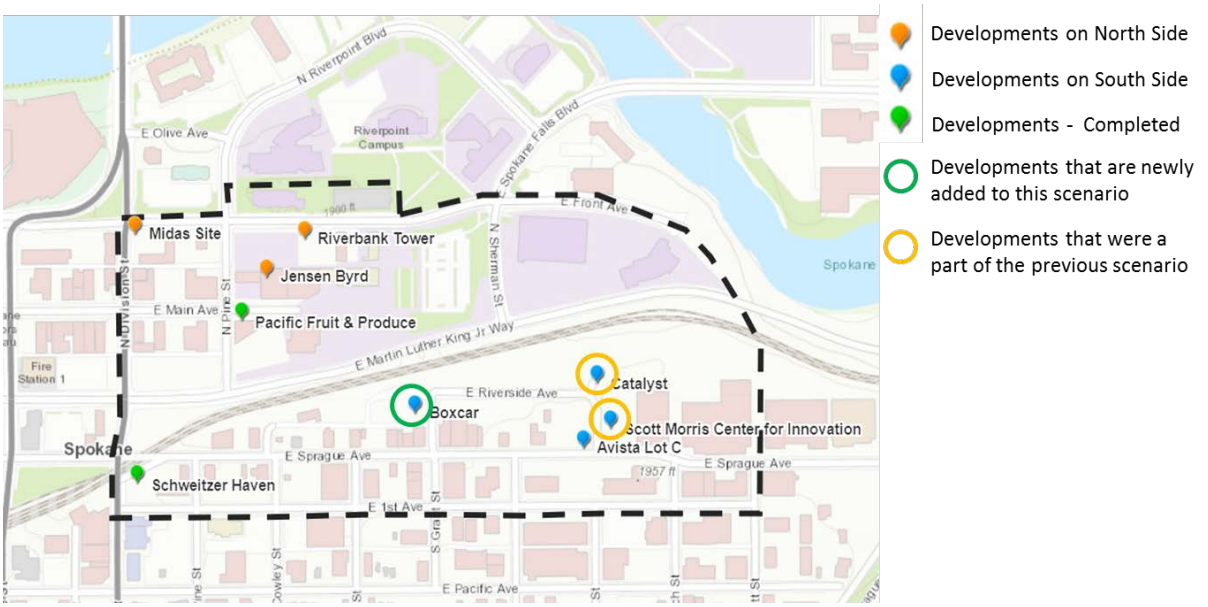


Table 9: 1B Development Details and Parking Impact

Development	Address	Land Use Type	Area (Sq. Ft)	Dwelling Units (Total)	Studio	1 BR	Parking Spaces
Catalyst + Scott Morris Center for Innovation	601 E Riverside Ave	Office	80,000	-	-	-	266
		Education	106,000	-	-	-	
		Retail	5,000	-	-	-	
		Eco District	8,000	-	-	-	
Boxcar	15 N Grant St	Housing	72,000	136	50	86	76

Scenario 1B	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
1B	1,222	1,257	990	1,697	232	(440)

Likely

Under the "likely" scenario, the UD recovers from COVID fairly well, demand for residential is strong, but demand for commercial/research/education is limited. This scenario has two iterations, the first with development on Lot C into 66,000 square feet of office space and 66 parking spaces. This produces a surplus of 232 spaces on the north and a deficit of 472 spaces on the south for a total deficit of parking in the study area of 240 spaces.

Figure 9: Likely Scenario Developments 2A

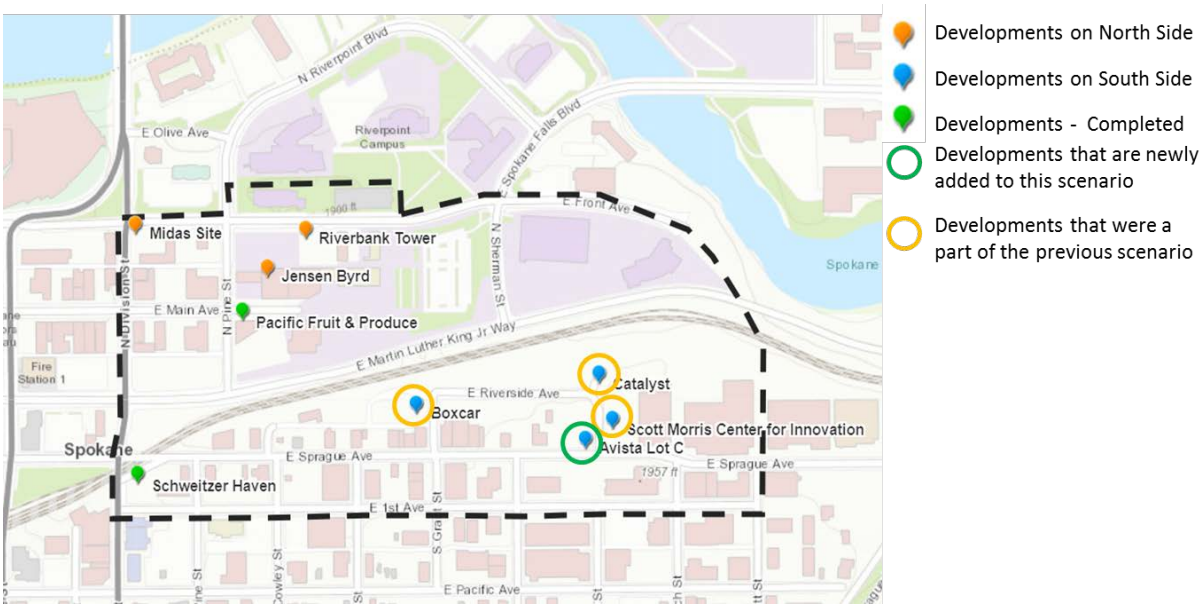


Table 10: 2A Development Details and Parking Impact

Development	Address	Land Use Type	Area (Sq. Ft)	Dwelling Units (Total)	Studio	1 BR	Parking Spaces
Catalyst + Scott Morris Center for Innovation	601 E Riverside Ave	Office	80,000	-	-	-	266
		Education	106,000	-	-	-	
		Retail	5,000	-	-	-	
		Eco District	8,000	-	-	-	

Boxcar	15 N Grant St	Housing	72,000	136	50	86	76
Lot C	501/521 E Sprague	Office	66,000	-	-	-	66

Scenario 2A	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
2A	1,222	1,480	990	1,952	232	(472)

Likely scenario 2B is identical to 2A with the addition of the Riverbank Tower, its 180 housing units, and 80 parking spaces and results in a surplus of 137 spaces in the north and deficit of 472 spaces in the south for a total deficit of 335 spaces in the study area.

Figure 10: Likely Scenario Developments 2B

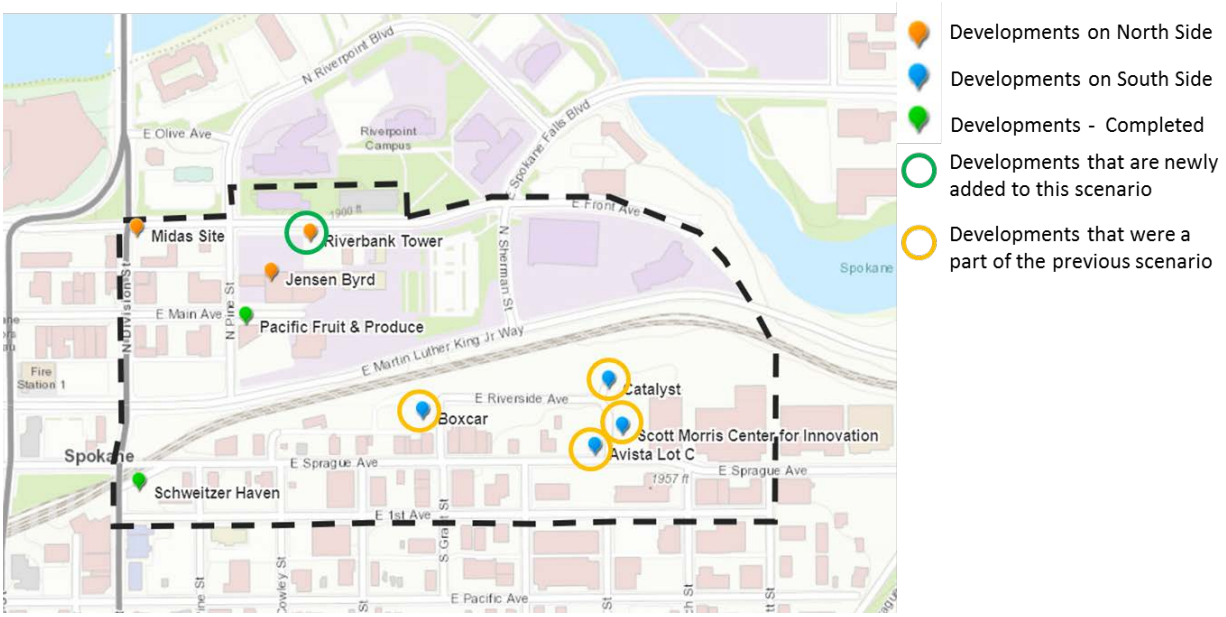


Table 11: 2B Development Details and Parking Impact

Development	Address	Land Use Type	Area (Sq. Ft)	Dwelling Units (Total)	Studio	1 BR	Parking Spaces
Catalyst + Scott Morris Center for Innovation	601 E Riverside Ave	Office	80,000	-	-	-	266
		Education	106,000	-	-	-	
		Retail	5,000	-	-	-	
		Eco District	8,000	-	-	-	
Boxcar	15 N Grant St	Housing	72,000	136	50	86	76
Lot C	501/521 E Sprague Ave	Office	66,000	-	-	-	66
Riverbank tower	134 E Spokane Falls Blvd	Housing	160,000	180	80	100	80

Scenario 2B	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
2B	1,215	1,480	1,078	1,952	137	(472)

Strong

In the "strong" scenarios, Spokane has a strong secondary market with educational and health assets that draw more development than other regions. There are two versions of the "strong" scenario, the first, 3A, adds the Jensen Byrd development (200,000 square feet of Higher Education/Research Center and no additional parking) and produces a deficit of 271 spaces in the north and 472 spaces in the south for a total deficit of 743 spaces.

Figure 11: Likely Scenario Developments 3A

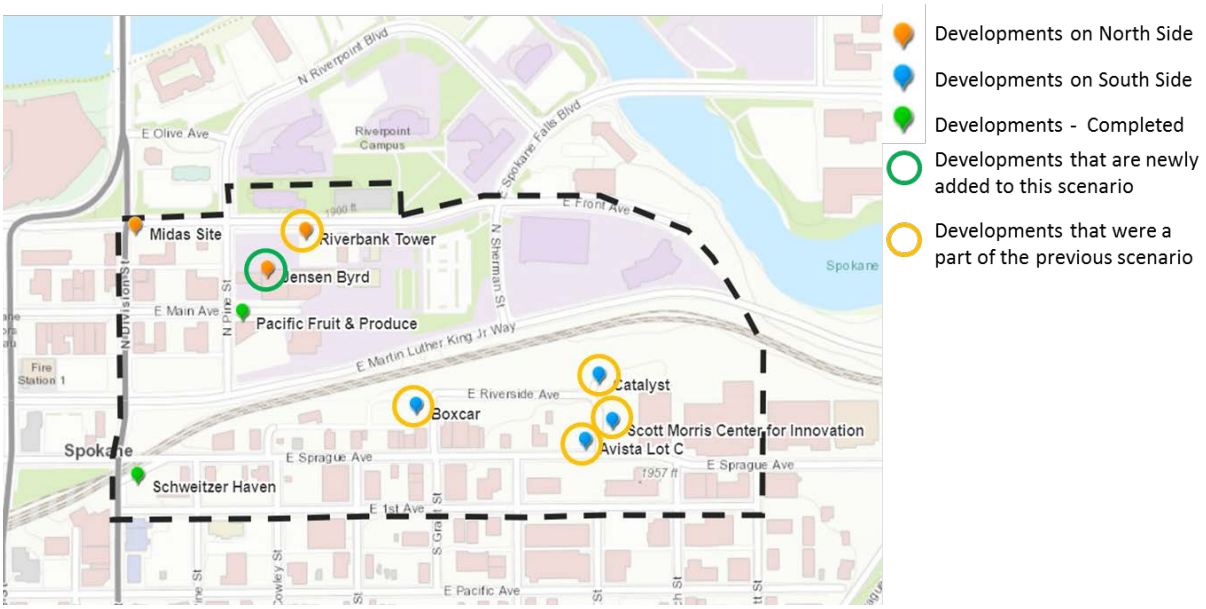


Table 12: 3A Development Details and Parking Impact

Development	Address	Land Use Type	Area (Sq. Ft)	Dwelling Units (Total)	Studio	1 BR	Parking Spaces
Catalyst + Scott Morris Center for Innovation	601 E Riverside Ave	Office	80,000	-	-	-	266
		Education	106,000	-	-	-	
		Retail	5,000	-	-	-	
		Eco District	8,000	-	-	-	
Boxcar	15 N Grant St	Housing	72,000	136	50	86	76
Lot C	501/521 E Sprague Ave	Office	66,000	-	-	-	66
Riverbank tower	134 E Spokane Falls Blvd	Housing	160,000	180	80	100	80
Jensen Byrd	131 E Main	HERC	200,000	-	-	-	-

Scenario 3A	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
3A	1,215	1,480	1,486	1,952	(271)	(472)

Under scenario 3B – Full Build-out – the Midas site residential development is added resulting in a deficit of 291 spaces in the north and 472 spaces in the south for a total parking shortage of 763 spaces.

Figure 12: Likely Scenario Developments 3B

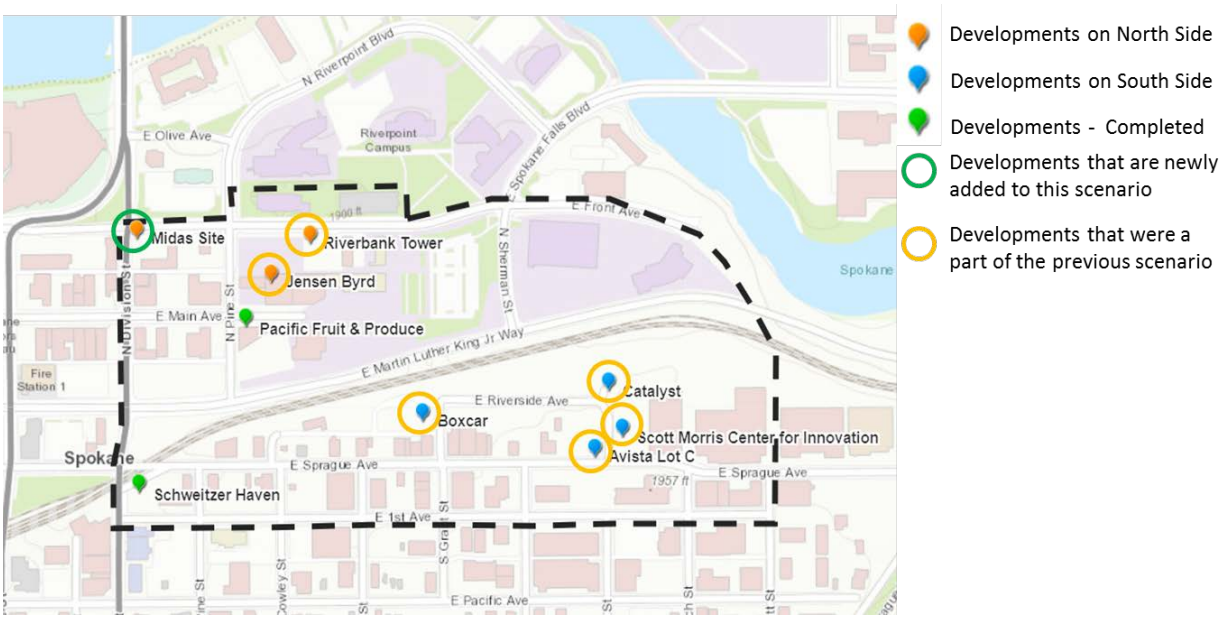


Table 13: 3B Development Details and Parking Impact

Development	Address	Land Use Type	Area (Sq. Ft)	Dwelling Units (Total)	Studio	1 BR	2 BR	Parking Spaces
Catalyst + Scott Morris Center for Innovation	601 E Riverside Ave	Office	80,000	-	-	-	-	266
		Education	106,000	-	-	-	-	
		Retail	5,000	-	-	-	-	
		Eco District	8,000	-	-	-	-	
Boxcar	15 N Grant St	Housing	72,000	136	50	86	-	76

Lot C	501/521 E Sprague Ave	Office	66,000	-	-	-	-	66
Riverbank tower	134 E Spokane Falls Blvd	Housing	160,000	180	80	100	-	80
Jensen Byrd	131 E Main	HERC	200,000	-	-	-	-	-
Midas Site	Division & Spokane Falls Blvd	Housing	180,000	180	50	80	50	80

Scenario 3B	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
3B	1,275	1,480	1,613	1,975	(338)	(495)

The full build-out of developments adds over 400,000 square feet of commercial, educational, health, and office buildings and nearly 600 dwelling units to the study area while netting only 170 additional parking spaces.

Table 14: Full Build-out Development Summary

LAND USE TYPE	EXISTING			PROPOSED		ELIMINATED	NET
	NORTH SF	SOUTH SF	TOTAL SF	NORTH SF	SOUTH SF	SF	SF
Commercial/Retail	131,536	310,863	442,399		10,000	(29,133)	423,266
Education Facility	165,572		165,572		106,000		271,572
Heath		4,467	4,467	200,000			204,467
Lab/Office	54,383		54,383				54,383
Office		36,696	36,696		146,000		182,696
Restaurant		1,499	1,499				1,499
Storage			-			(39,358)	(39,358)
TOTAL SF	**351,491**	**353,525**	**705,016**	**200,000**	**262,000**	**(68,491)**	**1,098,525**

MULTI-FAMILY DWELLING UNIT DU	EXISTING			PROPOSED		ELIMINATED	NET
	NORTH DU	SOUTH DU	TOTAL DU	NORTH DU	SOUTH DU	DU	DU
Studio		20	20	130	50		200
1BR		51	51	180	86		317
2BR		2	2	50			52
3BR			0				
TOTAL DU		**73**	**73**	**360**	**136**	**0**	**569**

The final set of scenarios (3C.1-.3) expands on the full build-out model and explores the impact

of three hypothetical developments on supply and demand. The first of which (3C.1) would bring a housing project of 136 dwelling units and 76 parking spaces to the vicinity of Sprague Avenue and South Spokane Street and produces a total deficit of 967 parking spaces.

Figure 13: Full Build-out Plus 3C.1

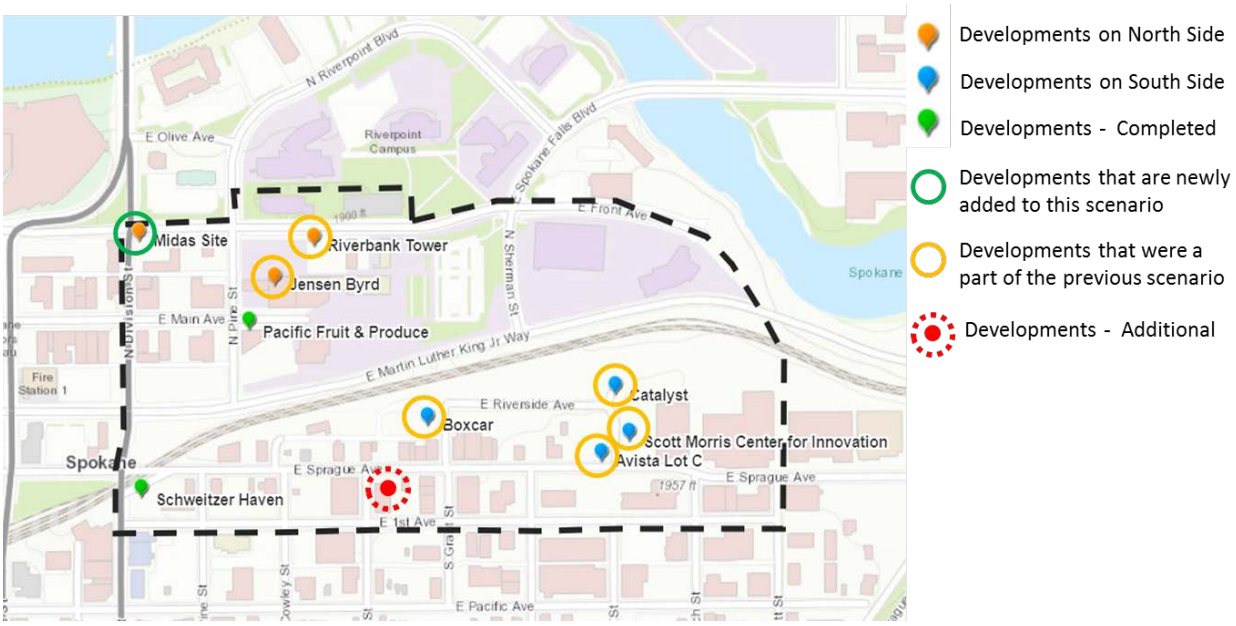


Table 15: 3C.1 Development Details and Parking Impact

Development	Address	Land Use Type	Area (Sq. Ft)	Dwelling Units (Total)	Studio	1 BR	Parking Spaces
New Development	Sprague and Spokane	Housing	72,000	136	50	86	76

Scenario 3C.1	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
3C.1	1275	1556	1613	2194	(338)	(638)

The second full build-out plus scenario (3C.2) adds a 66,000 square foot office building and 86 parking spaces in the south at the SW corner of Sherman and Sprague Avenues producing a deficit of 1,050 parking spaces.

Figure 14: Full Build-out Plus 3C.2

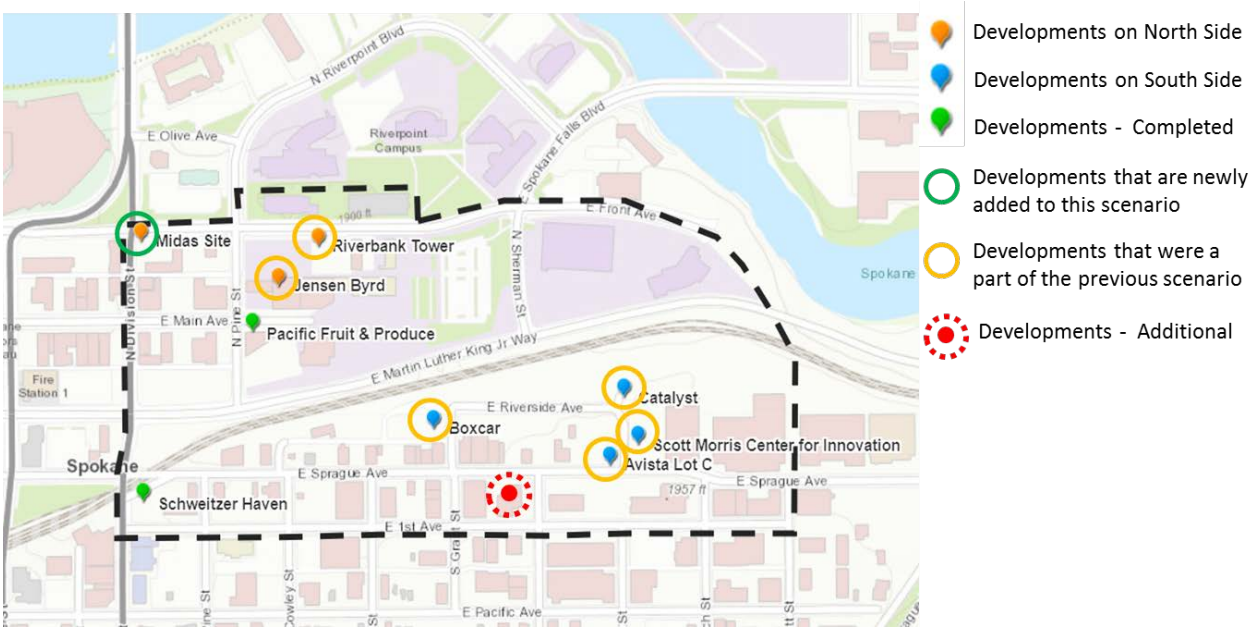


Table 16: 3C.2 Development Details and Parking Impact

Development	Address	Land Use Type	Area (Sq. Ft)	Parking Spaces
New Development	SW corner of Sherman & Sprague	Office	66,000	66

Scenario 3C.2	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
3C.2	1275	1546	1613	2258	(338)	(712)

The final full build-out plus scenario (3C.3) evaluates the parking impact of an additional development similar to the Boxcar project at the northeast corner of Division and Martin Luther King Jr. Boulevard with 136 dwelling units and 76 parking spaces. This produces a deficit of 816 parking spaces.

Figure 15: Full Build-out Plus 3C.3

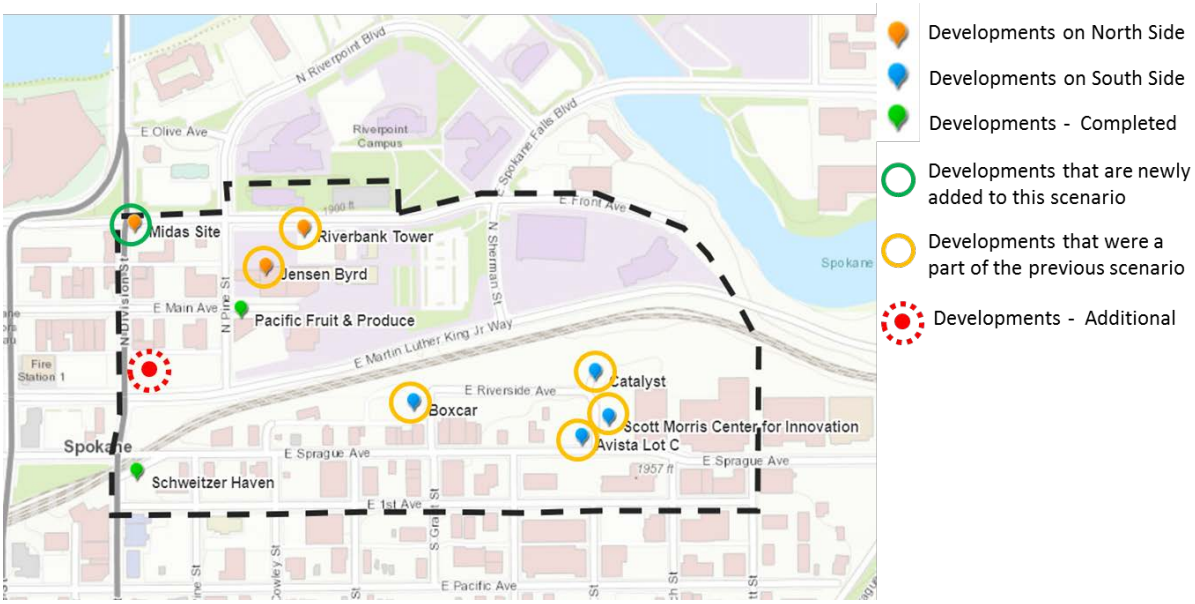
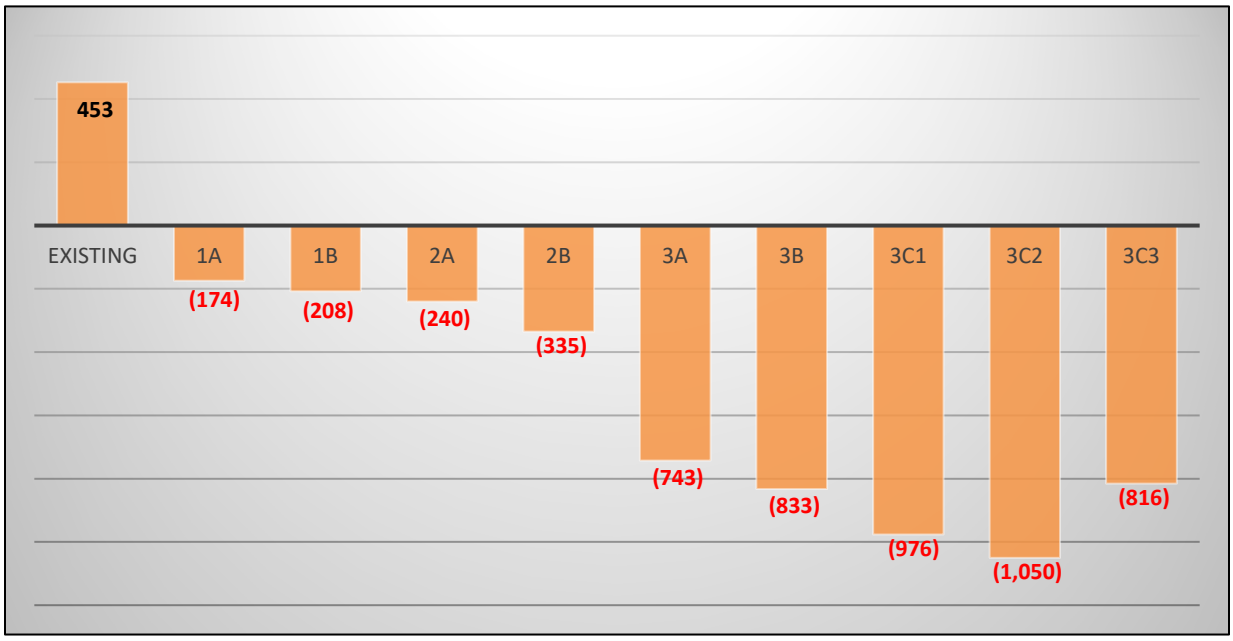


Table 17: 3C.3 Development Details and Parking Impact

Development	Address	Land Use Type	Area (Sq. Ft)	Dwelling Units (Total)	Studio	1 BR	Parking Spaces
New Development	NE corner of Division & MLK	Housing	72,000	136	50	86	76

Scenario 3C.3	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
3C.3	1351	1480	1672	1975	(321)	(495)

Figure 16: Development Scenarios Parking Impact



5. Mode Split Analysis

As we have noted, Spokane's mode split data was used to calibrate the parking demand models presented in this study and it is important to note that improvements to the public transportation system are likely to reduce parking demand. Most notable is the City Line bus rapid transit which will connect Spokane Community College and west Spokane passing through the UD and downtown Spokane. Construction began in May of 2020 and the Spokane Transit Authority expects the line to be open by 2022.

Figure 17: City Line Bus Rapid Transit Line Through the University District

How much of an impact the City Line and other near-term transit improvements will have on parking demand is difficult to estimate. However, it is useful to consider other communities and their respective mode splits as a way of understanding how much investment in public transportation may be necessary to substantively alter parking demand. What's more, the amount of development densification, urban living, weather, topography, housing options, origin/destination pairings, type of land use, and many other variables all influence parking and transportation behavior making estimates challenging at best. However, it may be useful to consider how parking demand in the study area might be at full build-out using a mode split from another community. To do so requires an understanding of the limitation of such a comparison with the level of public transportation investment varying significantly across all the possible comparison options.

Table 18:Mode Split Comparison Data for Spokane, WA[5]

	Boise, ID	Denver, CO	Portland, OR	**Salt Lake City, UT**	San Francisco, CA	Seattle, WA	**Spokane, WA**
Total Population	228,807	716,492	652,573	**200,576**	883,305	744,949	**219,197**
Car, truck, or van - drove alone	79%	69%	59%	**66%**	30%	44%	**74%**
Car, truck, or van - carpooled	7%	8%	8%	**11%**	9%	7%	**10%**
Total Driving %	86%	76%	66%	**76%**	39%	51%	**84%**
Public transportation (excluding taxicab)	1%	6%	12%	**8%**	34%	23%	**4%**
Other[6]	14%	18%	22%	**16%**	28%	26%	**12%**

Of these comparison cities, Boise has a higher total driving percent than Spokane and San Francisco, Seattle and Portland have significantly lower percentages – and perhaps not attainable within the next ten years – leaving Denver and Salt Lake for comparisons. Due to population similarities, we have selected Salt Lake City as the comparison city.

We have noted many variables that determine residents' transportation behavior but as a matter of expediency, we will focus on public transportation infrastructure exclusively assuming that the current commute patterns for the study area are likely to mirror the broader community. It is also a reasonable assumption that projected new uses will be compatible and supportive of public transportation depending on proximity to services and the amount of parking and other transportation infrastructure that is included in future projects.

The following table illustrates the different characteristics of the public transportation systems in Spokane and Salt Lake City.

[5] Table Sources: Total population: Table B01003, U.S. Census Bureau, 2018 ACS data; Mode Split Data; Table B08101, U.S. Census Bureau, 2018 ACS Data

[6] Other includes walking, taxicab, motorcycle, bicycle, other means and population working from home

Table 19:Salt Lake City vs. Spokane Public Transportation Systems

	Salt Lake City	Spokane
Service Area Size (Square Miles)	737	248
Service Consumption		
Annual Passenger Miles[7]	358,146,681	49,559,241
Service Supplied		
Annual Vehicle Revenue Miles[8]	39,149,927	9,277,891
Annual Vehicle Revenue Hours[9]	2,160,581	621,076
Financial Information		
Total Operating Funds	$429,384,782	$69,066,136
Total Capital Funds Expended	$86,039,389	$24,513,861

If Spokane were to have a mode split like Salt Lake City, the resulting full build-out scenario parking demand would be as follows:

Table 20:Scenario 4 - Scenario 3B with Salt Lake City Mode Split

Scenario 4	Supply		Demand		Surplus/ (Deficit)	
	North	South	North	South	North	South
Existing	1,513	1,072	1,075	1,057	438	15
3B-Full Build Out	1,275	1,480	1,613	1,975	(338)	(495)
4 SLC Mode Split	1,275	1,480	1,460	1,871	(185)	(391)

6. Parking Management Strategies

The results of this analysis strongly support the construction of additional parking supply within the study area in the near term since developments that are currently underway will result in a parking shortage once completed. As more development occurs, the parking supply deficit will grow, adversely impacting area businesses, organizations, and residences that may find it increasingly difficult to provide critical access to their patrons, students, residents, and visitors.

A combination of coordinated parking management strategies should accompany the addition of parking supply for the greatest impact on parking and transportation behavior and should help reduce parking demand as much as possible. Strategies should consider the different types

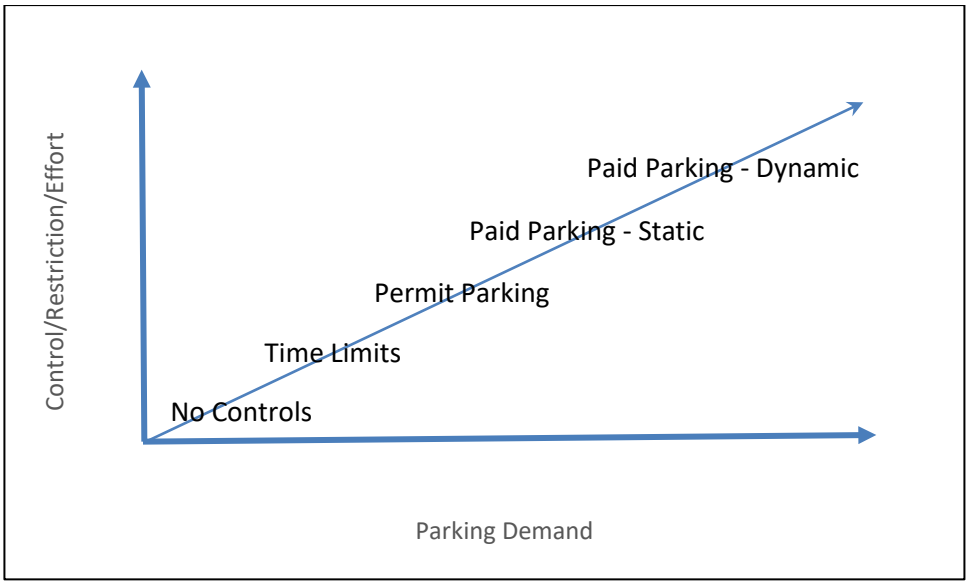
[7] Transit passenger-miles are the cumulative sum of the distances ridden by each passenger.
[8] The miles that vehicles are scheduled to or actually travel while in revenue service.
[9] The hours that vehicles are scheduled to or actually travel while in revenue service.

of parking users (i.e., short-term, employee, resident, etc.) and resulting impact on parking behavior. We strongly urge the UD to embark on or advocate for the following strategies to support the desired parking and transportation behavior and to reduce as much as possible future parking demand.

A. Time-Restricted and Paid Parking

In most municipalities, the most effective and efficient manner to manage a parking system is through the use of parking fees and time limitations. The implementation of a paid parking system allows a municipality to distribute parking demand, encourage turnover, improve customer/visitor satisfaction, reduce roadway congestion, improve pedestrian safety, and promote a walkable destination.

Figure 18: Parking Strategy vs. Parking Demand



Typically, on-street parking is most appropriately utilized by short-term users, such as customers and visitors, or those who only have a small amount of time for their visit. Ideally, the convenient on-street parking spaces that are easily accessed and proximate to many destinations are utilized by a large number of vehicles daily (they experience a high turnover). Conversely, off-street parking is best utilized for longer-term patrons such as employees or visitors/customers who are spending several hours in the area or may want to walk around without time restrictions. There are a variety of approaches to managing on-street parking from no restrictions to dynamic pricing. Choosing the appropriate strategy should be based exclusively on demonstrated parking demand.

Utilizing a progressive approach that segments parking users by a facility, based on established and communicated prioritization, will produce the most efficient and effective parking program. This requires monitoring parking utilization and applying the appropriate strategy. Based on the parking shortage to come as described above, our recommendation is for the UD

to advocate for the extension of paid parking into the study area either at $1.20 or $.80 per hour. In either case, we would recommend a maximum time limit of 2 hours based on the proximity to higher education destinations and the likelihood that on-street parking will be used by students attending class without this restriction and unavailable for patrons of retail establishments that need a high degree of parking turnover to support their business. Further, we recommend annual on-street parking utilization studies be conducted to adjust parking meter fees to achieve an optimal peak on-street parking utilization rate of 85%.

The following graphic outlines how trigger points can be used to move from one parking strategy to another.

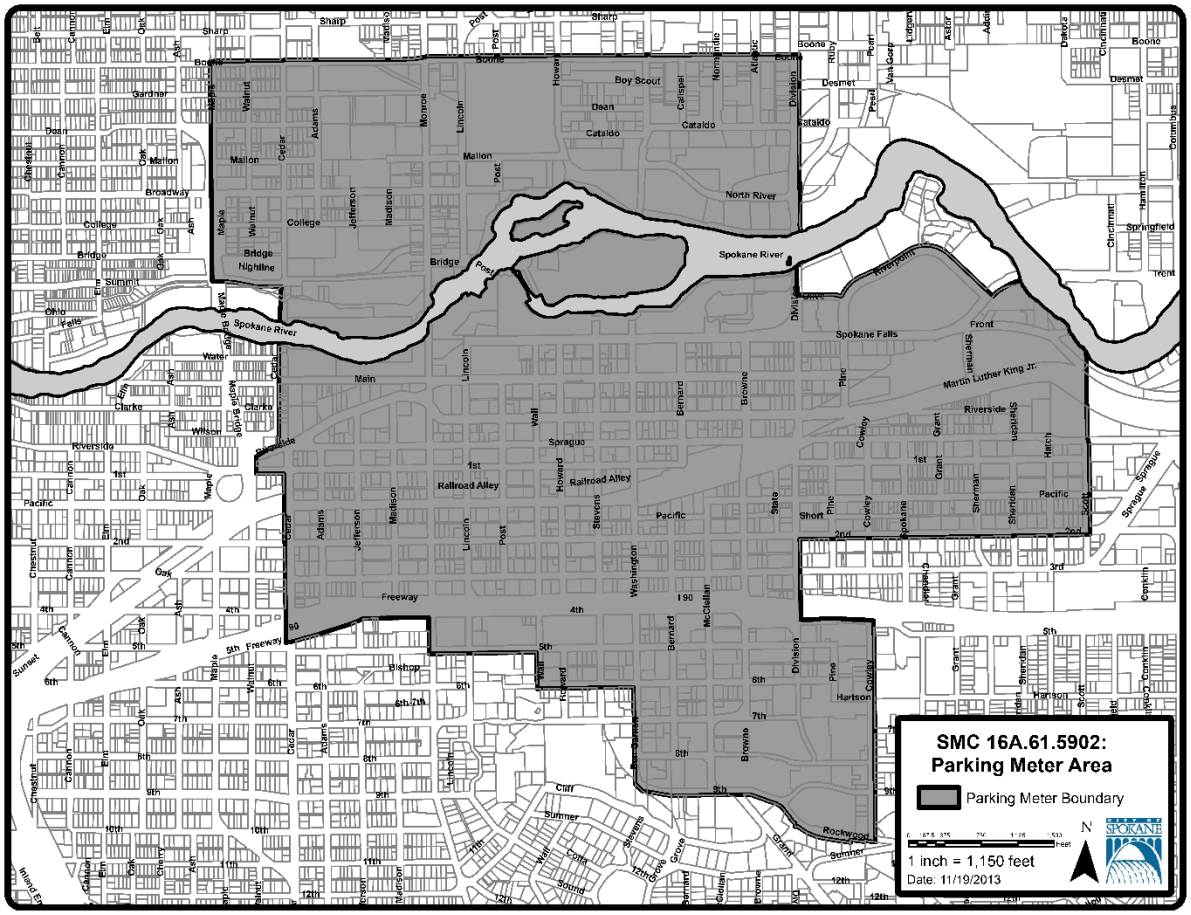
Table 21: Parking Management Trigger Matrix

Peak Occupancy	Unrestricted or time-limited parking areas	Existing pay-parking areas
>90%	Introduce shorter time limits or parking fees	Increase parking fee by 20%
>85%	Introduce shorter time limits or permits (without) pay parking	Increase parking fee by 10%
45%-85%	Periodic monitoring	Periodic monitoring
<45%	Increase time period for parking	Reduce parking fees by 10%
<20%	Remove all parking restrictions	Reduce parking fee by 20% or consider removing charges

Implementing a demand-based, market-driven model requires periodic assessment of actual parking demand. At a minimum, an annual assessment conducted during “normal” conditions is recommended.

It’s important to note that the City of Spokane currently has the authority to implement metered parking in the University District.

Figure 19: Spokane Meter Area



B. Shared Parking

Shared parking can have a significant impact on mixed-use development parking requirements. Shared parking is defined as parking space that can be used to serve two or more individual land uses, without conflict or encroachment. Combining land uses results in a demand for parking spaces that is less than the demand generated by separate, freestanding developments of similar size and character. The opportunity to implement shared parking is the result of two conditions:

- Variations in the peak accumulation of parked vehicles due to different activity patterns of adjacent or nearby land uses (by the hour, by day, by season).
- Relationships among land-use activities that result in people's attraction to two or more land uses on a single auto trip to a given area or development.

The following graphic represents typical shared-use parking patterns. Peaks are where parking demand is high with valleys indicating where parking demand is low. By allowing each space to

be used by various users, the parking facility will maximize both parkers accommodated and revenue generated.

Figure 20: Typical Shared-Use Parking Patterns

The UD and the City of Spokane should work with private property owners to maximize the use of both public and private parking facilities for the benefit of UD stakeholders. This may include developing collaborative marketing and advertising campaigns, producing wayfinding and signage for both private and public parking, and public capital investment in private parking that will serve the public good.

C. In-Lieu Fees

There are other mechanisms the UD may support and the City might pursue to provide incentives for shared parking arrangements. We recommend consideration of in-lieu fees so that the City or UD can amass financial resources over time to fund access and mobility improvements in the future.

In-lieu fees are also another way to encourage shared parking. Developers or building owners can be required to pay a fee to the City in-lieu of building parking for their project. This requires the availability of parking from other sources and often formal agreements for use. The City can aggregate fees over time to build parking or fund other transportation improvements.

D. Transportation Management Association

Organizations like the UDPDA have organized transportation management associations (TMAs) to help maximize access and mobility for their constituents. TMAs are non-profit, member-controlled organizations that provide transportation services in a particular area, such as a commercial district, mall, medical center, or industrial park. They are generally public-private partnerships, consisting primarily of area businesses with local government support. *Transportation Management Coordinators* (TMC) are professionals who work for TMAs or individual employers.

TMAs provide an institutional framework for transportation demand management (TDM) programs and services. They are usually more cost-effective than programs managed by individual businesses. TMAs allow small employers to provide commute trip reduction services comparable to those offered by large companies. They avoid problems that may be associated with government-run TDM programs since they are controlled by members.

TMAs can provide a variety of services that encourage more efficient use of transportation and parking resources such as:

- Commute Trip Reduction
- Commuter Financial Incentives
- Flextime Support
- Freight Transport Management
- Guaranteed Ride Home Services
- Marketing and Promotion
- Parking Management and Brokerage
- Pedestrian and Bicycle Planning
- Pedways
- Rideshare Matching and Vanpool Coordination
- Shared Parking Coordination
- Shuttle Services
- Special Event Transport Management
- Telework Support
- Tourist Transport Management
- Transit Improvements
- Transportation Access Guides
- Wayfinding and Multi-Modal Navigation Tools

TMAs can support smart growth efforts to create more accessible and resource-efficient land use patterns. TMAs can provide parking management and brokerage services that result in more efficient use of parking resources. This can reduce the need to expand parking capacity, reduce the total amount of land that must be paved in an area, and allow increased clustering. For example, a church may allow its parking spaces to be used by a nearby restaurant on Saturday nights in exchange for use of the restaurant's parking on Sunday mornings. This results

in more efficient use of parking resources and allows employers with successful commute trip reduction programs to recoup their costs by leasing excess parking spaces (Shoup 2016).[10]

TMAs in Washington and Idaho include:

- Bellevue Downtown Association
- Greater Redmond Transportation Management Association
- Duwamish Transportation Management Association
- City Go (Boise)

Figure 21: City Go (Boise) Web Splash Page

TMAs also often collaborate with and receive financial support from their metropolitan planning organizations (MPO) that have oversight of regional transportation planning through state and federal mandates. In Spokane, this entity is the Spokane Regional Transportation Council (SRTC), which is equivalent to the Boise area's Community Planning Association of Southwest Idaho (COMPASS). COMPASS is a federally designated MPO that provides financial support for the City Go program highlighted above.

[10] Victoria Transport Policy Institute, updated 21 March 2019

Acknowledgments

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