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Updated August 27, 2020
June 23, 2020

Tom Kuck, AIA, EDAC, LEED AP
Principal
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1295 Bandana Blvd. N.
Saint Paul, MN 55108

Re: *HCMC Parking Alternatives Evaluation*
Minneapolis, MN
Walker Project No. 21-4578.00

Dear Tom:

Walker Consultants (Walker) is pleased to submit the following Final Report for the Hennepin County Medical Center (HCMC) Parking Alternatives Evaluation as part of the HCMC Parking Study. The following report details our parking alternatives findings and recommendations.

We hope that our analysis assists you in planning for campus growth and expansion and provides you with a pathway forward that we recommend HCMC leadership explore as part of the overall campus master planning process. Appendix D: Purple Ramp Expansion Contingency Analysis provides updated analysis current to August 27, 2020 reflecting all requests made to-date.

We appreciate and thank you for the opportunity to serve you on this project. If you have any questions or comments, please do not hesitate to call.

Sincerely,

WALKER CONSULTANTS

A handwritten signature in black ink that reads "John W. Dorsett".

John Dorsett, AICP, CPP
Senior Vice President

A handwritten signature in black ink that reads "David Garza".

David Garza
Analyst



Hennepin County Medical Center (HCMC) Parking Alternatives Evaluation

Minneapolis, Minnesota

June 23, 2020 (Final Report)

Tom Kuck, AIA, EDAC, LEED AP
Principal
Pope Architects



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EXECUTIVE SUMMARY

Walker Consultants (“Walker”), engaged by Pope Architects (“Pope”) as part of an overall campus master plan, performed a parking needs analysis for the Hennepin County Medical Center (HCMC) in downtown Minneapolis, Minnesota.

In our parking needs supply-demand analysis, we found a surplus of 127 spaces under design-day conditions, which is defined as the 95th percentile of patient activity levels. Additionally, a parking-space deficit of 208 and a surplus of 77 spaces, respectively, are projected for Years 2024 and 2030.

These projections include growth in patient and employment levels, the loss of the existing 1,400-space HPR Ramp, the loss of the 120-space B-Lot as soon as 2030, and an expansion of the existing Purple Ramp that brings 1,209 new spaces to HCMC. The loss of the Chicago Tuck lot (15 spaces) was also assumed during this period. Moreover, we assumed the delivery of approximately 750 spaces with the Patient Care Underground Garage by 2030.

Based upon our assessment of the future parking supply-demand conditions on campus, **a proposed Orange Ramp parking garage will not be needed by 2030** provided the above-noted conditions assumed are realized.

The benefit of this alternatives analysis is to “right-size” the proposed Purple Ramp expansion and Patient Care Underground Garage, addressing the supply requirements and probable costs associated with new construction and leasing for the next ten-year period.

We reviewed multiple parking options to address parking needs across a ten-year planning horizon to Year 2030 culminating in two prevailing options:

- Option 1: Construct more parking spaces on the HCMC campus; and
- Option 2: Facilitate off-site parking spaces at market rates when needed to bolster parking supply.

To achieve this, we recommend that HCMC consider pursuing the following “next steps” for HCMC campus parking:

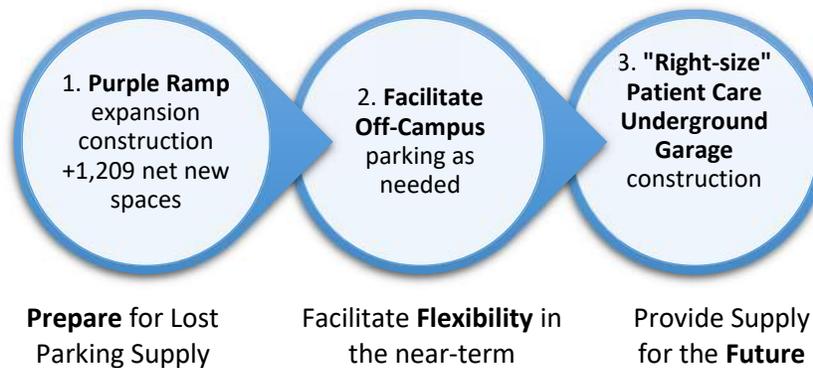
- **Step 1: Purple Ramp Expansion.** HCMC plans to construct 1,209 net new parking spaces with the Purple Ramp expansion. The anticipated construction schedule is 12-16 months. In Walker’s forecast, we have assumed this supply is needed to replace the lost campus parking supply due to the HPR ramp demolition.
- **Step 2: Facilitate availability of Off-Site Parking Spaces.** Parking demand is projected to exceed HCMC’s supply during certain periods in the near future as parking supply is removed, services are expanded, and growth occurs. Following the closure of the HPR ramp, and before the opening of the Patient Care underground ramp, off-site parking will be needed to provide parking flexibility to users in the interim construction period.

Moreover, since the market rate lease for a parking space is significantly less than HCMC’s cost to build and operate these spaces, market availability exists, and long-term projections indicate a supply deficit only in the interim construction period between Year 2024 and Year 2030, it is recommended to periodically facilitate off-site parking at private facilities for users. HCMC may wish to negotiate and/or coordinate agreements with off-site parking providers while individual leases would be held by the user.

- **Step 3: Patient Care Building Underground Garage.** After the completion of the Purple Ramp expansion project, Walker understands that HCMC plans to construct a subterranean parking garage to serve the Patient Care Building. In our analysis, we assumed a capacity of 750 spaces with three levels below grade. If the parking capacity at this proposed facility is maximized, with 750 spaces constructed, a surplus of 77 spaces is projected for the campus by the Year 2030. This does not necessitate the construction of the Orange Ramp facility at the end of the ten-year planning horizon assumed.

Considering the parking supply changes in removing existing and construction new parking, growth of HCMCs services including the addition of approximately 52 new beds, an expanded OR, and growth in ED usage, implementing all three of the steps highlighted above will insure parking supply adequacy at HCMC over the next ten-year horizon to Year 2030.

HCMC Parking Planning “Next Steps”



In summary, the key points of this report include:

1. **Construction of new parking is necessary** to satisfy future demand including inpatient, outpatient, and emergency department growth and expansion over a ten-year horizon, as well as to replace lost campus parking spaces due to master plan development.
2. **Total project costs to build new parking**, 1,959 new spaces assumed (1,314 Purple Ramp Expansion – 105 Existing Purple Lot Demolition + 750 Underground Patient Care Garage spaces), totals approximately \$93.11 million estimated in 2020 dollars (\$46.67M purple ramp, 46.44M Patient Care underground ramp).

3. **Existing parking revenues are insufficient** to meet the monthly capital and maintenance requirements forecasted for the construction of the 1,959 new spaces on the HCMC campus. That is, external funding is necessary to satisfy costs for new parking.
4. During the **interim period between closure of the HRP Ramp and opening of the Patient Care underground facility, additional off-campus parking will be needed.** Walker forecasts between 200 to 400 off-site spaces will be needed across the interim period until the Patient Care Underground Garage opens. HCMC may wish to negotiate and/or coordinate agreements with off-site parking providers for these spaces as needed, while individual leases would be held by the user.
5. With the construction of the Purple Ramp expansion (1,209 net new spaces estimated) and a proposed Patient Care Underground Garage (750 spaces estimated), a surplus of 77 spaces will exist by Year 2030 which will not necessitate the construction of an Orange Ramp beyond Year 2030.

NEXT STEPS

Walker modeled future patient/visitor and employee parking demand using base statistics and growth forecasts provided by HCMC. It is our understanding that while HCMC has no formal policy stated (in an employee handbook) to provide parking to employees, from an employer recruitment and retention standpoint, some employee parking accommodations must be offered. Moreover, Walker is informed that an employee wait-list exists for monthly contract parking within HCMC facilities.

In interrogatories with HCMC representatives, the quantitative and qualitative aspects of this wait-list were not able to be ascertained given current HCMC record-keeping practices. It is our operational theory that a large percentage of these wait-list individuals are current daily users of the campus parking system taking advantage of reduced rates via an \$8 daily employee pass program with occupancies observed in Walker's field counts performed in Q4 2019. Another segment of the employee parking user is likely seeking off-campus parking options at surrounding lots and garages, while an even smaller segment of the employee user is likely carpooling or using transit. **For purposes of this study, it is believed that all wait-list individuals are being served to various degrees by available on- and off-campus parking facilities.**

Given the limitation of current data, the numerical allocation of this employee wait list is unknowable at present. Should refinement of the stated operational theory be desired, next steps to ascertain specific wait list data would be to survey existing HCMC employees on transportation and parking user behaviors to identify the following key variables:

- How many employees park at HCMC on a per-diem basis (at \$8 per ticket)
- How many employees park at facilities in the area (off-campus)
- How many employees are seeking alternative means of transportation until they get a monthly parking contract

ADDITIONAL CONSIDERATIONS INFLUENCING CAMPUS PARKING DEMAND

Given the dynamic nature of healthcare parking operations in response to emerging trends and possibilities, the following consideration items are identified as risk/opportunity variables, beyond this study, which should be further evaluated:

- Parking alternatives strategies (off-campus parking locations and other mobility solutions as determined);
- The possible increased scope of the work-from-home (WFH) positions in light of COVID-19;
- A potential shift of resources to the 625 Building (old Thrivent) which would shift parking behavior closer to downtown; and
- The phasing of the orange block as the last stage of development which provides flexibility to reassess campus parking needs towards the end of the campus master plan timeline with updated information in hand.

POSTSCRIPT: PURPLE RAMP EXPANSION PLANNING CONTINGENCIES

After the delivery of our final report in June 2020, Walker was informed of potential changes to the future parking supply assumptions applied prompted by City of Minneapolis planning and urban design requirements. Our initial analysis assumed that the proposed parking capacity at the Purple Ramp expansion would be maximized to the available site footprint with 1,209 net new spaces constructed.

In the event that the existing site footprint cannot support standalone parking use, Walker reviewed a scenario, provided by Pope Architects, considering a residential use wrapped around the proposed Purple Ramp. Appendix D: Purple Ramp Expansion Contingency Analysis- August 2020 provides additional details.

Accommodating a 40'-0" housing holdback on 3 sides provides approximately 871 parking stalls. The revised concept provides 296,660 square feet of parking area with an efficiency of 340 s.f./space. After subtracting for the loss of the existing 105-space surface lot, **approximately 766 net new spaces would be added to the campus supply. An opinion on probable costs for this revised concept is \$30.9 million in 2020 dollars (\$35,520 per space x 871 spaces constructed).** Walker has provided an updated future parking adequacy table for the Year 2024 and Year 2030 to quantify the supply-side impact under this explored contingency scenario of reduced Purple Ramp expansion capacity.

Future Adequacy by 2024 Summary – Purple Ramp Expansion Contingency Scenario

User	Statistic	Demand Ratio	Demand	Effective Supply*	Surplus/Deficit	
Patient/Visitor	3,369	0.32	spaces/ patient census	1,082	982	(100)
Associate	4,188	0.40	spaces / FTE Employee	1,687	1,160	(527)
Physicians	302	0.47	spaces / physician	141	160	19
Total			2,910	2,302	(608)	

*Walker assumed the loss of 1,400 spaces at the Hospital Ramp and the addition of 766 net spaces at the Purple Ramp by 2024. The revised concept provides 296,660 square feet of parking area with an efficiency of 340 s.f./space, incorporating a residential wrap concept with a 40'-0" holdback allowance on three sides. No supply from the Patient Care Underground Ramp was included. All decimal places were rounded to the nearest whole number.

Source: Walker Consultants, 2020

If the Purple Ramp expansion yields 766 net new spaces by Year 2024, a deficit of 608 spaces is anticipated for the HCMC campus by Year 2024.

 Future Adequacy by 2030 Summary – Purple Ramp Expansion Contingency Scenario

User	Statistic	Demand Ratio		Demand	Effective Supply*	Surplus/Deficit
Patient/Visitor	3,850	0.32	spaces/ patient census	1,237	1,303	66
Associate	4,446	0.40	spaces / FTE Employee	1,791	1,392	(399)
Physicians	321	0.47	spaces / physician	149	160	11
Total				3,177	2,855	(322)

*Walker assumed the loss of 1,400 spaces at the Hospital Ramp and the addition of 766 net spaces at the Purple Ramp by 2024 with a residential wrap concept on three sides. Additionally, Walker is informed that the B-Lot, 120 spaces, will be returned to the County as soon as 2030 as well as the reduction of 15 spaces at the Chicago Tuck Lot. We removed these spaces from the 2030 campus inventory for modeling purposes. Projections will differ if this date changes. Walker assumed 750 spaces are built in the Patient Care Underground Garage by 2030. The total project costs of these spaces are estimated at \$50,400 per space in 2020 dollars. Actual costs will vary. All decimal places were rounded to the nearest whole number.

Source: Walker Consultants, 2020

By Year 2030, a deficit of 322 spaces is anticipated for the HCMC campus if the above conditions are met. HCMC should consider facilitating additional offsite parking space leases and/or constructing an additional parking facility as a contingency, if a standalone Purple Ramp structure is not permissible.

LEASE SCENARIO UPDATE

Additionally, Walker updated our parking lease assumptions preliminary budget estimate. In this revised scenario we have assumed that more parking leases will need to be facilitated given the reduced capacity Purple Ramp scenario reviewed above.

Parking Space Lease Ten Year Estimates – Purple Ramp Expansion Contingency Scenario

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Supply Need ¹	0	660	660	608	608	608	608	322	322	322	322
Average Lease Rate per Unreserved Space ²	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Estimated Costs per Month	137	140	143	145	148	145	154	157	161	164	167
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
	-	92,228	94,073	88,394	90,162	88,415	93,805	50,673	51,687	52,720	53,775
Estimated Annual Costs ³		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
		1,106,7	1,128,8	1,060,7	1,081,9	1,060,9	1,125,6	\$	\$	\$	\$
		41	76	33	47	82	58	608,077	620,239	632,644	645,297
<i>10 Year Preliminary Budget Estimated</i>											\$
											9,071,193

Notes:

- Supply needs are modeled based upon Walker's understanding of the HCMC Campus Master Plan and interim parking plan. We assume that by Year 2023 the Purple Ramp expansion will be complete and that by Year 2027 750-spaces will be constructed at the Patient Care Underground Garage.
- Average Lease Rate for unreserved space based upon January 2020 average market rates as surveyed. Walker assumed a 2% annual rate increase. Actual rates subject to change.
- Assumes monthly contract leases in effect until the Year 2030.

One option available to the HCMC campus is to facilitate off-site leases during the interim ten-year period and beyond. If the Purple Ramp capacity is reduced, more off-site leases might be required to close the deficit of spaces forecasted for the HCMC campus. In our final report, three facilities were highlighted as available at the time of our survey: 1010 Ramp, Fleet Farm Garage, and 425 Park Avenue Ramp with a combined supply of 660 ± unreserved monthly spaces available. Walker is informed that Minneapolis Parking, pre-COVID, could accommodate an additional 500+ daily parkers at Leamington and Plaza. We recommend that HCMC further evaluate these additional facilities. We estimate a preliminary cost of \$9+ million to facilitate offsite leases during the interim ten-year period if the above assumptions are met. Actual rates and facility availability is subject to change.

ADDITIONAL OPPORTUNITY SITES FOR ADDED PARKING CAPACITY

Three opportunity sites for new parking ramp construction were reviewed culminating in the recommendation of the existing Shapiro Lot site (1015 S. 7th Street) as the most viable candidate site for additional spaces near campus. An alternate garage solution applied to the 1015 S 7th Street Shaprio lot site, including a future housing site holdback, provides **424 parking stalls. An opinion on probable costs for this revised concept is \$15.1 million in 2020 dollars** (\$35,520 per space x 424 spaces constructed).

The construction of this facility would close the deficit of spaces anticipated for the HCMC campus, if Purple Ramp expansion parking capacity is reduced by 443 spaces due to residential accommodation.



01 Introduction

INTRODUCTION

Walker Consultants (“Walker”) was engaged by Pope Architects to provide a parking supply/demand analysis evaluating current and future parking conditions at the Hennepin County Medical Center (“HCMC campus”) located in downtown Minneapolis, Minnesota. The following report sets forth our understanding of the interim and long-range campus parking needs through the year 2030. In addition to a parking supply/demand analysis, Walker was tasked with evaluating parking alternatives and probable costs for interim and long-term parking solutions.

REPORT ORGANIZATION

This report document is organized by the following two prevailing options evaluated for HCMC parking needs:

- Option 1: Construct additional parking spaces on the HCMC campus;
- Option 2: Facilitate Off-Site parking spaces at market rates;

The following sections of the report evaluate the feasibility and provide specific considerations for each of these alternative options.

PARKING NEEDS ANALYSIS SUMMARY

Walker delivered a parking supply/demand analysis in January 2020 with a summary of findings provided in Appendix A and the full final report included in Appendix B of this document. The conclusion of this analysis is that there is now a surplus of 127 spaces under design-day conditions, which are defined as the 95th percentile of patient activity levels. Additionally, a parking-space deficit of 208 and a surplus of 77 spaces, respectively, are projected for Years 2024 and 2030.

These projections include organic growth in patient and employment levels, growth in demand from hospital expansion, the loss of the existing 1,400-space HPR Ramp as well as the loss of 120 spaces at the B-Lot as soon as 2030, and a 1,209-space expansion of the existing Purple Ramp. In addition, we assumed the delivery of approximately 750 spaces with the Patient Care Underground Garage by 2030. The loss of the Chicago Tuck lot (15 spaces) was also assumed by Year 2030.

HCMC is planning the addition of the Orange Ramp to satisfy the 2030 deficit and **this study suggests that this facility will not be needed**, given the supply-demand conditions assumed above.

CURRENT PARKING POLICIES AND PRACTICES

Currently, HCMC does not pay for employee parking. Employees who seek to park on campus pay for parking on a monthly contract basis. HCMC sets monthly contract rates at HCMC-owned facilities. It is our understanding that a wait-list for monthly contract parking at HCMC facilities exists.

Walker modeled future patient/visitor and employee parking demand using base statistics and growth forecasts provided by HCMC. It is our understanding that while HCMC has no formal policy stated (in an employee

handbook) to provide parking to employees, from an employer recruitment and retention standpoint, some employee parking accommodations must be offered.

In interrogatories with HCMC representatives, the quantitative and qualitative aspects of this wait-list were not able to be ascertained given current HCMC record-keeping practices. It is our operational theory that a large percentage of these wait-list individuals are current daily users of the campus parking system taking advantage of reduced rates via an \$8 daily employee pass program with occupancies observed in Walker's field counts performed in Q4 2019. Another segment of the employee parking user is likely seeking off-campus parking options at surrounding lots and garages, while an even smaller segment of the employee user is likely carpooling or using transit. **For purposes of this study, it is believed that all wait-list individuals are being served to various degrees by available on- and off-campus parking facilities.**

Across select calendar days of the year (e.g. Minnesota Vikings football games) event parking rates are offered for transient parking. This typically occurs on Sunday weekends when existing hospital parking demand is low.



02 Campus Parking Alternatives Analysis

CAMPUS PARKING ALTERNATIVES ANALYSIS

The following section presents two alternative scenarios investigated to address campus parking needs to the Year 2030. Walker considered the feasibility and costs of each alternative given future supply-demand conditions forecasted in our parking needs assessment report summarized in Appendix A.

OPTION 1: CONSTRUCT MORE SPACES

HCMC can build its way out of a future parking shortage by constructing one or more parking ramps. Parking ramps are typically the most expensive solution, costing between \$35,520 per space for above-ground and \$61,900 per space below-ground in upfront project costs in 2020 dollars, plus ongoing operating expenses, and long-term capital maintenance costs. To recoup these costs, HCMC would need to collect \$258 per space each month (2020 dollars), and these revenues would need to increase each year through rate hikes, to keep pace with inflation.

Project costs are estimated in 2020 dollars. Actual costs will vary. As shown in Table 1, soft costs equal to twenty percent of construction costs are added to construction costs, to derive total project costs. The following table provides our understanding of total project costs given our knowledge of local market factors.

Table 1: Concept-Level Opinion of Probable Costs (2020 Dollars) – Purple Expansion and Underground New Construction

	Purple Ramp Expansion		Patient Care Underground	
Construction costs per space (includes 5% escalation and 15% contingency) +	\$	29,600	\$	51,600
Soft costs estimate (20 % of construction costs) =	\$	5,920	\$	10,320
subtotal project costs per space x	\$	35,520	\$	61,920
Spaces Constructed =		1,314		750
Total Project Costs Estimated	\$	46,673,280	\$	46,440,000

*Walker assumed the horizontal expansion of the existing Purple Ramp will add 1,209 net new spaces (1,314 space expansion -105 purple lot removed). Walker assumed the construction of a 750-space, below -grade parking facility for the Patient Care Underground Garage.

Source: Walker Consultants, 2020

Walker assumed market costs figures for the both the Purple Ramp expansion and the notional Patient Care Underground Garage. Walker assumed a total project costs figure of \$46.7 million for our analysis of the Purple ramp expansion herein.

For the Patient Care Underground Garage, we provided our own order-of-magnitude opinion of probable costs. At a conceptual level (without the benefit of an actual design or general contractor bids), a notional subterranean garage is projected to cost \$46.4 million in 2020 dollars (rounded). Actual costs will vary.

Over the ten-year planning horizon assumed, **the construction of 1,959 net new parking spaces (Purple Ramp Expansion, loss of the existing Purple Lot, & Patient Care Underground Garage) on the HCMC campus is anticipated to total \$93.1 million in 2020 dollars.**

By Year 2024, Walker anticipates a need for 235 spaces (208 spaces for the Year 2024 recommended supply ÷ ±90% effective supply factor) after the completion of the Purple Ramp expansion, an addition of 1,209 new spaces. This also assumes that no off-site spaces are made available and also presumes that a projected 750-space Patient Care Underground Garage will not yet be in service by Year 2024. **Therefore, additional off-site parking would need to be made available during this interim period. Walker forecasts between 200 to 400 off-site spaces will be needed across the interim period until the Patient Care Underground Garage opens.**

Between 2024 and 2030, assuming the construction of 750-spaces at the Patient Care Underground Garage, a surplus of 77 spaces is forecasted which does not necessitate the construction of the Orange Ramp.

PURPLE AND PATIENT CARE GARAGE RAMP PRO-FORMA

The following table depicts Walker’s estimated ongoing monthly costs for the construction of 1,959 new parking spaces on the HCMC campus, anticipated to come from the Purple Ramp Expansion and Patient Care Underground new facility construction. Our analysis includes the amortization of initial capital costs, recurring operations and maintenance expenses, and a sinking fund for capital replacement estimated at one percent of initial capital costs and adjusted for inflation. All figures are provided in 2020 dollars. The purpose of this table is to estimate typical monthly expenses per space for all new facilities constructed and show the gap between existing revenues collected and forecasted expenditures.

Table 2: New Facilities Pro Forma

Total New Ramp Costs (projected)	\$	93,113,280.00
New Spaces Constructed		1,959
Project Costs per Space (averaged)	\$	48,720.00
Capital Costs	\$	93,113,280.00
Monthly Payment per Space (no interest) ¹	\$	158.44
O&M Monthly Costs per Space ²	\$	62.50
Sinking Fund per Space (1% total project) ³	\$	36.70
Monthly Total Costs per Space Projected	\$	258

1. Walker assumed that all proposed facilities will be funded through capital budgets. No financing was assumed in this analysis. We depict monthly payments (no debt service) averaged across a 25-year period.
2. Operations and maintenance costs include an assumed parking management fee, wages and benefits, utilities, maintenance and repairs, materials and supplies, insurance, snow removal, and other miscellaneous fees. Walker assumed an annual operating and maintenance cost of \$750 per space based upon an internal revenue and expenditure database.
3. To maximize the life of parking structures, Walker recommends a minimum of one percent of initial capital costs be placed into a sinking fund each year to cover capital maintenance and structural repairs as required

Source: Walker Consultants, 2020

An estimated “break-even” of \$258 (rounded) is required per space per month to meet the monthly capital, operating, and maintenance requirements projected for new parking facilities on the HCMC campus.

As a point of comparison, Walker compared the forecasted monthly “break-even” to actual 2019 revenue data provided by HCMC. The following table depicts actual annual parking revenues for FY 2019 across the existing system, averaged on a per-space monthly basis.

Table 3: Parking Revenues– FY 2019

2019	
HPR Ramp Annual Revenue	\$115,159.35
Purple Ramp Annual Revenue	\$ 2,929,849.27
Total Annual Revenue	\$ 3,045,008.62
Average Monthly Revenue per space	\$97.60

*Revenue data was only available for the HPR Ramp (1,400 spaces) and the existing Purple Ramp (1,200 spaces).

Source: Walker Consultants, 2019

Therefore, **existing revenues are insufficient to meet the monthly capital and maintenance requirements forecasted for the construction of 1,959 new spaces** on the HCMC campus.

PURPLE RAMP EXPANSION CONSIDERATIONS

Understanding that construction of additional parking adjacent existing Purple Ramp is desired, Walker conducted a preliminary assessment of the site for expansion feasibility.

Specific topics needing detailed consideration include:

- Site Size and access
- Functional Flow and Circulation Systems
- Wayfinding & Parking Technology
- Ancillary / Mixed Uses (Bulk Gas, Loading Docks, etc.)
- Expansion Costs

These items are intended only to initiate discussion of a ramp expansion. **A detailed predesign study should be performed to explore design challenges, programming needs, permitting and entitlements, project costs and other considerations** of such a project.

Site Size & Access

To maximize the supply of new parking on the site a new facility should be contemplated that maximizes the available site, presently approximately 330 feet (between 6th and 7th Streets) by 155 feet (between the existing ramp structure and Portland). With this, two new double-loaded bays of parking would be feasible. Potential exists to provide a third, single-loaded parking bay, but this should be studied carefully as efficiency of such a bay can be 40-50% less economical than a double-loaded bay, and therefore disproportionately costly.

A potential facility could be of similar height as the existing Purple Ramp which provides parking on 8 supported tiers, plus a partial mezzanine level. The at-grade level primarily houses non-parking and vehicle circulation areas, and a basement level below most of the existing facility's footprint. The top tier of the existing facility is roughly 97 feet above street level this yields **potential for 11 tiers of new parking between the basement and existing top tier**. Matching floor level elevation with the existing structure would create potential for seamless management of the expansion with the existing facility, creating a more unified and flexible enlarged parking structure. Creation of additional tiers is possible, but careful selection of vehicular circulation and routes is necessary and is discussed below. Further, the helipad atop the existing Purple Ramp is a factor in maximum height for an expansion.

Functional Flow and Circulation Systems

As drivers most commonly will tolerate a maximum of 5 to 7 360-degree revolutions of a facility before becoming disoriented, a greater number of new tiers than desired revolutions are possible. For this reason, careful design of vertical circulation is warranted. Further, a parking structure of greater height than the existing building may be difficult for parkers to navigate.

Additionally, **flow capacity of the enlarged parking structure will become challenged beyond its already pressured state**. The existing structure presently has a single route for entering and exiting vehicles which is generally limited to a tidal flow capacity of approximately 1,500 vehicles per hour (vph) for entering and 1,100 vph exiting traffic. The addition of 1,000 or more vehicles will likely necessitate a second flow route to operate satisfactorily.

With this, an initial concept was developed to estimate the potential number of spaces possible. By providing parking of similar geometry to the existing facility (60-degree angled spaces approximately 8'-6" in width) potential exists for roughly $\pm 1,314$ spaces on 11 tiers. **Accounting for the loss of the existing 105 space Purple Lot, this provides a net addition of 1,209 spaces to campus.**

Wayfinding & Parking Technology

Technologies to better manage parking systems have emerged substantially in recent years. Automated Parking Guidance Systems (APGS) can detect vehicles and guide parkers to available spaces based on real-time availability of parking zones, reducing user frustration and potentially enhancing the effective parking supply. Two predominant types include zone / level counts and single-space counting systems.

Zone or Level counts and are typically driven by ultrasonic sensors or cameras that communicate the number of vehicles parking within a zone to drivers. These systems can add \$20,000 to \$50,000 per zone counted. Single-space systems frequently use cameras to detect a single vehicle within a parking space, but can also add features such as lost car assistance, reserved parking management, parking enforcement, demand-based pricing, enhanced data collection and surveillance of the parking area. Single-space monitoring can add \$450 to \$700 per space. Consideration of APGS is warranted to improve the parker's experience, but also to maximize the available parking supply.

(Note that costs related to APGS have not been included in the values presented in Option 1 as the scale, intent and location of these systems is not known).

Ancillary / Mixed Uses

Non-parking uses are often considered in the programming of a parking facility located in an urban center. Incorporation of such spaces may reduce the efficiency and increase construction costs relative to a stand-alone parking facility, but offers greater use of land areas adjacent or within the campus.

An existing bulk gas facility is located at the northwest corner of the facility. The facility presently provides storage and vaporizers for oxygen, at both high and standard pressures. The facility is typically accessed by truck from 6th Street onto the secure platform adjacent the parking ramp stair tower and skyway link across 6th. We understand that there is a desire to add nitrogen storage at this location, which will increase the footprint of this facility. Planning for additional parking on the site will constrict the space necessary for truck access resulting in the need to either relocate the facility elsewhere on the site, modify a parking expansion design to accommodate free air of the existing location, or relocate the facility elsewhere on campus. **Modification of the parking structure would be required at all levels to preserve open air above the storage tanks, resulting in a parking count reduction of approximately 150 spaces.** Relocation may yield a much smaller reduction.

Loading docks are frequently a use incorporated into parking facilities. Understanding the desire for additional loading dock capacity, incorporation of loading in garages was evaluated at a cursory level. Modification or use of the existing ramp facilities were judged to be disruptive and relatively costly, and would require a detailed study to further consider potential for it as value-added option. Within a parking facility expansion, it typically best-suited to enable a back-in style of dock confined within a long-span structural bay which would yield space for 2 to 3 loading slips. These slips could be easily accessed down a ramp from either 6th or 7th Streets and located at the basement level of the existing ramp for match-grade tunnel access across Park Avenue. **Incorporation of a loading dock into a parking expansion program would occupy roughly 100 parking spaces,** reducing overall count accordingly.

(Note that costs related to the complexity added by these modifications are not included in the figures presented by Option 1 as the scale, intent and location of these systems is not known)

Expansion Costs

A budgetary cost for this parking concept was developed comprising 11 tiers of parking for ±1,314 parking spaces (±1,209 net) on approximately ±402,000 square feet of new construction. An opinion of probable construction cost is \$38,800,000, or \$29,600 per space constructed. Adding a project-related soft cost allowance of 20% for services such as design, testing, inspections suggests a program cost of \$46,673,280 or \$35,520 per space constructed.

PATIENT CARE FACILITY GARAGE CONSIDERATIONS

Aligning with the beneficial proximity and certainty that nearby parking brings patients and visitors, constructing parking nearby the patient care facility is a worthy consideration. However, in an urban environment parking coupled with a project scale similar to that of the patient care facility leaves little room at or above grade for parking. Thus, consideration of providing subterranean parking is warranted.

As an actual design of the facility has not been developed to date, certain assumptions regarding underground facilities must be made. Below grade parking brings additional challenges not necessary with conventional parking structure including:

- Reduced spatial efficiency (sf/space)
- Enhanced lighting systems
- Full-time ventilation systems
- Enhanced fire sprinkler systems
- Excavation and soil retention costs
- Ground water mitigation systems
- Increased construction & operational costs

Generally, short-span construction is assumed as the facility above will require substantial support of gravity loads. Additionally, ventilation systems, enhanced lighting and fire protection systems and related efficiency is presumed.

With this, we have assumed a notional below-grade parking structure whereby the at-grade level is occupied by non-parking uses, and parking is provided on either two or three below grade levels (500 spaces or 750 spaces). We understand that based on geotechnical investigations at nearby buildings, a fourth level below grade would penetrate bedrock, an unlikely scenario. Parking spatial efficiency was assumed to be ± 400 sf/space and 250 spaces per level.

However, a substantial cost not required by conventional parking structures is the below grade foundations, soil retention systems, and ground water mitigation systems. These systems increase in cost and complexity as excavation increases. Cost allowances were made for these systems and escalated based on excavation depth.

A budgetary cost for these two concepts was developed as follows. The 500-space facility would provide below-grade parking for vehicles on two tiers, comprising approximately $\pm 200,000$ square feet of new construction. An opinion of probable construction cost is \$21,700,000, or \$43,400 per space constructed. Adding a project-related soft cost allowance of 20% for services such as design, testing, inspections suggests a program cost of \$26,000,000 or \$52,000 per space constructed.

The 750-space facility would provide below-grade parking for vehicles on three tiers, comprising approximately $\pm 300,000$ square feet of new construction. An opinion of probable construction cost is \$38,700,000, or \$51,600 per space constructed. Adding a project-related soft cost allowance of 20% for services such as design, testing, inspections suggests a program cost of \$46,440,000 or \$61,920 per space constructed.

OPTION 2: FACILITATE OFF-SITE PARKING SPACES

Walker estimated probable market costs for interim parking, assuming HCMC decides to facilitate users' lease of off-campus spaces after the closure of the HPR Ramp in response to the expectation that it will have a deficit of spaces on campus. Since the monthly lease rate falls below HCMC forecasted costs to provide on-site parking on a per space basis, market availability exists, and the deficit is expected to be minimal by 2030.

Table 4: Off-Site Monthly Contract Parking Lease Phasing -Ten-Year Forecast Estimates

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Supply Need ¹	0	200	229	257	350	373	403	23	23	23	23
Average Lease Rate per space ²	\$ 137	\$ 140	\$ 143	\$ 145	\$ 148	\$ 151	\$ 154	\$ 157	\$ 161	\$ 164	\$ 167
Costs per Month	-	27,948	32,640	37,364	51,903	56,323	62,177	3,620	3,692	3,766	3,841
Annual Costs ³		\$ 335,376	\$ 391,686	448,369	622,831	675,876	746,119	43,434	44,436	45,189	46,093
10 Year Preliminary Budget Estimated										\$	3,399,409

Notes:

1. Supply needs are modeled based upon Walker's understanding of the HCMC Campus Master Plan and interim parking plan. We assume that by Year 2023 the Purple Ramp expansion will be completed and that the Hospital Parking Ramp will be demolished in Year 2023. By Year 2027, we assume 750-spaces will be constructed at the Patient Care Underground Garage which will close the deficit of spaces forecasted on campus.
2. Average Lease Rate for unreserved space based upon January 2020 average market rates as surveyed. Walker assumed a 2% annual rate increase. Actual rates subject to change.
3. Estimated annual costs assumes monthly contract leases in effect until the Year 2030.

Source: Walker Consultants, 2020

For purposes of this analysis, we have phased leased space requirements over a ten-year period. We have assumed space availability in the aggregate, actual market rates and facility availability is subject to change. Walker does not guarantee facility rates or availability.

For planning purposes, we estimate a total cost of \$3.4 million to lease spaces over a ten-year planning horizon assuming a two percent per annum rate increase in monthly unreserved contract parking space. (200 and 230 spaces in Year 2021 and Year 2022; a range of 200 to 400 spaces in Year 2023 through Year 2026; and 23 spaces from Year 2027 to Year 2030).

The following figure depicts general facility monthly contract availability for unreserved spaces current to our January 2020 market survey. Rates and availability are subject to change.

Figure 1: Monthly Contract Unreserved Spaces Available – January 2020 Survey



Source: Walker Consultants, 2020

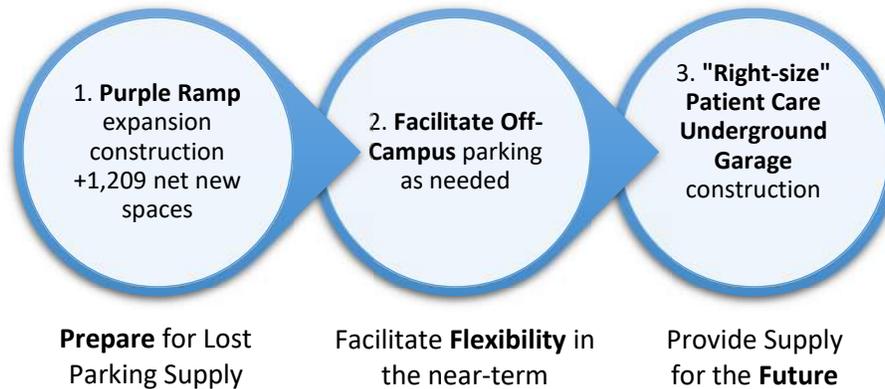
HCMC (shaded “red” in Figure 1) is in close proximity to private parking garages offering monthly parking space availability. The 1010 Ramp, The Fleet Farm Garage, and the 425 Park Avenue Ramp all have monthly unreserved space availability.

Our January 2020 survey results found that the Fleet Farm Garage had 300 spaces available, the 1010 Ramp had 200 spaces available, and 425 Park Avenue had 160 spaces available, **for a total of 660 ± unreserved monthly spaces available.**

These facilities are located with a 2-3 block radius of the HCMC campus, a comfortable walking proximity for employees. Rates as quoted are Fleet Farm Garage (\$165 per month unreserved), 425 Park Avenue (\$145 per month unreserved), and the 1010 Ramp (\$100 per month unreserved). The monthly costs to lease all 660 spaces identified in 2020 dollars is \$92,700 approximated assuming January 2020 market rates.

The following figure depicts Walker’s preliminary concept plan for parking planning at the HCMC campus.

Figure 2: HCMC Parking Planning “Next Steps”



Source: Walker Consultants, 2020

To achieve this, we recommend that HCMC consider pursuing the following “next steps” for HCMC campus parking:

- **Step 1: Purple Ramp Expansion.** HCMC plans to construct 1,209 additional parking spaces with the Purple Ramp expansion. The anticipated construction schedule is 12-16 months. In Walker’s forecast, we have assumed this supply is needed to replace the lost campus parking supply due to the HPR ramp demolition.
- **Step 2: Facilitate availability of Off-Site Parking Spaces.** Parking demand is projected to exceed HCMC’s supply during certain periods in the near future as parking supply is removed, services are expanded, and growth occurs, notably following closure of the HPR ramp. To provide spaces necessary to satisfy demand, additional off-site parking will be needed. As the market rate lease for a parking space is significantly less than HCMC’s cost to build and operate these spaces, and long-term projections indicate only a supply deficit during the interim construction period, it is recommended to periodically facilitate off-site parking at private facilities for users. HCMC may wish to negotiate and/or coordinate agreements with off-site parking providers while individual leases would be held by the user.

In a January 2020 market survey, Walker identified three facilities with a total of 660 ± unreserved monthly spaces available. The Fleet Farm Garage (300 spaces available), the 1010 Ramp (200 spaces available), and 425 Park Avenue (160 spaces available) are all within a 2-3 block walking radius of the HCMC campus. The monthly costs to lease all 660 spaces in 2020 dollars is approximately \$92,700, assuming January 2020 market rates. A majority of parking leases might only be needed in the interim period following the demolition of the HPR Ramp and before the construction of the Patient Care ramp, assumed to occur between 2024 and 2027. Walker forecasts between 200 to 400 off-site spaces will be needed across the interim period until the Patient Care Underground Garage opens.

- **Step 3: Patient Care Building Underground Garage.** After the completion of the Purple Ramp expansion project, Walker understands that HCMC plans to construct a subterranean parking garage to serve the

Patient Care Building. In our analysis, we assumed a capacity of 750 spaces with three levels below grade. If the parking capacity at this proposed facility is maximized, with 750 spaces constructed, a surplus of 77 spaces is projected for the campus by the Year 2030. This does not necessitate the construction of the Orange Ramp facility at the end of the ten-year planning horizon assumed. However, subterranean spaces are costlier than leasing or above-grade parking, with total costs estimated at \$52,000 to \$61,900 per space in 2020 dollars.

Considering the parking supply changes in removing existing and construction new parking, growth of HCMCs services including the addition of approximately 52 new beds, an expanded OR, and growth in ED usage, implementing all three of the steps highlighted above will insure parking supply adequacy at HCMC over the next ten-year horizon to Year 2030.

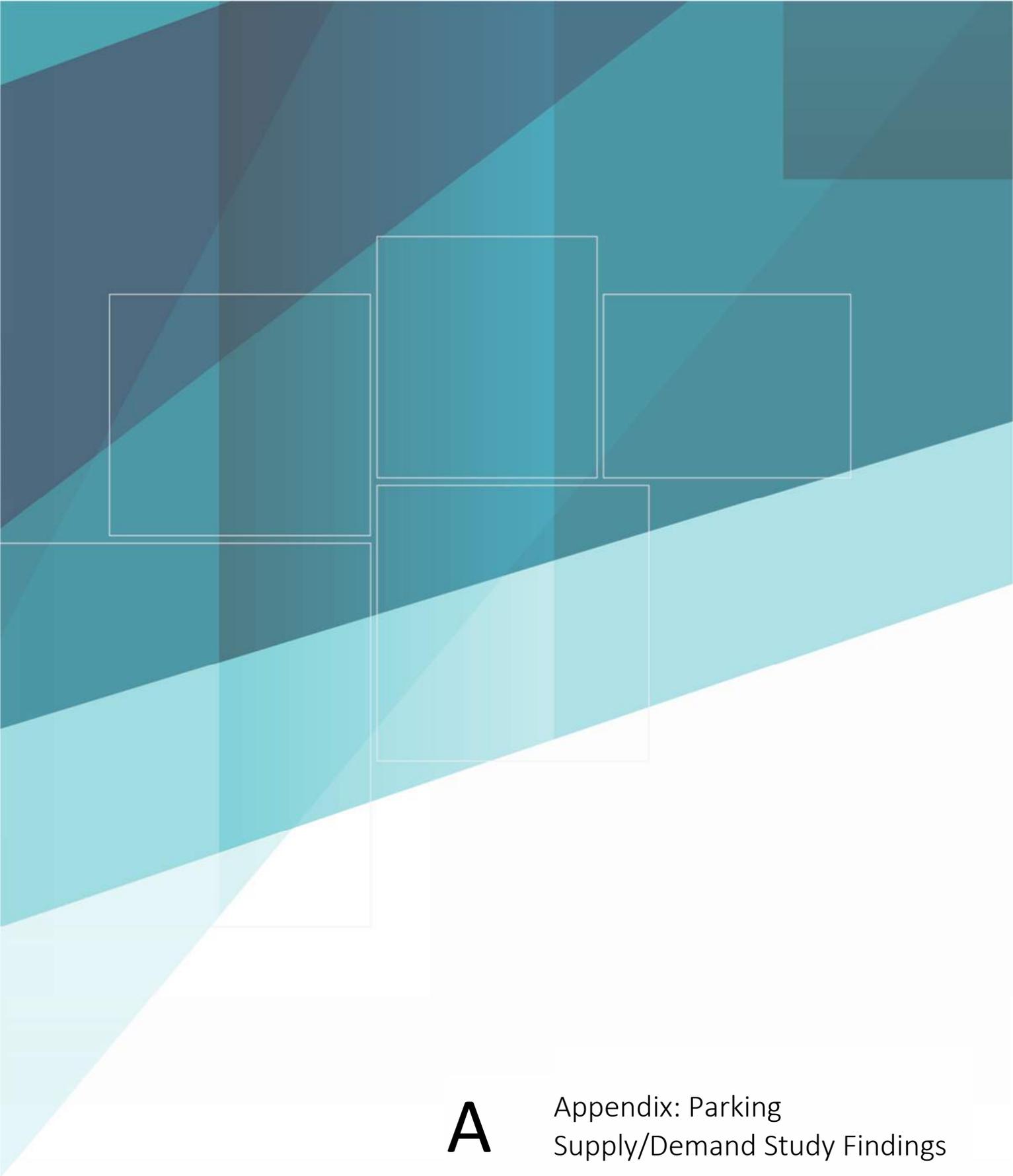


03 Conclusion

CONCLUSION

HCMC is projected to need approximately 1,982 spaces over the ten-year planning horizon assessed, assuming growth as modeled, expansion of services, and the loss of spaces (1,400-space Hospital Ramp, 120-space B Lot, and 15-space Chicago Tuck Lot). The following summarizes key takeaways of this report:

1. Construction of new parking is necessary to satisfy future demand including:
 - o Purple Ramp expansion of 1,209 net new spaces
 - o Patient Care underground ramp of 750 spaces
2. Total project costs to build new parking, 1,959 new spaces assumed (1,209 Purple Ramp Expansion + 750 Underground Patient Care Garage spaces), totals approximately \$93.11 million estimated in 2020 dollars.
3. Existing parking revenues are insufficient to meet the monthly capital and maintenance requirements forecasted for the construction of the 1,959 new spaces on the HCMC campus. That is, external funding is necessary to satisfy costs for new parking.
4. During the interim period between closure of the HRP Ramp and opening of the Patient Care underground facility, additional off-campus parking will need to be provided. HCMC may wish to negotiate and/or coordinate agreements with off-site parking providers for these spaces as needed, while individual leases would be held by the user.
5. The costs to lease off-site monthly parking spaces by Year 2030 are estimated at \$3.4 million in 2020 dollars (200 and 230 spaces in Year 2021 and Year 2022; a range of 200 to 400 spaces in Year 2023 through Year 2026; and 23 spaces from Year 2027 to Year 2030).
6. With the construction of the Purple Ramp expansion (1,209 spaces estimated) and a proposed Patient Care Underground Garage (750 spaces estimated), a surplus of 77 spaces will exist by Year 2030 which will not necessitate the construction of an Orange Ramp beyond Year 2030.



A

Appendix: Parking Supply/Demand Study Findings

APPENDIX A: PARKING SUPPLY/DEMAND STUDY FINDINGS

The Hennepin County Medical Center (HCMC), located in Minneapolis, Minnesota, has a parking system which contains approximately 3,192 spaces¹ and that is currently operating with a surplus of parking spaces. Existing conditions may be summarized as follows:

- Current Supply: 3,192 total spaces (an effective supply of 2,873 spaces)
- Current Design Day demand: 2,746 spaces
- Current Parking Adequacy: 127-space surplus (95th percentile of patient activity).

At the 95th percentile level of patient activity, as observed by Walker, the existing campus parking supply is adequate to meet current demand.

Future parking conditions at HCMC will be influenced by an anticipated growth in hospital services as well as changes to the campus parking supply. Walker reviewed the HCMC business plan to ascertain growth forecasts for healthcare services over a ten-year planning horizon through the Year 2030.

Based upon our review of the available information, Walker is modeling 2.0, 2.5, and 2.0 percent growth per annum for inpatient, outpatient, and emergency department services, respectively, as well as a 1.0 percent growth per annum in associate (employee) and 1.0 percent growth per annum in physician staffing.

Additionally, Walker reviewed the HCMC campus master plan to understand future changes to the parking supply. Our current understanding is that the existing Hospital Parking Ramp (HPR Ramp) will be demolished, removing 1,400 existing spaces from the parking inventory. A number of these spaces will be replaced with a proposed expansion to the Purple Ramp which will add a proposed 1,209 ± net new parking spaces to the existing structure and overall campus parking inventory. The following tables depict parking adequacy by Year 2024 and Year 2030.

Future Adequacy by 2024 Summary

User	Statistic	Demand Ratio	Demand	Effective Supply*	Surplus/Deficit
Patient/Visitor	3,369	0.32	1,082	982	(100)
Associate	4,188	0.40	1,687	1,560	(127)
Physicians	302	0.47	141	160	19
Total			2,910	2,702	(208)

*Walker assumed the loss of 1,400 spaces at the Hospital Ramp and the addition of 1,209 spaces at the Purple Ramp by 2024. No supply from the Patient Care Underground Ramp was included. All decimal places were rounded to the nearest whole number.

Source: Walker Consultants, 2020

1. The parking inventory surveyed includes all HCMC-owned parking ramps as well as off-street surface lot spaces leased.

A deficit of 208 spaces is projected by Year 2024. HCMC will need to consider additional parking capacity on campus and/or leasing additional spaces offsite by Year 2024.

[Future Adequacy by 2030 Summary](#)

User	Statistic	Demand Ratio		Demand	Effective Supply*	Surplus/Deficit
Patient/Visitor	3,850	0.32	spaces/ patient census	1,237	1,303	66
Associate	4,446	0.40	spaces / FTE Employee	1,791	1,791	0
Physicians	321	0.47	spaces / physician	149	160	11
Total				3,177	3,254	77

*Walker assumed the loss of 1,400 spaces at the Hospital Ramp and the addition of 1,209 spaces at the Purple Ramp by 2024. Additionally, Walker is informed that the B-Lot, 120 spaces, will be returned to the County as soon as 2030 as well as the reduction of 15 spaces at the Chicago Tuck Lot. We removed these spaces from the 2030 campus inventory for modeling purposes. Projections will differ if this date changes. Walker assumed 750 spaces are built in the Patient Care Underground Garage by 2030. The total project costs of these spaces are estimated at \$50,400 per space in 2020 dollars. Actual costs will vary. All decimal places were rounded to the nearest whole number.

Source: Walker Consultants, 2020

By the year 2030, a surplus of 77 spaces is modeled for the HCMC campus. This assumes that the Purple Ramp capacity is maximized to 1,209 spaces, approximately 750 spaces are built in the Patient Care Underground Garage, and the HCMC returns the B-lot to the County, removing 120 existing spaces from the campus inventory, by the Year 2030. Additionally, we have assumed the loss of 15 spaces at the Chicago Tuck Lot.

It can be concluded from this analysis that the Orange Ramp proposed to be built as early as the Year 2030, would not be needed.



B Appendix: Parking Needs Assessment Final Report



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March 23, 2020

Thomas Kuck, AIA, EDAC, LEED AP
Principal
Pope Architects
1295 Bandana Blvd. N., Suite 200
St. Paul, MN 55108

Re: HCMC Parking Supply/ Demand Analysis
Final Report
Walker Project No. 21-4578.00

Dear Tom:

Walker is pleased to submit the following final report for the Hennepin County Medical Center Parking Supply/Demand Analysis for your review. In the enclosed report document, you will find Walker's study methodology, findings, and recommendations for the HCMC campus.

We appreciate the opportunity to be of service to you on this project. If you have any questions or comments, please do not hesitate to call.

Sincerely,

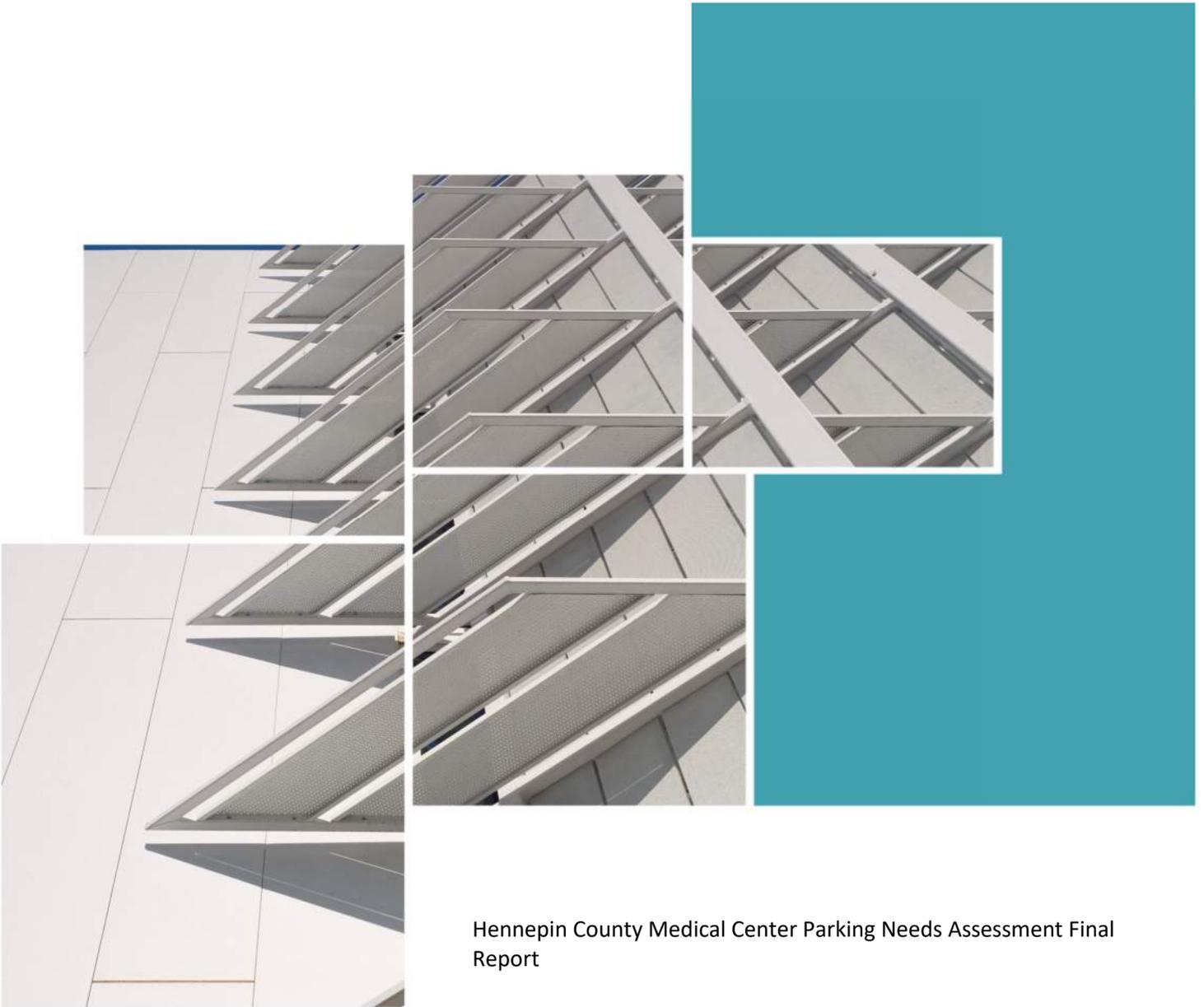
WALKER CONSULTANTS

A handwritten signature in black ink that reads "John W Dorsett".

John Dorsett, AICP, CPP
Senior Vice President

A handwritten signature in black ink that reads "David Garza".

David Garza
Analyst



Hennepin County Medical Center Parking Needs Assessment Final Report

Hennepin County Medical Center

Minneapolis, MN

March 23, 2020

Prepared for:
Tom Kuck
Pope Architects



WALKER
CONSULTANTS

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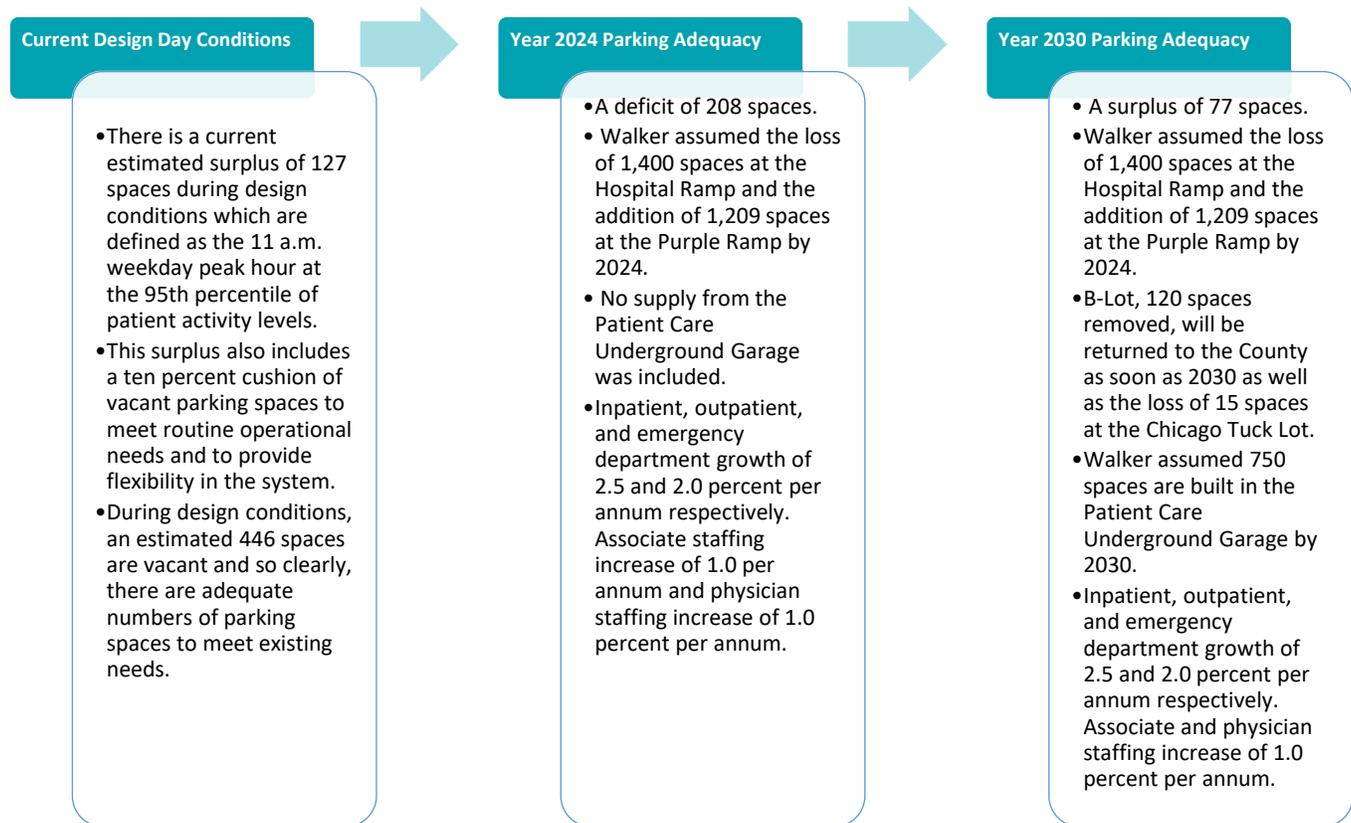
EXECUTIVE SUMMARY

Walker was engaged by Pope Architects to perform a parking needs analysis for Hennepin County Medical Center (HCMC) located in downtown Minneapolis. The purpose of this study is to review and quantify existing and future parking adequacy for the Years 2020, 2024, and 2030, in support of campus planning and construction activity.

From this study, we conclude the following:

- There is a current estimated surplus of 127 spaces during design conditions which are defined as the 11 a.m. weekday peak hour at the 95th percentile of patient activity levels. This surplus also includes a ten percent cushion of vacant parking spaces to meet routine operational needs and to provide flexibility in the system. During design conditions, an estimated 446 spaces are vacant and so clearly, there are adequate numbers of parking spaces to meet existing needs.
- For the 2020-2024 timeframe, there are several changes to both parking supply and demand that are anticipated to upset existing parking-space adequacy and these are as follows:
 - The existing Hospital Parking Ramp (HPR Ramp) will be demolished, removing 1,400 existing spaces from the parking inventory;
 - The existing Purple Ramp will be expanded by an estimated 1,209 net new spaces;
 - Inpatient, outpatient, and emergency department registrations are assumed to increase by 2.0, 2.5, and 2.0 percent growth per annum, respectively; and
 - Associate (employee) and physician staffing is assumed to increase 1.0 percent per annum.
- In 2024, with the aforementioned changes to parking supply and demand, a shortage of 208 spaces is projected.
- For the 2024-2030 timeframe, several other changes are anticipated that would impact both parking supply and demand and these are as follows:
 - HCMC will return the 120-space B Lot to Hennepin County;
 - The Chicago Tuck lot (existing 15-spaces) will no longer be in service;
 - A new Patient Care Underground Garage comes on line and provides 750 spaces; and
 - Patient loads and staffing headcount continue to grow at the same per annum rates assumed for the 2020-2024 timeframe.
- Based on the assumptions included herein, a surplus of 77 spaces is projected for Year 2030.
- It can be concluded from this analysis that the Orange Ramp proposed to be built and operating as early as 2030, would not be needed.

Figure 1: HCMC Parking Supply/Demand Summary



Source: Walker Consultants, 2020



01 Introduction

INTRODUCTION

Pope Architects (“Pope”), representing Hennepin County Medical Center (“HCMC”), engaged Walker Consultants (“Walker”) to perform a parking supply/demand analysis for the HCMC downtown campus. HCMC is currently in the process of evaluating its parking needs as part of an overall campus master plan. The goal of this assignment is to quantify both the current and projected future parking supply and demand conditions and provide recommendations for consideration.

The purpose of Walker’s parking supply/demand analysis is to address the following issues:

- Determine how many parking spaces are needed to meet the current demand;
- Project the number of spaces that will be needed in the future; and
- Determine the present and future parking needs for physicians, employees, and patient/visitors.

DEFINITION OF TERMS

Several terms are used throughout this report that may require clarification. These terms are defined as follows:

- **Adequacy** - A figure expressing the number of parking spaces remaining when demand is subtracted from the effective supply. A negative adequacy indicates a parking space deficit; a positive result shows a surplus.
- **Demand Ratio** - The ratio of the number of vehicles observed to occupy parking facilities compared to a number quantifying hospital capacity or census. Example numbers may be, but are not limited to, beds, staff physicians, daily census, and FTE employees.
- **Design Day** - The day that represents the level of parking demand the parking system is designed to accommodate. This level of activity is typically represented by the 95th percentile of patient activity levels. A parking supply designed to handle the absolute peak level of demand typically contains too many spaces that remain unused most of the time. A higher design day level of parking demand may be represented by a design standard that on average is exceeded on less than one day per month. However, adequate parking conditions may also be defined as those that satisfy the design requirements of the client.
- **Effective Supply** - The total supply of parking spaces, adjusted to reflect the cushion needed to provide for vehicles moving in and out of spaces, spaces unavailable due to maintenance or poorly-parked vehicles, and to reduce the time necessary for parking patrons to find the last few available spaces on the campus. The effective supply varies as to the user group and type of parking, but typically the effective supply is 85% to 95% of the total number of spaces. The adjustment factor is known as the *Effective Supply Factor*.
- **Optimum Utilization Factor** - The factor applied to the calculated demand for parking to estimate the design spaces necessary to construct and operate at the desired efficiency. The factor typically is based on a 5% to 15% "cushion," which allows patrons to spend less time looking for the last available spaces and allows for the dynamics of vehicles moving in and out of spaces. It also allows for spaces lost due to poor or improper parking, repair, derelict vehicles, and the like. This factor may or may not be the same as the effective supply factor.
- **Parking Inventory** - The total number of spaces counted during survey day observations within the study area.

- **Parking Occupancy** - The number of observed vehicles parked on a survey day.
- **Patron or User** - Any individual parking in a study area.
- **Peak Hour** - The peak hour represents the busiest hour of the day for parking demand. On a medical campus, this usually occurs between the hours of 10:00 a.m. and 3:00 p.m. when staffing and outpatient activity is the highest.
- **Survey Day** - The day set aside for observation of parking trends and recording of parking data within the study area.
- **User Group** – Group of similar parkers using the campus. Typical hospital user groups include patients/visitors, employees, and physicians.

STUDY AREA

The campus, located in downtown Minneapolis, is bounded by Portland Avenue to the west, S. 10th Avenue and S. 9th Avenue to the east, S. 6th Street to the north, and S. 9th Street to the south. The campus is located in a dense urban environment with three parking ramps serving a majority of HCMC parking needs. The figure on the following page depicts the study area and parking assets.

Figure 2: Study Area

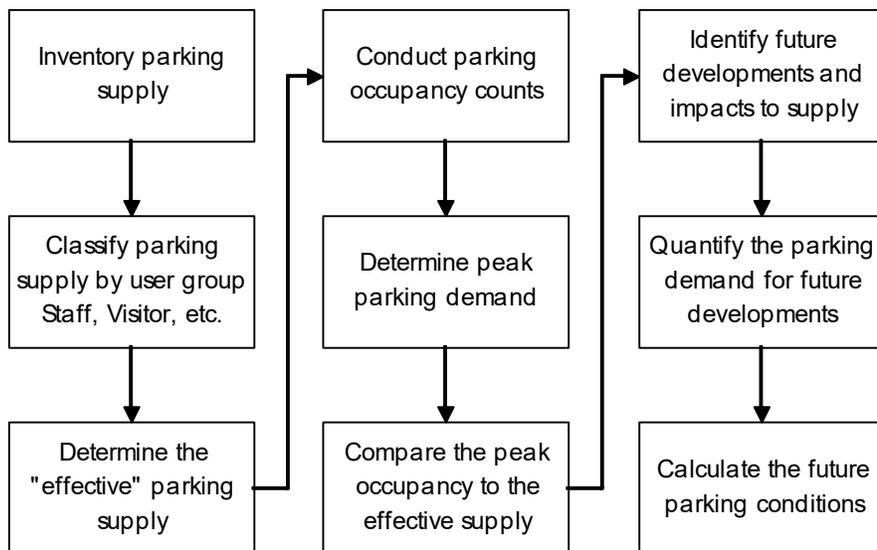


Source: HCMC, 2020

METHODOLOGY

The methodology used to complete the engagement consisted of reviewing background information, user group statistics and prospective growth projections provided by HCMC, as well as parking-space occupancy counts collected and analyzed by Walker. We used this data to develop parking demand ratios for the various end-user groups, which are representative of the overall parking demand. The ratios developed are used to project current parking adequacy, and are also applied to future statistics for the same end-user groups, in conjunction with anticipated changes in the parking space supply, to project the future parking adequacy of the HCMC campus parking system. Parking adequacy is expressed in terms of either a parking space surplus and/or deficit. The following figure details the methodology utilized in this report to analyze both the current and future parking conditions.

Figure 3: Parking Study Process



Source: Walker Consultants, 2020

It's important to define conditions upon which a parking system should be designed. Some organizations intend to provide adequate parking for every potential end-user, every day of the year. Consequently, a substantial number of parking spaces remain vacant most of the year. The benefit this type system is that parkers, whether employees, visitors, or patients, always have adequate parking. More commonly, most organizations would rather have fewer of their assets utilized for parking. Therefore, these organizations plan a parking system that optimally meets the needs of its parking patrons on most days, but less than every day of the year. The disadvantage of this type system is that from time to time, parking demand may exceed the supply.

The level at which parking demand should be accommodated is a policy decision that must be made by HCMC. For the purposes of this analysis, adequate parking conditions are defined as those that satisfy the design statistics discussed throughout the report.

PARKING SUPPLY

Walker inventoried the parking supply for HCMC to determine the number of spaces, user assignments (e.g. employee, patient/visitor), and usage restrictions pertaining to the campus parking system.

Based upon our assessment, the total inventory is 3,192 ± spaces, including patient/visitor, employee, and physician parking. Table 1 reflects the total parking supply (by facility).

Table 1: Campus Parking Supply

Parking Facility Name	User Assignment	Space Capacity
HPR Ramp	Associates/ Patients and Visitors	1,400
B Lot	Patients and Visitors	120
10 th Street Lot	Associates	116
Purple Lot	Associates	105
Purple Ramp	Associates/ Patients and Visitors	1,200
Clinic and Specialty Center (CSC) Subterranean	Physicians and Patients and Visitors	220
Blue Valet	Physicians and Patients/Visitors	16
Chicago Tuck Lot	Associates	15
Totals		3,192

Source: Walker Consultants, 2020

Walker observed facilities where user groups are mixed and spaces are largely unassigned. To approximate associate (employee) parking spaces in the Purple Ramp and HPR Ramps, we analyzed (full-time employee) daily contract parking figures provided by HCMC and present our analysis in the following table.

Table 2: Parking Space User Assignments Approximated

User Group	Supply
Patient/ Visitor	1,124
Associates (Employees)	1,908
Physicians	160
Totals	3,192

Source: Walker Consultants, 2020

EFFECTIVE SUPPLY

Walker estimates an effective parking supply by applying an effective supply factor to the physical parking supply within each parking area. It's a generally-accepted principle in parking supply/demand analyses that the supply of spaces operates at optimum efficiency when occupancy is no more than 85% to 95% of the total inventory of spaces. The unused stalls provide a "cushion" to allow for the dynamics of vehicles moving in and out of parking stalls and to reduce the time required to search for the last few available spaces. This cushion also allows for daily, weekly, and seasonal variations as well as vacancies created by restricting facilities to certain users, miss-parked vehicles, and minor construction projects.

When occupancy exceeds this optimum level (85% to 95%), there may be delays and frustration in finding a space, or the patron may be forced to use an undesirable space, such as one at a greater or uncomfortable walking distance. In these instances, the supply may be perceived as inadequate, even though vacant spaces are available within the system.

As a result, we used an effective parking supply to analyze parking adequacy within the HCMC campus system, rather than the total supply. The effective supply cushion typically varies between 5% and 15% of the total inventory of spaces depending upon the type of supply and end-user.

For the HCMC analysis, **we adjusted patient/visitor, associate, and physician parking supply to 90% of estimated capacity.**

Table 3: Effective Supply

Facility ID	User Assignment	Estimated Capacity	Effective Supply
HPR Ramp	Associates/ Patients and Visitors	1,400	1,260
B Lot	Associates / Patients and Visitors	120	108
10th Street Lot	Associates	116	104
Purple Lot	Associates	105	95
Purple Ramp	Associates / Patients and Visitors	1,200	1,080
CSC Lot	Patients and Visitors	220	198
Blue Valet		16	14
Chicago Tuck Lot		15	14
Totals		3,192	2,873

Source: Walker Consultants, 2020

PARKING OCCUPANCY

Walker collected and analyzed data to determine the pattern of parking utilization on the campus. Walker, with the concurrence of HCMC and the design team, identified a survey day of Wednesday, October 16, 2019 to collect field data. Our observation was over the 11 a.m. hour when hospitals are typically at their busiest. The following table displays the results of the field data count.

Table 4: Parking Space Occupancy – October 16, 2019 at 11 a.m.

Facility ID	User Assignment	Estimated Capacity	Effective Supply	11 a.m. Occupancy	Occupancy Rate
HPR Ramp	Associates/ Patients and Visitors	1,400	1,260	1,204	86%
B Lot	Associates / Patients and Visitors	120	108	77	64%
10th St Lot	Associates	116	104	88	76%
Purple Lot*	Associates	105	95	0	-
Purple Ramp	Associates / Patients and Visitors	1,200	1,080	1,159	97%
CSC Lot	Patients and Visitors	220	198	159	72%
Blue Valet		16	14	14	88%
Chicago Tuck		15	14	-	-
Totals		3,192	2,873	2,701	85%

*During the time of our formal field count in October 2019, Purple Lot spaces were being leased to construction contractors at the Thrivent project. Since these contractor vehicles were not contributing to HCMC campus use, an occupancy of zero was input.

Source: Walker Consultants, 2020

Peak hour occupancy occurred at 11 a.m., when 2,701 ± vehicles (85% of the total supply) were observed as parked within the system. As previously discussed, when occupancies reach 85% or greater, it becomes more difficult to locate available parking within the system, and many parkers perceive the lot as full. Based upon our review of the data provided, there is a sufficient number of spaces, however, there are parking stresses occurring on campus today.

PARKING ADEQUACY

Parking adequacy is defined as the ability of the supply to accommodate the peak-hour parking demand. Table 5 depicts current parking adequacy on the HCMC campus for the survey day. Walker's calculation was made by subtracting the peak-hour observed demand (2,701 spaces) from the effective parking supply (2,873 spaces).

Table 5: Survey Day Parking Adequacy - October 16, 2019 at 11 a.m.

Facility ID	User Assignment	Effective Supply	11 a.m. Occupancy	Adequacy
HPR Ramp	Associates/ Patients and Visitors	1,260	1,204	56
B Lot	Associates / Patients and Visitors	108	77	31
10th Street Lot	Associates	104	88	16
Purple Lot*	Associates	95	0	95
Purple Ramp	Associates / Patients and Visitors	1,080	1,159	(79)
CSC Lot	Patients and Visitors	198	159	39
Blue Valet		14	14	0
Chicago Tuck		14	-	14
Totals		2,873	2,701	172

*During the time of our formal field count in October 2019, Purple Lot spaces were being leased to construction contractors at the Thrivent project. Since these contractor vehicles were not contributing to HCMC campus use, an occupancy of zero was input.

Source: Walker Consultants, 2020

Based on this analysis, HCMC is judged to have a surplus of approximately 172± spaces, on the survey day of October 16, 2019 as illustrated by the previous table.

Since the survey day is one snapshot out of the year, with hospital activity and corresponding parking space occupancy fluctuating by day of week and time of month, Walker obtained and analyzed 365 days of historical ambulatory statistics for inpatient, outpatient and ED activity, provided from October 15, 2018 to October 15, 2019 (survey day), to identify a 95th percentile-level design day condition for the HCMC campus.

Walker frequently recommends that hospitals design their parking supply to satisfy the 95th percentile level of activity. This level is usually equivalent to a very busy day that may occur once or twice a month. Conversely, designing for the average level could mean inadequate parking about half the year. Given this fact, the 95th percentile level of demand is typically designated as the design day.

DESIGN DAY ADEQUACY

Walker derived base parking demand ratios using recorded survey day data and corresponding hospital statistics for three user categories: patient/visitors, associates, and physicians. Parking demand ratios were then multiplied by 95th percentile level hospital activity statistics by category to derive a 95th percentile level design day parking demand.

The following table depicts the design day parking demand conditions.

Table 6: Design Day Adequacy

User	Statistic	Demand Ratio		Demand	Effective Supply	Surplus/Deficit
Patient/Visitor	3,082	0.32	spaces/ patient census	990	1,012	22
Associate	4,025	0.40	spaces / FTE Employee	1,621	1,717	96
Physicians	290	0.47	spaces / physician	135	144	9
Total				2,746	2,873	127

**All decimal places were rounded up to the nearest whole number.*

Source: Walker Consultants, 2020

Based upon the comparison of design day demand to effective supply, the HCMC parking system is judged to have a parking surplus of 127 ± spaces for a design day as determined. However, as changes to the supply occur, which we consider in the following section, future adequacy will change for the HCMC campus.



02 Future Conditions

Future parking conditions at HCMC will be influenced by an anticipated growth in hospital services, as well as changes to the campus parking supply. Walker reviewed the HCMC business plan to ascertain growth forecasts for healthcare services over a ten-year planning horizon through the Year 2030.

Based upon our review of the available information, Walker is modeling 2.0 percent growth per annum for inpatient, 2.5 percent growth per annum for outpatient, and 2.0 percent growth per annum for ED services, as well as a 1.0 percent growth per annum in associate (employee) and 1.0 percent growth per annum in physician staffing. The future projections represent the foundation for formulating the projected future parking demand.

Over the next 10 years HCMC is projecting an increase in inpatient beds from 506 to 558 (10 percent growth over 10 years), and an increase in operating rooms from 10 to 16. The Emergency Department is projected to expand from 55 rooms to 67 rooms (28 percent growth over 10 years), information confirmed by the Master Plan team in March 2020.

Based upon these revised details, Walker’s growth forecast is consistent with the latest information.

Additionally, Walker reviewed the HCMC campus master plan to understand future changes to the parking supply. Our current understanding is that the existing Hospital Parking Ramp (HPR Ramp) will be demolished removing 1,400 existing spaces from the parking inventory. A number of these spaces will be replaced with a proposed expansion to the Purple Ramp which will add 1,209 ± new parking spaces to the existing structure and overall campus parking inventory. Additionally, HCMC has plans to construct a subterranean parking garage underneath the proposed patient care building over the assumed ten-year planning horizon. The preliminary parking capacity estimates are 750 spaces, assuming three-levels below grade. Moreover, by 2030, we have assumed that the B-Lot, 120 spaces, will be eliminated from the campus parking supply. The following tables depict future adequacy projections by Year 2024 and Year 2030.

Table 7: Future Adequacy by Year 2024

User	Statistic	Demand Ratio		Demand	Effective Supply*	Surplus/Deficit
Patient/Visitor	3,369	0.32	spaces/ patient census	1,082	982	(100)
Associate	4,188	0.40	spaces / FTE Employee	1,687	1,560	(127)
Physicians	302	0.47	spaces / physician	141	160	19
Total				2,910	2,702	(208)

*Walker assumed the loss of 1,400 spaces at the Hospital Ramp and the addition of 1,209 spaces at the Purple Ramp by 2024. No supply from the Patient Care Underground Ramp was included. All decimal places were rounded to the nearest whole number.

Source: Walker Consultants, 2020

A deficit of 208 spaces is projected by Year 2024. HCMC will need to consider additional parking capacity on campus and/or leasing additional spaces offsite by Year 2024.

The following table depicts future conditions modeled by the Year 2030 assuming compound annual growth rates applied above.

Table 5: Future Adequacy by Year 2030

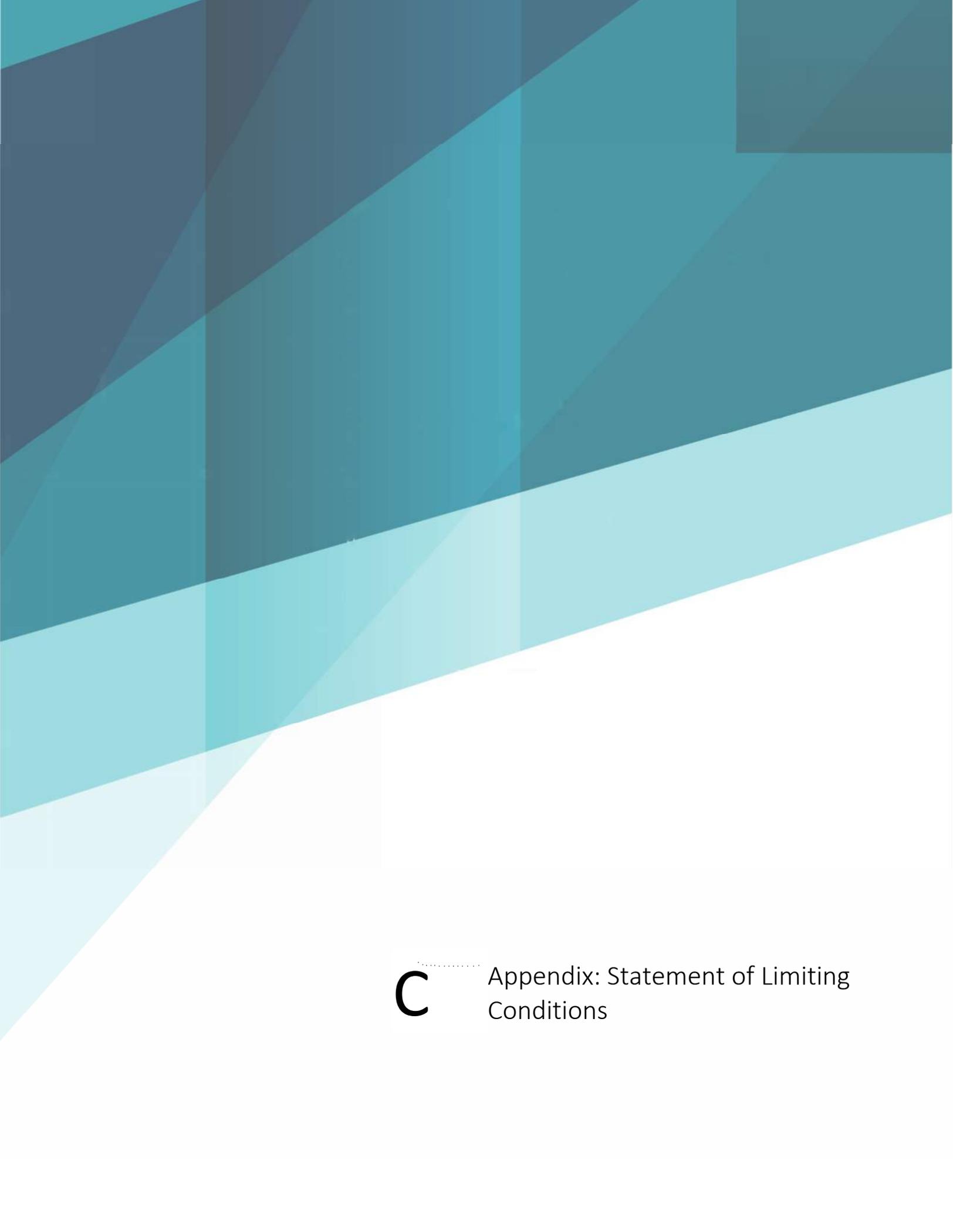
User	Statistic	Demand Ratio		Demand	Effective Supply*	Surplus/Deficit
Patient/Visitor	3,850	0.32	spaces/ patient census	1,237	1,303	66
Associate	4,446	0.40	spaces / FTE Employee	1,791	1,791	0
Physicians	321	0.47	spaces / physician	149	160	11
Total				3,177	3,254	77

*Walker assumed the loss of 1,400 spaces at the Hospital Ramp and the addition of 1,209 spaces at the Purple Ramp by 2024. Additionally, Walker is informed that the B-Lot, 120 spaces, will be returned to the County as soon as 2030 as well as the loss of 15 spaces at the Chicago Tuck lot. We removed these spaces from the 2030 campus inventory for modeling purposes. Projections will differ if this date changes. Walker assumed 750 spaces are built in the Patient Care Underground Garage by 2030. The total project costs of these spaces are estimated at \$50,400 per space in 2020 dollars. Actual costs will vary. All decimal places were rounded to the nearest whole number.

Source: Walker Consultants, 2020

By the year 2030, a surplus of 77 spaces is modeled for the HCMC campus. This assumes that the Purple Ramp capacity is maximized to 1,209 spaces, approximately 750 spaces are built in the Patient Care Underground Garage, and the HCMC returns the B-lot to the County, removing 120 existing spaces from the campus inventory, by the Year 2030. Additionally, we have assumed the loss of Chicago Tuck lot (15 spaces) by Year 2030.

It can be concluded from this analysis that the Orange Ramp proposed to be built as early as the Year 2030, would not be needed.



C Appendix: Statement of Limiting
Conditions

This report is subject to the following limiting conditions:

RELIANCE ON INFORMATION PROVIDED BY OTHERS

Any estimates or projections provided by Walker will be premised upon assumptions provided by CLIENT. As used herein, an “assumption” is an axiom or proposition which is included in an analysis to project future performance or events and is not a guarantee of performance, or representation of a fact which will eventually exist or be attained or reached. CLIENT fully understands that WALKER must utilize such “assumptions” in order to perform feasibility or other analyses. Furthermore, CLIENT fully understands that WALKER is not an auditor or a certified public accountant and will not independently review or investigate misrepresentations, fraud, misappropriation, completeness or accuracy of the information or assumptions provided by CLIENT, its agents, representatives or others supplying information or data to Walker for its use in performance of the Services. Walker may draw certain assumptions from its past work on other projects of similar or like nature, and will do so in a manner consistent with the standard of care within the profession. CLIENT fully understands that, because of the inherent uncertainty and probable variation of the assumptions, actual results will vary from estimated or projected results and such variations may be material. As such, WALKER makes no warranty or representation, express or implied, as to the accuracy of the estimates or projections.

FINANCIAL PROJECTIONS

Walker may compile, from information and assumptions provided by CLIENT, projections and related prospective statements of income, expenses, and cash flow. CLIENT is responsible for representation about its plans and expectations and for disclosure of significant information that might affect the Services. WALKER is not CLIENT’s investment advisor or advocate. The actual results achieved will vary from the projections and variations may be material.

CHANGES IN ASSUMPTIONS AFTER COMPLETION OF SERVICES

Unforeseen and changed laws, technologies, events or circumstances may occur after the course of this engagement and completion of Services which may render the Documents obsolete. WALKER has no responsibility to inform CLIENT about changed circumstances impacting projections and does not have any responsibility to update Documents for events and circumstances occurring after delivery of Documents to CLIENT.

CONSEQUENTIAL DAMAGES

To the fullest extent permitted by law, neither the client nor Walker, shall be liable to the other or shall make any claim for any incidental, indirect or consequential damages arising out of or connected in any way to the services or projections provided under this agreement. This mutual waiver of consequential damages shall include, but is not limited to, loss of use, loss of profit, loss of business, loss of income, loss of reputation and any other consequential damages that either party may have incurred from any cause of action including negligence, strict liability, breach of contract and breach of strict or implied warranty.



NO THIRD-PARTY BENEFICIARY

CLIENT understands that the Documents are prepared for CLIENT's internal management use only and that Documents are for CLIENT's sole benefit and no third-party beneficiary is implied. CLIENT agrees to obtain Walker's prior written permission before distributing a copy of the Documents to anyone other than a member of its internal management. If CLIENT distributes a copy of the Documents to any person or entity other than its internal management, CLIENT fully understands that it does so at its own risk, and WALKER assumes no liability or responsibility therefor or the consequences thereof and CLIENT hereby agrees to indemnify and hold harmless from and against any and all claims or causes of actions for damages or loss against WALKER by such person or entity as a result of said person's alleged reliance on the Documents.

USE OF DOCUMENTS

CLIENT agrees not to use documents in a transaction in which one relies on the accuracy of projections, and WALKER assumes no responsibility for CLIENT's actions in its use of the documents in such transactions. Further, any use of documents for modifications or extensions of the services, new projects, or completion of this project by others, without WALKER'S specific written consent, will be at CLIENT's sole risk.

STATUTE OF LIMITATION

Parties agree that all legal action by one party against the other arising out of this Agreement or connected with the Services shall be barred and no such claim shall be initiated by either party after four (4) years have passed from the date the Documents were delivered to the CLIENT, unless applicable statute of limitation sets a shorter period.

MUNICIPAL FINANCIAL ADVISOR

Walker Consultants is not registered with the U.S. Securities and Exchange Commission ("SEC") as a municipal financial advisor. As such, Walker's consultation will be limited to engineering advice based on site and/or economic feasibility; Walker will not be recommending a specific financial structure or vehicle for consideration, nor will Walker recommend a specific financial plan. For those services, the owner/client should seek counsel from a qualified municipal financial advisor. Any opinions or views provided by Walker are not intended to be, and do not constitute, advice within the meaning of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act.



D Appendix: Purple Ramp Expansion
Contingency Analysis- August 2020

POSTSCRIPT: PURPLE RAMP EXPANSION PLANNING CONTINGENCIES

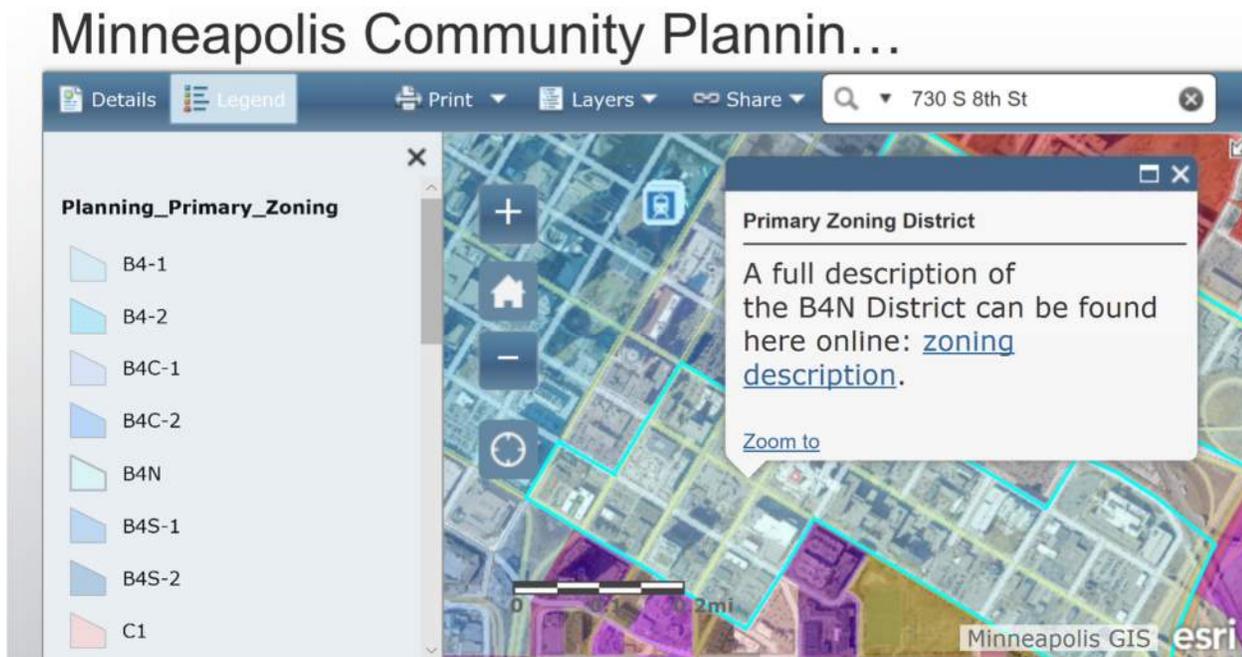
After the delivery of our final report in June 2020, Walker was informed of potential changes to future parking supply assumptions applied prompted by City of Minneapolis planning and urban design requirements. Our initial analysis assumed that the proposed parking capacity at the Purple Ramp expansion would be maximized to the available site footprint with 1,209 net new spaces constructed.

In the event that the existing site footprint cannot support a standalone parking use, Walker reviewed a scenario, provided by Pope Architects, considering a residential use wrapped around the proposed Purple Ramp.

CITY OF MINNEAPOLIS B4N DISTRICT CODE REQUIREMENTS

Walker reviewed the applicable codes governing parking garages in the B4N District, the district in which the HCMC campus is located.

City of Minneapolis Zoning District B4N



The following conditions govern uses in the B4N District:

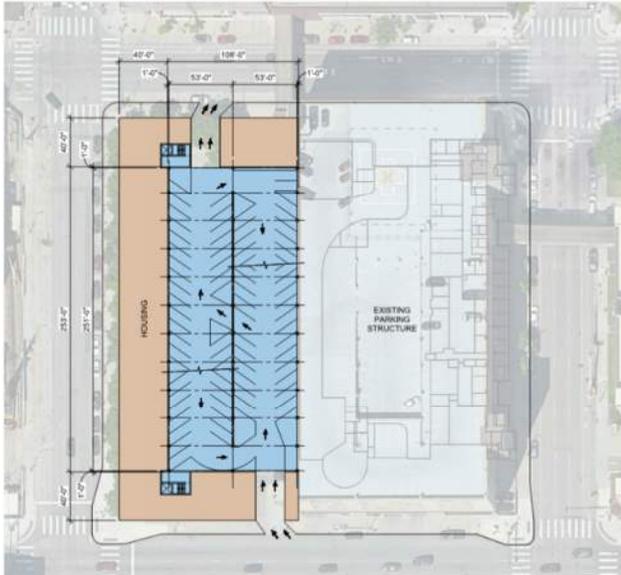
(5)

Parking garages. The ground floor of principal and accessory parking garages shall have commercial, residential, office, or hotel uses located between the parking garage and any public sidewalk except where frontage is needed to provide vehicular and pedestrian access to the facility.

(2011-Or-064, § 3, 7-22-11; Ord. No. [2017-071](#), § 7, 11-17-2017)

To assess the impact to parking site efficiency that a non-parking secondary use would create Walker evaluated the provided residential wrap scenario with the housing depicted in peach shading below.

Purple Ramp Expansion with Residential Wrap Contingency Scenario Concept – Ground Tier



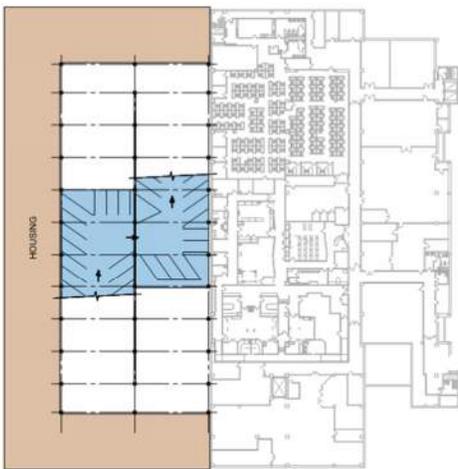
TIER	CAR COUNT		
	8'-6" 55" STANDARD SPACE		
	SPACES	AREA (SQ FT)	EFFICIENCY (SQ FT/SPACES)
B2	21	8,260	393
B1	82	26,300	320
GROUND	68	26,300	386
MEZZ	82	26,300	320
SKYWAY	76	26,300	346
3RD	82	26,300	320
4TH	76	26,300	346
5TH	82	26,300	320
6TH	76	26,300	346
7TH	82	26,300	320
8TH	76	26,300	346
TOP	68	25,400	373
TOTAL	871	296,660	340

EXISTING PARKING STRUCTURE CAR COUNT: 1337
 TOTAL CAR COUNT WITH EXPANSION: 1337-8 (crossovers) + 871 = 2,200

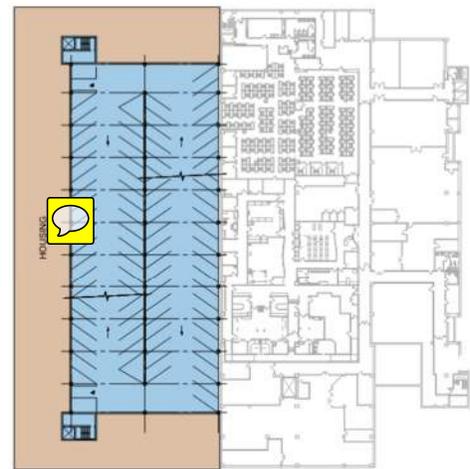
GROUND TIER

Source: Walker Consultants, 2020

Purple Ramp Expansion with Residential Wrap Contingency Scenario Concept – Ground Tier B1 and B2 Tier



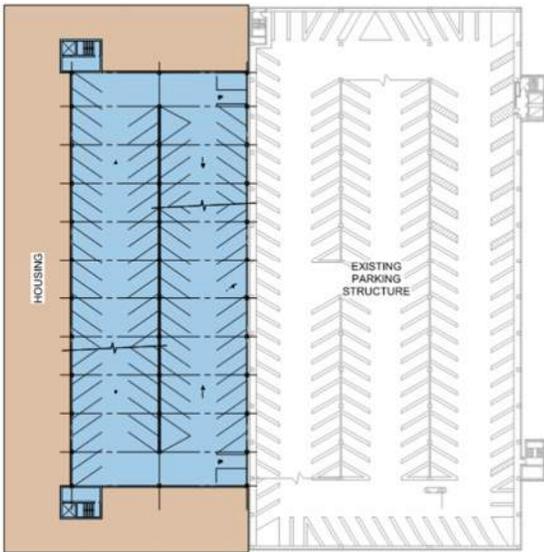
B2 TIER



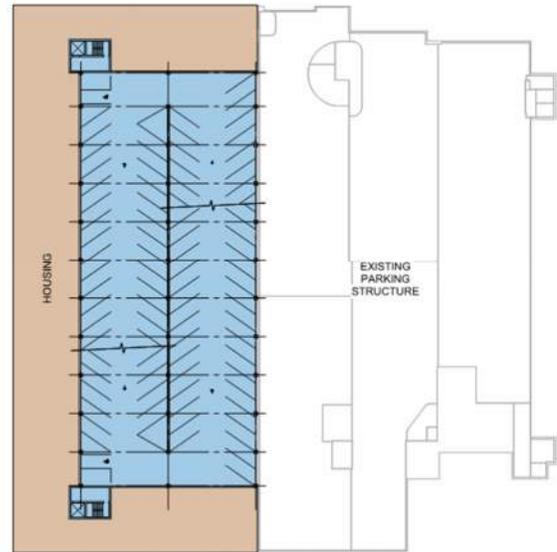
B1 TIER

Source: Walker Consultants, 2020

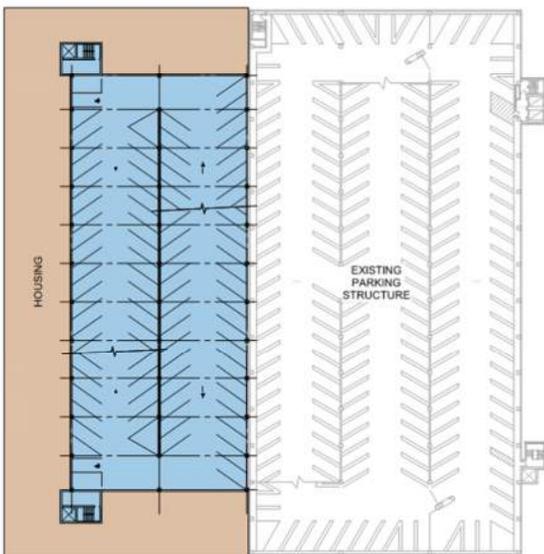
Purple Ramp Expansion with Residential Wrap Contingency Scenario Concept – Tier 3 & 4, Skyway and Mezzanine Tier



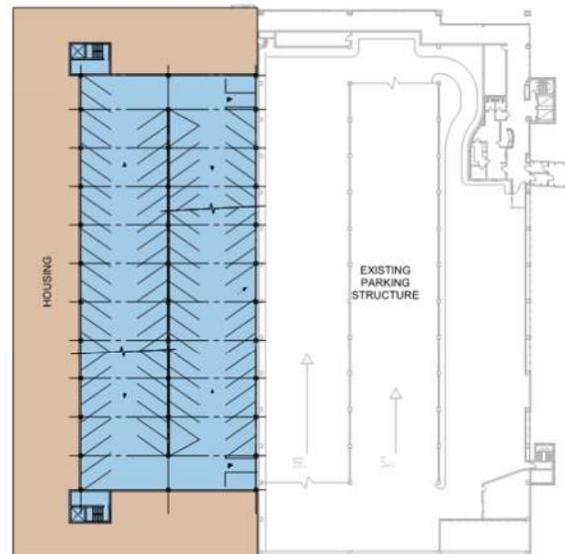
4TH TIER



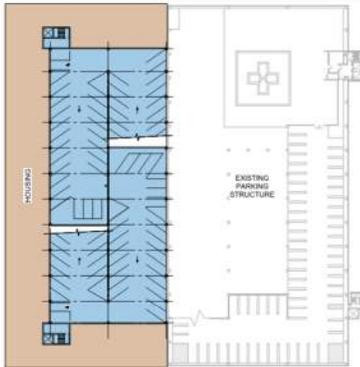
MEZZ TIER



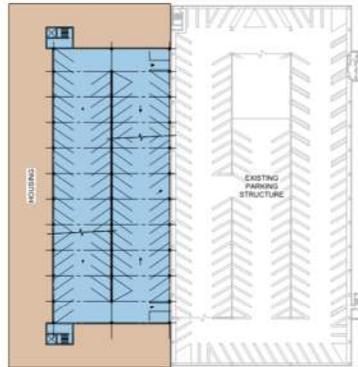
3RD TIER



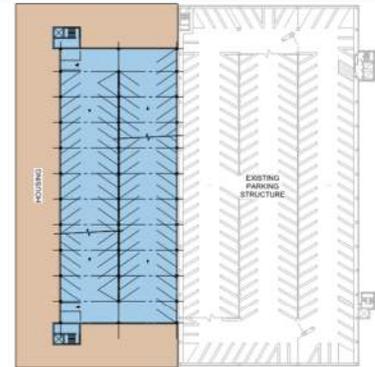
SKYWAY TIER

Purple Ramp Expansion with Residential Wrap Contingency Scenario Concept – 5th, 6th, 7th 8th and Top Tiers


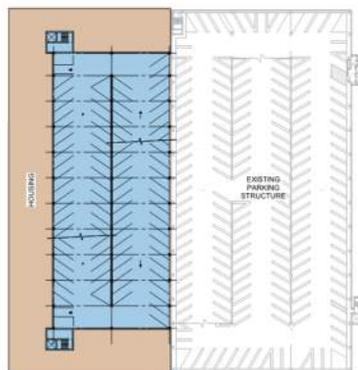
TOP TIER



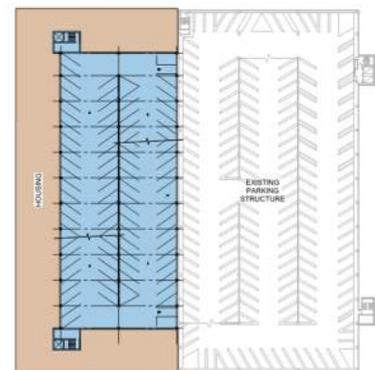
8TH TIER



5TH TIER



7TH TIER



6TH TIER

Accommodating a 40'-0 housing holdback on 3 sides provides approximately 871 parking stalls. The revised concept provides 296,660 square feet of parking area with an efficiency of 340 s.f./space. After subtracting for the loss of the existing 105-space surface lot, **approximately 766 net new spaces would be added to the campus supply. An opinion on probable costs for this revised concept is \$30.9 million in 2020 dollars (\$35,520 per space x 871 spaces constructed).** The top tier is presented with no screening as not to impede with the adjoining Purple Ramp helipad operations.

Walker has provided an updated future parking adequacy table for the Year 2024 and Year 2030 to quantify the supply-side impact under this explored contingency scenario of reduced Purple Ramp expansion capacity.

Future Adequacy by 2024 Summary – Purple Ramp Expansion Contingency Scenario

User	Statistic	Demand Ratio		Demand	Effective Supply*	Surplus/Deficit
Patient/Visitor	3,369	0.32	spaces/ patient census	1,082	982	(100)
Associate	4,188	0.40	spaces / FTE Employee	1,687	1,160	(527)
Physicians	302	0.47	spaces / physician	141	160	19
Total				2,910	2,302	(608)

*Walker assumed the loss of 1,400 spaces at the Hospital Ramp and the addition of 766 net spaces at the Purple Ramp by 2024. The revised concept provides 296,660 square feet of parking area with an efficiency of 340 s.f./space, incorporating a residential wrap concept with a 40'-0 holdback allowance on three sides. No supply from the Patient Care Underground Ramp was included. All decimal places were rounded to the nearest whole number.

Source: Walker Consultants, 2020

If the Purple Ramp expansion yields 766 net new spaces by Year 2024, a deficit of 608 spaces is anticipated for the HCMC campus by Year 2024.

Future Adequacy by 2030 Summary – Purple Ramp Expansion Contingency Scenario

User	Statistic	Demand Ratio		Demand	Effective Supply*	Surplus/Deficit
Patient/Visitor	3,850	0.32	spaces/ patient census	1,237	1,303	66
Associate	4,446	0.40	spaces / FTE Employee	1,791	1,392	(399)
Physicians	321	0.47	spaces / physician	149	160	11
Total				3,177	2,855	(322)

*Walker assumed the loss of 1,400 spaces at the Hospital Ramp and the addition of 766 net spaces at the Purple Ramp by 2024 with a residential wrap concept on three sides. Additionally, Walker is informed that the B-Lot, 120 spaces, will be returned to the County as soon as 2030 as well as the reduction of 15 spaces at the Chicago Tuck Lot. We removed these spaces from the 2030 campus inventory for modeling purposes. Projections will differ if this date changes. Walker assumed 750 spaces are built in the Patient Care Underground Garage by 2030. The total project costs of these spaces are estimated at \$50,400 per space in 2020 dollars. Actual costs will vary. All decimal places were rounded to the nearest whole number.

Source: Walker Consultants, 2020

By Year 2030, a deficit of 322 spaces is anticipated for the HCMC campus if the above conditions are met. HCMC should consider facilitating additional offsite parking space leases and/or constructing an additional parking facility as a contingency, if a standalone Purple Ramp structure is not permissible.

LEASE SCENARIO UPDATE

Additionally, Walker updated our parking lease assumptions preliminary budget estimate. In this revised scenario we have assumed that more parking leases will need to be facilitated given the reduced capacity Purple Ramp scenario reviewed above.

Parking Space Lease Ten Year Estimates – Purple Ramp Expansion Contingency Scenario

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Supply Need ¹	0	660	660	608	608	608	608	322	322	322	322
Average Lease Rate per Unreserved Space ²	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Estimated Costs per Month	137	140	143	145	148	145	154	157	161	164	167
Estimated Annual Costs ³	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
	-	92,228	94,073	88,394	90,162	88,415	93,805	50,673	51,687	52,720	53,775
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
		1,106,741	1,128,876	1,060,733	1,081,947	1,060,982	1,125,658	608,077	620,239	632,644	645,297
<i>10 Year Preliminary Budget Estimated</i>											\$
											9,071,193

Notes:

- Supply needs are modeled based upon Walker's understanding of the HCMC Campus Master Plan and interim parking plan. We assume that by Year 2023 the Purple Ramp expansion will be complete and that by Year 2027 750-spaces will be constructed at the Patient Care Underground Garage.
- Average Lease Rate for unreserved space based upon January 2020 average market rates as surveyed. Walker assumed a 2% annual rate increase. Actual rates subject to change.
- Assumes monthly contract leases in effect until the Year 2030.

Source: Walker Consultants, 2020

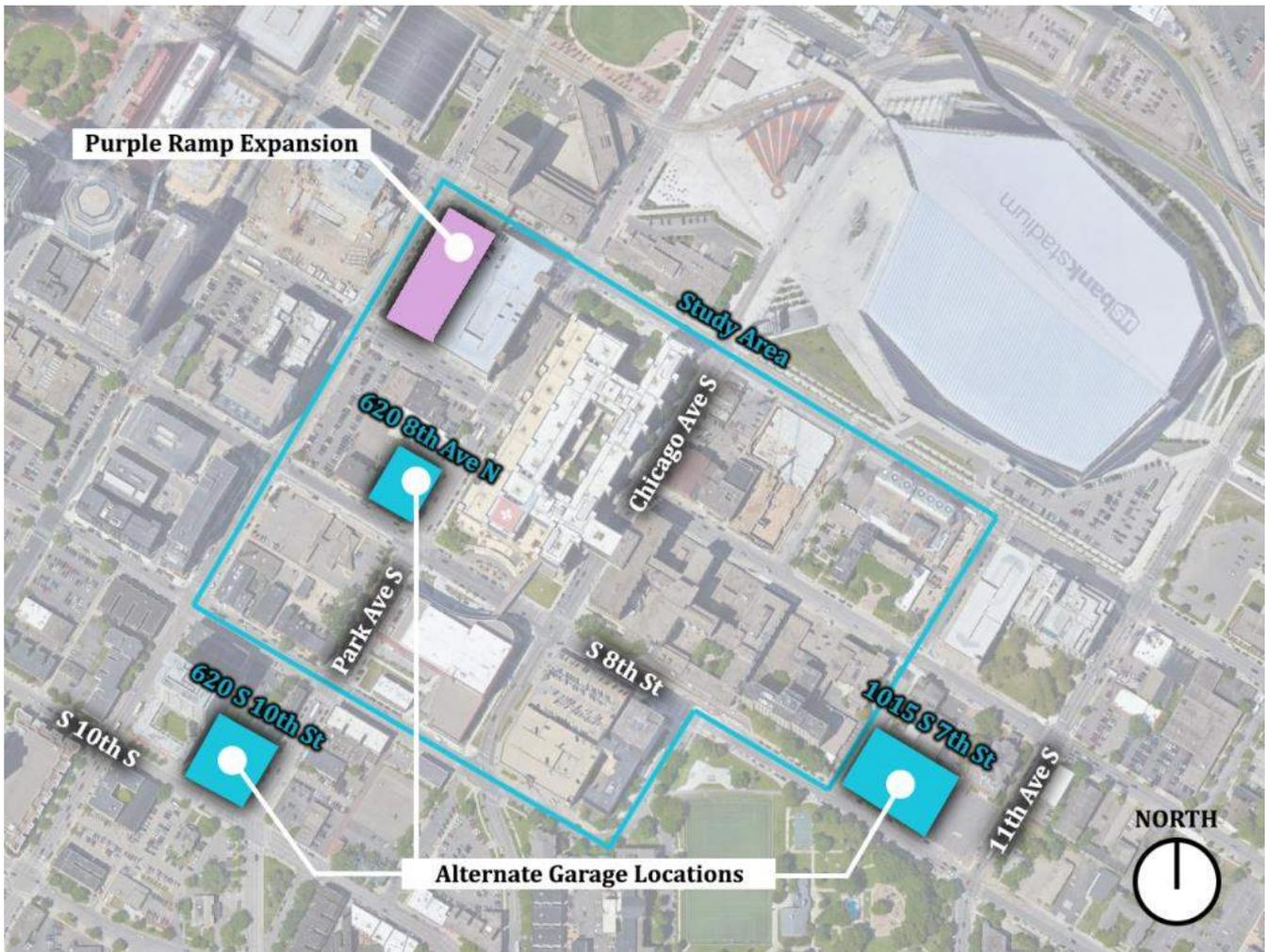
One option available to the HCMC campus is to facilitate off-site leases during the interim ten-year period and beyond. If the Purple Ramp capacity is reduced, more off-site leases might be required to close the deficit of spaces forecasted for the HCMC campus. In our final report, three facilities were highlighted as available at the time of our survey: 1010 Ramp, Fleet Farm Garage, and 425 Park Avenue Ramp with a combined supply of 660 ± unreserved monthly spaces available.

Further, Walker is informed that Minneapolis Parking, pre-COVID, could accommodate an additional 500+ daily parkers at the Leamington Ramp located within a reasonable walking distance. We recommend that HCMC further evaluate these additional facilities. We estimate a preliminary cost of \$9+ million to facilitate offsite leases during the interim ten-year period if the above assumptions are met. Actual rates and facility availability arep subject to change.

ADDITIONAL OPPORTUNITY SITES FOR ADDED PARKING CAPACITY

Three opportunity sites for new parking ramp construction were reviewed: 620 8th Avenue N. surface lot, 620 S. 10th Street lot, and the 1015 S. 7th Street “Shapiro” Lot. Evaluating the suitability of these three sites, we found that the Shapiro lot offered the best opportunity for an efficient parking garage layout.

Parking Ramp Alternative Sites



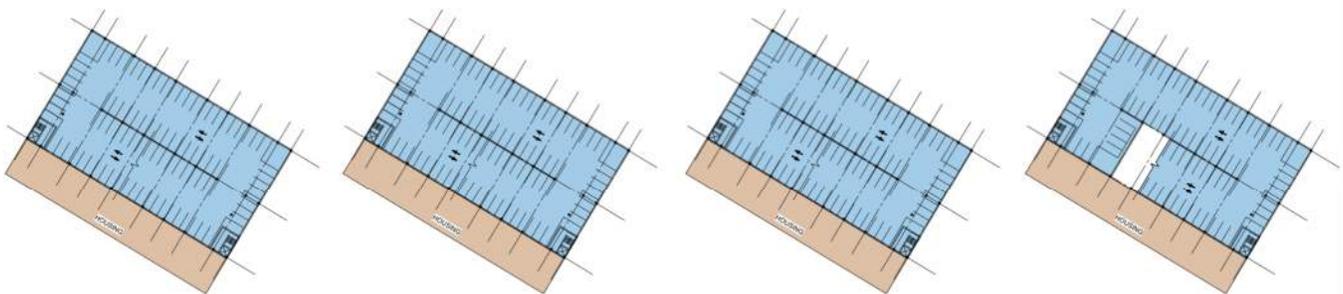
Source: Walker Consultants, 2020

The following drawings depict a parking garage concept for the Shapiro lot site, also with a housing holdback applied.

Shapiro Site Garage Concept – 5-levels, 424 spaces


CAR COUNT
 8'-6" 90" STANDARD SPACE

TIER	SPACES	AREA (SQ FT)	EFFICIENCY (SQ FT/SPACES)
GROUND	74	23,700	320
2ND	90	26,900	298
3RD	90	26,900	298
4TH	90	26,900	298
TOP	80	25,000	312
TOTAL	424	129,400	305

GROUND TIER

2ND TIER
3RD TIER
4TH TIER
TOP TIER

Source: Walker Consultants, 2020

An alternate garage solution applied to the 1015 S 7th Street Shapiro lot site, including a future housing site holdback on one side, provides **424 parking stalls**. **An opinion on probable costs for this revised concept is \$15.1 million in 2020 dollars** (\$35,520 per space x 424 spaces constructed). The top tier is presented with no screening

The construction of this facility would close the deficit of spaces anticipated for the HCMC campus, if Purple Ramp expansion parking capacity is reduced by 443 spaces due to residential accommodation.

HCMC Campus Parking Study Area & Greater Downtown Aerial Map



Source: Walker Consultants, 2020

