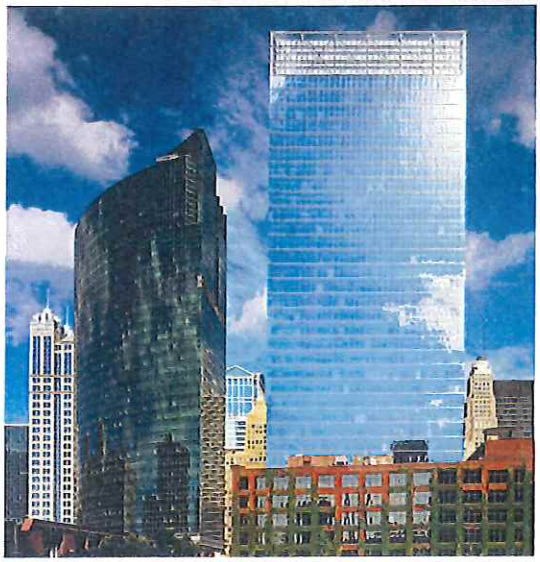


BUILDING ENVELOPE

CONSULTING

FORENSIC RESTORATION

PARKING DESIGN

PLANNING

Parking Study Update

Downtown Appleton

Appleton, Wisconsin

February 2, 2018

WALKER CONSULTANTS

TABLE OF CONTENTS

TABLES & FIGURES

EXECUTIVE SUMMARY

Walker Consultants ("Walker"), formerly Walker Parking Consultants, updated the parking study performed in 2015 regarding current and proposed future parking conditions in downtown Appleton, Wisconsin. Walker performed an evaluation of parking supply and demand under current and potential future conditions, and prepared concept parking layouts for four (4) alternatives, and compared/scored them based on evaluation criteria developed with stakeholder input.

PARKING SUPPLY & DEMAND

The following information is intended to provide a brief summary of findings for the Parking Supply & Demand task of this Future Parking Needs Assessment.

EXISTING CONDITIONS

- **Parking Supply**
  - 2,444 Off-street public
  - 1,966 Off-street private
  - 605 On-street

- **Observed Parking Occupancy – November 2, 2017**
  - *8:00 AM* – 44% occupied
  - *10:00 AM* – 46% occupied
  - *12:00 PM* – 49% occupied (peak period)
    - 2,458 parked vehicles;
    - 1,019 vacant public off-street spaces;
    - 1,162 vacant private off-street spaces;
    - 376 vacant on-street spaces.
  - *2:00 PM* – 45% occupied

PROJECTED FUTURE CONDITIONS

- **Future Supply Adjustments**
  - -401 Blue Ramp
  - -92 Library Lot
  - -22 Private Lot(s)

- **Future Development Scenario 1**
  - **Land Use**
    - *+518,259 SF* Office
    - *+38,450 SF* Retail
    - *+6,072 SF* Restaurant
    - *+89 Units* Residential

  - **Projected Parking Needs**
    - *+1,212* Employee Parking Needed at Peak Period
    - *+42* Resident Parking Needed at Peak Period

- *+165* Visitors Parking Needed at Peak Period

- **Future Development Scenario 2**
  - **Land Use**
    - *+592,892 SF* Office
    - *+118,850 SF* High-Density Office
    - *+129,987 SF* Retail
    - *+18,445 SF* Restaurant
    - *+215 Units* Residential

  - **Projected Parking Needs**
    - *+2,029* Employee Parking Needed at Peak Period
    - *+153* Resident Parking Needed at Peak Period
    - *+353* Visitors Parking Needed at Peak Period

SITE ANALYSIS

The following information is intended to provide a brief summary of findings for the Site Analysis of this Parking Needs Assessment.

PROPOSED SITES

- PS-1 – Block 8, Lot A
  - Construct a 548-space structure and increase the area's current capacity by approximately 412 stalls.
- PS-2 – Block 23, Lot A
  - Construct a 395-space structure and increase the area's current capacity by approximately 395 stalls.
- PS-3.1 – Block 20, Yellow Ramp horizontal expansion
  - Expand the existing structure by 320 spaces and increase the area's current capacity by approximately 280 stalls.
- PS-3.2 – Block 20, Yellow Ramp horizontal expansion
  - Expand the existing structure by 455 spaces and increase the area's current capacity by approximately 455 stalls.

COMPLETED MATRIX AND PROPOSED SITE

The proposed development site per the weighted evaluation matrix is PS-2, the existing Blue Ramp site

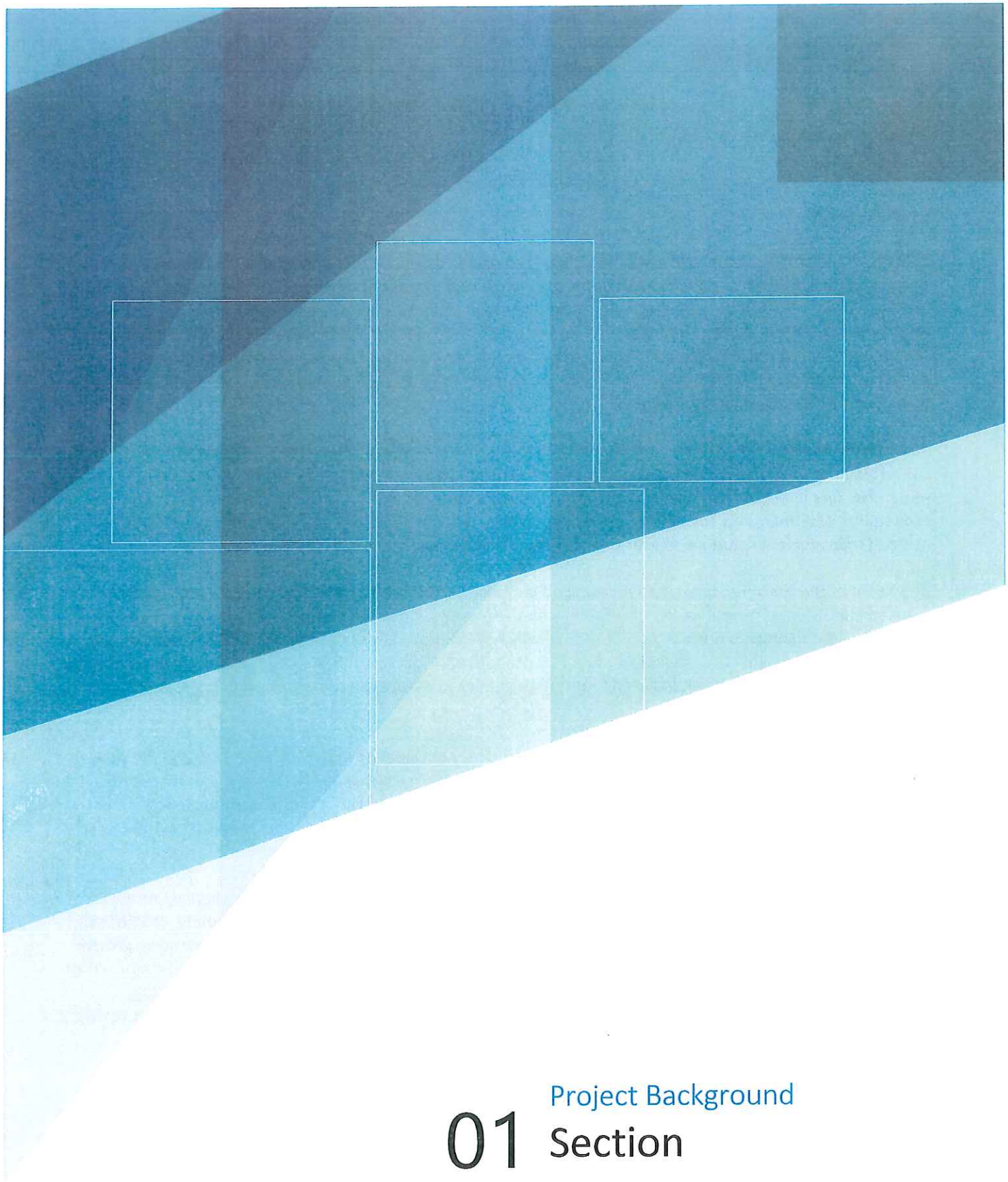
Evaluation Criteria	Weight	Proposed Site			
		PS - 1	PS - 2	PS - 3.1	PS- 3.2
Construction Cost per Space Gained	*10%*	*3*	*2*	*4*	*1*
Proximity to Existing Ramps/Lots	*10%*	*2*	*1*	*3*	*3*
Fulfillment of Existing Demand	*10%*	*1*	*1*	*1*	*1*
Fulfillment of Future Demand	*15%*	*1*	*4*	*3*	*2*
Proximity to Demand Generators	*15%*	*3*	*1*	*2*	*2*
Nearby Development Density	*5%*	*1*	*2*	*3*	*3*
Ease of Implementation & Assembly Time	*10%*	*4*	*1*	*2*	*3*
Pedestrian Infrastructure	*5%*	*3*	*1*	*2*	*2*
Traffic Impact	*10%*	*1*	*1*	*1*	*1*
Preferred Location for Mixed-Use Project	*10%*	*1*	*2*	*3*	*3*
Point Total		20	16	24	21
Weighted Total		2	1.7	2.4	2.05
Weighted Ranking		**2**	**1**	**4**	**3**

1 - Most Desirable, 2 - Desirable, 3 - Moderately Desirable, 4- Least Desirable

ADDITIONAL CONSIDERATIONS

Aside from the criteria selected by the stakeholder group, Walker has highlighted some additional considerations used to further inform site selection including user experience for the various site layouts, and non-construction costs, which are provided in general terms at the end of the Site Analysis.

Beyond Walker's findings of future parking needs, possible layouts and construction costs, the stakeholders should consider which site(s) best create the character and development opportunities to meet the community vision for downtown Appleton. This was relayed as a less linear downtown, with more pedestrian interest (ground floor retail/restaurant/service business) along north-south block faces. It is important that when siting is done, the facility is viewed as an investment in the future, not simply a cost.



Project Background

01 Section

PROJECT BACKGROUND

INTRODUCTION

In 2015, the City of Appleton, Wisconsin (the "City") engaged Walker Consultants ("Walker") to prepare a comprehensive downtown parking analysis in anticipation of new development and changes to the Public Parking System. There were several proposed development projects, including a new Public Library, a potential relocation of City Hall, and an Exhibition Center along with anticipated future unknown development projects. The projects were expected to redistribute existing demand and generate new demand for public parking. In addition, the proposed projects were anticipated to stimulate the development of businesses that would create their own additional demand for parking.

Additionally, the City's Blue Ramp and the privately-owned Soldier Square Ramp (YMCA Ramp) were evaluated and deemed to be reaching the end of their useful lives and will be removed from service within the next five years. The City projected the need to replace all or some of the lost parking capacity in a way that is rational, economical, and financially sustainable. Utilizing Walker's recommendations, the City implemented several demand management solutions to shift demand and develop compliance with parking regulations

As a result of the previous study, the City engaged Walker to update the current and future conditions of a reduced study area surrounding the Blue Ramp with the most recent developments projections, and identify an alternative site analysis to replace the Blue Ramp, which was is slated to be demolished in 2019. Walker was also contracted to complete a preliminary financial pro forma for the optimal site, although this portion of the analysis has since been rescheduled for a future engagement to ensure the projections reflect the most up to date development programming.

Walker performed a parking inventory and parking occupancy observations on November 2, 2017. The parking inventory was performed to confirm the available parking supply, by user group designation, under current conditions. The parking occupancy observations documented how each user group was utilizing the various parking facilities and on-street meters. Insight obtained from the on-site observations would allow the City to identify potential shortfalls within the study area and develop a parking plan accordingly.

Walker also assessed the future parking demand of downtown Appleton. To project future parking needs for the study area, we utilized two future scenarios created by the City and development community. Additionally, Walker spoke with several key community stakeholders for information regarding potential impending growth. The future scenarios identified existing and probable developments by land use type and square footage. From there, Walker projected future demand for various user groups through industry standard methodology accompanied by localized adjustments. The current and projected parking needs were compared to the existing supply to identify any areas of shortfall or surplus.

Finally, Walker was tasked with providing an alternative site analysis for projected future needs. The alternatives analysis utilizes a stakeholder informed weighted matrix to determine the most fitting site for a proposed parking ramp based on various scoring criteria. We worked with the community to identify the most important criteria, and how these criteria are prioritized compared to one another to ultimately score each within the matrix. In conjunction with identifying the scoring criteria, Walker evaluated the study area to determine three (3) potential locations to accommodate a new parking ramp or the option of expanding existing parking ramps, as a practical solution to add capacity to the area. The identified criteria and correlating weight

of importance were used to evaluate the potential development sites, ultimately identifying the site with the highest weighted characteristics.

Walker's engagement with the City of Appleton included three technical tasks as well as a final report and presentation. The technical tasks include:

- **TASK 1 – PARKING SUPPLY & DEMAND ANALYSIS**
- **TASK 2 – SITE ANALYSIS**
- **TASK 3 – PRELIMINARY FINANCIAL ANALYSIS** (Postponed)

To gather input from the City and key stakeholders, a memorandum was prepared and issued to provide Walker's methodology, findings, and recommendations for each of the three technical tasks.

The following text, tables and figures pertain to Walker's findings. In addition to the information presented within the body of this report, additional exhibits are attached which provide further depth.

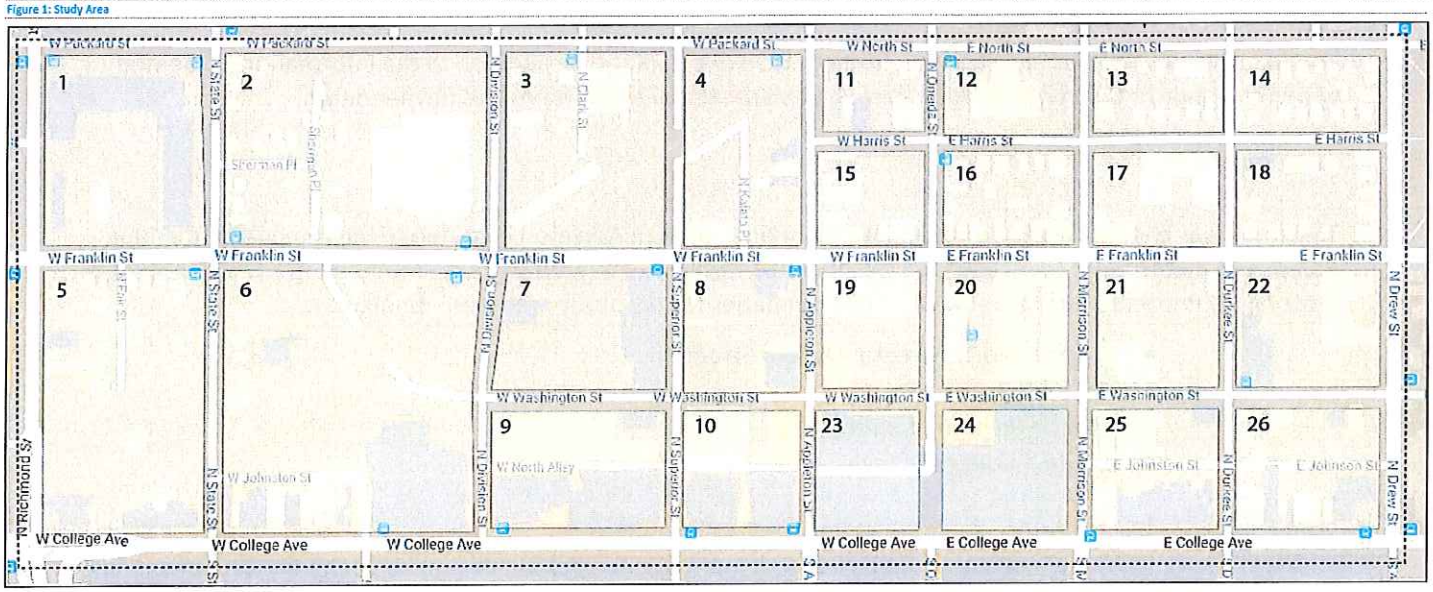
STUDY AREA

The study was commissioned to gauge future parking needs in Appleton considering the removal of the Blue Ramp. For that reason, the study area was more condensed than prior work, and focused in areas considered most highly impacted by that removal. The boundaries for the study area were defined as:

- North – North Street / Packard Street
- East – Drew Street
- West – Richmond Street
- South – College Avenue

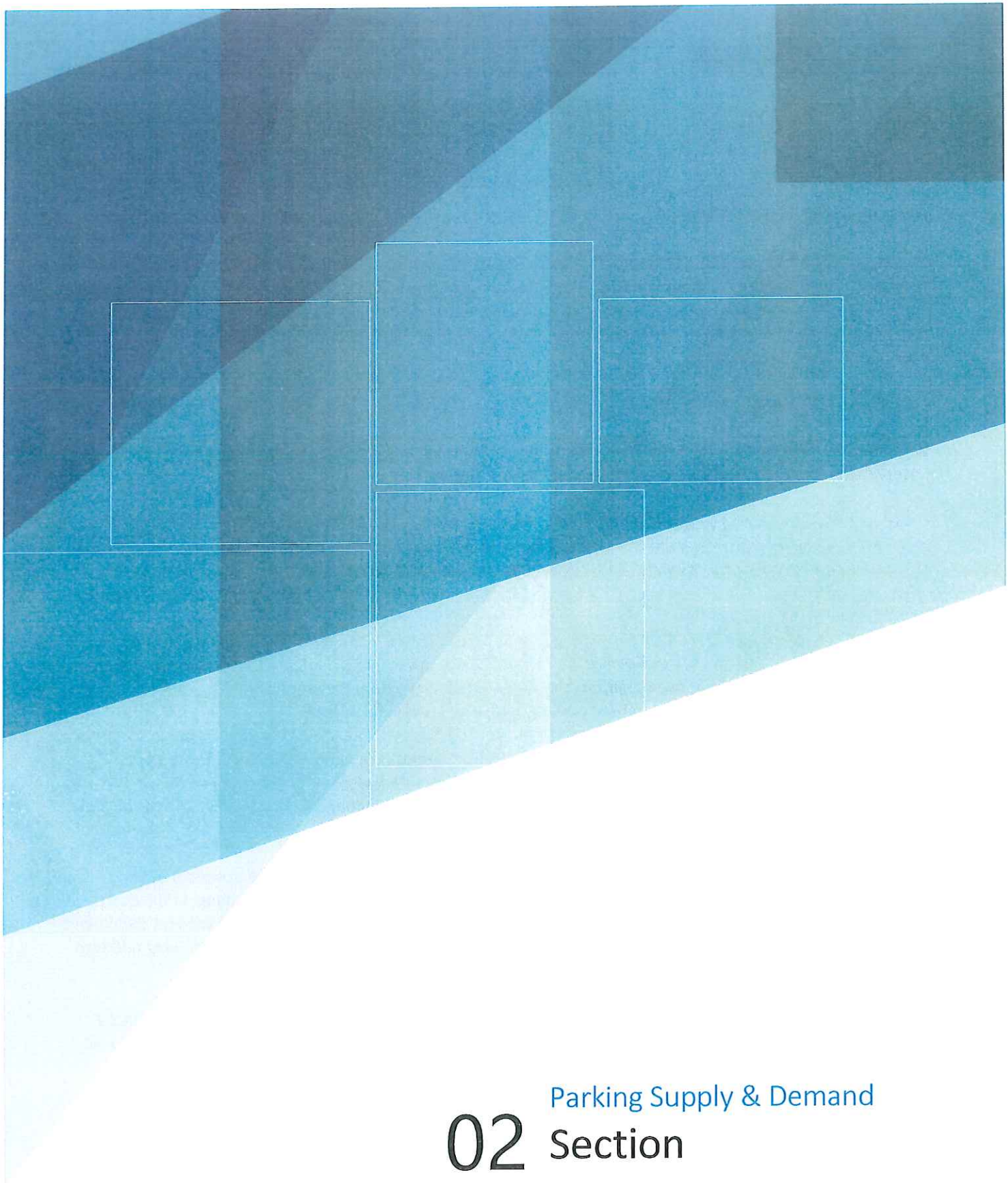
Figure 1 depicts the study area boundaries and the block numbers used to classify individual blocks. Walker numbered each block for identification purposes to aid in discussing locations for parking supply, demand, and recommended changes throughout the course of the study.

Figure 1: Study Area



Legend
- Study Area
- 1 Block Number

Source: Walker Consultants 2017



Parking Supply & Demand

02 Section

APPROACH AND METHODOLOGY

Current conditions provide insight into how the existing parking supply is being used and sets a baseline for proposed future conditions. Assumed future changes are quantified from a parking supply and parking demand standpoint and overlaid onto the current condition baseline. The following text provides more detail regarding the process used to calculate the assumed future parking adequacy and recommended parking needs for this area of downtown Appleton.

CURRENT CONDITIONS

When determining current conditions for parking, we typically begin by defining the parking supply through field observations to create an inventory of **Observed Parking Supply**.

Once the observed parking supply is defined, we perform occupancy counts at various times. We use prior work in the area or knowledge of how specific land use types would impact peak periods to define appropriate times. These parking occupancy counts yield the study area **Observed Parking Demand.**

PROJECTED FUTURE CONDITIONS

Walker met with the City and key stakeholders to identify existing vacancies and potential new developments within the study area to define two scenarios, the **Assumed Changes from Current Conditions**. These assumptions accounted for changes to both parking supply and parking demand.

The City provided proposed footprints of new developments to adjust the parking supply on those sites accordingly. One known parking ramp removal (Blue Ramp) was noted, which is largely the reason for this parking needs assessment. The impacts of new development removing/adding parking supply, and the known removal of the Blue Ramp defined the **Assumed Future Parking Supply.**

The information issued by the City and key stakeholders provided existing vacancies and potential new developments. The square footages and unit counts for the various land uses were used along with industry standard methodology and local adjustments to generate the recommended parking supply to meet the parking needs. The recommended parking needs are then added to the observed (current condition) parking needs to generate **Calculated Future Parking Demand**.

The calculated future parking needs were subtracted from the assumed future parking supply on a block-by-block basis to estimate the **Projected Future Parking Occupancy & Availability** for each block. Heat maps for each block provide a locational reference for any shortfalls or surpluses to provide context for later tasks.

CURRENT CONDITIONS

The Current Parking Needs Assessment consisted of discovery through field observations and discussions with City staff to broaden our understanding of those observations. A limited analysis was also performed under this task as we compared parking supply and demand, and evaluated duration of stay for on-street parking. The work performed in this task is designed to:

- Provide a clear understanding of current parking conditions;
- Establish a baseline of how parking is currently used in the study area;
- Confirm current parking management and operational strategies; and,
- Identify challenges and opportunities.

We collected parking supply and demand information within the study area to identify parking shortfalls (localized or systemic), parking surpluses, and user characteristics. Walker collected this information to determine parking needs and likely impacts of proposed policy adjustments.

The parking supply inventory was used to quantify public on-street and off-street supply, as well as all private off-street supply where we were granted access for this study. We also noted characteristics of the parking supply such as any restrictions (time or user group), general condition, and description of the supply.

Parking occupancy data was collected for four periods – 8:00 AM, 10:00 AM, 12:00 PM, and 2:00 PM. Parking occupancy data was captured to match the detailed inventory breakdowns recorded within the parking supply inventory. These occupancy counts provided a "snapshot" of current parking conditions. The occupancy counts were then compared to the parking supply to relate parking adequacy on a block-by- block basis, with detail for on-street parking and off-street parking.

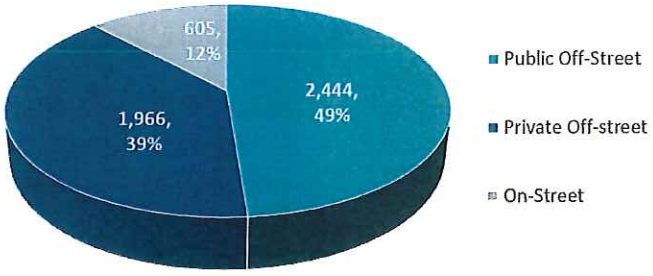
Walker performed fieldwork in Appleton on Thursday, November 2, 2017. Weather on that day was overcast with light to moderate wind with a high temperature of 44 degrees, a low of 37 degrees, and light drizzle in the early morning. As these weather conditions are typical for the time of year in Appleton, we do not believe they adversely impacted the validity of the fieldwork.

OBSERVED PARKING SUPPLY

The parking inventory detailed location, quantity, and restrictions of on-street parking spaces, public off-street parking lots and ramps, and private off-street parking lots and ramps. The following bullets and Figure 2 summarize the total number of spaces in the study area.

- 2.444 Off-Street Public Spaces
- 1,966 Off-Street Private Spaces
- 605 On-Street Spaces
- 5,015 Total Parking Spaces

Figure 2: Parking Supply Mix



Source: Walker Consultants 2017

Although there are several large public garages and a significant amount of on-street parking, nearly 40% of parking in the study area was documented to be privately owned, off-street. Most of the private off-street parking lots were restricted based on posted signage for tenants use only, or patrons of a specific business.

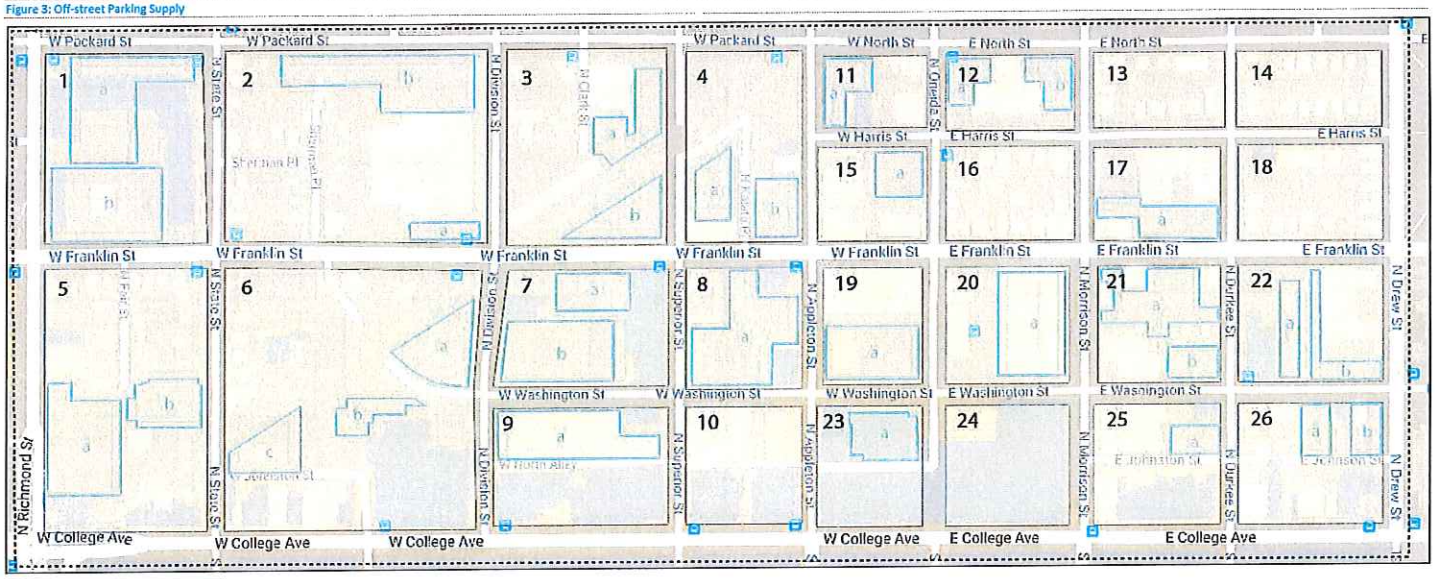
Walker inventoried all parking facilities (surface lots and ramps) with greater than 5 spaces, which could be readily accessed. Most parking supply within the study area was not access-controlled aside from the City-owned ramps. The observed off-street parking supply inventoried for this study is illustrated in Figure 3.

The City of Appleton owns three ramps and one lot within the study area, which were detailed as follows:

- The 730-space Green Ramp (Block 9, A)
- The 1,103-space Yellow Ramp (Block 20, A)
- The 401-space Blue Ramp (Block 23, A)
- The 92-space Library Lot (Block 19, A)

Figure 4 presents the on-street parking supply based on the various restrictions noted during our inventory. The on-street supply in the study area is largely managed by using paid meter parking and time restrictions. The time limits varied throughout the study area with time restrictions of 12-hour, 2-hour, 90-minute, 1-hour, 30-minute, and 15-minute (loading) time limits. Metered parking is $0.75 per hour, and most metered spaces are also time-limited.

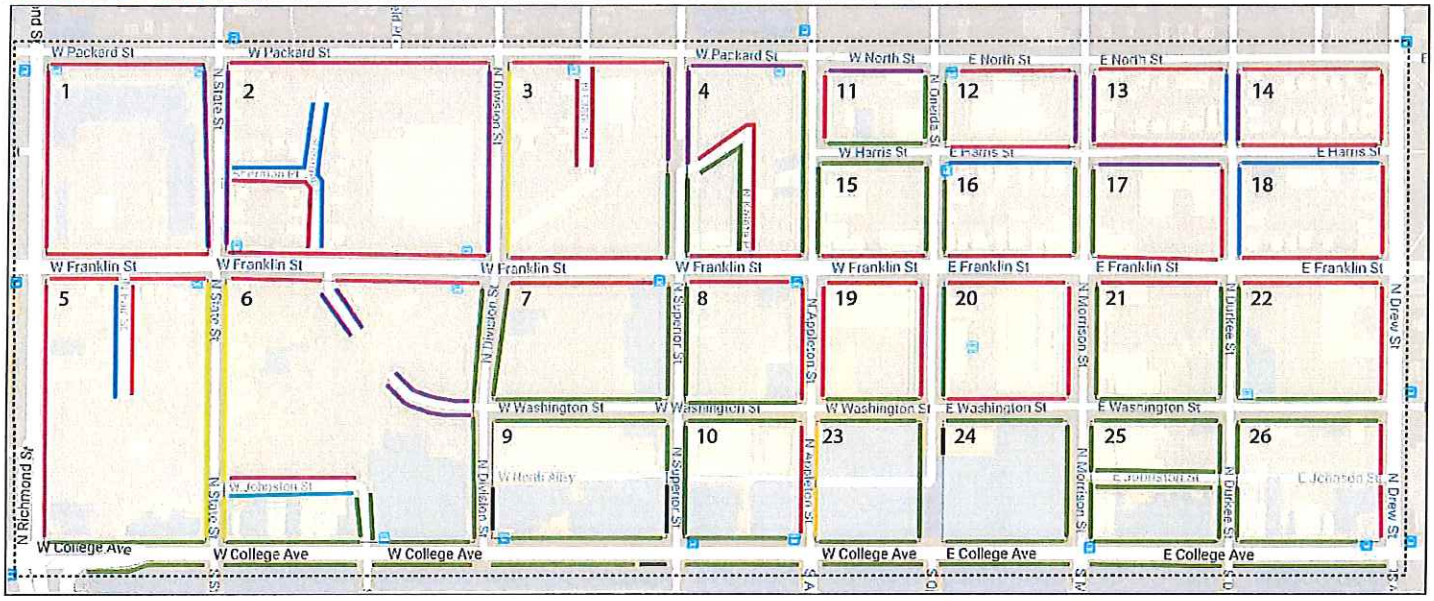
Figure 3: Off-street Parking Supply



Legend
Observed Parking Facility
Parking Facility Label
Observed On-Street Meters

Source: Walker Consultants 2017

Figure 4: On-street Parking Supply & Restrictions



Legend
- No Parking
- Unrestricted
- Meters
- 2-Hour
- 90-minutes
- 1-Hour
- 30 min
- 15 min

Source: Walker Consultants 2017

The observed parking inventory is summarized on a block-by-block basis within Table 1.

Table 1: Current Parking Supply & Demand Summary

Block	On-street	Off-Street Public	Off-street Private	TOTAL SUPPLY
1	12		100	112
2	20		179	199
3	25		167	192
4	37		96	133
5	30		221	251
6	60		228	288
7	33		181	214
8	17		166	183
9	45	771		816
10	26			26
11	16		55	71
12	11		74	85
13	11			11
14	5			5
15	15		60	75
16	22			22
17	10		76	86
18	19			19
19	6	92		98
20	2	1,180		1,182
21	24		144	168
22	23		121	144
23	28	401		429
24	33			33
25	52		29	81
26	23		69	92
	605	2,444	1,966	5,015

Source: Walker Consultants 2017

Walker was also tasked to document the parking supply (and occupancy) for on-street parking south of College Avenue, both along College Avenue and the half block back along north-south streets. A total of 90 on-street spaces were documented south of College Avenue, all of which were metered spaces. Some spaces were restricted to 2-hour parking, while others were restricted with a 30-minute limit.

OBSERVED PARKING DEMAND

Walker performed the observed parking demand (occupancy) counts in Appleton on Thursday, November 2, 2017. The counts provide insight into parking conditions for a typical weekday daytime. Walker's prior work in the area indicated a significant drop in parking demand in the late afternoon and evenings, and during weekends. Based on the land use mix and character of downtown Appleton, the weekday daytime peak period is typical. Therefore, Walker performed counts every two hours beginning at 8:00 AM, with the final count beginning at 2:00 PM.

Table 2 summarizes the observed hourly parking demand and percentages for the on-street parking, surface lots and ramp. Typical transient users perceive the lot "full" when it exceeds 85% capacity; these users are unfamiliar with the lot or ramp and characteristically will not explore the whole area before determining the ramp is full. Employees and monthly parkers perceive the lot "full" closer to 98% utilization; these users are familiar with the lot and are likely to continue circling for a stall in the least desirable area (i.e. the roof). Additional detail of the data points is included in full at the end of this memorandum.

Table 2: Observed Parking Demand Summary

		Thursday, 11/2/17 Occupancy Counts							
		8:00 AM		10:00 AM		12:00 PM		2:00 PM	
Block	TOTAL SUPPLY	Veh.	Occ %	Veh.	Occ %	Veh.	Occ %	Veh.	Occ %
1	112	41	37%	49	44%	57	51%	58	52%
2	199	105	53%	112	56%	122	61%	112	56%
3	192	25	13%	23	12%	28	15%	27	14%
4	133	22	17%	22	17%	19	14%	23	17%
5	251	34	14%	32	13%	58	23%	53	21%
6	288	59	20%	74	26%	72	25%	73	25%
7	214	68	32%	76	36%	72	34%	69	32%
8	183	81	44%	120	66%	120	66%	125	68%
9	816	383	47%	374	46%	375	46%	311	38%
10	26	21	81%	21	81%	23	88%	15	58%
11	71	8	11%	7	10%	6	8%	8	11%
12	85	40	47%	58	68%	66	78%	59	69%
13	11	4	36%	5	45%	5	45%	5	45%
14	5	4	80%	4	80%	4	80%	4	80%
15	75	27	36%	29	39%	28	37%	27	36%
16	22	2	9%	6	27%	13	59%	5	23%
17	86	54	63%	59	69%	65	76%	64	74%
18	19	1	5%	2	11%	2	11%	2	11%
19	98	52	53%	50	51%	35	36%	26	27%
20	1,182	775	66%	718	61%	784	66%	758	64%
21	168	81	48%	106	63%	108	64%	114	68%
22	144	17	12%	40	28%	41	28%	30	21%
23	429	282	66%	267	62%	267	62%	242	56%
24	33	8	24%	12	36%	18	55%	9	27%
25	81	6	7%	22	27%	38	47%	26	32%
26	92	15	16%	27	29%	32	35%	30	33%
	5,015	2,215	44%	2,315	46%	2,458	49%	2,275	45%

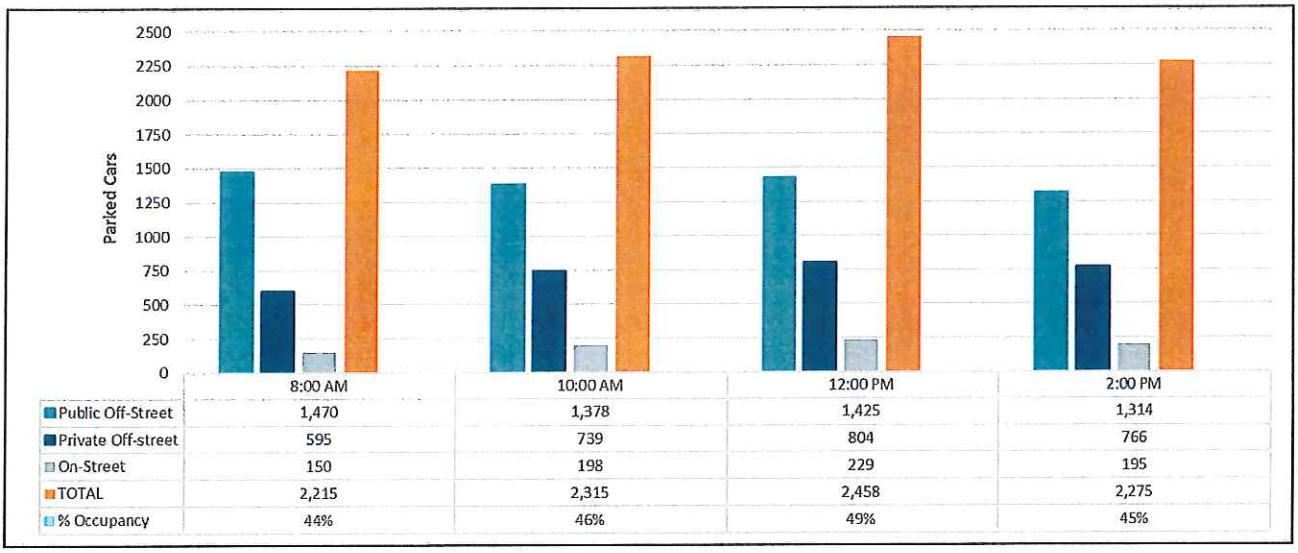
Source: Walker Consultants 2017

Overall, the parking supply within the study area sufficiently meets the parking needs generated therein. The peak observed hour indicated 49% occupancy at 12:00 PM. A few blocks within the study area were observed to have high occupancy, but those blocks had limited parking supply (i.e. Block 10 and Block 14).

A summary of the observation is provided in Figure 5 for comparison. For context, the total parking supply by type is provided again:

- 2.444 Off-Street Public Spaces
- 1,966 Off-Street Private Spaces
- 605 On-Street Spaces
- 5,015 Total Parking Spaces

Figure 5: Observe d Parking Demand – Summary by Observation



	8:00 AM	10:00 AM	12:00 PM	2:00 PM
Public Off-Street	1,470	1,378	1,425	1,314
Private Off-street	595	739	804	766
On-Street	150	198	229	195
TOTAL	2,215	2,315	2,458	2,275
% Occupancy	44%	46%	49%	45%

Source: Walker Consultants 2017

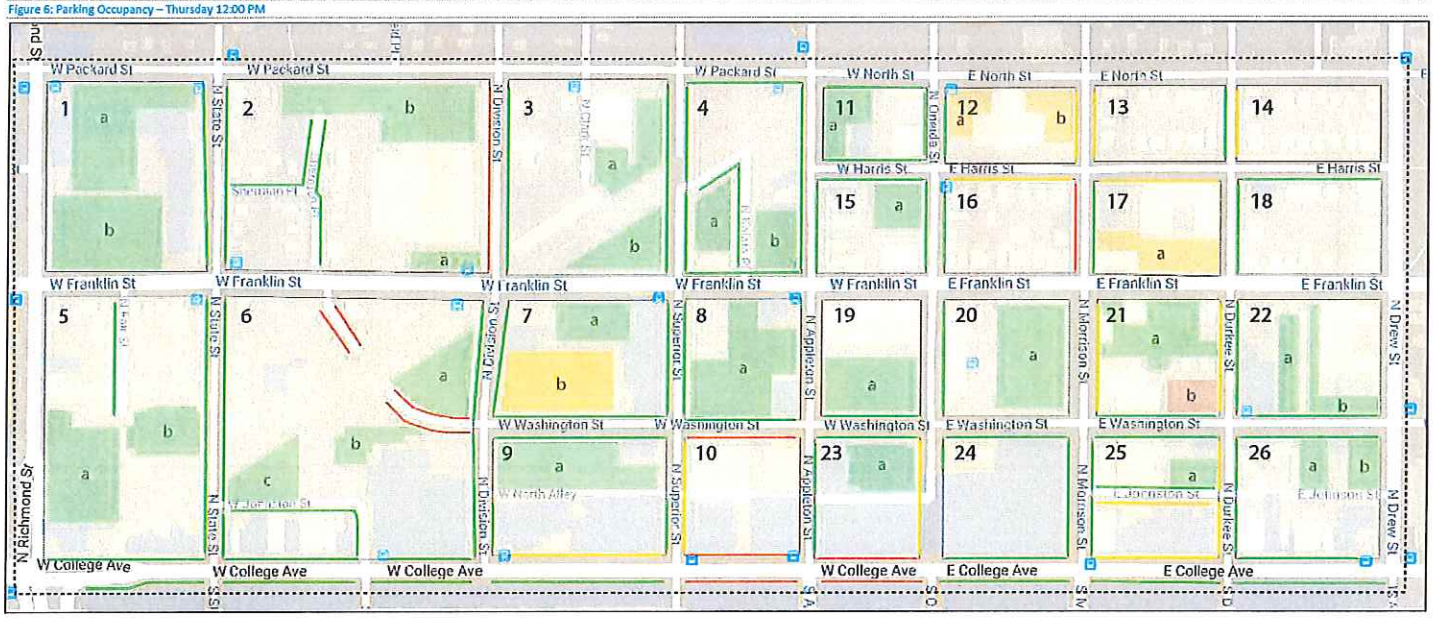
Walker compared the parking supply to the observed occupancy to determine the current parking adequacy during typical conditions for a weekday. The heat map, shown in Figure 6, for observed demand depicts the parking occupancy for each off-street facility, and for on-street parking by block-face.

The occupancy table and heat maps identify parking "hot spots" using a color-coded approach as follows:

- 0% - 69% Occupied – Green
- 70% - 84% Occupied – Yellow
- 85% Occupied and Higher – Red

These ranges are reasonable for high-level planning efforts to identify areas that potentially require action to alleviate real or perceived shortfalls.

Figure 6: Parking Occupancy – Thursday 12:00 PM



Source: Walker Consultants 2017

The heat map indicates that the off-street parking supply is generally below 70% occupancy, with only a few surface parking lots having been occupied above that mark. Those instances are presented below:

- 7b – Gannett Lot 2 – 78%
- 12a – Morgan Building (West) – 83%
- 12b – Morgan Building (East) – 82%
- 17a – St. Paul Lutheran School – 79%
- 21b – Schenck School – 87%

The following highlights Walker's findings during occupancy counts:

- Peak Period – 12:00 PM;
- 2,458 parked vehicles (49% occupancy);
- 376 vacant on-street spaces;
- 1,019 vacant public off-street spaces; and,
- 1,162 vacant private off-street spaces.

POSSIBLE FUTURE CONDITIONS

Walker was asked to project parking needs considering two possible market condition scenarios. The projections were performed considering the goal of understanding potential future parking needs of the area, how best to accommodate those needs, and possible financial performance of a new City-owned ramp (assuming one may be needed). The projections will not be used for assessing and planning for parking needs of specific development sites, but will be used to inform recommendations at a strategic level.

Defining the future parking needs of the study area included collaboration with the City (Planning, Economic Development, Public Works), and local developers, property owners, and building managers. The evaluation accounted for current/continuing parking demand, currently vacant/underutilized built space, proposed developments, and planned removal of parking facilities. Once these inputs were collected, Walker distilled and analyzed the information to quantify both parking demand and supply implications.

ASSUMED CHANGES FROM CURRENT CONDITIONS

To provide well-supported projections of future parking need, Walker began this task by identifying significant vacancies and proposed (re)developments in the study area and nearby through several discussions with the City, and with the real estate and development community. This information was provided on a site-by-site basis in terms of land use quantity and type, as well as whether parking would be provided. Walker was also provided information regarding whether any square footage or parking supply would be removed. Many of these potential changes are speculative and/or confidential.

Walker worked with stakeholders to develop two different potential development scenarios to test their possible impacts on the parking needs of the area. Locations of these potential changes (building occupancy or new development), and overall summary of land use and quantity under each scenario, are provided in Figure 7.

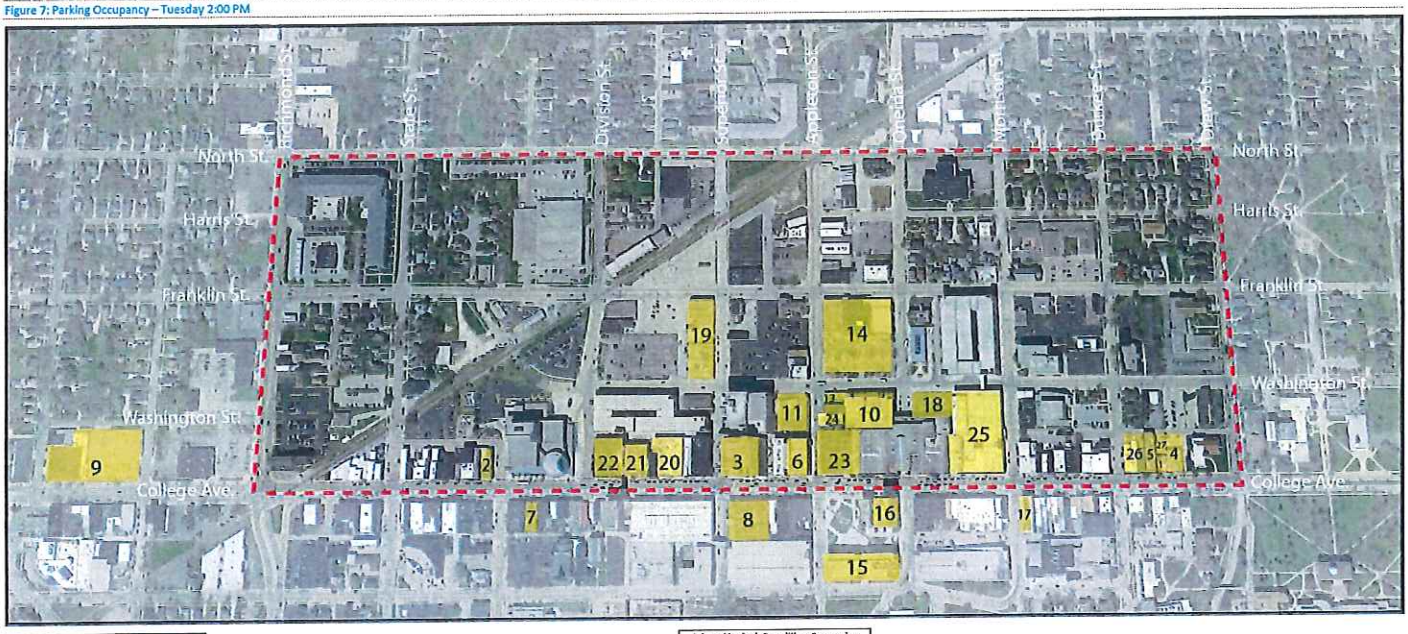
ASSUMED FUTURE PARKING SUPPLY

The parking supply within the study area is anticipated to remain the same aside from a few locations. The three specific changes include:

- Removal of the Blue Ramp
- Removal of the Library Lot
- Removal of partial (22 spaces) private lot behind buildings in block 26

Table 3 (page 18) provides the block-by-block current parking supply, and proposed impacts from assumed future conditions within the study area.

Figure 7: Parking Occupancy – Tuesday 2:00 PM



Legend

- Study Area Boundary
- Existing Vacancies & Possible Developments

Land Use	Future Market Condition Scenarios	
	Scenario 1	Scenario 2
Office	518,259	592,892
High Density Office	0	118,850
Retail	38,450	129,987
Restaurant	6,072	18,445
Residential	89	215

Source: Walker Consultants 2017

Table 3: Assumed Future Parking Supply

Block	On-street	Off-Street Public	Off-street Private	TOTAL SUPPLY	Supply Change	Future Supply
1	12		100	112		112
2	20		179	199		199
3	25		167	192		192
4	37		96	133		133
5	30		221	251		251
6	60		228	288		288
7	33		181	214		214
8	17		166	183		183
9	45	771		816		816
10	26			26		26
11	16		55	71		71
12	11		74	85		85
13	11			11		11
14	5			5		5
15	15		60	75		75
16	22			22		22
17	10		76	86		86
18	19			19		19
19	6	92		98	(92)	6
20	2	1,180		1,182		1,182
21	24		144	168		168
22	23		121	144		144
23	28	401		429	(401)	28
24	33			33		33
25	52		29	81		81
26	23		69	92	(22)	70
	605	**2,444**	**1,966**	**5,015**	**(515)**	**4,500**

Source: Walker Consultants 2017

Scenario 1 and Scenario 2 parking supply adjustments consider the change in supply due to new developments. The adjustments are the same for both scenarios as the future scenarios change the land use of each development and not the footprint of the development, therefore parking changes are the same for both.

The parking supply reduction under proposed future conditions is localized, which could result in a localized shortfall if other area parking supply cannot accommodate displaced demand (and projected new demand). The following sections will discuss projected future parking demand, and resulting projected parking occupancy and availability

CALCULATED FUTURE PARKING DEMAND

To calculate the projected impact each of the identified land use changes would have on future parking conditions, Walker used the future condition scenarios. For proposed future developments and any identified current vacancies, the assessment of future needs was evaluated accounting for possible shared parking efficiencies (so not to over-project needed supply). These projections were performed to generate anticipated parking needs for specific hours of the day, on a typical weekday. Results were summed by block once calculations for each site and land use were completed.

Walker's prior work in the area identified weekday, daytime as the peak period. The parking occupancy counts in early November identified 12:00 PM as the peak period. Understanding how parking needs are generated by various land uses in settings similar to the study area, our experience suggests that the changes in the area would also have peak parking needs around 12:00 PM.

The methodology used to project parking needs based on the future changes is as follows:

- Identify the new or vacant land use quantities;
- Apply parking demand ratios (from Walker's Shared Parking Model) to the new or vacant land use quantities;
- Apply hourly activity factors (from Walker's Shared Parking Model) for the 12:00 PM hour to account for variations in activity (during the peak period) on a typical weekday;
- Apply drive ratios to the area for various user groups (US Census, Means of Transportation to Work); and,
- Apply non-captive ratios, as some of the developments benefit from captive activity – long-term parkers also generating activity as visitors for other on-site land uses (i.e. Office employees eating lunch at a nearby or on-site restaurant).

A summary of projected parking demand on a block-by-block basis is found in Figure 8 for Scenario 1 and Figure 9 for Scenario 2. The tables provide parking need projected for each user group (employee, resident and visitor) to better understand user needs and allocations.

PROJECTED FUTURE PARKING OCCUPANCY & AVAILABILITY

The additional parking need developed using the methodology outlined above were overlaid onto the observed conditions for the peak 12:00 PM time period to project total future parking need. The projected change in parking need for each block was then compared to the proposed future parking supply to project future parking occupancy and availability.

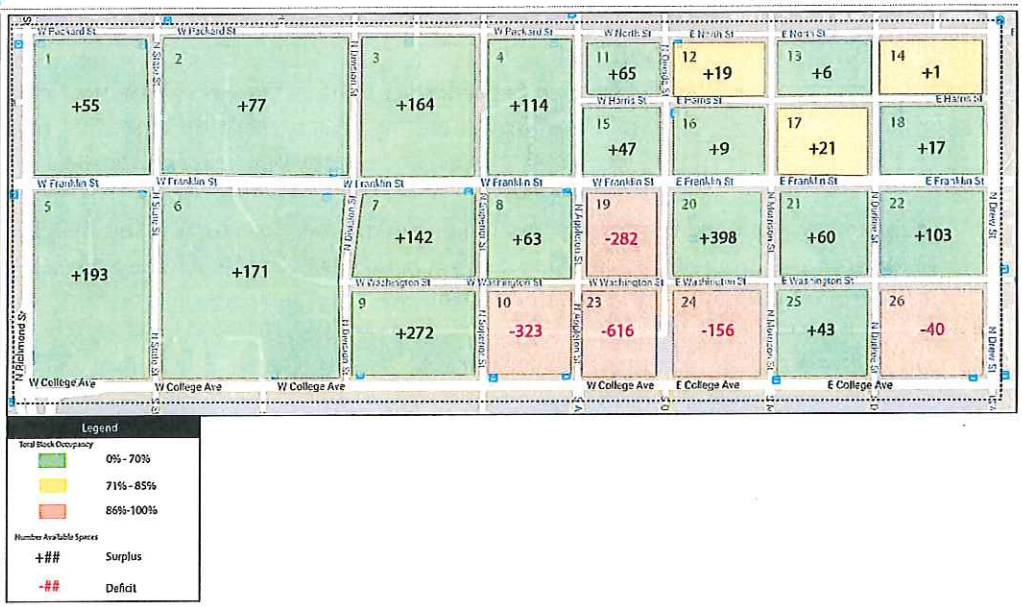
The future parking conditions for each block in the study area were detailed using color-coded tables and heat maps that reflect parking occupancy percentages. The projected parking shortfall or surplus for each block is also provided. The color coding for the table and heat maps is:

- 0% - 70% Occupied – Green
- 71% - 85% Occupied – Yellow
- 86% Occupied and Higher – Red

The primary takeaway from Task 1 was the parking adequacy of potential future conditions. These are best communicated using heat maps which use color-coding to show projected occupancy percentage, and a positive or negative number to show surplus or shortfall for each block. We use heat maps to evaluate whether any parking shortfall is localized or systemic. The heat maps prepared for the evaluation are provided in Figure 8 for Scenario 1 and Figure 9 for Scenario 2.

Figure 8: Scenario 1 Projected Future Parking Occupancy – Weekday 12:00 PM

S1 Supply	S1+CC Supply	S1 Emp	S1 Res	S1 Vis	S1+CC Need	Occ%	Surplus/ Shortfall
	112				57	51%	55
	199				122	61%	77
	192				28	15%	164
	133				19	14%	114
	251				58	23%	193
	288	7	0	38	117	41%	171
	214				72	34%	142
	183				120	66%	63
	816	122	0	46	544	67%	272
	26	306	0	20	349	1342%	(323)
	71				6	8%	65
	85				66	78%	19
	11				5	45%	6
	5				4	80%	1
	75				28	37%	47
	22				13	59%	9
	86				65	76%	21
	19				2	11%	17
(92)	6	244	0	9	288	4800%	(282)
	1,182				784	66%	398
	168				108	64%	60
	144				41	28%	103
(401)	28	302	42	33	644	2300%	(616)
	33	164	0	6	189	572%	(156)
	81				38	47%	43
(22)	70	65	0	12	110	157%	(40)
(515)	4,500	1,212	42	165	3,876		624



Source: Walker Consultants 2017

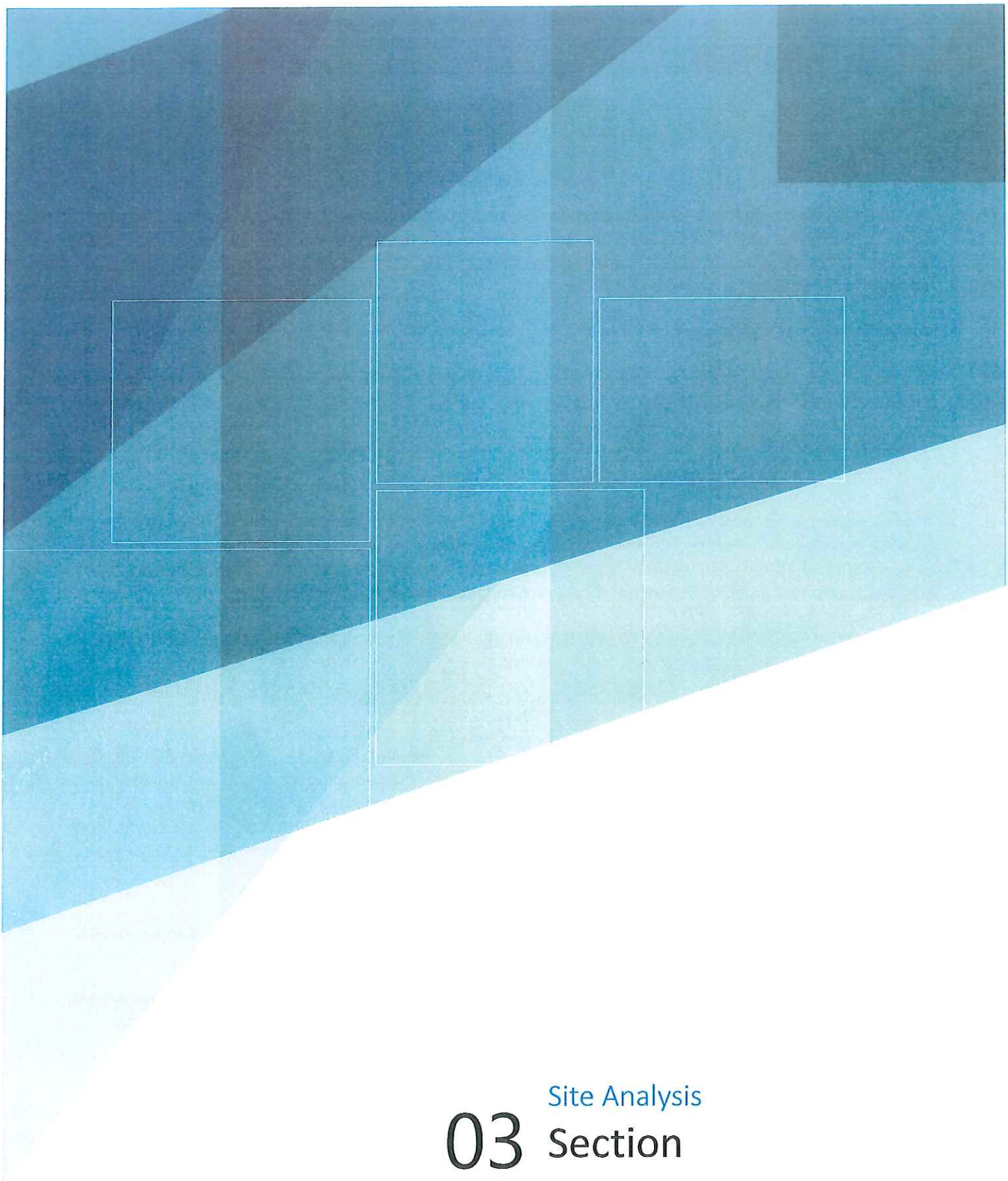
Figure 9: Scenario 2 Projected Parking Occupancy – Weekday 12:00 PM

S2 Supply	S2+CC Supply	S2 Emp	S2 Res	S2 Vis	S2+CC Need	Occ %	Surplus/ Shortfall
	112				57	51%	55
	199				122	61%	77
	192				28	15%	164
	133				19	14%	114
	251				58	23%	193
	288	26	24	30	153	53%	135
	214	154	24	25	276	129%	(62)
	183				120	66%	63
	816	122	0	46	544	67%	272
	26	394	0	24	441	1697%	(415)
	71				6	8%	65
	85				66	78%	19
	11				5	45%	6
	5				4	80%	1
	75				28	37%	47
	22				13	59%	9
	86				65	76%	21
	19				2	11%	17
(92)	6	365	0	14	414	6908%	(408)
	1,182				784	66%	398
	168				108	64%	60
	144				41	28%	103
(401)	28	783	83	116	1,249	4461%	(1,221)
	33	164	0	6	189	572%	(156)
	81				38	47%	43
(22)	70	19	21	91	163	232%	(93)
(515)	4,500	2,029	153	353	4,993		(493)

Source: Walker Consultants 2017

The heat maps show localized "hot spots" during the peak 12:00 PM period, but the tables note overall availability. The hot spots during the peak period should be further evaluated to understand the actual parking needs of the blocks, and whether those needs may be met within nearby supply (on-street, publicly available or private within a reasonable walking distance of 2-3 blocks).

The heat maps also show most of the projected parking shortfalls are localized to blocks 10, 19, 23, 24, and 26 for both scenarios (block 7 added for Scenario 2). Block 26 shortfalls could potentially be accommodated within some of the nearby available private supply, which further reduces the area where shortfalls are projected.



Site Analysis

03 Section

SITE ANALYSIS

As Appleton grows with future development and parking demand increases, it is critical to plan for the parking supply to accommodate the projected future demand. Some shortfalls are likely to occur in blocks 10, 19, 23, 24, and 26 for both scenarios (block 7 added for Scenario 2). Therefore, Walker was tasked with providing an alternative site analysis for projected future needs.

APPROACH AND METHODOLOGY

The alternatives analysis utilizes a stakeholder informed weighted matrix to determine the most fitting site for a proposed parking ramp based on various scoring criteria. We work with the community to identify the most important criteria, and how these criteria are prioritized compared to one another to ultimately score each within the matrix. The analysis uses quantitative and/or qualitative characteristic to score each criterion as developed through Walker's experience and agreed upon by stakeholders.

In conjunction with identifying the scoring criteria, Walker evaluated the study area to determine three (3) potential locations to accommodate a new parking ramp or the option of expanding existing parking ramps, as a practical solution to add capacity to the area. The site locations are presented as well as concept level plans displaying parking layouts, ingress/egress locations, circulation, and stall counts.

The identified criteria and correlating weight of importance were used to evaluate the potential development sites, ultimately identifying the site with the highest weighted characteristics.

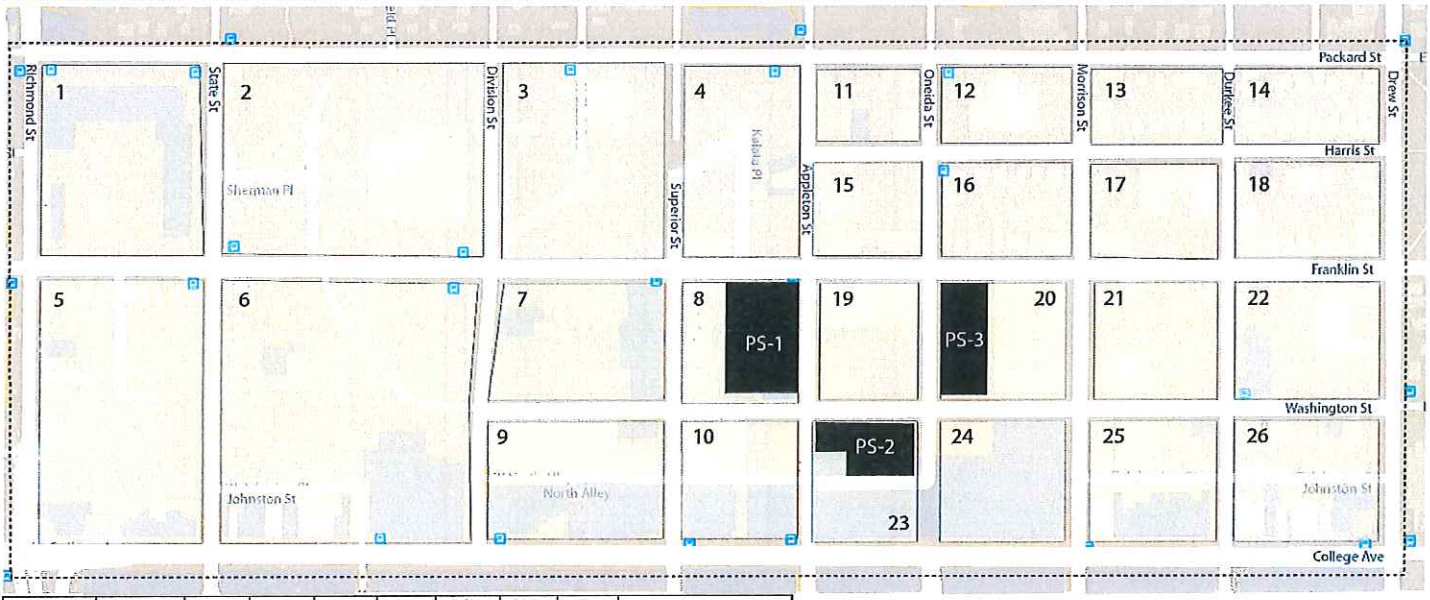
POTENTIAL SITES

Through conversations with the City and stakeholders, Walker identified three potential development sites for a parking ramp. Initial selection included high level analysis of each sites components, including adequate size for a ramp footprint, proximity to demand shortfalls, and potential for mixed-use or ground floor retail. We included four Potential Sites (PS) for a new parking ramp, which are depicted as Potential Site (PS) 1, 2, 3.1 and 3.2 in Figure 10; a summary of assumptions is also presented within the figure. A general description of each potential site is provided below:

- PS 1 – Block 8, Lot A
  - Construct a 548-space ramp and increase the area's current capacity by approximately 412 stalls. (136 existing surface stalls removed)
- PS 2 – Block 23, Lot A
  - Construct a 395-space ramp and increase the area's current capacity by approximately 395 stalls. (No loss considered as Blue Ramp is to be removed regardless of selected site)
- PS 3.1 – Block 20, Yellow Ramp horizontal expansion
  - Expand the existing ramp by 320 spaces and increase the area's current capacity by approximately 280 stalls. (40 existing structured/surface stalls removed in Yellow Ramp)
- PS 3.2 – Block 20, Yellow Ramp horizontal expansion
  - Expand the existing ramp by 455 spaces and increase the area's current capacity by approximately 455 stalls. (No loss of existing parking)

The pages following Figure 10 (page 26 through page 29) contain the typical level floor plan for the proposed sites and ramps.

Figure 10: Proposed Site Locations



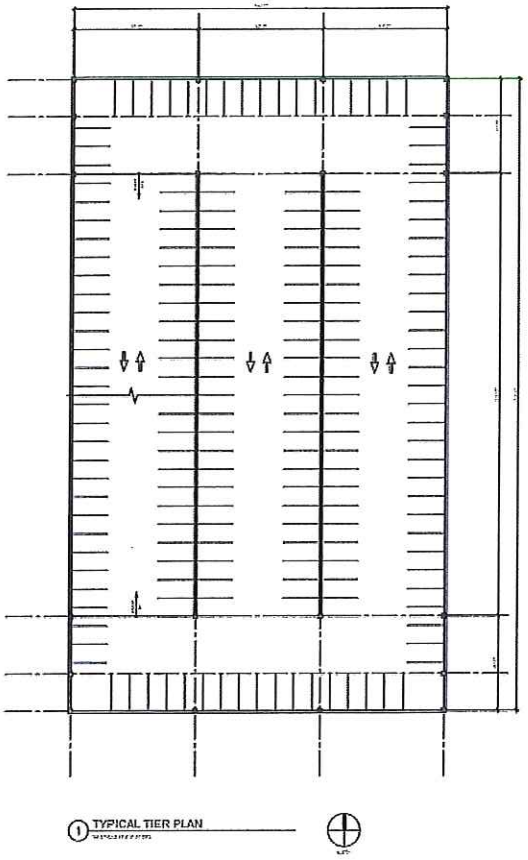
Alternative Designation	Total Levels	Stall Width	Angle (Degrees)	Circulation System	New Structured Spaces	Parking Construction SF	Existing Spaces Lost	Net Parking Added	Additional Use SF
PS - 1	4 Level Structure	9'-0"	90°	Two Way	548	189,436	136	412	21,400 Retail
PS - 2	7 Level Structure	9'-0"	90°	Two Way	395	147,250	0	395	11,500 Retail
PS - 3.1	6 Level Structure	9'-0"	90°	Two Way	320	107,400	40	280	20,500 Bus Lane
PS - 3.2	5 Level Structure	9'-0"	90°	Two Way	455	159,269	0	455	7,100 Transit Center / 19,600 Bus Lane

Source: Walker Consultants 2017

PROPOSED SITE 1

Proposed Site 1 (PS-1), constructing a parking ramp on Block 8 bound by Washington Street, Appleton Street, Franklin Street, and Superior Street. PS-1 includes the assumption of the demolition of the existing buildings on the southeast and northeast corners of the block. These businesses may be reconstructed within the proposed 21,400 square feet of ground floor retail in the proposed structure. Alternatively, the southwest corner of the block would not be used for the ramp footprint and could be a replacement site. The ramp is intended to be 4-levels with 9'0" wide angled parking stalls, totaling a capacity of 548± stalls.

Figure 11: PS – 1 Typical Tier Plan



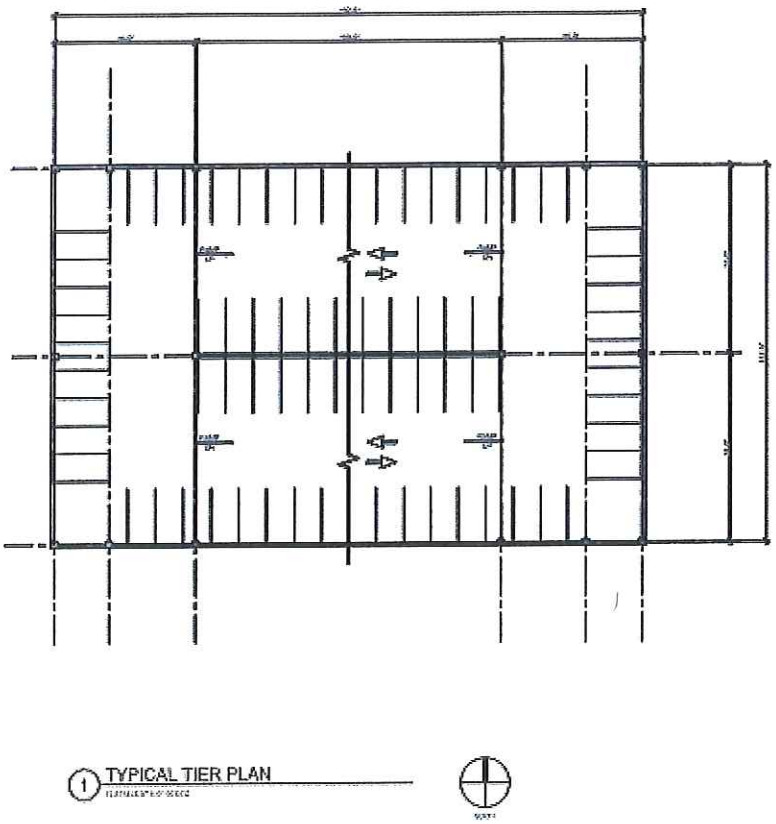
Source: Walker Consultants 2017

Implementing PS-1 will increase the current capacity of the study area by a net 412± spaces. PS-1 provides the most efficient layout, lowest cost per stall, and largest ground floor retail component. Additionally, the site promotes the highest level of service as it allows for the maximum amount of spaces with large drive aisles, wide corners for turning, and the least amount of turns to reach to the top of the structure.

PROPOSED SITE 2

Proposed Site 2 ("PS-2") reconstructs a mixed-use parking ramp where the existing Blue Ramp stands on Block 23 bound by Oneida Street, Appleton Street, and Washington Street. The ramp includes a proposed 11,500 square feet of ground floor retail in the proposed ramp. The ramp is intended to be 7-levels with 9'0" wide angled parking stalls, totaling a capacity of 395± stalls.

Figure 12: PS – 2 Typical Tier Plan



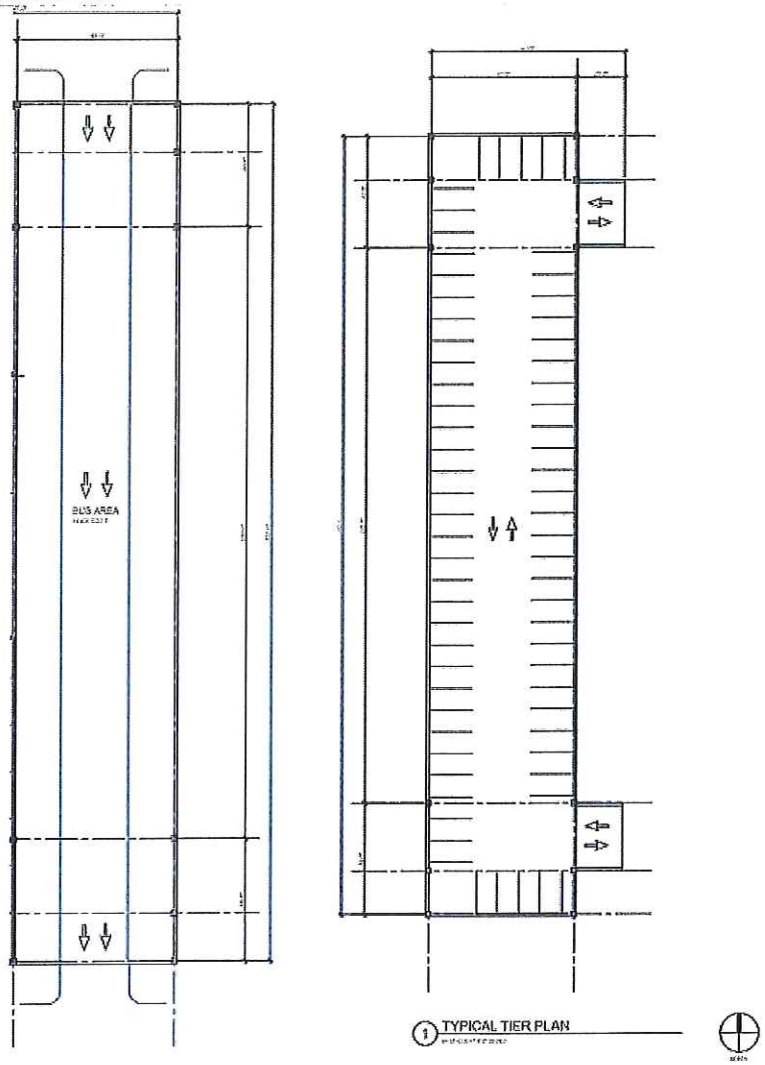
Source: Walker Consultants 2017

Implementing PS-2 will increase the current capacity of the study area by a net 395± spaces. PS-2 has some perceived construction challenges as it abuts existing structures. Future Scenario 1 and Scenario 2 include significant land use programming on this site, which may have to be revised or reduced with the proposed parking ramp on this site.

PROPOSED SITE 3.1

Proposed Site 3.1 ("PS-3.1"), a horizontal expansion of the Yellow Ramp on Block 20 bound by Washington Street, Oneida Street, Franklin Street, and Morrison Street. PS-3.1 includes the assumption of the bus terminal drive through lane passing through the ground floor of the ramp. In addition, it is assumed the ingress/egress points of the ramp will remain on Washington Street, there will be no need to purchase additional parking access revenue control equipment. The ramp expansion is intended to be 6-levels with 9'0" wide angled parking stalls, totaling a capacity of 320± stalls.

Figure 13: PS – 3.1 Typical Tier Plan



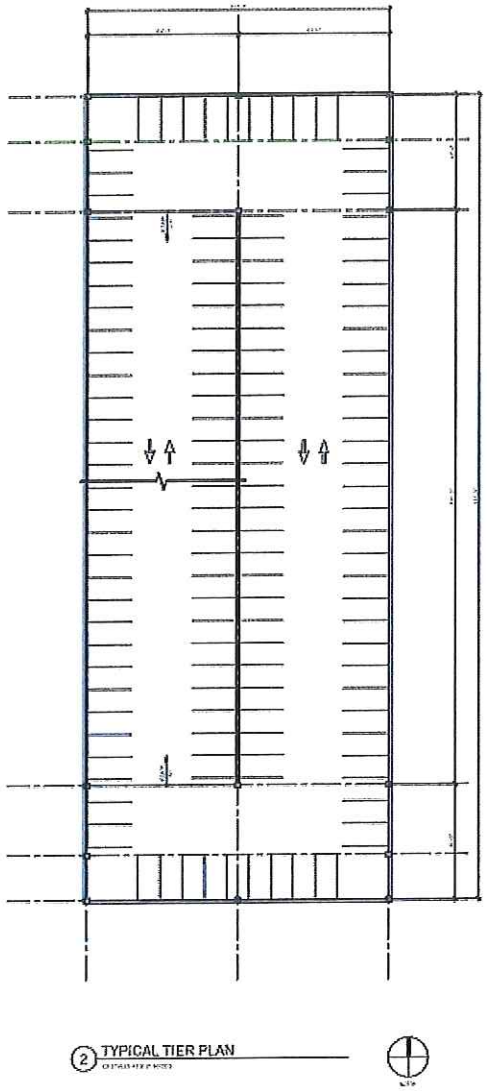
Source: Walker Consultants 2017

Implementing PS-3.1 will increase the current capacity of the study area by a net 280± spaces. The existing bus terminal will remain, while the bus travel lane will be reconstructed to pass through the ground floor of the ramp. Due to the bus lane, no ground floor retail is included for this design.

PROPOSED SITE 3.2

Proposed Site 3.2 ("PS-3.2"), a horizontal expansion of the Yellow Ramp on Block 20 bound by Washington Street, Oneida Street, Franklin Street, and Morrison Street. PS-3.2 includes the assumption of demolition and reconstruction of the bus terminal. The bus terminal will be reconstructed in the proposed 7,100 square feet of terminal and 19,600 square feet of drive lane. The ramp expansion is intended to be 5-levels with 9'0" wide angled parking stalls, totaling a capacity of 455± stalls.

Figure 14: PS – 3.2 Typical Tier Plan



Source: Walker Consultants 2017

Implementing PS-3.2 will increase the current capacity of the study area by a net 455± spaces. The bus terminal and travel lane will be reconstructed as part of the new ramp. Due to the bus terminal and travel lane, no ground floor retail is included for this design.

PROBABLE CONSTRUCTION COSTS

The current costs associated with constructing a parking ramp typically range from $16,000 to $46,000 per space, dependent on design characteristics. The probable costs for PS-1, PS-2, PS-3.1, and PS-3.2 are shown in Table 4. Projected construction costs do not include land acquisition costs.

Table 4: Probable Construction Costs

Alternative Designation	Parking Efficiency SF/Space	Average Construction Cost/SF	Construction Cost	Construction Cost/Space	Soft Cost 18%	Total Cost	Total Cost/Space	Notes
PS - 1	346	$57	$12,007,300	$21,900	$2,161,300	$14,200,000	$25,900	No Demo Costs Included
PS - 2	373	$63	$10,061,400	$25,500	$1,811,100	$11,900,000	$30,100	No Demo Costs Included
PS - 3.1	336	$65	$8,301,000	$25,900	$1,494,200	$9,800,000	$30,600	Horizontal Expansion of Existing
PS - 3.2	350	$60	$11,110,800	$24,400	$1,999,900	$13,100,000	$28,800	No Demo Costs Included

Source: Walker Consultants 2017

PS-1 is the least costly per space, at $25,900 per stall. While PS-3.1 is the most expensive per stall and generates fewer net added stalls. The probable cost estimates do not include demolition expenses and contain an 18% soft cost approximation for architect/engineering fees, soil testing, investigations, construction testing, and entitlements.

SITE ANALYSIS MATRIX

The City and development community identified important evaluation measures and weights to assess the proposed sites, with the goal of identifying one recommended site for ramp development. Walker provided a list to select critera from and the group designated the following list (and weighting) to be included in the evaluation analysis:

Construction Cost/Space Gained (10%) – The construction cost to erect the facility divided by the net number of spaces gained.

Land Assembly Time (5%) – Length of time to acquire parcel(s) of land.

Implementation (5%) – The ease or difficulty of implementing the improvement, including practical and political considerations (but not financial).

Proximity to Demand Generators (15%) – An assessment based upon the proximity of the proposed alternative to the location of the parking demand generator.

Proximity to Existing Ramps/Lots (10%) – Consideration for immediacy of facilities, ramps, and lots to the proposed alternative to avoid excessive parking supply massing.

Traffic Impact (10%) – Assessment of the end-users' ability to drive to and from the area without conflict, and the ability to access major streets or roadways.

Fulfillment of Existing Demand (10%) – The ability of the proposed alternative to meet the need of the current demand.

Fulfillment of Future Demand (15%) – The ability of the proposed alternative to meet the need of the future demand.

Nearby Development Density (5%) – Proximity to proposed development areas.

Pedestrian Infrastructure (5%) – Consideration of the walking path and distances to/from the alternative parking solution and potential conflicts with traffic patterns.

Preferred Location for Integrated Mixed-Use (10%) – Consideration for viable ground floor and/or overhead land use integrated into the proposed alternative.

Utilizing the identified criteria, Walker completed the evaluation matrix with the above considerations and the below approach.

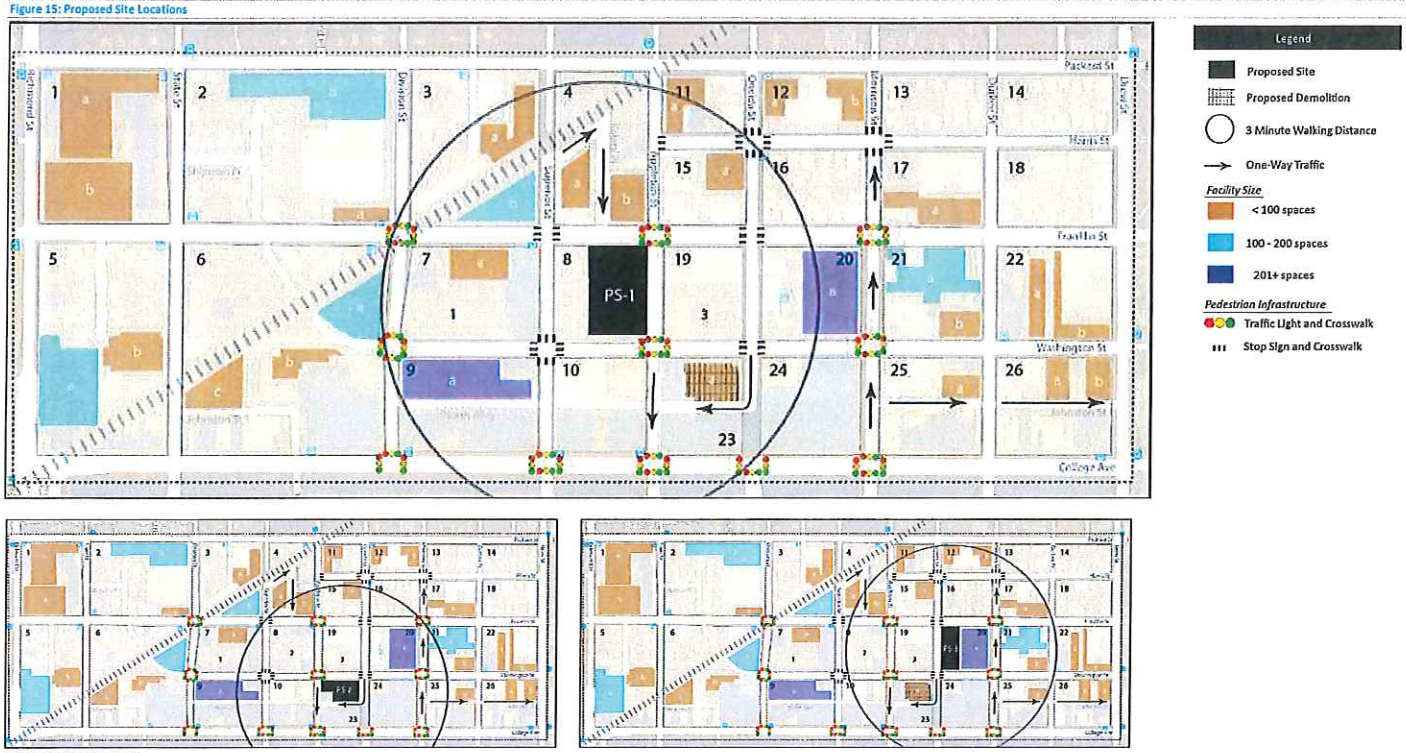
Table 5: Evaluation Matrix Approach and Grading Methodology

Criteria	Analysis & Grading Approach	Tool
Construction Cost/Space Gained	*Identify the total construction and design cost divided by net spaces gained.*	*Table 2: Probable Construction Costs*
	1 - Low cost per net space gained / 4 - High cost per net space gained	
Land Assembly Time	*Evaluate the projected land acquisition time (i.e. City or privately owned site).*	*Input from City's Community and Economic Development Department*
	1 - Shortest land acquisition time / 4 - Longest land acquisition time	
Implementation	*Project the estimated land acquisition challenges and hurdles (i.e. relocation of existing businesses, known construction barriers, political challenges).*	*Input from City's Community and Economic Development Department*
	1 - Minimal barriers to implement development / 4 - Maximum barriers to implement development	
Proximity to Demand Generators	*Walking distance (under 5 minutes) to existing demand sources.*	*Figure 7: Proposed Site Evaluations*
	1 - Nearest to demand / 4 - Farthest to demand	
Proximity to Existing Ramps/Lots	*Immediacy to existing supply.*	*Figure 7: Proposed Site Evaluations*
	1 - Minimum amount of nearby supply / 4 - Maximum amount of nearby supply	
Traffic Impact	*Ease of access to proposed site including nearness to major commuter streetways, one-way roads, train tracks, residential and school zones.*	*Figure 7: Proposed Site Evaluations*
	1 - Minimal impact to traffic flow and ease of access via major arteries / 4 - Maximum impact to traffic flow and ease of access via major arteries	
Fulfillment of Existing Demand	*Ability to satisfy existing block shortfalls and surpluses in demand.*	*Task 1: Current Conditions Heat Map*
	1 - Accommodates most demand / 4 - Accommodates least demand	
Fulfillment of Future Demand	*Ability to satisfy projected block shortfalls and surpluses in demand for future Scenario 1 and Scenario 2.*	*Task 1: Future Conditions Heat Map*
	1 - Accommodates most demand / 4 - Accommodates least demand	
Nearby Development Density	*Identify nearness to projected future developments.*	*Task 1: Future Development Map*
	1 - Closest proximity to future development / 4 - Farthest proximity to future development	
Pedestrian Infrastructure	*Evaluation of pedway connectivity, street safety (stop lights/signs, crosswalks), and need for foot traffic to cross large intersections.*	*Figure 7: Proposed Site Evaluations*
	1 - Most pedestrian infrastructure / 4 - Least pedestrian infrastructure	
Preferred Location for Integrated Mixed-Use	*Capability of proposed development to include ground floor retail and/or another land use.*	*Table 1: Proposed Ramp Assumptions*
	1 - Most ground floor retail square footage / 4 - Least ground floor retail square footage	

Source: Walker Consultants 2017

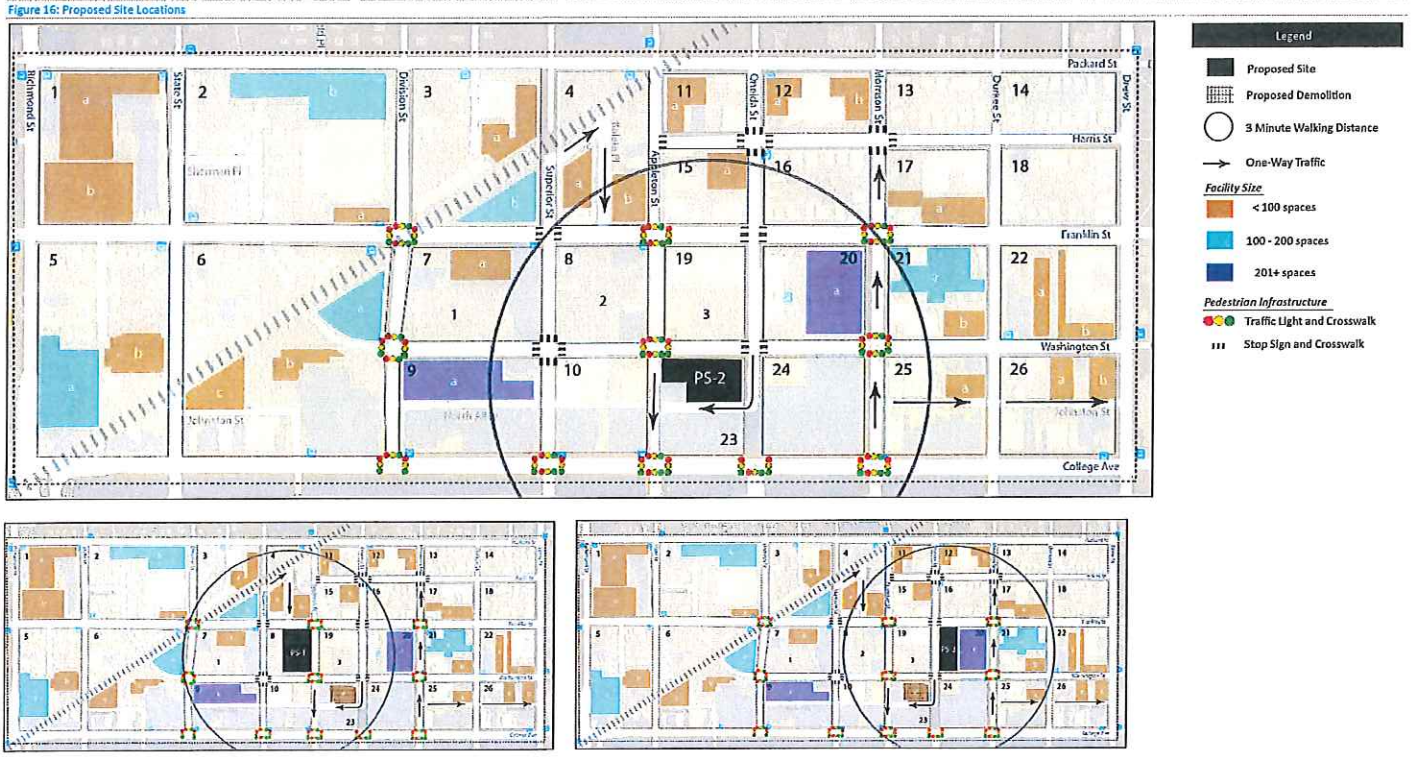
Figure 15 through Figure 17 were developed as visual aids to inform how some of the components of the analysis were ranked. They depict the location of each site, an estimated 3-minute walking radius to identify other nearby supply and impact on accommodating demand, traffic flow implications, and pedestrian infrastructure.

Figure 15: Proposed Site Locations



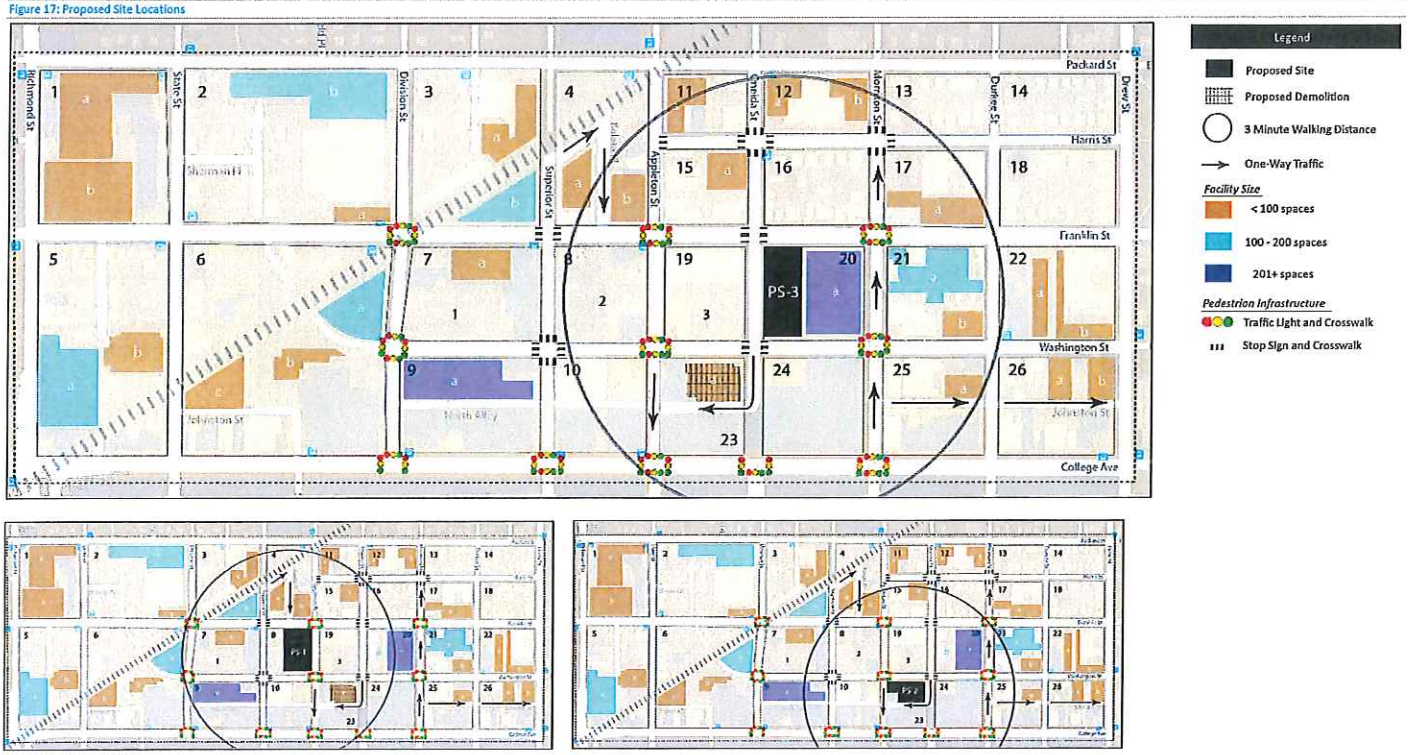
Source: Walker Consultants 2017

Figure 16: Proposed Site Locations



Source: Walker Consultants 2017

Figure 17: Proposed Site Locations



Source: Walker Consultants 2017

The matrix in Table 6 evaluates the proposed sites based upon the ten criteria determined by community stakeholders. The points awarded for each alternative are determined by first scoring each option in each category. Some criterion may be scored objectively, such as construction cost per net added space. Subjective criteria, such as pedestrian infrastructure, was evaluated based upon Walker's internal consensus opinion and prior knowledge of the area.

Table 6: Proposed Site Evaluation Matrix

Evaluation Criteria	Weight	Proposed Site			
		PS - 1	PS - 2	PS - 3.1	PS- 3.2
Construction Cost per Space Gained	*10%*	*3*	*2*	*4*	*1*
Proximity to Existing Ramps/Lots	*10%*	*2*	*1*	*3*	*3*
Fulfillment of Existing Demand	*10%*	*1*	*1*	*1*	*1*
Fulfillment of Future Demand	*15%*	*1*	*4*	*3*	*2*
Proximity to Demand Generators	*15%*	*3*	*1*	*2*	*2*
Nearby Development Density	*5%*	*1*	*2*	*3*	*3*
Ease of Implementation & Assembly Time	*10%*	*4*	*1*	*2*	*3*
Pedestrian Infrastructure	*5%*	*3*	*1*	*2*	*2*
Traffic Impact	*10%*	*1*	*1*	*1*	*1*
Preferred Location for Mixed-Use Project	*10%*	*1*	*2*	*3*	*3*
Point Total		20	16	24	21
Weighted Total		2	1.7	2.4	2.05
Weighted Ranking		**2**	**1**	**4**	**3**

1 - Most Desirable, 2 - Desirable, 3 - Moderately Desirable, 4- Least Desirable

Source: Walker Consultants 2017

The site with the most desirable weighted criteria is PS-2, the existing Blue Ramp site. This site has one of the least expensive construction costs (per net space gained), is nearest to the future demand generators (by 1-2 blocks), and is easiest to implement as it is City owned. Should the projected future land use programming in the area change, particularly those planned on the Blue Ramp site, the rankings presented above may vary.

A summary of the opportunities and challenges of each site, in support of the evaluation matrix, is found in Table 7 on the following page.

Table 7: Proposed Site Evaluation Matrix Support

Site	Opportunities	Challenges
PS - 1	• Fulfills existing and future demand. • Close proximity to 222 Office Building and Gannett Building re-development. • Low impact to traffic due to existing lot access points and user familiarity. • Hosts the most proposed ground floor retail space.	• Construction costs per net space gained are high compared to the net spaces gained at other proposed sites. • Proximity to existing demand generators is low - primarily due to slightly father distance to City Center Plaza. • Lot is privately owned with two existing businesses on the NE and SE corners - implementation is a foreseeable challenge and acquiring the site may be costly and lengthy. • In comparison, pedestrian infrastructure is lacking due to less crosswalks with stop lights. This could be adjusted with development of the site.
PS - 2	• Fulfills existing demand. • Close proximity to City Center Plaza and College Avenue retail. • City currently owns the site - acquiring and implementing the development would need to least amount of buy in and approvals. • The site is currently a parking ramp, therefore impact to traffic is non-existent. • Pedestrian infrastructure is superior to other proposed sites as it is located on the same side of the street as the users destination.	• Proposed ramp is slightly smaller than existing ramp, accommodation of future demand is least efficent due to proximity to developments. • Site may be less optimal due to small footprint - more efficient ramp sites may exist. • Proposed future land uses may need to be removed or reduced due to proposed ramp. This change may adjust matrix analysis. • Adding parking to this site continues to congregate parking into the same block, rather than horizontally expanding the down town area.
PS - 3.1	• Fulfills existing demand. • Close proximity to demand generators - existing pedway system connecting to one of the larger demand generators. • Minimal to no impact to traffic due to existing ramp.	• Construction cost per net space gained is highest due to least amount of net spaces added. In addition, there is a loss of possible spaces due to ceiling height for bus terminal lane. • Adding parking to this site continues to congregate parking into the same block, rather than horizontally expanding the down town area. • Addition of spaces will not accommodate all future demand projected in Scenario 1 and Scenario 2. • Ramp expansion is farthest from new development sites including College Avenue retail, 222 Office building, and Gannett Building re-development. • Site does not include any ground floor retail space due to bus terminal lane. • Implementation and approval process for expansion may be lengthy due to ownership of bus terminal and impact to operations from construction.
PS - 3.2	• Construction cost per net space gained is the least expensive. • Fulfills existing and future demand. • Close proximity to demand generators - existing pedway system connecting to one of the larger demand generators. • Minimal to no impact to traffic due to existing ramp.	• Adding parking to this site continues to congregate parking into the same block, rather than horizontally expanding the down town area. • Ramp expansion is farthest from new development sites including College Avenue retail, 222 Office building, and Gannett Building re-development. • Site does not include any ground floor retail space due to bus terminal and drive lane. • Implementation and approval process for expansion may be lengthy due to ownership of bus terminal and impact to operations from construction.

Source: Walker Consultants, 2018

PS – 2 ranked as the most **optimal** site for **ramp development**, based upon the analysis matrix.

ADDITIONAL CONSIDERATIONS

Aside from the criteria selected by the stakeholder group, Walker has highlighted some additional considerations used to further inform site selection including user experience for the various site layouts, and non-construction costs.

Beyond Walker's findings of future parking needs, possible layouts and construction costs, the stakeholders should consider which site(s) best create the character and development opportunities to meet the community vision for downtown Appleton. This was relayed as a less linear downtown, with more pedestrian interest (ground floor retail/restaurant/service business) along north-south block faces. It is important that when siting is done, the facility is viewed as an investment in the future, not simply a cost.

USER EXPERIENCE

User experience in a parking ramp is a qualitative consideration, but certain quantitative factors contribute to the "feel" of a parking ramp as a parker drives through it. Walker adapted the Level-Of-Service (LOS) approach used by traffic engineers (to gauge acceptable levels of congestion) to develop an appropriate LOS for various parking users.

A major factor in selecting LOS is the familiarity of the user. The turnover rate in a facility also plays a role. When arriving and departing vehicles activity is sustained at high levels throughout most of the day, a better level of service should be provided than if there is one rush period of a half-hour in the morning and another short one in the evening. Employees typically represent the end of the scale with high familiarity/low turnover; visitors typically represent the converse. These dynamics are depicted in Table 8.

Table 8: Level of Service Criteria

Design Consideration	Chief Factor	Acceptable Level of Service D C B A
Turning radii, ramp slopes, etc.	Freedom to maneuver	Employee ⟷ Visitor
Travel distance, number of turns, etc.		Visitor ⟷ Employee
Geometrics	Freedom to maneuver	Employee ⟷ Visitor
Flow capacity	v/c Ratio	Employee ⟷ Visitor
Entry/exits	Average wait	Visitor ⟷ Employee

Source: Walker Consultants 2017

Walker's concept layouts typically maintain a similar high LOS for turning radii, ramp slopes, geometrics, and flow capacity. Although, site dimensions or client requirements may impact circulation system use of speed ramps versus parking ramps, and number of levels needed to meet a pre-determined stall count. Circulation system, ramp type and number of levels can influence LOS related to the number of 360-degree turns to the top, ability to short circuit, travel distance to crossover (for double-threaded helix circulation), and spaces searched.

The typical criteria used to evaluate LOS for the parking-specific areas within a parking ramp are as follows:

- Turning Radius (outside front wheel)
- Turning Bay (clear between columns)
- 360-Degree Turns to Top
- Short Circuit in Long Run
- Travel Distance to Crossover
- Spaces Searched (compartment size)
- PARC Lane Width

For the parking layout concepts provided, only the number of 360-degree turns to the top, and spaces searched are differentiators. The number of 360-degree turns to the top provides input related to a driver becoming directionally disoriented within the ramp (or even dizzy). Spaces searched relates to the number of spaces a driver must pass to reach the last space in the facility, and is a consideration for driver delays; more spaces passed increases the likelihood that a driver must wait for others who are pulling into or out of a parking space.

PS-1

This option provides the best LOS across the board because it's a typical and efficient parking layout. The site dimensions allow for long levels that can accommodate 186± spaces on a typical level, which requires 4 levels to reach 548± spaces. The layout is also 3-bays with one bay being ramped; as such, proportionally fewer spaces must be passed to get to the final space (compared to a 2-bay layout).

PS-2

This option provides the worst LOS, because the site is very constrained dimensionally. The initial ramp must be an express ramp (no parking) due to slope required to clear the height needed for street-fronting ground floor retail space. The length of the facility limits the number of spaces per level to 72± spaces, which increases the number of levels (7) required to reach 395± spaces. Being a 2-bay, single-threaded helix parkers must drive past every space to reach the final space. There is also no ability to short circuit the exit route.

PS-3.1

Because this option is built into an existing facility, some of the LOS factors are based on the Yellow Ramp design. This location also has long levels, but is only a single bay with 64± spaces on a typical level, and at 6 levels would yield only 320± spaces. Although this addition is only a single bay, the Yellow Ramp is already 3 bays. Similar to PS-1, the high number of bays improves the spaces searched count. But, with these spaces off the typical circulation path, drivers may have to go past additional spaces to check availability.

PS-3.2

This option has a slightly unique layout due to having the bus station provided at the southern end. The unique layout creates a slightly lower LOS. Similar to PS-2, this site requires an express ramp to go from grade to the height required to clear the bus lane and the Transit Center space. This location has long levels, with 130± spaces on a typical level, and at 5 levels would yield 455± spaces. Being a 2-bay, single-threaded helix parkers must drive past every space to reach the final space. There is also no ability to short circuit the exit route.

NON-CONSTRUCTION COSTS

Walker's review of costs was necessarily limited to the cost to construct each option on a price per stall basis. Each site has distinct existing conditions that would incur additional costs. The site footprints, and a description of potential additional cost are provided within this section. Actual costs for these other considerations would be determined as the City moves further along the development path.

PS-1

Given the footprint in Figure 18, the following additional costs may be incurred for PS-1:

- Land acquisition costs (but this would also be a new asset for the City)
- Potential costs for site remediation (contamination, etc.) and utility relocations
- Demolition costs related to removal of existing buildings on the northeast and southeast corners of Block 8
- Leasable space within the structure – 21,400 SF shell for retail space at ground level
- PS-2 site (currently the Blue Ramp) could be used for private development (for sale or lease)

Figure 18: PS- 1 Footprint

PS-2

Given the footprint in Figure 19, the following additional costs may be incurred for PS-2:

- Lost opportunity to sell/lease site for private development
- Demolition of existing facility (this would be the same across all options though, as the Blue Ramp is planned for demolition regardless of site selection for new facility)
- Costs related to building on the same site (avoiding/removing existing footings/foundation)
- Costs related to construction abutting adjacent buildings (shoring, fire breaks/barriers, etc.)
- Leasable space within the structure – 11,500 SF shell for retail space at ground level

Figure 19: PS-2 Footprint

PS-3.1

Given the footprint in Figure 20, the following additional costs may be incurred for PS-3.1:

- Possible temporary relocation of bus transfer station during construction
- Purchase, removal or partial removal of 222 N Oneida Street building
- Potential costs for site remediation (contamination, etc.) and utility relocations
- Ground level needed for bus lane (20,500 SF); no retail.
- PS-2 site (currently the Blue Ramp) could be used for private development (for sale or lease)

Figure 20: PS -3.1 Footprint

PS-3.2

Given the footprint in Figure 21, the following additional costs may be incurred for PS-3.2:

- Temporary relocation, then replacement of bus transfer station and lanes
- Purchase, removal, or partial removal of 222 N Oneida Street building
- Potential costs for site remediation (contamination, etc.) and utility relocations
- Transit Center within the structure – 7,100 SF shell at ground level; no retail
- PS-2 site (currently the Blue Ramp) could be used for private development (for sale or lease)

Figure 21: PS-3.2 Footprint