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uptown &
seattle center

STRATEGIC PARKING STUDY

seattlecenter

transpogroup

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INTRODUCTION

The Uptown Urban Center and Seattle Center are exceptional places for people to live, work, visit and play. As a regional destination and economic engine for the City, this area is key to Seattle's future and how it will adapt to expected population growth over the next 20 years. Decisions made about Uptown and Seattle Center will impact Seattle's environment, access to arts and cultural events, jobs, affordable housing, racial equity, and social justice for years to come.

Access, including multi-modal transportation and parking, is an issue that will impact virtually every decision about growth in the Uptown area. Parking is a significant piece of Seattle's transportation system. For Uptown and Seattle Center, parking plays a vital role in providing access to this area for residents, employees, and visitors.

This Uptown/Seattle Center Strategic Parking Study (Study) is the most comprehensive look to date at parking. It is not a plan, it a baseline of information that will help inform decisions affecting Uptown and Seattle Center.

KEY FINDINGS

This Study confirms that the area around Seattle Center has sufficient parking during most days, but the public parking supply begins to reach capacity during large event evenings and weekend festivals. Parking congestion happens about 120 days per year, including 30-35 days when demand from peak evening events and weekend festivals fills nearly all publicly available parking in the area.

Other findings in the Study include:

- Maintaining access to Seattle Center and Uptown at the same level experienced today will require a variety of transportation strategies as the area continues to grow and change.
- The arrival of Link Light Rail in 2035 will improve access and reduce pressure on the parking supply in Uptown. Until then, the City should manage the parking supply in phases, as zoning changes, capital investment and plans for Seattle Center take shape. Because travel options, patterns of development, and parking can change substantially over time, the City should use an adaptive approach to manage access and parking in Uptown.
- Without other major changes to travel costs or behaviors, it is estimated that roughly 6700 of today's 7400 total publicly available parking spaces in Uptown may still be needed to handle event parking demand once Link Light Rail service reaches Seattle Center in 2035.
- Maintaining 6700 public parking spaces may be achieved by retaining or replacing approximately half of the stalls in the 1300-stall Mercer St. Garage, if the site of the garage is redeveloped in the future. The Mercer St. Garage is 54 years old and has significant deferred maintenance issues that will need to be addressed if its useful life is to be extended.

THE IMPORTANCE OF UPTOWN AND SEATTLE CENTER

Uptown is one of the oldest neighborhoods in Seattle and, as a designated Urban Center, it serves as an important resource for housing, jobs, transportation, and arts and cultural activities. With 297 acres, it is home to about 9,300 residents and 15,000 jobs. Seattle 2035, Seattle's Comprehensive Plan, estimates Uptown will grow by 3,000 housing units and 2,500 jobs by 2035.

Seattle Center hosts 12 million visitors annually. It is the busiest destination for arts, culture and entertainment in Washington State, attracting local, national, and international visitors. It is also the home to more than 30 cultural, educational and entertainment organizations, both for-profit and non-profit, providing thousands of free or low-cost events and activities each year.

Seattle Center plays an essential role in supporting arts and culture. By providing affordable spaces for performances, rehearsals, production and operational support, Seattle Center has enabled the Seattle Opera, Pacific Northwest Ballet, Seattle Children's Theatre, Northwest Folklife Festival, Bumbershoot, Seattle Repertory Theatre and others to grow their audiences and become foundational to the cultural identity of our City. Seattle Center also advances the City's commitment to eliminate racial disparities and achieve racial equity. The year-long, free series of cultural celebrations known as Festal and the July 4th naturalization ceremony welcoming new US citizens are examples of public events that promote and celebrate Seattle's rich diversity.

HOW UPTOWN URBAN CENTER AND SEATTLE CENTER IMPACT SEATTLE'S FUTURE

Seattle's Comprehensive Plan, Seattle 2035, is a framework for how the City can grow while preserving and improving neighborhoods. It guides decisions on where to locate urban centers and villages that are hubs for new jobs and housing, how to improve our transportation system, and where to make capital investments such as utilities, sidewalks, and libraries.

As one of the four contiguous Urban Centers in the downtown area designated in the Comprehensive Plan, Uptown plays a key role in downtown's growth, with Seattle Center representing nearly one-fourth of the Uptown neighborhood's geographic area.

At Seattle Center, KeyArena is the biggest event venue and the number one driver of spectator event attendance on campus. In 2017, the City of Seattle will ask for proposals that could substantially change how KeyArena is currently used and enhance its ability to draw visitors. All proposers will be asked to address the impacts of their proposal on transportation and parking in the Uptown area. This study will be provided to proposers as a reference for those responses.

This study analyzes the effects of future growth based on the highest-intensity projections studied in the Uptown Rezone Environmental Impact Statement (EIS). The impact of new and emerging transportation trends will need further analysis as more information becomes available. Changes such as Link Light Rail, the growth in car sharing services, the reduction of single occupancy vehicles, pricing strategies, and more will all play a role in future planning.

FRAMEWORK

FRAMEWORK

This Strategic Parking Study is a tool to help inform future planning efforts in Uptown and Seattle Center. It evaluates existing public parking conditions, models the impacts of estimated future growth, and identifies short- and long-term strategies to manage parking.

This Study was coordinated with the transportation analyses for the Uptown Rezone EIS, to help consider and develop parking strategies for on and off-street parking.

The process for preparing both documents involved meetings with key stakeholders including local businesses, residents, and Seattle Center organizations. See Appendix A for a full list of outreach events and a summary of notes.

Here are some of the key considerations reflected in this Study:

- The needs of the resident arts and cultural organizations at Seattle Center to be sufficiently accessible for their patrons, especially those attending evening performances/events
- Changes in transportation behavior over time (or shifts in mode of travel)
- The goals for Uptown described in the Uptown Urban Design Framework (UDF)
- The Seattle Center's Century 21 Master Plan Planning and Design Principles
- The City of Seattle's policies and procedures
- The financial stability of Seattle Center, for which parking is a substantial revenue generator
- The operational and financial importance of the Seattle School District's public parking lot at Memorial Stadium
- Seattle Center's role as an inclusive, equitable destination and resource for local, regional and global visitors

SPECIFICS OF THE STUDY

Implications

- When the Link Light Rail expands to Seattle Center and Uptown in 2035 the area will have direct access to a high capacity transit (HCT) system that currently does not exist. This will dramatically expand transportation choices and provide alternatives to parking in the area during peak times
- In the 18-20 years before Link Light Rail arrives, coordination between Seattle Department of Transportation (SDOT), Seattle's Office of Planning and Community Development (OPCD), and Seattle Center will be needed to address access and parking challenges

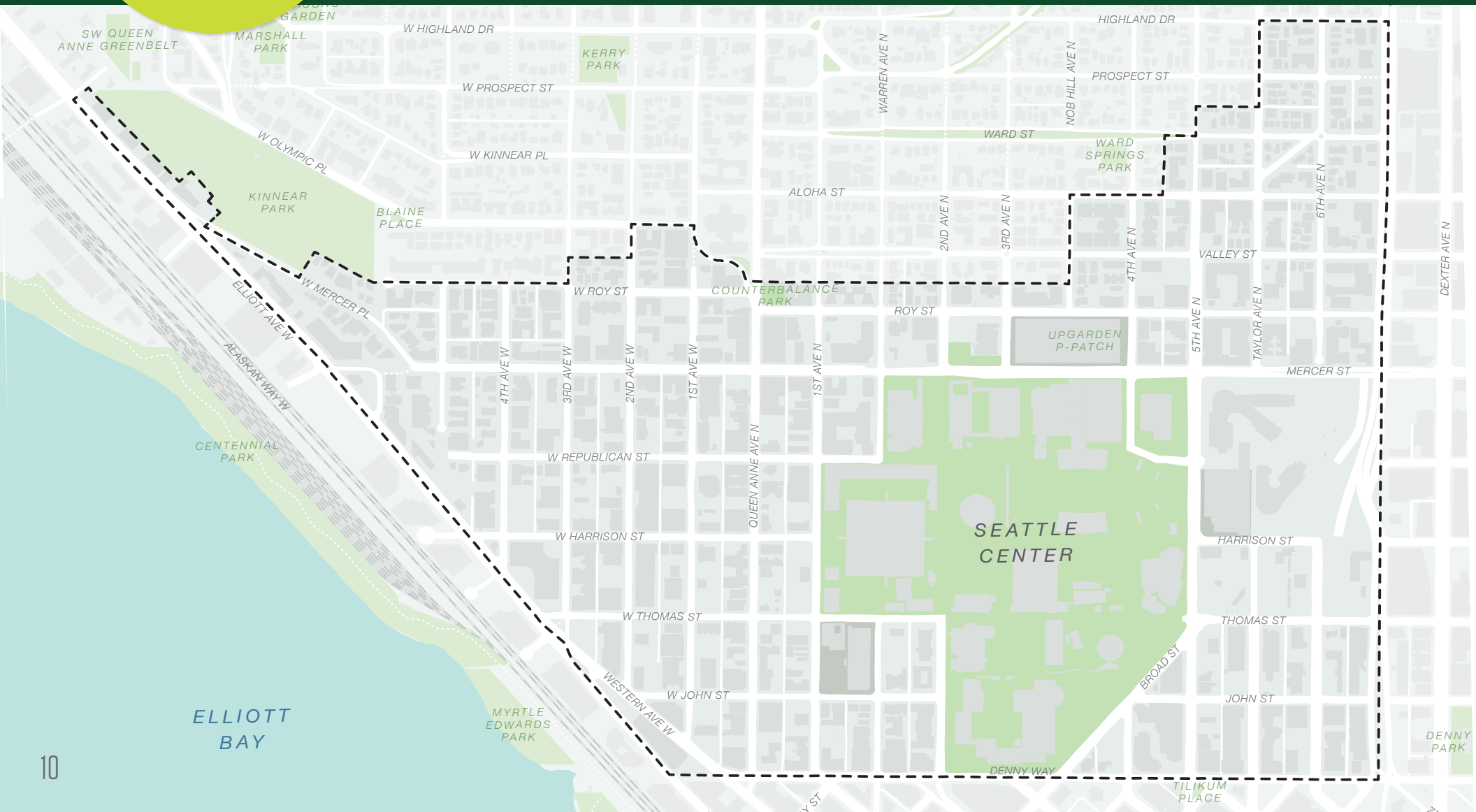
Strategies

- SDOT will continue regulating on-street parking in commercial and mixed use areas to prioritize short-term on-street parking
- The City will continue development of the One Center City plan for coordinating and improving access across the major downtown Seattle neighborhoods, and will make recommendations for further improvements over time
- The City will use Uptown-specific and city-wide codes as tools to improve parking and access options
- Transportation system improvements such as adaptive signalization on Mercer, Valley, Roy and Denny, and planned improvements to bike and pedestrian infrastructure will continue to occur as the neighborhood grows
- Seattle Center will manage its parking garages with the goal of minimizing impacts on the Uptown neighborhood
- The Study recommends an adaptive management strategy with regular evaluation of local access and parking conditions, and other measures of the performance of all management tactics. This will help focus future plans on actions that are working as different needs emerge

UPTOWN URBAN CENTER

The Uptown Urban Center includes Seattle Center and the surrounding area as illustrated below. It extends between Elliott Avenue on the west, Denny Way on the south, Mercer on the north, and Dexter Avenue on the east.

Today, Seattle Center is celebrated as a vital part of Uptown with a collaborative role in the neighborhood's economic vitality, arts and culture, and open space. The Uptown UDF envisions that future development will lead to further integration of Seattle Center and the neighborhood with improved wayfinding, activation of open space and branding. The Uptown UDF also supports the continued successful achievement of the Seattle Center Century 21 Master Plan.



PARKING AT SEATTLE CENTER

Seattle Center operates three garages which provide essential parking capacity for event attendees, contributing to the vitality of the 30+ resident organizations. Without sufficient access for visitors, including parking, these organizations would not be able to attract the season ticket holders, subscribers, members, and attendees needed to sustain them.

The parking patterns in Uptown differ from those in more typical mixed-use neighborhoods because parking demand at Seattle Center garages rises and falls due to events and attractions on campus.

PLANS AND PROJECTS influencing PARKING PATTERNS

A variety of plans guide transportation throughout Seattle and within the Uptown neighborhood. Those plans and projects include:

- **One Center City**, a joint planning effort about mobility issues, currently underway by Metro, Sound Transit, City of Seattle and the Downtown Seattle Association
- **Seattle 2035 Comprehensive Plan**
- **Seattle Center Century 21 Master Plan**
- **Lake2Bay Mobility Study**
- **Alaskan Way Viaduct Replacement project**
- **Uptown Urban Design Framework**

EXISTING PARKING CONDITIONS

To understand the existing parking conditions, the study team collected data within the Uptown area to document supply, occupancy, restrictions, time limitations and price. Data was then summarized for both on-street and off-street parking facilities where public parking is available.

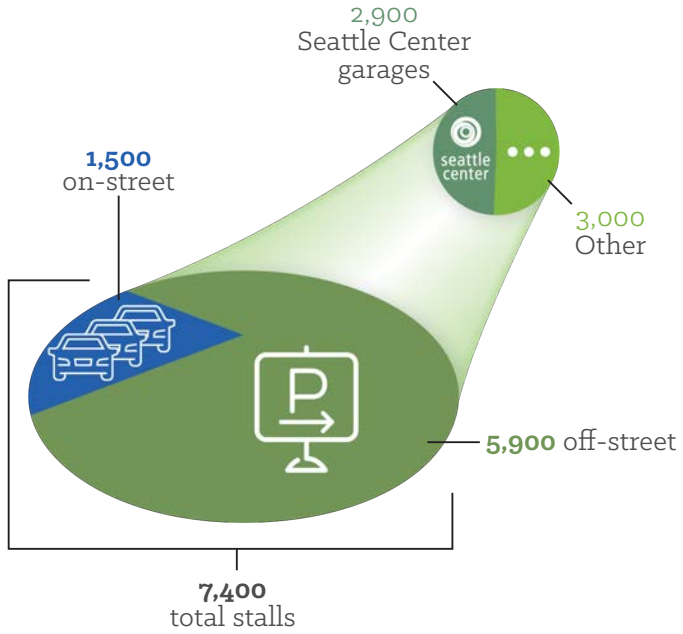
The data collection did not include parking that is not available for public use, such as gated residential garages or other reserved parking dedicated to specific uses, like the garages below the Metropolitan Market or QFC grocery stores. Data was not available, nor collected, for the area north of Valley Street between Nob Hill Avenue N and Aurora Avenue N.

Seattle Center Parking Garages

Nearly half of the publicly accessible off-street parking spaces in Uptown are located in the three Seattle Center garages – Mercer St., 1st Ave. N., and 5th Ave. N. These structures provide a total of 2,944 parking spaces.

In 2015, Seattle Center's garage operations generated combined annual revenue of $5.9 million. Parking is a major revenue generator for Seattle Center.

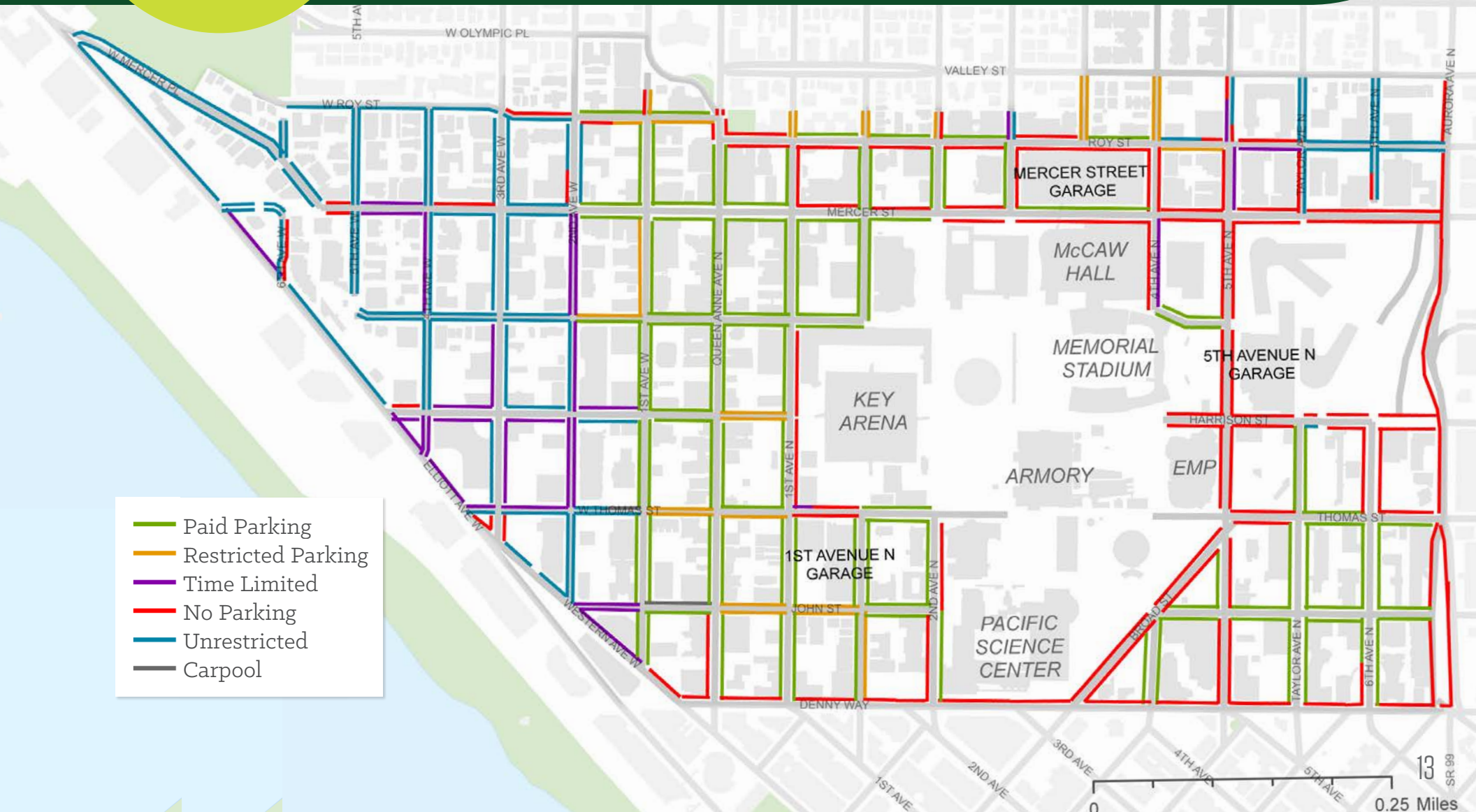
PUBLIC PARKING SUPPLY BREAKDOWN



ON-STREET PARKING

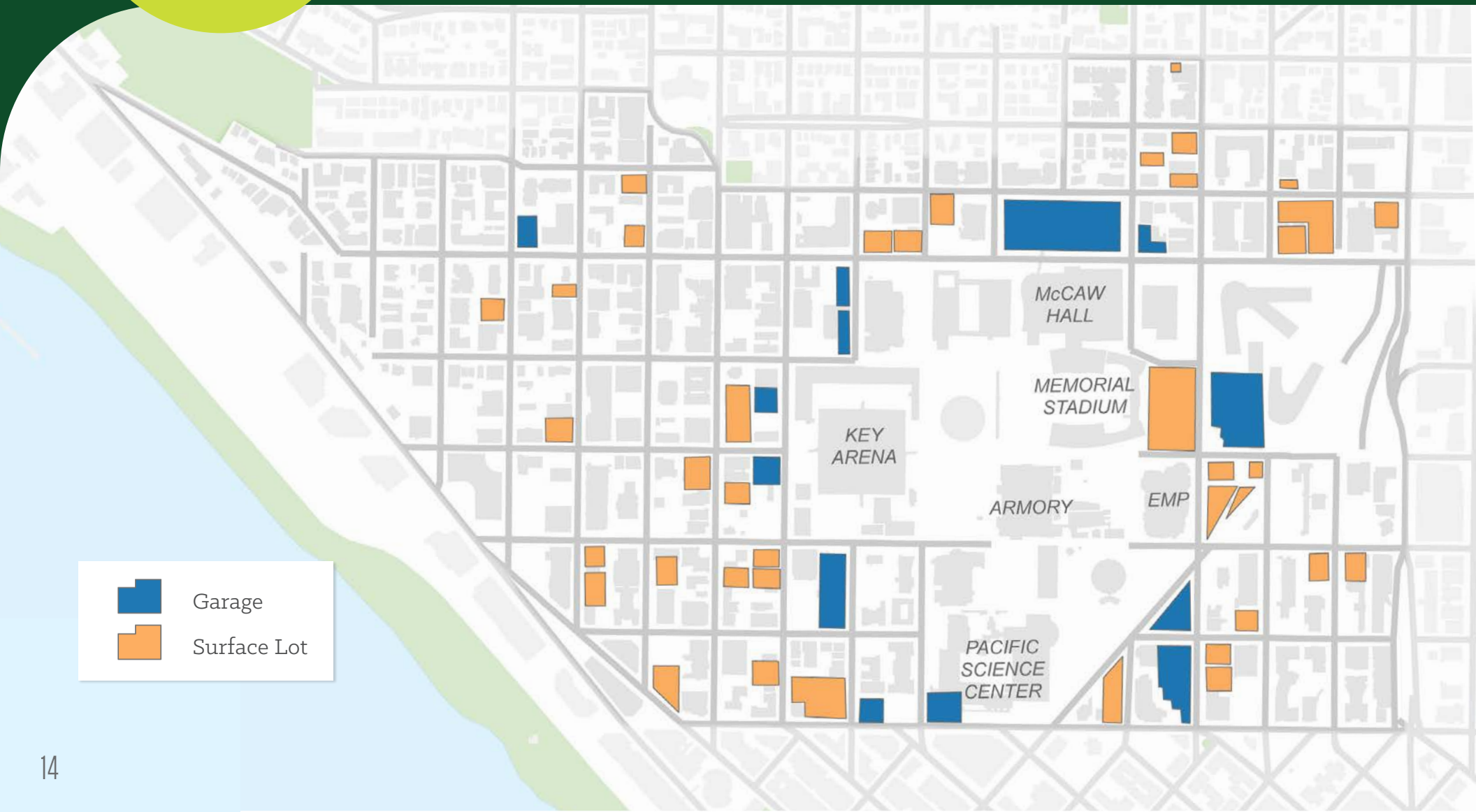
The study area included about 1,500 on-street parking spaces. This does not include on-street Restricted Permit Zone (RPZ) parking.

Approximately half of the on-street parking studied is paid parking. These spaces are generally limited to 2-hours in the busier core areas and 4-hours in the periphery, with some 10-hour parking within the Uptown Triangle (south of Broad Street, north of Denny Way and west of Aurora Avenue N). The study area included approximately 5,900 public off-street parking spaces.



OFF-STREET PARKING

Data were collected for approximately 50 off-street parking facilities, including Seattle Center's three parking garages.



OFF-STREET PARKING

This heat map illustrates the locations where the most off-street parking supply is provided. The red color in the north and east portions of Seattle Center represents the areas with the highest supply of publicly available parking. The high concentration of stalls in this area is mainly attributable to the Mercer St. and 5th Ave. N. Garages.

MERCER STREET GARAGE

The Mercer St. Garage was built for the 1962 World's Fair. It is a 2- block, above ground garage that was intended to provide access to post-fair civic center. The current capacity holds 1,307 cars. Due to the garage's age and condition, as well as the increased density and development pressure in the neighborhood, the 2008 Century 21 Master Plan recommended that it be demolished and replaced by an underground parking structure of approximately 1,300 spaces in the bowl of the current Memorial Stadium.

The Century 21 Master Plan recommended covering this underground parking with a green lid adjacent to a new playing field that would significantly increase open space in the heart of the campus, adjacent to the International Fountain. The Master Plan designated the Mercer St. Garage site as mixed use development with amenities at the street level to enhance the Theater District. The Uptown Urban Development Framework shows significant support for this proposed redevelopment.

Seattle Center is looking at additional options for replacing some portion of the capacity of the Mercer St. Garage; factors that will need to be considered at that time include:

- Event attendance/occupancy patterns in Uptown
- Alternative transportation options available in Uptown
- Opportunities for providing shared parking with existing or new land uses in the vicinity
- Access needed near the Theater District
- Capital and operating costs of building replacement parking in the vicinity of the Mercer Garage site, relative to the projected benefits
- Capital cost of deferred major maintenance for the existing structure if it is retained

PRICING

Pricing has a direct impact on parking demand. Seattle Center establishes the parking rates for its garages. Seattle Department of Transportation regulates the price of on-street parking, and makes annual rate changes, as needed, based on demand in the area.

Rates for off-street parking in Uptown have a wide range. The average rate is $14 for up to 10 hours of parking. Seattle Center's 2016 parking prices, which average $12 for 2-12 hours of parking, are below this average rate.

OCCUPANCY

The study found that there is excess off-street parking in Uptown during most daytimes and evenings. About one-third of the evenings (125 times per year), some level of parking difficulty is experienced, including peak event evenings and festivals, which exceed the capacity of the entire parking supply approximately 20-30 times per year.

Standard Daytime and Evening Activity, Event Evening, and Festival Conditions

Seattle Center activities and events fall into three categories: Standard Daytime and Evening Activity, Event Evening, and Festival conditions. This analysis includes quantitative parking data for the three Seattle Center garages and publicly available on-street and off-street parking. See Appendix B for a list of the parking data sources. A qualitative analysis of how event conditions impact parking in the surrounding neighborhood is provided.

Standard Daytime and Evening Activity Conditions

During most daytimes, parking demand is mainly driven by visitors to Seattle Center's museums, attractions and exhibits. These are low impact activity conditions that occur most days (about two-thirds of the time), with seasonal and holiday fluctuations, and taper off into the evening. Museums and exhibits include:

- Museum of Popular Culture (MoPOP)
- Space Needle
- Chihuly Garden and Glass
- Pacific Science Center
- The Children's Museum
- Armory activities

Occasional events at Seattle Center, like school performances, corporate meetings, and visiting speakers, can use up a lot of parking spaces during weekdays. These events do not occur on a regular schedule and are not included in this analysis.

Event Evening Conditions

Evening conditions are driven by a higher level of activity associated with spectator events that occur about 120 evenings per year. Contributing venues include:

- KeyArena (109 events total, 19 events with more than 10,000 attendees in 2015)
- McCaw Hall (184 evening performances averaging 1,900 attendees)
- Space Needle/Chihuly high capacity/special events (100 events with 2,500-3,000 attendees)
- Seattle Repertory Theater (performances up to about 1,000 attendees when both theaters in use)
- MoPOP (music performances with up to 1,000 attendees)
- Pacific Science Center IMAX (film showings up to about 500 attendees)
- Cornish Playhouse (performances up to 500 attendees)
- Memorial Stadium (events range from field use for athletic team practices to high school graduations of 5,000+)

A range of Event Evening Conditions were evaluated:

- *Low Event Evening* One or more spectator events at Seattle Center venues with a combined attendance of up to 10,000 people.
- *Heavy Event Evening* Multiple events occurring at the same time attracting between 10,000 and 15,000 people.
- *Peak Event Evening* A large event at KeyArena combined with other events, attracting 15,000 to 20,000 people.

Festival Conditions

Several weekends throughout the year, Seattle Center hosts large festivals such as:

- Northwest Folklife Festival
- Bumbershoot
- Bite of Seattle

Festivals occur 10 to 12 days per year and attendance levels vary between 30,000 and 60,000 per day. During festival conditions attendees arrive and leave throughout the day, so the pressure on the parking supply is modulated across the day and evening as compared to large ticketed events with a specific start or "curtain" time.

EVENT TYPE	FREQUENCY	ATTENDANCE
STANDARD DAYTIME & EVENING ACTIVITIES	EVERY DAY	FLUCTUATES SEASONALLY
EVENT EVENING	125 DAYS PER YEAR: low (85)	<10,000
	125 DAYS PER YEAR: heavy (15 - 20)	10,000 - 15,000
	125 DAYS PER YEAR: peak (10 - 15)	15,000 - 20,000
FESTIVAL	125 DAYS PER YEAR: festival (10-12)	30,000 - 60,000 PER DAY

Data in this chart is based on Seattle Center 2015 events. See Appendix C for additional detail.

Seasonal Fluctuation

Event activity as well as general attendance at the Seattle Center varies monthly. Figure 1 below summarizes the seasonal fluctuation of on and off-street parking in Uptown.

As shown in Figure 1, there is little seasonal variation for on-street parking; however, off-street parking can fluctuate by almost 40 percent between high and low seasons. Tourism and event activity during the summer months and the December holidays drive seasonal peaks, with lower activity occurring throughout most of the winter. The hourly occupancy curves are summarized for the peak July condition when parking is the busiest (see Figure 2).

FIGURE 1: SEASONAL VARIATION

Standard Daytime and Evening Activity Conditions

As Figure 2 illustrates, between 8 a.m. and 8 p.m. without large Seattle Center events, the overall public parking peak occupancy is 67 percent for the study area. This occupancy pattern reflects typical commuter use. The majority of the available daytime capacity is in the Seattle Center garages.

The opening of Chihuly Garden and Glass in 2012 coincided with the economic recovery, and Seattle Center's museums, attractions, and exhibits have since experienced consistent attendance growth. These daytime attractions are clustered in the southeastern quadrant of the campus, without close proximity to any of the Seattle Center parking garages (with the exception of Pacific Science Center, which has its own garage). The privately operated Space Needle valet reports a 6% increase in demand for its services (from 56,500 annual parkers to 60,000) between 2013 – 2015 and parking at the 5th Ave. N. Garage reflects a consistently high daytime utilization.

At the noon peak, occupancy is high in the parking areas in the east portion of Uptown that support large employers and Seattle Center daytime activity. The evening period is busier in the western portion of Uptown, due to residents coming home from work and visits to restaurants and bars in the area.

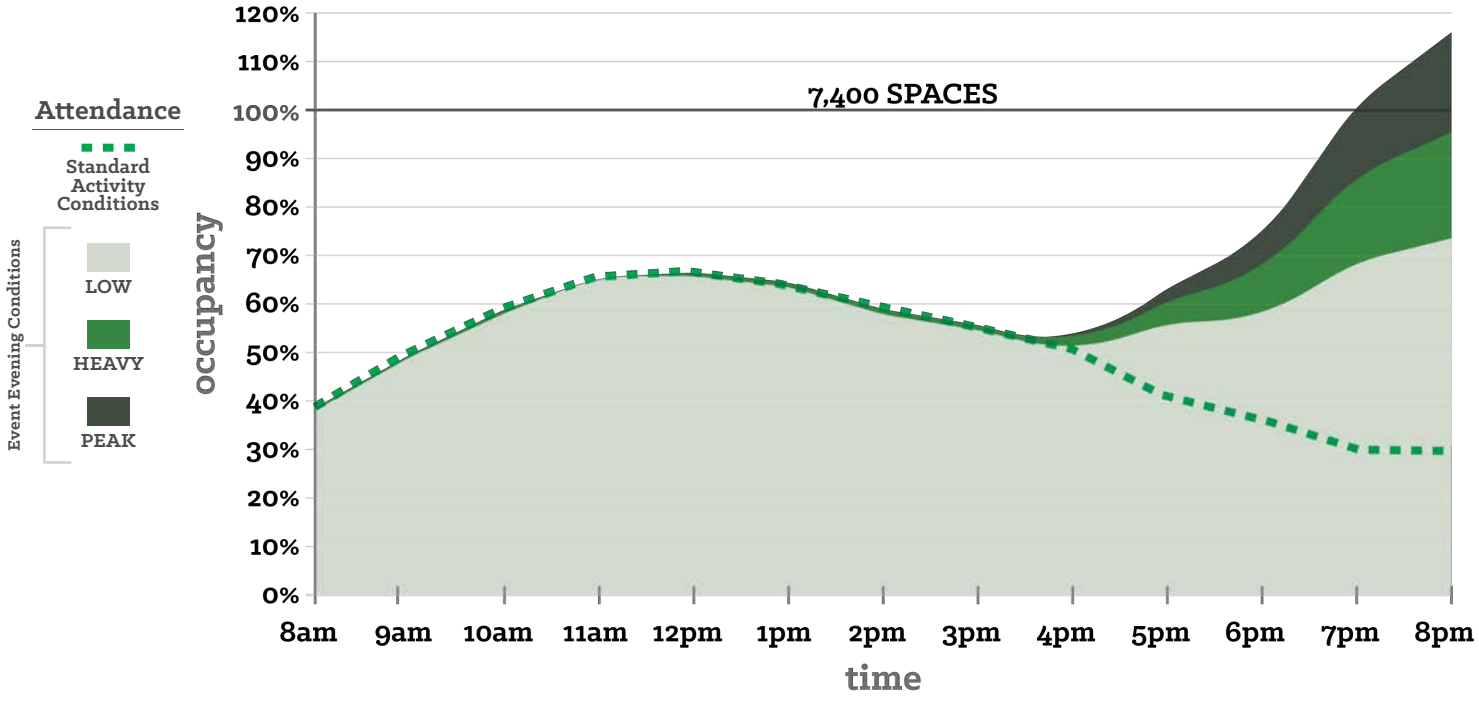
Event Evening Conditions

The study evaluated the Standard Daytime & Evening activity levels, and layered on a Low Event Evening with attendance of up to 10,000 patrons, a Heavy Event Evening with 10,000 to 15,000 patrons, and a Peak Event Evening with 15,000 to 20,000 patrons, assuming ticketed events all start between 7-8 pm.

Figure 2 summarizes the overall public parking occupancy levels during Standard Daytime and Event Evening conditions.

On Event Evenings, parking occupancy typically begins to increase in Uptown around 4 p.m. A Low Event Evening draws up to 10,000 people, which is the same as daytime weekday peaks. During Heavy Event Evenings, when event attendance is between 10,000-15,000 people, the public parking supply is about 75-95 percent full. During Peak Event Evenings, when attendance levels exceed 15,000 people, the public parking supply is at capacity and parking congestion occurs in the adjacent neighborhoods and residential areas.

FIGURE 2: EXISTING STANDARD ACTIVITY AND EVENT EVENING CONDITIONS (WEEKDAY)

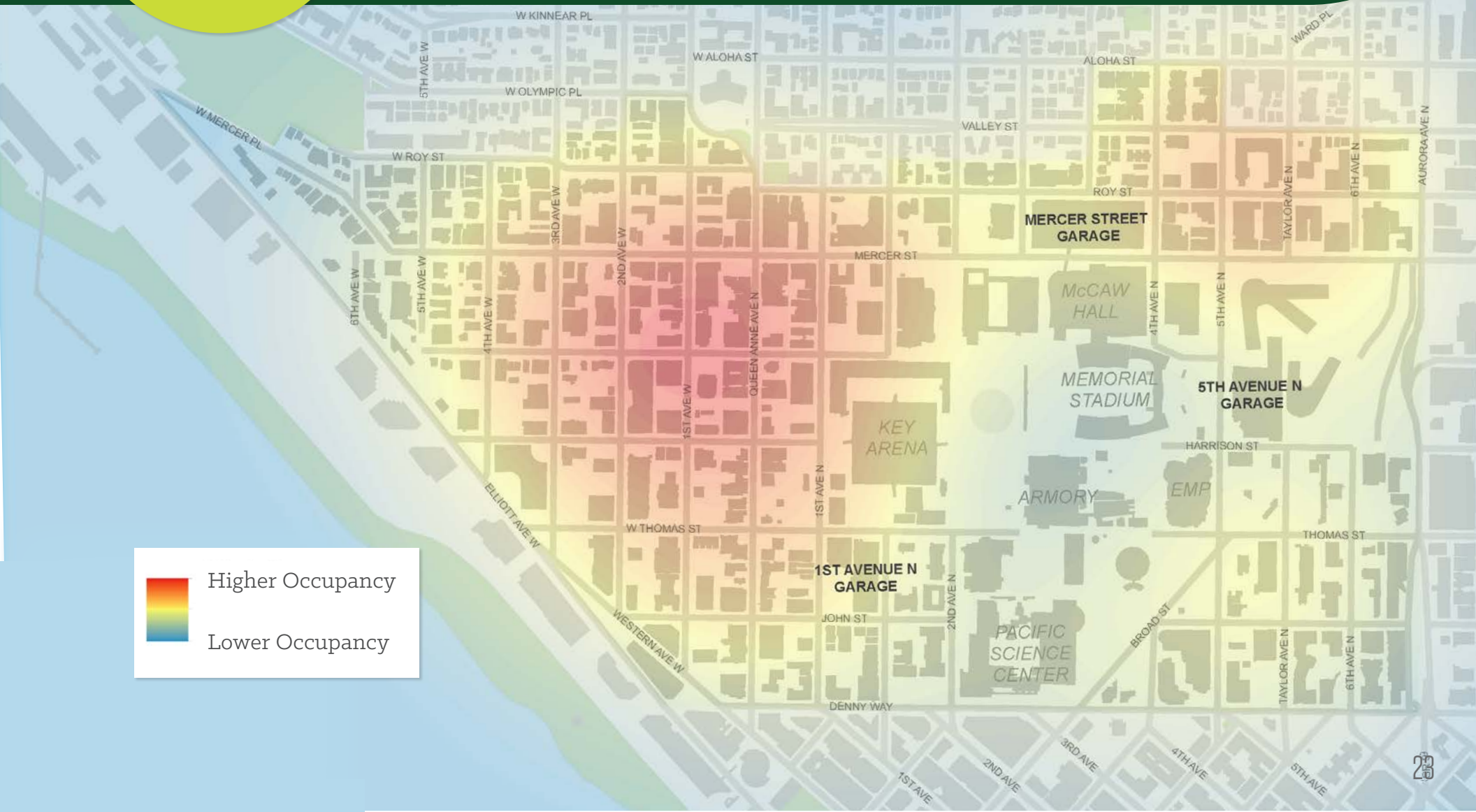


12:00PM PARKING DEMAND

This heat map illustrates where the highest volume of parking occurs at 12:00pm when there are no large ticketed events or festivals.

8:00PM PARKING DEMAND

This heat map illustrates where the highest volume of parking occurs at 8:00pm when there are no large ticketed events or festivals.

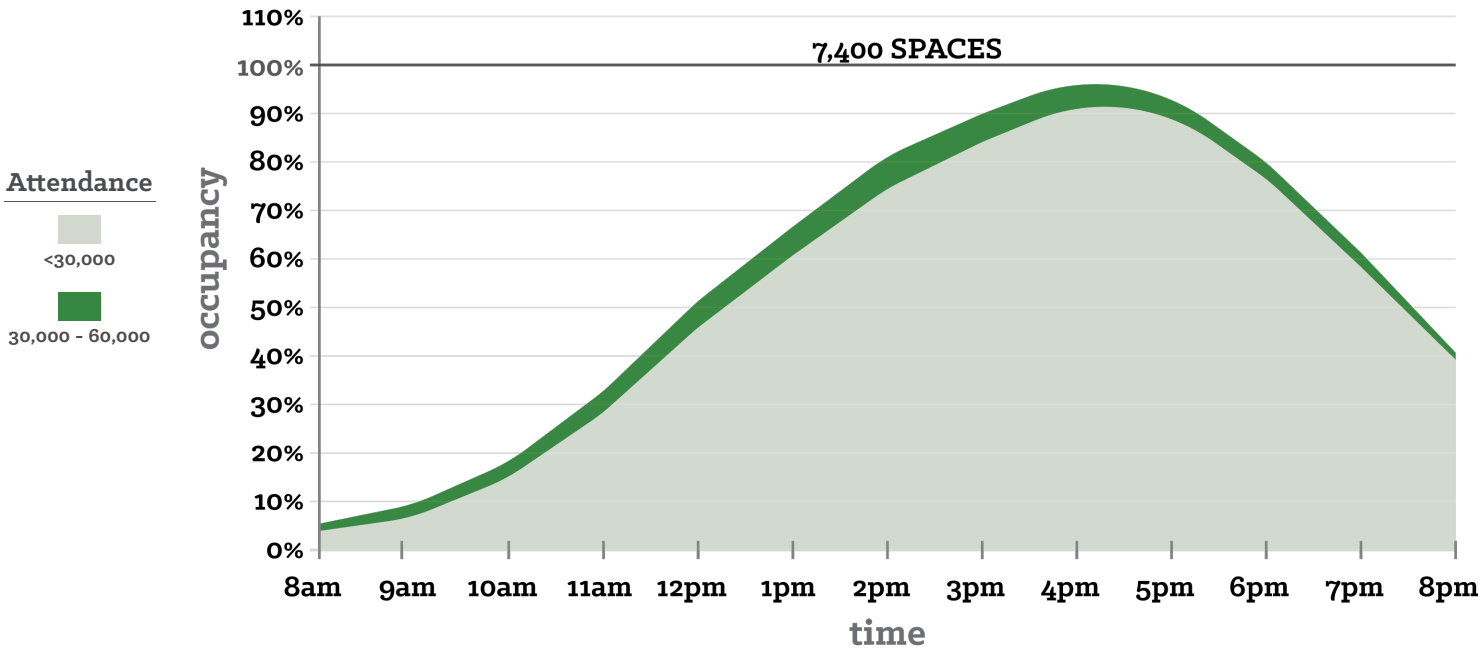


Festival Conditions

Figure 3 illustrates a Festival condition for Seattle Center garages for events of 30,000 to 60,000 people arriving throughout the day and into the evening.

During the weekend, more parking is available for attractions and events at Seattle Center because commuter activity is low. Occupancy levels for festivals tend to peak late in the afternoon between 3 and 5 p.m. When attendance levels reach 30,000 people, parking effectively fills to capacity for about one hour around 4 to 5 p.m. When attendance exceeds 30,000, the period that the garages are fullest may last for 2.5 hours, between 3 and 5:30 p.m. During these periods of peak demand, parking becomes difficult to find in surrounding neighborhoods.

FIGURE 3: EXISTING FESTIVAL CONDITIONS (WEEKEND)



FUTURE PARKING CONDITIONS

Future parking conditions for Seattle Center and Uptown Urban Center were evaluated through the use of a parking demand model. It assumed growth and redevelopment related to the Uptown Rezone and future development in Seattle Center's Northeast Quadrant. Future conditions forecasted for the year 2035, including population and employment growth, are consistent with the Seattle Uptown Rezone EIS.

PARKING MODEL METHODOLOGY

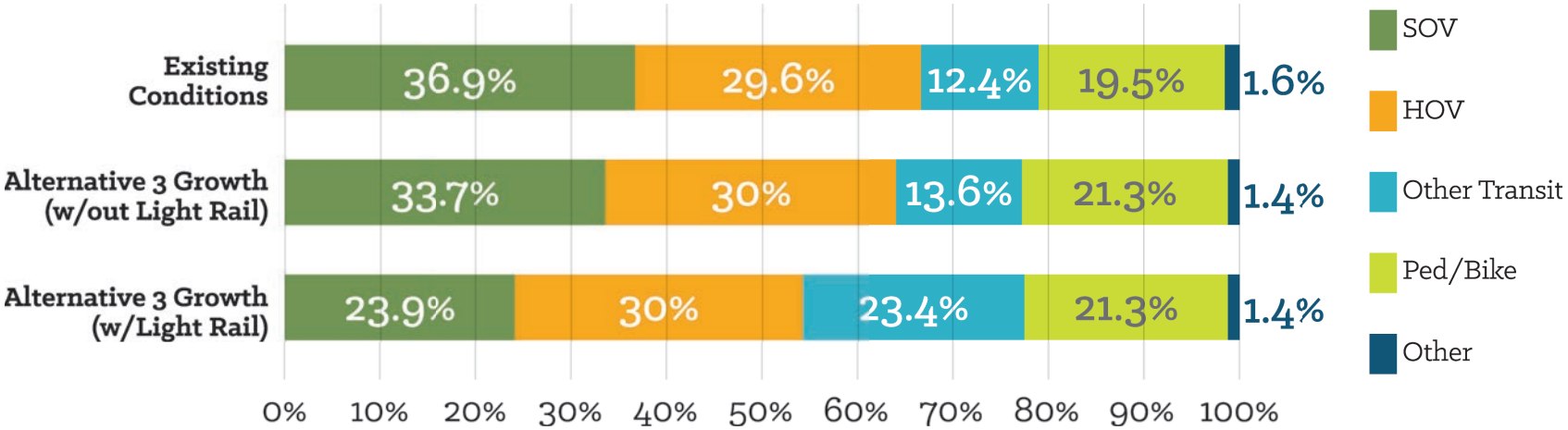
The parking model was developed using existing conditions in Uptown. It was then used to forecast future parking demand assuming neighborhood growth, potential changes in travel behaviors, availability of high capacity transit, and changes in the public parking supply such as a redevelopment of Mercer St. Garage.

Assumptions for Future Growth in Uptown

The model took its assumptions for future population employment growth and transportation use in Uptown from the most aggressive assumptions described in the Uptown Rezone EIS: Alternative 3 (High Rise). This scenario assumes a 20-year growth level 25 percent greater than the City's Comprehensive Plan estimates for Uptown.

Figure 4 illustrates the mode splits for Existing Conditions and the Uptown rezone EIS Alternative 3 with and without Link Light Rail.

FIGURE 4: COMPARISON OF UPTOWN NEIGHBORHOOD MODE SPLITS FOR EXISTING AND UPTOWN REZONE EIS ALTERNATIVE 3 WITHOUT AND WITH LINK LIGHT RAIL



Assumptions for Future Growth and Development at Seattle Center

Changes at Seattle Center will impact parking supply and demand in Uptown. Increased marketing and outreach, and better transportation connections, could add additional patrons to the campus. Creation of new venues on the campus, the possibility of major league professional sports team(s) returning to a new Seattle Center Arena, and more event offerings throughout the campus are addressed at a programmatic level in this study. The Seattle Center Century 21 Master Plan envisioned new facilities on campus and studied the impact of increased attendance in the Master Plan EIS.

See Appendix D for additional detail on the parking model assumptions.

KEY ARENA

The frequency of Low, Heavy and Peak Event Evenings at Seattle Center is the most influential predictor of parking congestion in Uptown. Seattle Center's largest single event venue, KeyArena, hosts approximately 20 events a year with an attendance of 10,000 or more. Depending on what else is happening on evenings when KeyArena hosts a large event, total attendance on campus could reach 15,000 to 20,000 or more.

The City of Seattle is considering opportunities for possible redevelopment of the KeyArena, including the possibility of adding NBA and NHL sports teams. Figure 5 provides an analysis of how these programming changes could influence the number of dates per year when parking congestion affects Uptown -- assuming no change in transportation or parking management from what we see today.

Without transportation mitigation, the total number of Event Evenings that affect Uptown would grow with the addition of NBA and NHL teams. Some of the "Low" and "Heavy" Event Evenings would shift to "Peak," and additional Peak Event Evenings would be added, based on the standard "home seasons" of the NBA and NHL.

A new Seattle Center Arena for future NBA, NHL, and/or entertainment use would require proposers to address the impacts of their proposal on transportation and parking in the Uptown area. This study will be provided to proposers as a resource for those responses.

FIGURE 5: HOW MIGHT PROGRAMMING CHANGES AT A FUTURE SEATTLE CENTER ARENA AFFECT THE FREQUENCY OF LARGE EVENING EVENTS?

ATTENDANCE AT SEATTLE ARENA	NUMBER OF DAYS PER YEAR		
	STATUS QUO (BASED ON 2015 ACTUALS)	NBA ONLY (FORECAST)	NBA + NHL (FORECAST)
Up to 10,000 during PM peak (Low Event Evening)	60	53	42
10,000 - 15,000 during PM peak (Heavy Event Evening)	16	15	9
15,000+ during PM peak (Peak Event Evening)	3	47	89
TOTAL PROJECTED ARENA EVENTS	**79**	**115**	**140**

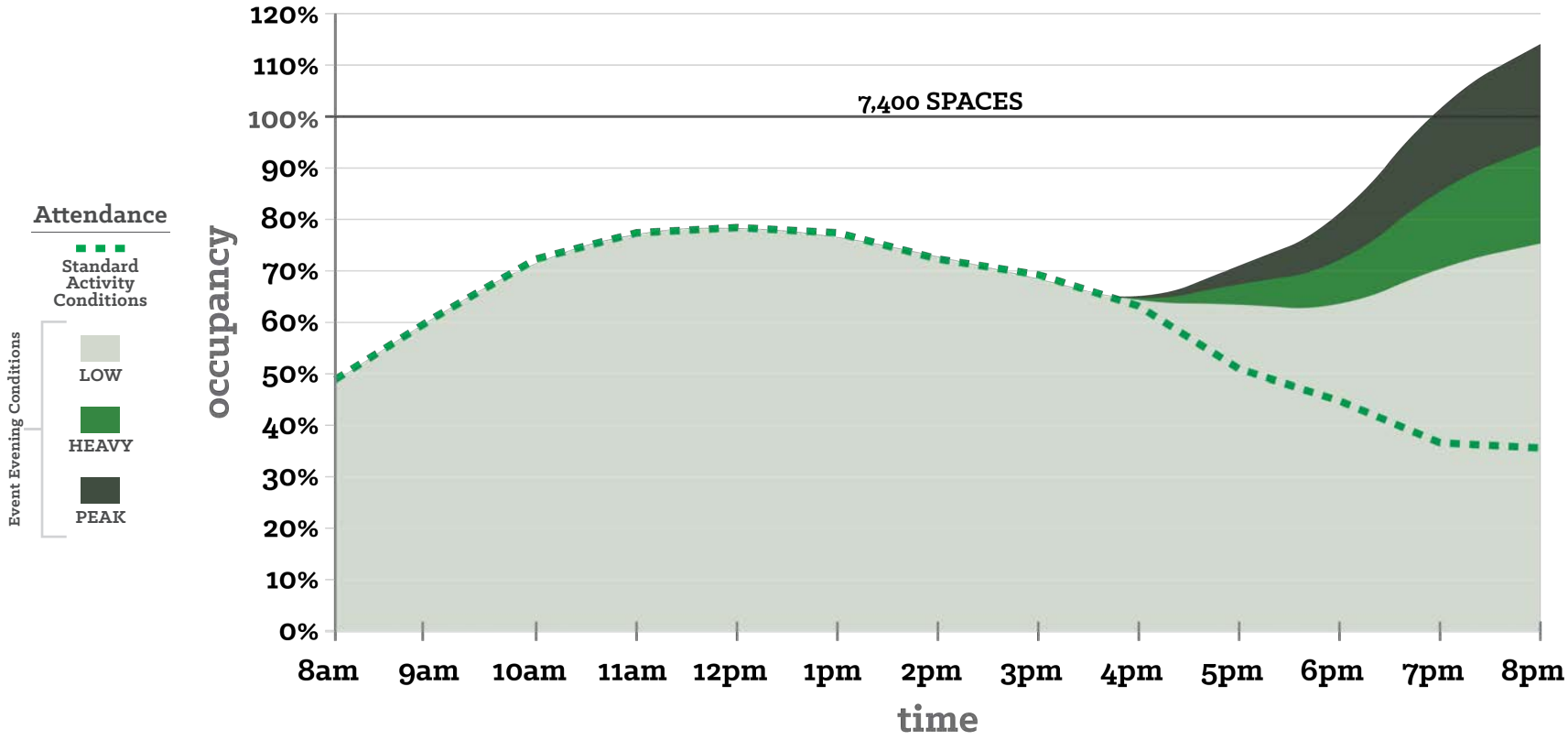
FUTURE PARKING SCENARIO FORECASTING

Future 2035 Conditions

Standard Daytime Activity, Event Evening, and Festival parking conditions were forecasted for the year 2035 and summarized similarly to the analysis of Existing Conditions showed in Section 2. As previously described, the forecasts include assumptions for growth and mode shares consistent with the Seattle Uptown Rezone EIS. Appendix E provides an additional forecast scenario illustrating parking changes without Link Light Rail.

Figure 6 illustrates the hourly demands for 2035 Standard Activity and Event Evening conditions. Similar to existing conditions, during Heavy Event Evenings when event attendance is between 10,000 - 15,000 people, the public parking supply would be about 75 - 95 percent full. During Peak Event Evenings, when attendance levels exceed 15,000 people, the public parking supply would be at capacity and would impact the adjacent neighborhoods and residential areas.

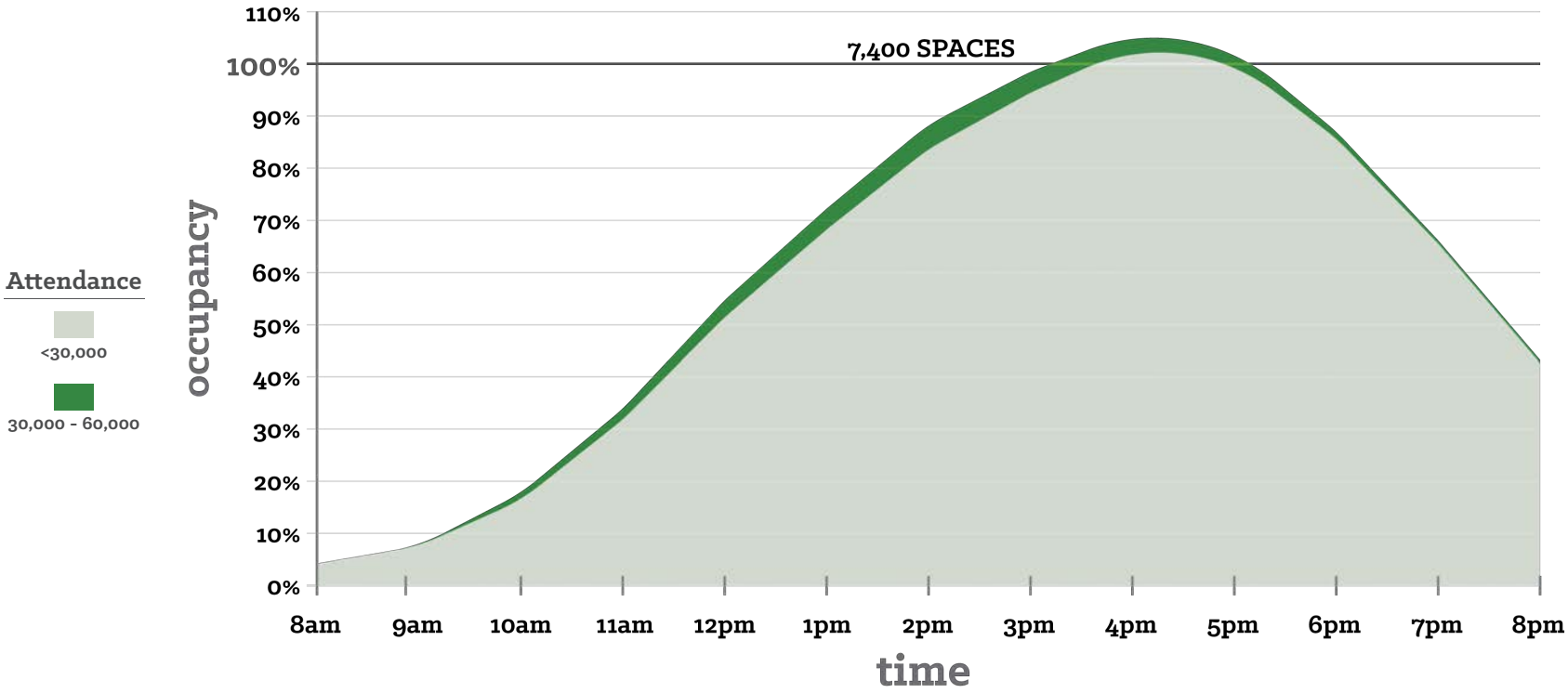
FIGURE 6: FUTURE STANDARD ACTIVITY AND EVENT EVENING CONDITIONS (WEEKDAY)



Figures 7 illustrates the hourly demands for 2035 Festival conditions.

Festival conditions would result in a longer period when garages are at their fullest and additional parking congestion would occur in the adjacent neighborhoods. Currently garages are at their fullest for approximately 2.5 hours and, in the future, this period could last for up to 4 hours.

FIGURE 7: FUTURE FESTIVAL CONDITIONS (WEEKEND)

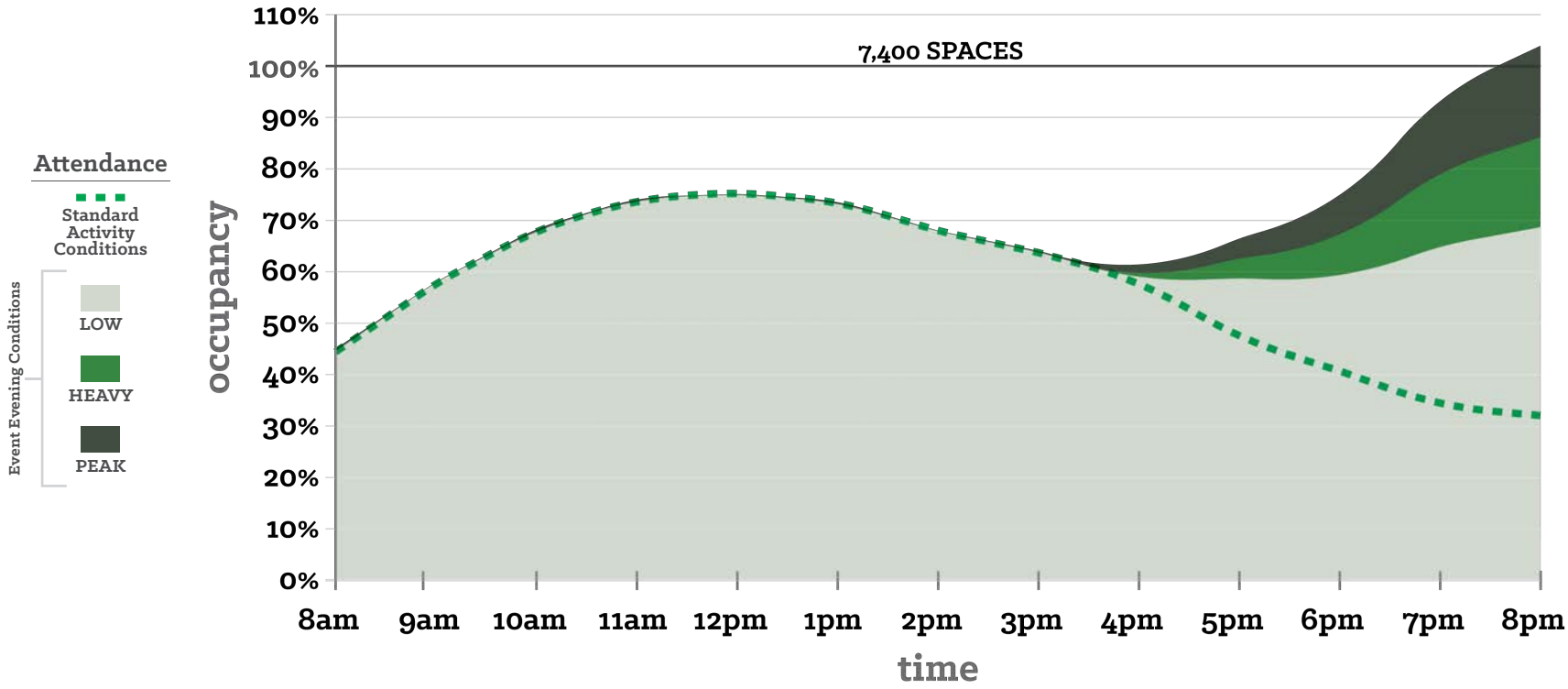


Future Conditions with Link Light Rail

Sound Transit 3, approved by Washington voters in November 2016, will provide Link Light Rail service between Ballard and Downtown, including up to two transit stations or stops within Uptown, by the year 2035. Figure 4, shown previously, summarizes the anticipated mode splits from the City of Seattle's travel demand model with and without Link Light Rail for Uptown Rezone EIS Alternative 3. The evaluation assumes general vehicular use will decrease by 10 percent in Uptown, consistent with the travel demand modeling completed for the Uptown Rezone EIS. In addition, it assumes that people attending evening events in Uptown will use Link Light Rail at a higher rate than normal commuters. A 16 percent decrease in auto use for evening event-related travel was assumed, based on surveys completed for CenturyLink Field before and after completion of the Link Light Rail station.

Figure 8 summarizes the overall public parking occupancy level during Standard Activity and Event Evening Conditions.

FIGURE 8: FUTURE STANDARD ACTIVITY AND EVENT EVENING CONDITIONS WITH LINK LIGHT RAIL (WEEKDAY)

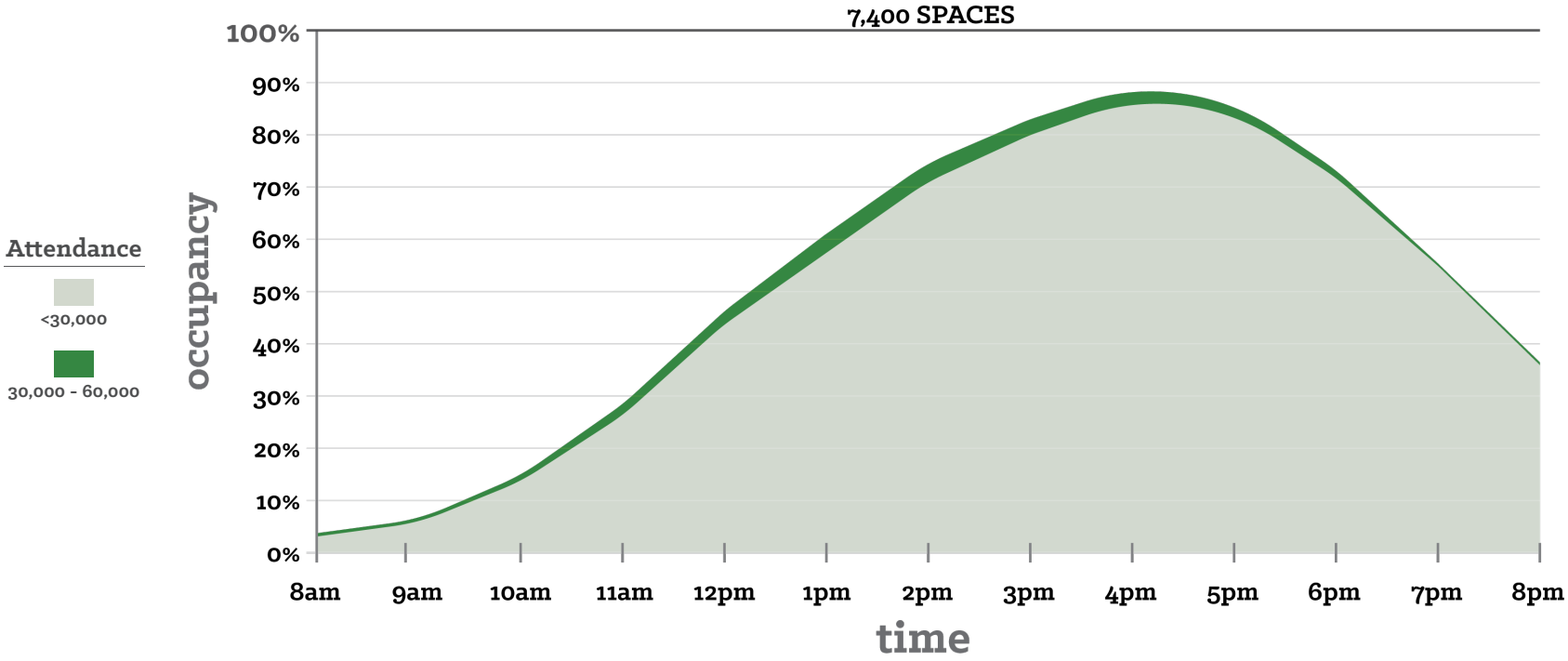


Figures 9 summarizes the overall public parking occupancy levels during Festival conditions with the addition of Link Light Rail.

The analysis shows that decrease in auto use by 10 to 16 percent would allow 2,000 to 3,000 more event attendees to be accommodated within Uptown, compared to today's conditions.

Assuming the current level of development and events at Seattle Center, as well as projected growth in the Uptown Urban Core, the existing parking supply is adequate to serve projected 2035 demand in Uptown. Increased use of non-auto modes, particularly the addition of Link Light Rail, will bring some relief in parking demand, especially during large events at Seattle Center.

FIGURE 9: FUTURE FESTIVAL CONDITIONS WITH LINK LIGHT RAIL (WEEKEND)



Future Conditions with Removal of Mercer Garage

Figures 10 and 11 summarize the overall parking occupancy levels during Standard Daytime and Evening Activity and Event Evening conditions if approximately 1,300 spaces (the equivalent to the Mercer St. Garage) were removed, with zero replacement stalls built.

The adjacent neighborhood would be affected by parking congestion during Event Evenings more frequently, as all events drawing approximately 10,000 or more attendees would generate parking congestion without Link Light Rail and with Link Light Rail events drawing more than 12,000 attendees would generate congestion.

FIGURE 10: REMOVE MERCER GARAGE: FUTURE STANDARD ACTIVITY AND EVENT EVENING CONDITIONS WITHOUT LINK LIGHT RAIL

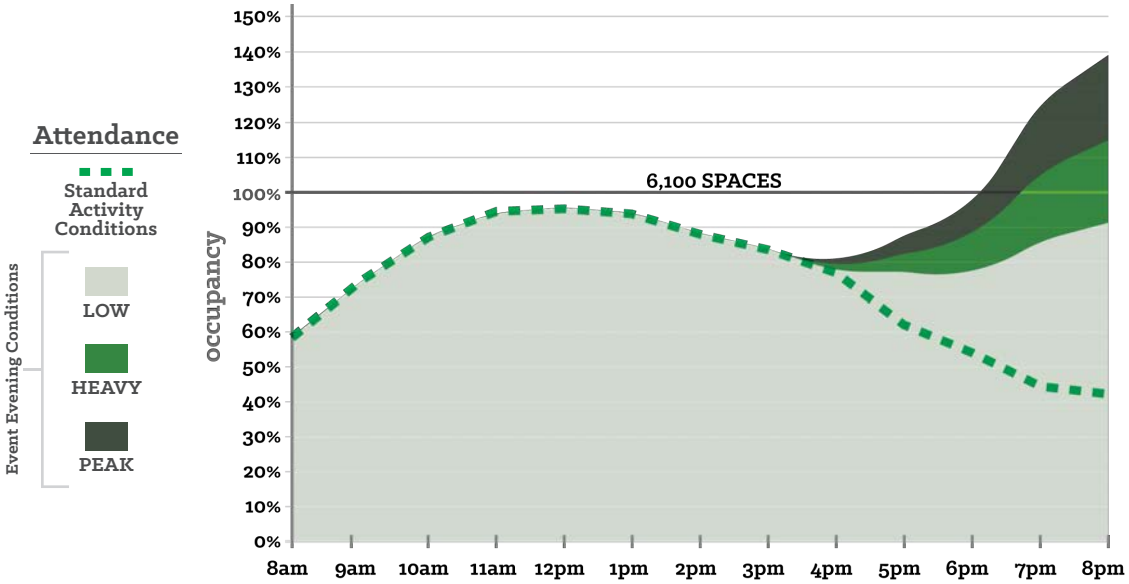
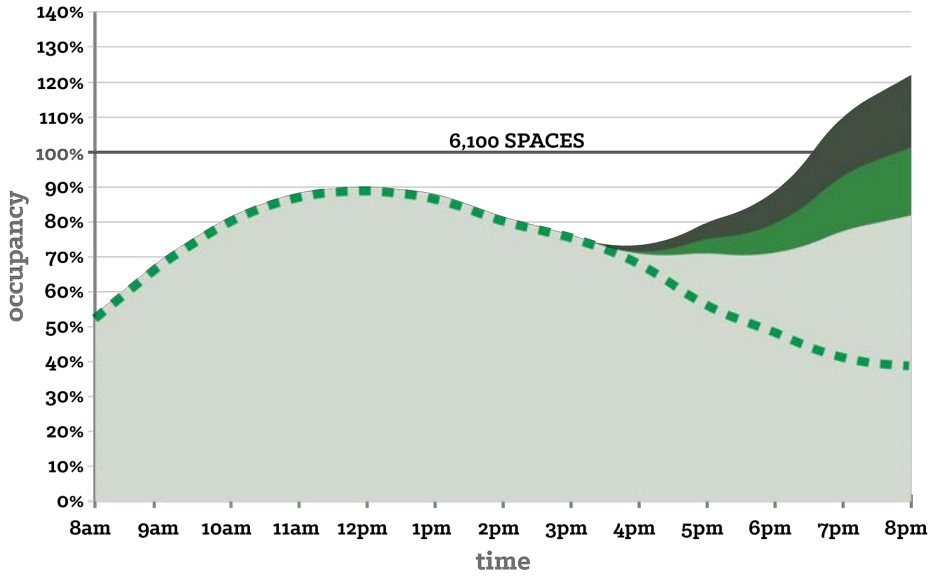


FIGURE 11: REMOVE MERCER GARAGE: FUTURE STANDARD ACTIVITY AND EVENT EVENING CONDITIONS WITH LINK LIGHT RAIL (WEEKDAY



Figures 12 and 13 summarize the overall parking occupancy levels during Festival Conditions if approximately 1,300 spaces were removed.

Festival conditions would result in more hours of the day when the adjacent neighborhood would be affected by parking congestion even with Link Light Rail.

Reducing the parking supply would increase the frequency and severity of parking change impacts to congestion felt in the neighborhood during Event Evenings and Festivals, and potentially during the day.

FIGURE 12: REMOVE MERCER GARAGE: FUTURE FESTIVAL CONDITIONS WITHOUT LINK LIGHT RAIL (WEEKEND)

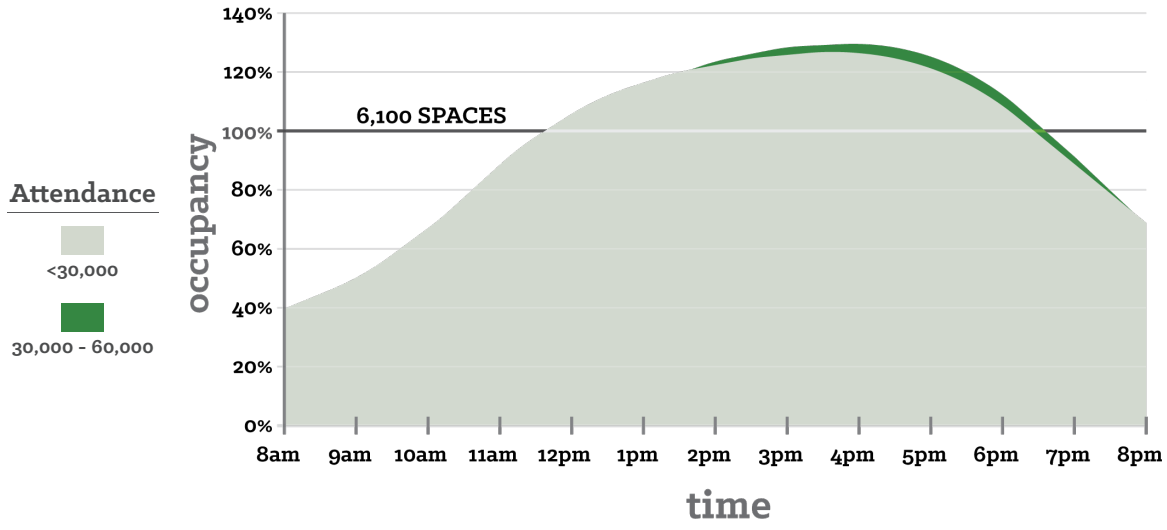
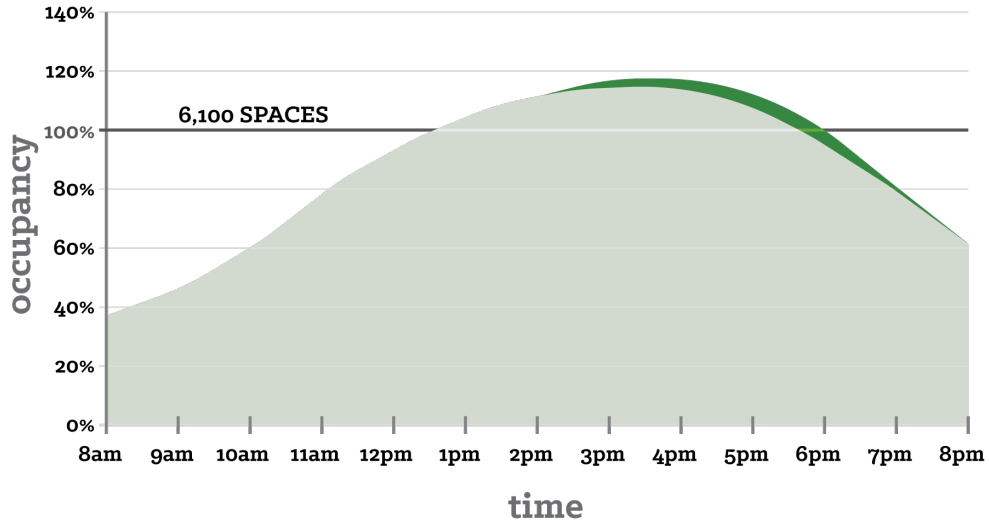


FIGURE 13: REMOVE MERCER GARAGE: FUTURE FESTIVAL CONDITIONS WITH LINK LIGHT RAIL (WEEKEND)



Future Conditions with Removal of Mercer Garage and Replacing 600 Stalls

Figures 14 and 15 summarize the overall public parking occupancy levels during Standard Daytime Activity and Event Evening conditions after removal of approximately 700 spaces (the equivalent to replacing Mercer St. Garage with 600 spaces).

Parking congestion in the adjacent neighborhood during Event Evenings would occur more frequently, as all events drawing approximately 12,000 or more attendees would create congestion without Link Light Rail and with Link Light Rail events drawing more than 14,000 attendees would create congestion.

Replacing Mercer Garage with approximately 600 spaces provides conditions similar to those experienced in Uptown today.

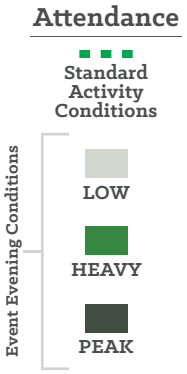


FIGURE 14: REMOVE MERCER GARAGE & REPLACE 600 STALLS: FUTURE STANDARD ACTIVITY AND EVENT EVENING CONDITIONS WITHOUT LINK LIGHT RAIL (WEEKDAY)

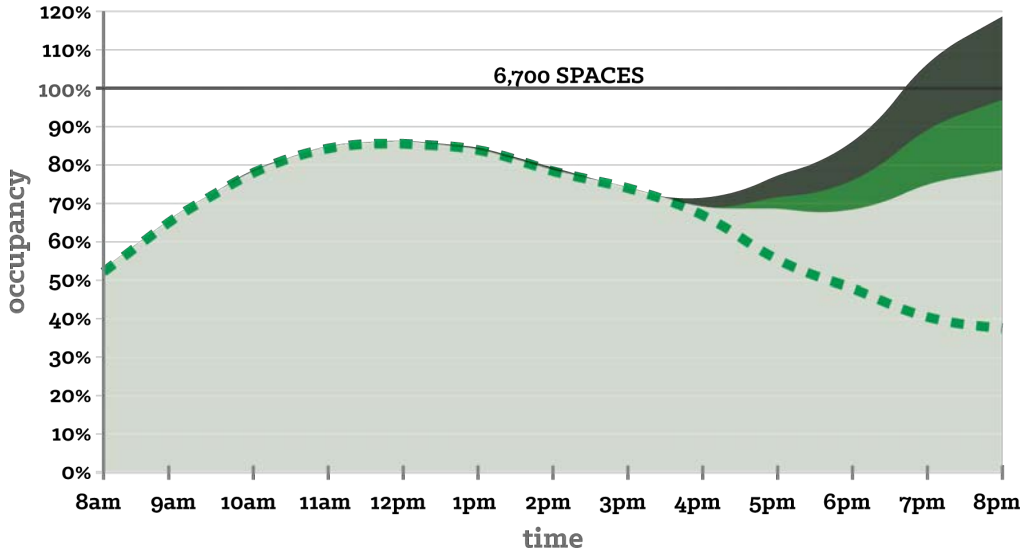
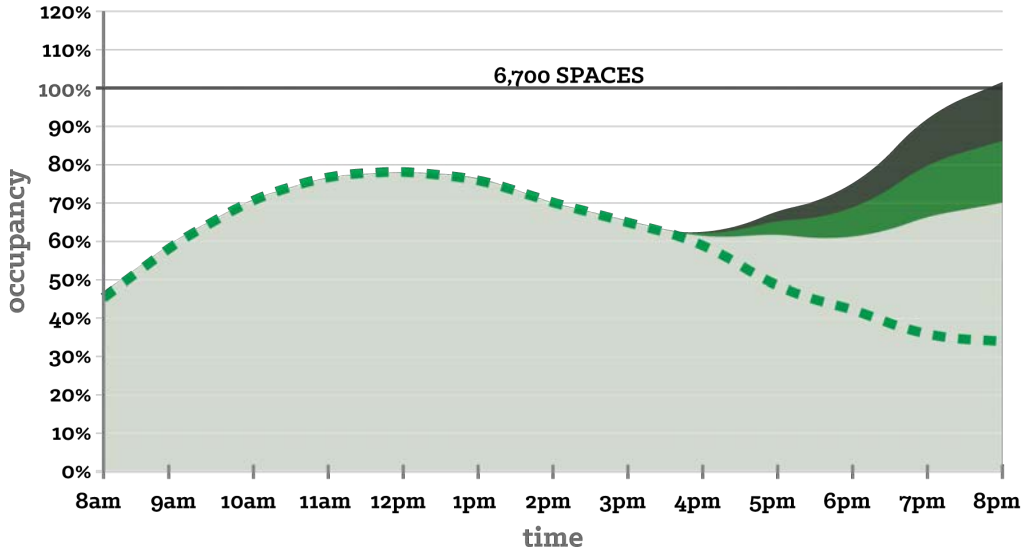


FIGURE 15: REMOVE MERCER GARAGE & REPLACE 600 STALLS: FUTURE STANDARD ACTIVITY AND EVENT EVENING CONDITIONS WITH LINK LIGHT RAIL (WEEKDAY)



Figures 16 and 17 summarize the overall parking occupancy level during Festival conditions with removal of approximately 700 spaces.

With a reduction in parking supply, peak Festival conditions would experience increased parking congestion for a longer portion of the day and additional parking management strategies discussed in Section 4 would be necessary to provide conditions similar to those currently experienced.

FIGURE 16: REMOVE MERCER GARAGE & REPLACE 600 STALLS: FUTURE FESTIVAL CONDITIONS WITHOUT LINK LIGHT RAIL (WEEKEND)

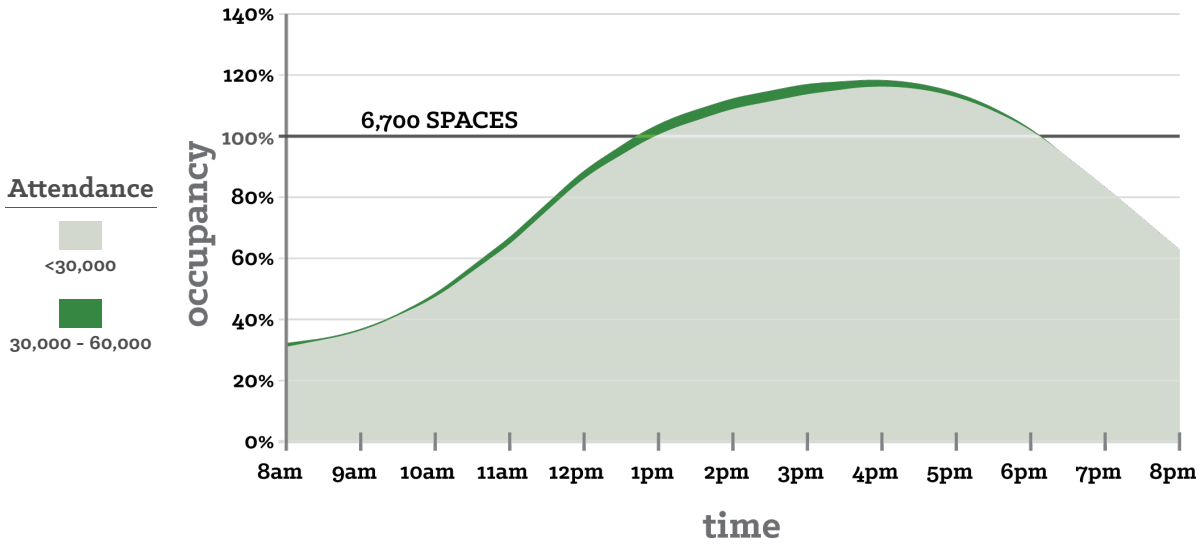
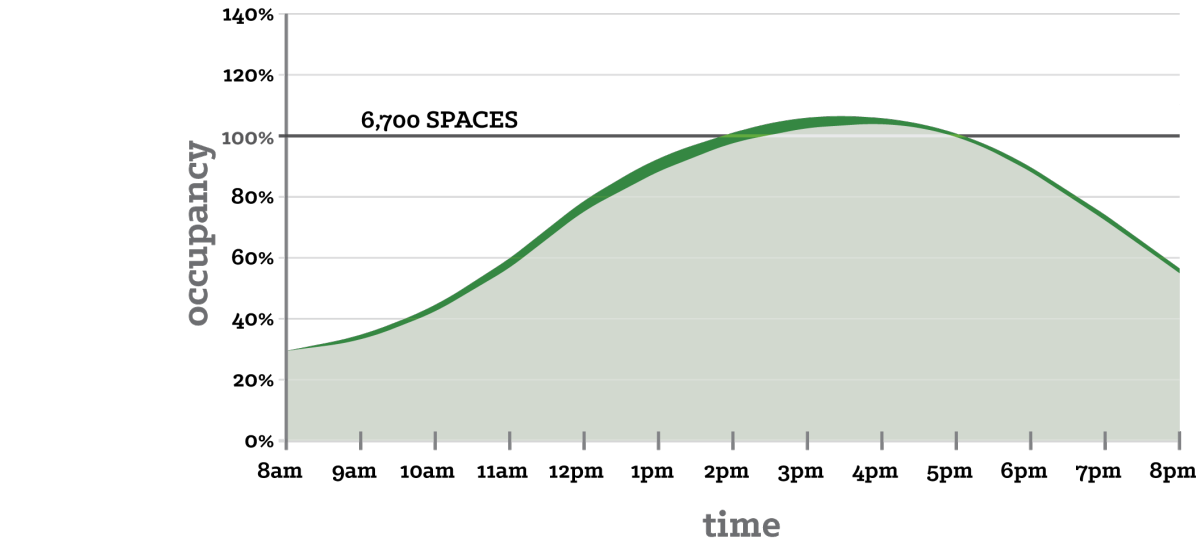


FIGURE 17: REMOVE MERCER GARAGE & REPLACE 600 STALLS: FUTURE FESTIVAL CONDITIONS WITH LINK LIGHT RAIL (WEEKEND)



DISCUSSION OF FUTURE PARKING CONDITIONS

Decisions about the future of a new Seattle Center Arena, redevelopment of the Mercer St. Garage, and other changes could present significant parking challenges in the Uptown Urban Center, to be solved. Maintaining access will require the use of flexible strategies as various triggers and conditions occur.

Parking demand modeling suggests that Seattle Center could pursue the Century 21 Master Plan goal to redevelop the Mercer St. Garage, provided a portion of the lost stalls are replaced in the Uptown area.

The amount of on-street parking in the area is limited and in high demand and will be managed by SDOT to target having one or two spaces available per blockface. Given the constraints and competing interests for curbspace in the area, additional on-street parking is unlikely to be provided. Future demand for parking will primarily be accommodated in off-street parking facilities.

Besides demand, there are other aspects that would need to be evaluated when considering the redevelopment of the Mercer St. Garage site. This includes impacts on Seattle Center revenue, and the location of future parking. Current parking operations generate about $6 million in revenue annually for Seattle Center that is used to support the grounds and provide free and low-cost programming. Any change in the status quo will affect revenue.

In addition, building replacement parking would either require a long pay-back period or result in the loss of a revenue stream if privately funded.

When evaluating a location for replacement parking, two key considerations will be proximity to support the Theater District, and routes for vehicular traffic once future roadway connections across SR 99 have improved circulation to and from Seattle Center.

POTENTIAL PARKING MANAGEMENT STRATEGIES

Policy changes and select parking management strategies should be implemented to continue to balance the supply and demand of parking for the Seattle Center and the surrounding Uptown neighborhood.

The management strategies identified in this report are intended to work collectively with one another and to be tailored to the local conditions, needs and desired outcomes. Strategies will need to acknowledge the changing transportation and access landscape in Uptown and Seattle Center, and aim to help manage the peak event parking impacts described in Section 2, both in the near and the long term.

Figure 18 illustrates the timeline for anticipated land use and transportation changes. Items may be added or deleted as new information becomes available.

FIGURE 18: LAND USE - TRANSPORTATION CHANGES

2017 - 2020	2021 - 2023	2024 - 2035
KeyArena future plan	Street grid re-connected over SR-99 (Harrison, Republican, Thomas)	Light rail from Downtown Seattle to Ballard complete
Uptown Rezone complete	SPS high school built, may include parking	
ST3 station location study	ST2 light rail stations connect more people to Monorail	
One Center City plan complete	Major waterfront amenities open with Circulator (TBD)	
Tunnel operations begin	Alaskan Way project (influence on Mercer St. before and after)	
Potential new connection to SR 99 via Harrison St.	Implementation of One Center City recommendations (TBD)	
Incremental road and transit improvements		

In addition, the City is exploring options that may increase the supply of publicly available parking and reduce demand. These include:

- Changing regulations for the use of existing private off-street parking to enable public access to parking facilities when and where they are underutilized. Additional data on the supply and occupancy of these facilities would be needed to inform access and supply management.
- Encouraging any new parking developed within urban villages and urban centers to be shared and publicly accessible, and
- Planning comprehensively to manage travel demand and promote non-auto access to urban villages and urban centers.

Figure 19 on the following page summarizes the current and potential strategies to manage parking during the different time periods described in Figure 2. They fall into three primary categories:

- **Improving Efficiency**. Maximize the use and efficiency of the parking supply.
- **Encouraging Alternatives to Driving**. Manage parking demand by encouraging travel modes other than single-occupancy vehicles during peak demand periods.
- **Communication and Monitoring**. Use technology to inform the public and monitor parking conditions to continually make improvements and ensure strategies are appropriate as conditions change.

As more information becomes available, additional strategies may be used.

FIGURE 19: CURRENT AND POTENTIAL STRATEGIES FOR PARKING MANAGEMENT

	2017 - 2020	2021 - 2023	2024 - 2035
Shared Parking	Encourage more shared parking with downtown garages (access via transit/monorail)	Continue and expand as appropriate.	
	Study shuttle service for big events	Continue using/expanding service as warranted by successful trials.	
	Study opportunities for shared parking with Seattle Public Schools in new facility	Opportunity to implement shared parking if SPS builds new high school with accessory garage by 2022	
	Shared parking with other buildings in Uptown	Continue same.	
	On-demand valet services		
	Share parking planning information with relevant parking property managers in nearby neighborhoods.	As waterfront's main attractions open in 2023-2024, seek opportunities for synergy.	Continue to refine shared parking opportunities as waterfront attendance evolves.
Revised Pricing for Seattle Center Parking Operations	Update pricing strategy as part of Seattle Center strategic business plan		
	Test recommendations for reorganizing/re-signing parking in garages to improve efficiency	Adjust pricing/implement dynamic pricing for public parking facilities to manage demand and improve system efficiency and parking availability	Adjust pricing/implement dynamic pricing for public parking facilities to manage demand and improve system efficiency and parking availability
	Study dynamic pricing strategies for different garages/demand periods		
On-Street Parking	SDOT review and update on-street parking	Ongoing	Ongoing
Curb Space Management	Study locations for Uber/Lyft/etc. loading		
	Study garage spaces for Car2Go, Zipcar, ReachNow etc.		
	Seattle Center to continue to manage curb space reservations efficiently per the terms of the MOA.	Ongoing	Ongoing
Build Parking as Needed		Explore alternative locations and quantities of replacement parking as Master Plan and redevelopment of Northeast Quadrant moves forward. Quantity will be informed by ongoing evaluation of parking conditions, cost-benefit analysis of the investment, and maintenance costs associated with constructing new parking facilities.. Any new parking will be priced at market rate.	

continued on next page

FIGURE 19: CURRENT AND POTENTIAL STRATEGIES FOR PARKING MANAGEMENT *(Cont.)*

	2017 - 2020	2021 - 2023	2024 - 2035
Improving Transit and Non-Motorized Connections		Re-knitting of street grid over SR 99 by 2021	
	Improve efficiency of the Monorail as much as possible via fare integration (ORCA), credit card capability & marketing.	Continue same.	
	Think about ways to expedite transit service in corridors serving Uptown, including transit priority measures. Possible transit investments could include Third Ave., later hours of service, Aurora & 8th, Mercer Street.	Continue same.	Continue same.
	Continue fulfillment of Pedestrian and Bicycle Master Plans	Continue same.	Continue same .
	Lake2Bay streetscape improvements	Continue same.	
	Refine Mercer Street Concept Plan with attention to the pedestrian environment and multi-modal options		
Communication and Monitoring	Evaluate efficacy of existing wayfinding and navigation signage, marketing and messaging and identify opportunities for improvement. (For example, consider integration with ePark system)	Continue same.	Continue same.
Intelligent Transportation Systems	Evalute the cost/beneft of new techology for Seattle Center's parking operations as part of Strategic Business Planning process.		
Transportation Oversight	Evaluate options for adding key staff or oversight committees dedicated to multi-modal transportation needs, as part of Seattle Center's Strategic Business Planning process.	Ongoing evaluation of transportation changes and management strategies.	Ongoing evaluation of transportation changes and management strategies.
	Consider facilitating the creation of a local Access and Transportation Management Association (ATMA) – in partnership with key City departments and private sector stakeholders. This ATMA could administer public parking in public and private off-street facilities, coordinated district-wide pricing, wayfinding, access and parking information.	Continue as needed.	Continue as needed.

APPENDIX A

Appendix A

SUMMARY OF PUBLIC OUTREACH CONDUCTED FOR THIS STUDY

Seattle Center and Transpo Group hosted many public meetings to get feedback and provide regular updates about the status of this report. A Stakeholder Advisory Group was convened to make sure that Uptown residents, local businesses, and cultural organizations were involved in the discussions. Next, we reached out to people who came to public events at Seattle Center and attended community meetings in the Uptown area. Ideas and feedback collected from this public outreach are incorporated throughout the analysis and final report.

A summary table of outreach events appears below.

LAND USE - TRANSPORTATION CHANGES

YEAR	MONTH	DATE	MEETING/EVENT	LOCATION	TIME
2015	July	30	UDF Stakeholder Meeting	Armory, Excecutive Conf. Rm.	4:30p-6:00p
	September	17	Seattle Center/PSC UDF Update	Armory, Executive Conf. Rm	3:30p-4:30p
	October	8	Upwn UDF/Rezone EIS Scoping Meeting & Open House	MOMH - Allen Room	5:00p-7:00p
	October	21	SC Resident Directors 4th Quarter 2015 Meeting	Armory, Loft 2	2:00p-3:00p
	October	27	UDF/Parking Advisory Committee	Armory, Executive Conf. Rm	4:30p-6:00p

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LAND USE - TRANSPORTATION CHANGES *(Cont.)*

YEAR	MONTH	DATE	MEETING/EVENT	LOCATION	TIME
2016	January	14	UDF/Parking Advisory Committee	Armory, Executive Conf. Rm.	4:30p-6:30p
		25	SC Resident Org Session #1	Armory, Executive Conf. Rm.	11:00a-12:00p
		27	SC Resident Org Session #1		3:30p-4:30p
		29	Parking Survey Opens	Online	n/a
	February	4	SCAC - Parking Study Update	Armory, Loft 2	12:00p-1:30p
		10	Good Neighbor's Meeting	Armory, Loft 2	11:00a-12:00p
		10	Uptown Business Community Drop-In Session	Ten Mercer	1:00p-2:00p
		12	Parking Survey Closes	Online	n/a
		24	Seattle Center Resident Director's Q1 2016 Meeting	Armory, Loft 2	2:00p-3:30p
	March	17	Greater Queen Anne Chamber of Commerce	Best Western Exec Inn, Taylor Ave.	11:15a-1:00p
	April	4	Thomas Street/Broad St. Green - Parking Stakeholders	Armory Executive Conf. Rm.	2:00p-3:30p
		11	Opera Mercer Arena Project/4th Ave - Transpo Group	Armory, Project. Mgmt. Conf. Rm.	3:00p-4:00p
		19	Livability Night Out	MOHAI	6:30p-8:30p
		28	Downtown Seattle Association Board of Directors	BMGF	3:30p-5:30p
		29	"Update on Seattle Center"	Sunset Club	7:00a-9:00a
	May	26	UDF/Parking Advisory Committee	Armory, Executive Conf. Rm.	4:30p-6:00p
	July	14	UDF/Parking Advisory Committee	Armory, Executive Conf. Rm.	4:30-6:00p
		29	Uptown Alliance UDF Committee	St. Paul's Episcopal Church	8:15-9:00am
	August	4	Uptown Rezone EIS Public Hearing & Open House	Armory, Loft 3&4	5:00p-8:00p
	September	8	Uptown Alliance Meeting	EXPO Apartments	7:00pm-8:00pm
		13	Seattle Center: What's Next?	Fisher Pavilion	7:30am-5pm
		29	Seattle Center Resident Director's Q3 2016 Meeting	Armory, Loft 2	2:00pm-3:30pm
	November	1	UDF/Parking Advisory Committee	Armory, Executive Conf. Rm.	4:30pm-6:00pm
		3	SCAC - Parking Study Update	Armory, Loft 2	12:00pm-1:30pm
		10	Uptown Alliance Meeting	EXPO Apartment	7:00pm-8:30pm
		8	Seattle Center Resident Director's Q4 2016 Meeting	Armory, Loft 2	2:00pm-3:30pm

APPENDIX B

Appendix B

PARKING DATA SOURCES

Seattle Department of Transportation Annual Report 2015 On-Street Paid Parking Occupancy

Seattle Arena FEIS Appendix E – Transportation, May 7, 2015 (Data Collection: February 2013)

On-Street and Off-Street Parking Data Collection for Typical Condition by Transpo Group and IDAX Data Solutions – January 28, 2016 and February 4, 2016

Seattle Center Parking Garage Data Collection for Typical Conditions by Transpo Group and IDAX Data Solutions – May 17, 2016

Seattle Center Parking Garage Data Collection for Event Conditions by Transpo Group and IDAX Data Solutions – June 1, 2016 – Andrea Bocelli concert at Key Arena – attendance: 11,526.

Seattle Center Amano Duration of Stay Report for Transient and Contract Activity, May 2015 – April 2016

Seattle Center Transportation Services – Seattle Center Garage uncounted activity, May – June 2016

Ottosson, D.B., et al., *The sensitivity of on-street parking demand in response to price changes: A case study in Seattle, WA*, Transport Policy (2013), http://dx.doi.org/10.1016/j.tranpol.2012.11.013i

Seattle Center Transient Parking Revenue Report, 2015

APPENDIX C

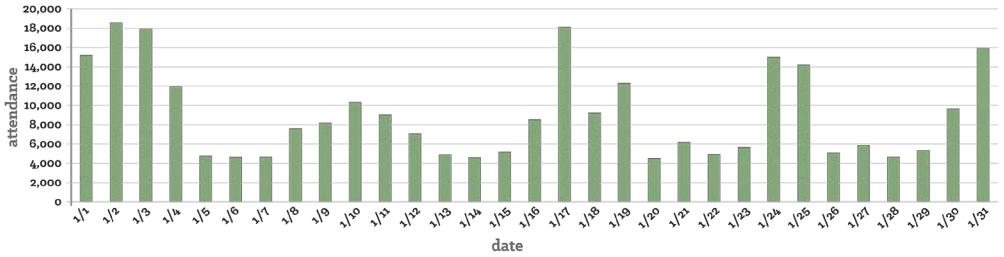
SEATTLE CENTER EVENT DATA

Attendance at Standard Daytime/ Evening Activities on Campus

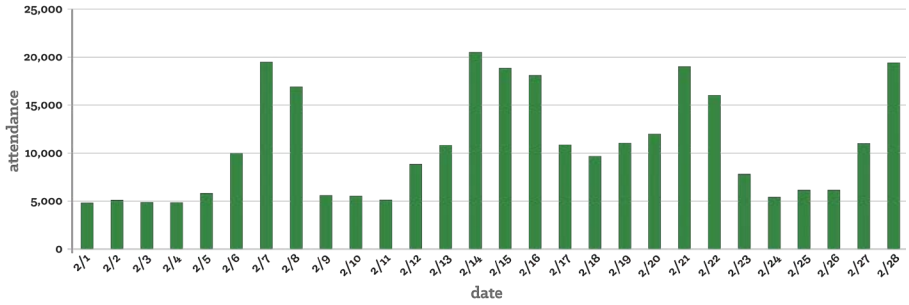
Daily visitor attendance numbers for three sample months in 2015 were provided by venues on and adjacent to the Seattle Center campus, including the Space Needle, MoPOP, Seattle Children's Museum, Pacific Science Center, Center School, Academy of Interactive Entertainment, The Vera Project, SIFF, Pottery Northwest, KCTS, and the Bill & Melinda Gates Foundation. The totals also include full time employees of Seattle Center and Seattle Center food services.

Attendance at daytime/evening activities is spread throughout the day and evening. The Parking Study found that during most daytimes, there is adequate supply of public parking in Uptown to accommodate this activity, with room for attendance growth.

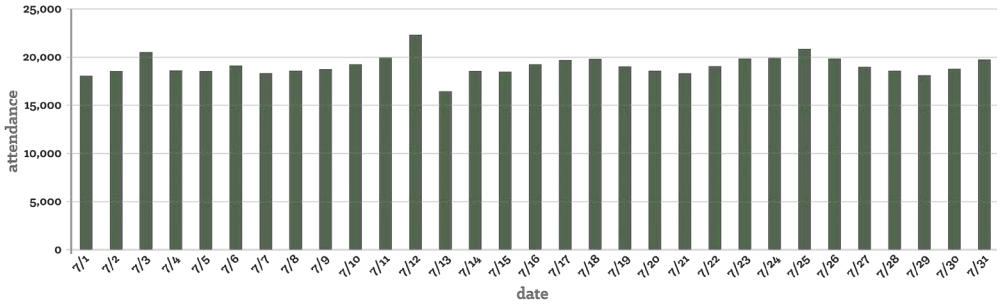
ATTENDANCE AT DAYTIME/EVENING ACTIVITIES - JANUARY 2015



ATTENDANCE AT DAYTIME/EVENING ACTIVITIES - FEBRUARY 2015



ATTENDANCE AT DAYTIME/EVENING ACTIVITIES - JULY 2015

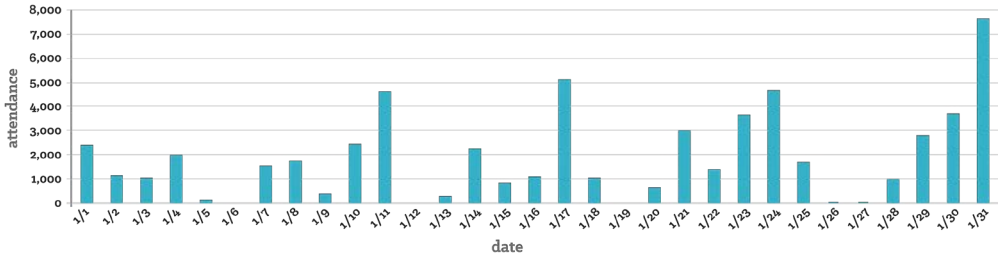


Attendance at Evening Spectator Events on Campus

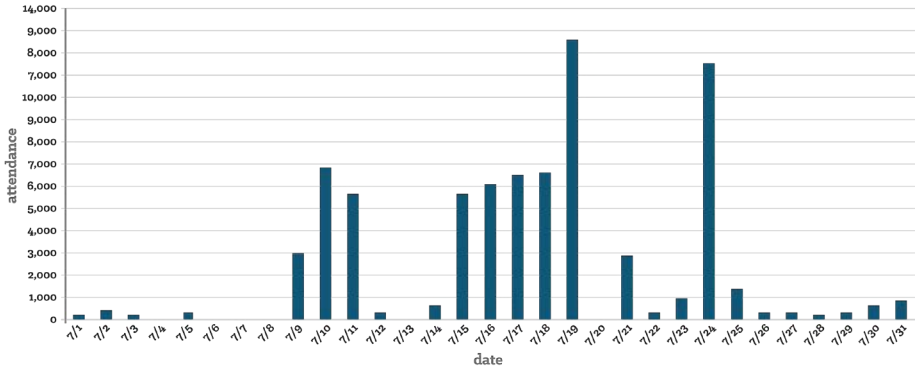
Actual event attendance numbers for three sample months in 2015 were provided by venues on and adjacent to the Seattle Center campus, including KeyArena, McCaw Hall, Seattle Repertory Theatre, Center Theatre, Cornish Playhouse and Teatro Zinzanni.

Evening spectator events generate increased parking demand and congestion during the P.M. peak hours. As shown by the charts below, spectator event attendance is sporadic, unlike the more predictable daytime/evening activity conditions shown on the previous page. Spikes can be caused by one very large event like a concert at KeyArena, or by combinations of several events occurring in different Seattle Center venues on the same evening. Particularly during peak tourist season (December, June, July and August), spectator event attendance can combine with seasonally high daytime/evening activity on campus in the evening hours.

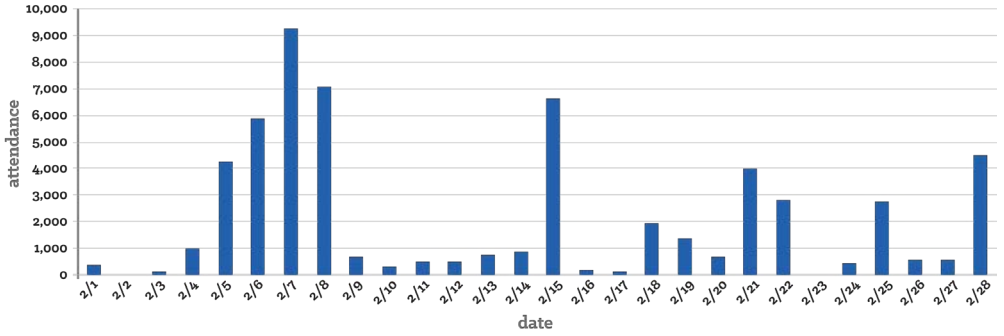
ATTENDANCE AT DAYTIME/EVENING ACTIVITIES - JANUARY 2015



ATTENDANCE AT DAYTIME/EVENING ACTIVITIES - FEBRUARY 2015



ATTENDANCE AT EVENING SPECTATOR EVENTS - JULY 2015



Frequency of Evening Spectator Events

Seattle Center has multiple sources for event data, depending on the facility and the diverse way in which tickets are sold by multiple organizations. To characterize the different levels of impact associated with estimated and actual attendance data, a summary of total attendance at evening spectator events (all reserved events with an end time of 5:00p or later) was compiled, based on the one-year period from November 1, 2015-October 31, 2016.

SUMMARY OF EVENT EVENING ATTENDANCE

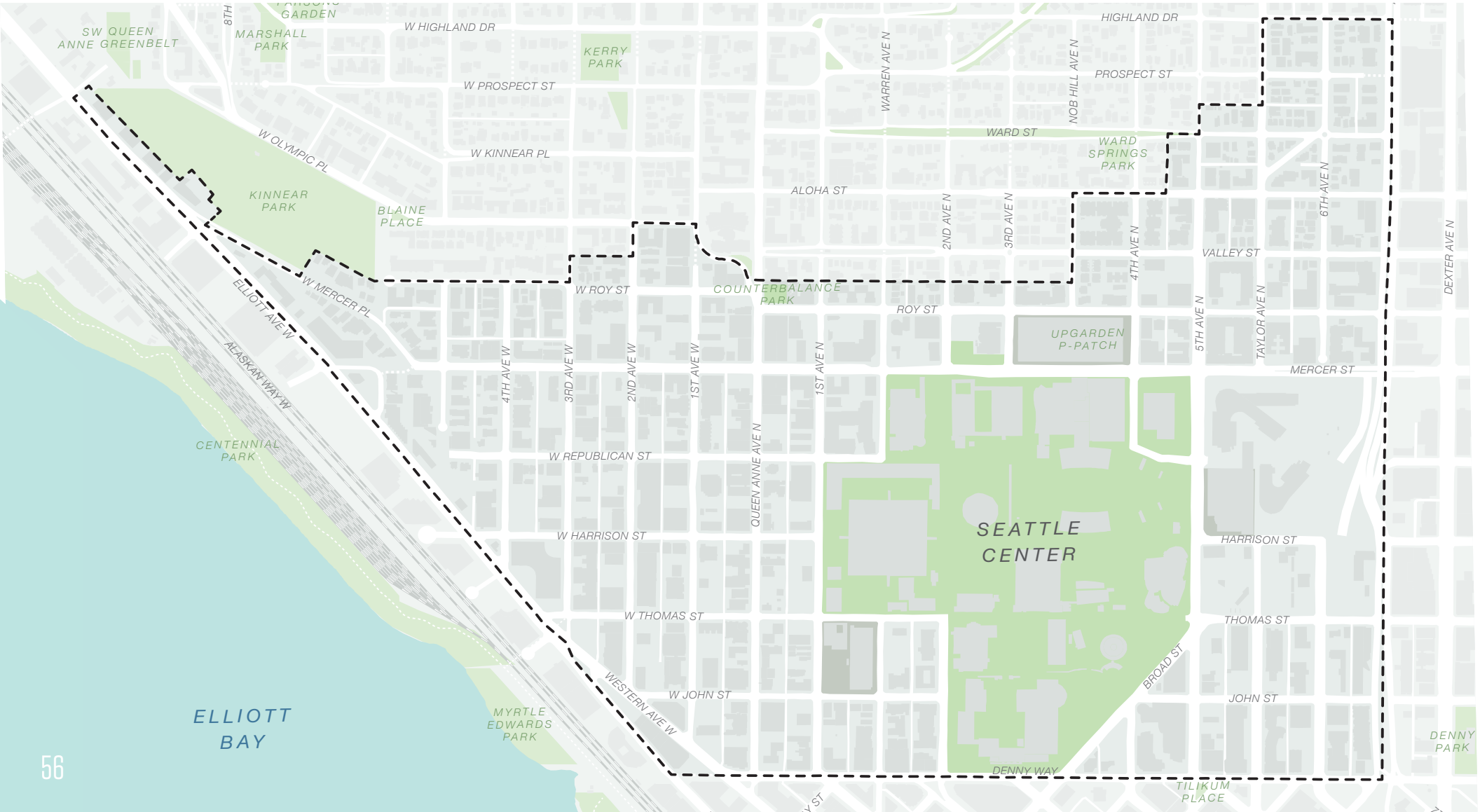
Low Event Evenings 8,000 - 10,000	**12**
Event Evenings 100 - 5,000 during high tourist months (December, June, July, August):	**73**
Total Low Event Evenings	**85**
Heavy Event Evenings 10,000 - 15,000	**17**
Peak Event Evenings 15,000 - 20,000	**11**
Festivals	**12**
Total Dates of Event Evening Parking Impacts	**125**
Total Dates of Standard Event Evenings with No (or Low) Parking Impacts	**239**

APPENDIX D

Appendix D

PARKING MODEL ASSUMPTIONS

The parking model is a spreadsheet model that using existing parking demand and changes in future travel model behaviors, pricing, and parking supply to predict future parking demand. The model encompasses public parking or private parking that services the public in the Uptown neighborhood of Seattle (see below). The neighborhood was divided into 19 zones and parking demand is predicted by zone.



The model process includes:

1. Growth Rate. Application of a growth rate per year to existing parking demand to determine future parking demand. The growth factor is based on anticipated increases in traffic volumes from the City of Seattle Travel Demand model as applied for the Uptown Urban Center Rezone EIS. It takes into account land use changes as well as mode shifts as a result of baseline transportation system changes as determined by the City's travel demand mode.
2. Seasonal Factor. Adjustment of future parking demand based on the selected month for evaluation to account for the seasonal variation in parking behavior for the Uptown neighborhood.
3. Price Change. Factoring of future parking demand to account for changes in travel behavior as a result of increases or decreases in Seattle Center hourly parking rate or flat fee (event) parking rate.
4. Event. Changes in parking demand as a result of different attendance levels at Seattle Center venues.'

The model results provide future parking demand by zone. Key model assumptions include:

- Parking demand in the model only includes publicly-available parking.
- Future parking growth rates are based on SOV and HOV growth between 2015 and 2035 as determined from the Seattle Travel Demand Model used for the Uptown Urban Center Rezone EIS analysis. The same annual growth rate was assumed for each parking. The same growth rate is applied to all parking demand: on-street, Seattle Center garages and other off-street parking facilities.
- It is assumed that future seasonality is consistent with existing conditions. On-street seasonality is based on data provided by SDOT and off-street seasonality is based on data from the Seattle Center Garages as provided by Seattle Center Transportation Services.
- Future price changes are only applied to Seattle Center Parking Garages with -0.33 price elasticity. The projections reported assume future Seattle Center Garage low rate is $20 and high rate is $30 based on the Seattle Center Parking Market Rate Analysis, June 2, 2016.
- For evening and weekend festival conditions, it is assumed on-street parking is full with parking demand over 85 percent.
- Since the Seattle Center Garages have the most parking supply, when the other off-street parking is full it was assumed that excess parking demand would use the Seattle Center Garages.
- The analysis presented assumed the on-street and off-street other parking facilities had parking supplies consistent with existing conditions.
- The analysis presented assumes evening events are 2-hours in duration with a start time of 7 p.m.

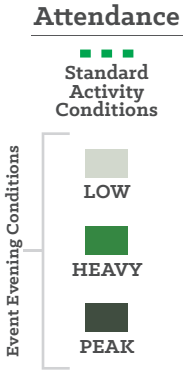
APPENDIX E

Appendix E

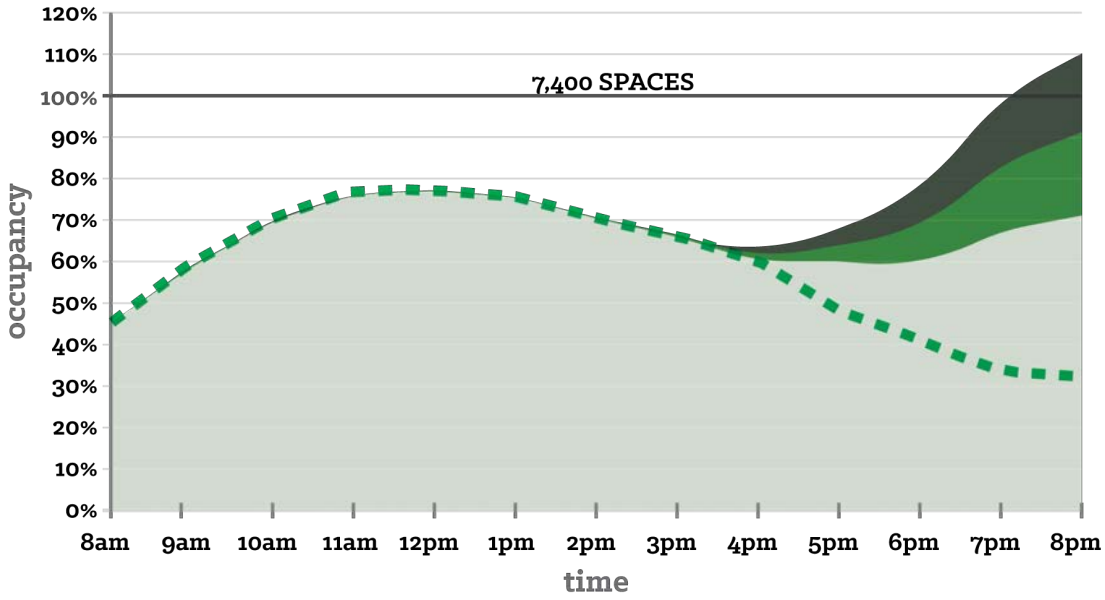
MODE SHIFTS

The study reviewed two mode shift scenarios.

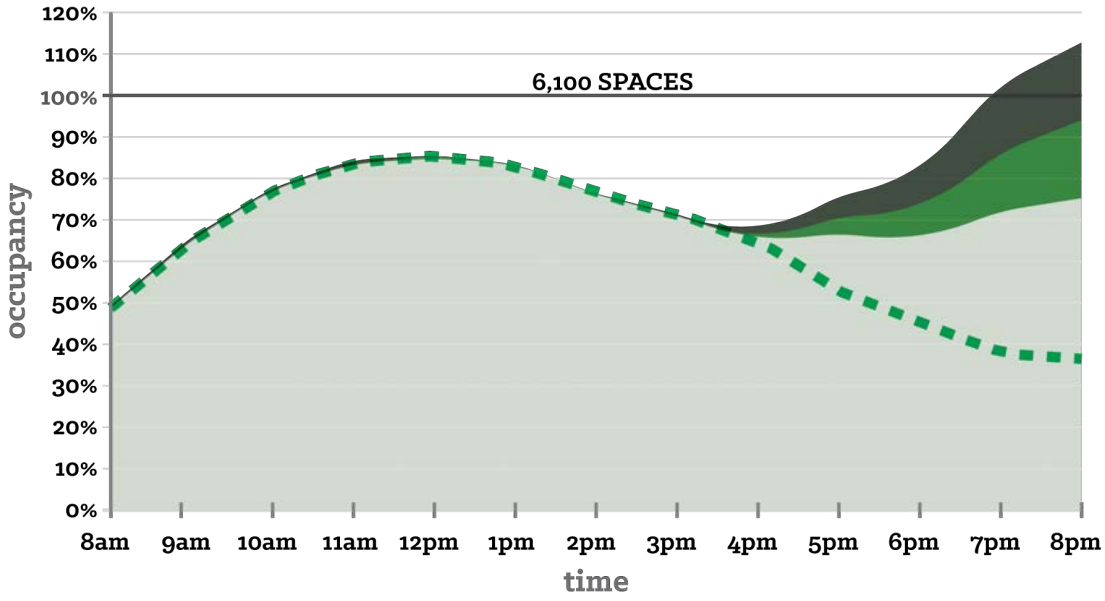
This evaluation assumes an overall decrease in auto use of 5 percent for general travel and 10 percent for evening event attendees. The higher mode shift for evening event attendees assumed that some travelers coming to the area for evening events would use other modes of travel given congestion during the weekday PM commute periods.



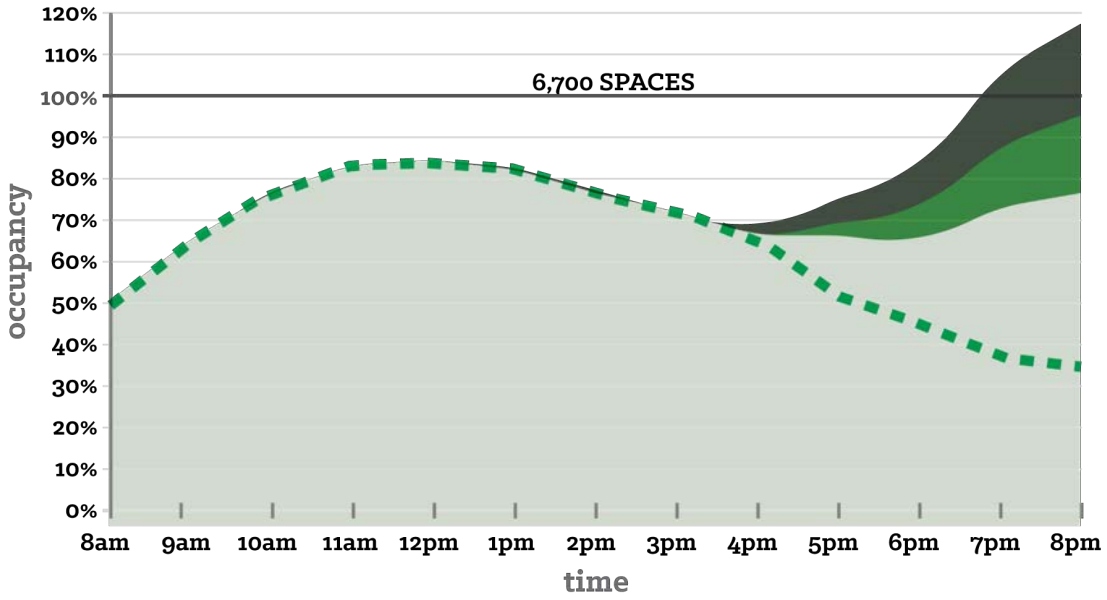
FUTURE STANDARD ACTIVITY AND EVENT EVENING CONDITIONS WITH MODE SHIFT (WEEKDAY)



REMOVE MERCER GARAGE: FUTURE STANDARD ACTIVITY AND EVENT EVENING CONDITIONS WITH MODE SHIFT (WEEKDAY)



REMOVE MERCER GARAGE: & REPLACE 600 STALLS FUTURE STANDARD ACTIVITY AND EVENT EVENING CONDITIONS WITH MODE SHIFT(WEEKDAY)



FUTURE FESTIVAL CONDITIONS WITH MODE SHIFT (WEEKEND)